

Global outsourcing decisions and ERP in a South African manufacturing environment

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**A research report submitted to the Faculty of Commerce, Law and
Management, University of the Witwatersrand, in partial fulfilment of the
requirements for the degree of Master of Business Administration**

Johannesburg, 2012

ABSTRACT

Across the world manufacturing entities are increasingly faced with global pressures to assess strategy in order to retain competitive advantage. The focus of this study is to understand the production environment of a South African manufacturing entity, including the effect of costing methodology applied and to examine the factors influencing strategic global outsourcing decisions with the aim of assisting manufacturing entities in decision making and strategy formation within an enterprise resource planning (ERP) manufacturing environment. In order to address these issues in context, a case based approach is followed.

Findings indicate that the analysis of costing data in an ERP environment is often compromised due to the cross-functional nature of the data and complexities involved when assessing production scenarios in order to understand implications around strategic decisions such as global outsourcing. Factors associated with people, systems and data inhibit the availability of suitably consolidated data for decision making.

Undoubtedly the fundamental objective of global sourcing is to acquire products at lower cost or at least at a globally competitive level whilst retaining quality in order to significantly increase volumes sold. Expected benefits are often optimistic and although cost savings may be gained in the medium term, short term losses are a reality and the long term sustainability of the model is questioned. Additionally, for a company offering a premium product significant risks are associated with a globally extended supply chain, primarily loss of control, protection of intellectual property and ability to offer the market innovative products. Although risk mitigation procedures may be in place a single realised risk may leave a company in a defenceless position.

In agreement with prior studies global outsourcing is more likely to cause positive effects if concurrent initiatives are taken to develop manufacturing capabilities and that outsourcing is mainly beneficial when used to free resources in order to invest in higher manufacturing capability.

DECLARATION

I, Briget de Graaff, declare that this research report is my own work except as indicated in the references and acknowledgements. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

Briget de Graaff

Signed at

On the day of 2012

DEDICATION

**I DEDICATE THIS WORK TO MY LOVING MOTHER,
GILLIAN DE GRAAFF, FOR HER ENDURING SUPPORT
AND MY LATE FATHER, JAN DE GRAAFF, FOR
PASSING ON HIS TRUE ENTREPRENEURIAL SPIRIT.**

ACKNOWLEDGEMENTS

Thank you to the Leadership Team and Managers of the case site company for their open participation and honest contribution, making this study relevant, interesting and most enjoyable.

Many thanks to my supervisor, Mr Douglas Taylor, for his sound advice, enthusiasm for my subject and general support and guidance, resulting in the completion of this challenging research task.

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CHAPTER 1: INTRODUCTION

1.1 Purpose of the study

The purpose of this research is to analyse the factors influencing strategic global outsourcing decisions which manufacturing entities are faced with as an option to maintain competitive advantage. In order to make such decisions in-house production environments and global outsourcing drivers need to be examined with the aim of assisting manufacturing entities to understand key factors influencing decision making and strategy formation within an enterprise resource planning (ERP) manufacturing environment.

1.2 Context of the study

Across the world manufacturing entities are increasingly faced with global pressures to assess strategy in order to retain competitive advantage. Dobler, Burt and Lee (1990) state that many companies have been moving significantly away from “making” towards “buying”. It is observed that this is not a new phenomenon, as far back as the mid 1980’s the potential for outsourcing to China had been recognised (Wang, Singh, Sampson and Power 2011). However, with advancements in technology and globalisation and an ever changing economy companies need to continuously assess their strategy. Kremic, Tukul and Rom (2006) state that organizations may expect to achieve many different benefits through successful outsourcing, although there are significant risks that may be realised if outsourcing is not successful.

Dabhilkar and Bengtsson (2008) argue that there is a far greater performance improvement potential in investing in, rather than divesting, the manufacturing function. Their research findings show that in comparison to outsourcing manufacturing, other practices such as investments in new technology and production processes, work organisational change and closer external co-operation with customers and suppliers, related to the enhancement of manufacturing capability have a much stronger ability to predict improvements

in operating performance and that outsourcing leads to negative effects when used as the main strategy to improve performance. The authors add that outsourcing is more likely to cause positive effects if concurrent initiatives are taken to develop manufacturing capabilities and that outsourcing is mainly beneficial when used to free resources in order to invest in higher manufacturing capability.

Lau and Zhang (2006) suggest that cost reduction, cost savings and capital investment reduction are possibly the most important expected benefits of outsourcing. In order to make informed strategic decisions regarding these economic factors, a thorough understanding of costing systems and their integration with the production environment is required.

This study investigates the production environment of a South African manufacturer operating an ERP system which calculates product costs by using costing data from the management accounting module combined with production data such as bills of materials and routings from the production module. Lea, Gupta and Yu (2005) state that ideally, to make product mix decisions, managers need cost information from the accounting information system, production data from the manufacturing information system, and demand forecast information from the marketing information system. Although this cross-functional data is available in an ERP environment Lea et al. (2005) goes on to mention that it is often not well understood across functional areas and due to this can be poorly maintained when the various functional areas are not aware of the impact on others. Technical and functional system knowledge is required in order to present the data in a format that facilitates understanding and scenario analysis for decision making. This leads to cumbersome manual manipulation of out-dated and inaccurate data, often at an inappropriate level of detail which may lead to non-optimal decisions being made.

This study assesses the enablers and inhibitors in the understanding of manufacturing cost within an ERP system environment in order to place management in an informed position when considering manufacturing strategy.

Additionally many researchers have confirmed that cost savings are a major reason for global sourcing, especially when sourcing from developing countries, such as China (Salmi 2006 and Quintens, Matthyssens and Faes 2005). However, Lindholm and Suomala (2004) have stated that the systematic utilization of cost measurement in global outsourcing is quite rare in practice.

This study also examines the cost factors related to global outsourcing in order to understand the total cost of global outsourcing and generate a comparison to the cost of local production to facilitate strategic decision making. Although outsourcing decisions are often made purely on the basis of cost (Canez, Platts and Probert 2000), strategic and political motivations to outsource are also included in the analysis.

Findings from this study could be used to enhance existing processes, promote cross-functional integration and ultimately place decisions makers in a more informed position when formulating strategy.

1.3 Problem statement

1.3.1 *Main problem*

The focus of this report is to understand the production environment of a manufacturing entity, including the effect of costing methodology applied i.e. ABC verses Throughput accounting and volume (capacity vs demand) impact on product costs and to examine the factors contributing towards the total cost of global outsourcing to provide decision makers with a better understanding of options available when formulating manufacturing strategy. Analysis of costing data in an ERP environment is often compromised due to the cross-functional nature of the data and complexities involved when assessing production scenarios in order to understand implications around strategic decisions such as global outsourcing. In order to address these issues in context, a case based approach has been followed.

Keywords: Manufacturing Strategy, Global Outsourcing, ERP Product Costing

1.3.2 Sub-problems

The first sub-problem is to gain a thorough understanding of the ERP production environment of a manufacturing entity; this includes accounting system analysis, the impact of accounting methodology applied and its integration with the production function from an in-house manufacturing perspective.

The second sub-problem is to examine the economic, strategic and political factors influencing global outsourcing decisions and how these are accounted for in practice within a manufacturing environment.

1.4 Significance of the study

As stated by Lea (2007), “Due to the data availability or the difficulty of obtaining cross-functional data without an integrated information system, the dynamic between a firm’s management accounting system and production system has not been considered in prior studies. Consequently, there is very little known about how various management accounting systems interface with operations management tasks”.

The study provides insight to the dynamics between cross-functional areas, with the aim of understanding an integrated ERP manufacturing environment from an economic perspective, which influences strategic manufacturing decisions.

Kremic et al. (2005) recognise that not all of the potential risks associated with outsourcing are currently known, the same may apply for benefits to be gained, hence it is of importance for managers to have an understanding of known factors when considering the option to outsource manufacturing functions.

This knowledge would facilitate optimal decisions being made to achieve competitive advantage.

1.5 Delimitations of the study

The focus of this study is on understanding a manufacturing company's existing production environment and analysis of factors affecting decision making without adjusting systems, processes and data to present alternate scenarios.

The emphasis of this study is on understanding economic factors associated with manufacturing decisions. Strategic and political factors which drive manufacturing strategy are also assessed.

1.6 Definition of terms

Enterprise Resource Planning (ERP) is an integrated software application including financials, operations, human resources and other modules which together support essential business functions.

Six Sigma is a set of customer-centred, data-driven tools and a disciplined project management approach with clearly assigned roles and responsibilities to facilitate the improvement of operational efficiencies. These methods are employed by the company in its pursuit of becoming a high performance organisation. Six Sigma Black Belts are individuals who have been accredited in this methodology and are responsible for delivering business improvements.

1.7 Assumptions

- The manufacturing entity's product costing system is sound according to accounting principles and will provide meaningful data for analysis.
- Production information system master data, such as bills of materials and routings / recipes, which costing results are based on, is current and reasonably maintained to mimic production operations.
- Sufficient information is available from the case site to enable substantial research and facilitate meaningful analysis.

CHAPTER 2: LITERATURE REVIEW

2.1. Introduction

Academic and subject relevant literature has been reviewed in order to gather research findings related to ERP management accounting systems in manufacturing entities and the application and implications thereof.

The review begins with the investigation around ERP costing environments in order to understand how an ERP costing system is configured, which functional areas are impacted and the data maintenance involved to ensure accurate costing results.

The investigation continues to explore various accounting methodologies such as traditional accounting, activity based costing (ABC) and throughput accounting to ascertain if any of the high level principles discussed could be applied to provide management with a better understanding of cost behaviours over time.

Once the impact of accounting methodology on product costing has been understood, managers are in a good position to assess production options. A series of production decisions facilitate strategy formation and if product cost information is distorted a company could follow an inappropriate and unprofitable strategy. As explained by Cooper and Kaplan (1988) an example of this is a differentiated producer who achieves competitive advantage by meeting specialized customer needs with products where the cost of differentiation is lower than the price premium charged. If the costing system fails to determine the cost of differentiation accurately the company may be trying to compete in an unprofitable market segment.

Decision makers are increasingly faced with make-or-buy decisions as an option to achieve manufacturing competitiveness. Trends to outsource globally are popular, the literature review goes on to examine the factors influencing

such decisions and the findings around the total cost related to global outsourcing.

2.2. Definition of topic or background discussion.

Often strategic manufacturing decisions are compromised due to the availability and interpretation of complex cross-functional data. This study aims to address the understanding of issues surrounding factors influencing global outsourcing decisions. Academic literature provides the basis to ascertain which aspects of manufacturing costing and global outsourcing may be beneficial to consider when formulating strategy.

2.3. The ERP Costing Environment

The first sub-problem is to gain a thorough understanding of an ERP costing environment of a manufacturing entity; this includes analysis of management accounting systems and their integration with the production function and the impact of accounting methodology applied.

2.3.1 ERP Management Accounting Systems - Product Costing

With the implementation of ERP systems, all the subsystems are integrated through a common database and “talk” directly to each other: the data is made available in real time; the information is updated as changes and fluctuations occur; and the new status is available for decision making to prevent non-optimal decisions from using obsolete or outdated data (Lea, Gupta and Yu 2005).

The manufacturing entity studied runs an SAP ERP system. As literature is limited for this specific application, information on system functionality published by SAP AG (2001) has been reviewed. Based on SAP software knowledge, the fundamentals of SAP product costing are built on accounting principles which have not changed significantly over recent years. It is likely that other ERP software packages offer similar functionality.

Within an SAP ERP system product cost planning functions are used to calculate the cost of goods manufactured (COGM) and cost of goods sold (COGS) for products such as materials and services. The costs may then be analyzed and business decisions (such as "make or buy" decisions) made (SAP AG 2001).

SAP calculates the cost of goods manufactured by combining material and production costs, process costs and overhead (such as material and production overhead). The cost of goods sold consists of the cost of goods manufactured together with sales and administration overhead costs.

In order to calculate the cost of goods manufactured, information from various SAP modules is accessed. For example, the material costs for a finished good are calculated using the associated bill of material (BOM) and the master records of the materials in the BOM. The production costs are calculated using the associated routing, which contains the work centers where the respective operations are carried out, the responsible cost centres, and the activity types.

In the Production Planning (PP) module, the work centre is the organizational entity in which an operation is carried out. Every work centre is linked to a cost centre. The cost centre is the organizational entity in the Controlling (CO) component where costs are incurred.

A routing contains the default values for the production of a product. The work centre contains such things as

- Formulas that access the default values in the routing
- Activity types for which activity prices are planned or determined in Cost Centre Accounting

On the basis of the formula in the work center and the default values in the operation, the system calculates the anticipated activity. This activity is valued using the prices in Cost Center Accounting to calculate the planned costs for the operation.

Costing results in turn are used by other components for example, to update the standard price in the material master and carry out material valuation using the calculated prices. Decision makers are able to analyse the costs in various ways, these include addressing questions such as:

- What is the amount of value added of a particular step in the production process?
- What proportion of the value added can be attributed to a particular organizational unit?
- How are the primary costs and transfer prices broken down?
- How high are the material, production and overhead costs?
- How can production or construction be rationalized?
- Can the product be supplied at a competitive price?

Given the integrated nature of the data SAP recommends that a thorough check is made to ensure that the correct data is accessed for the quantity and value structures before starting Product Cost Planning, in order to ensure that the costing results are reliable (SAP AG 2001).

2.3.2 Management Accounting Methodology

Cost management strategies are among the most important techniques employed by manufacturers to monitor the profitability of operations in ever-changing, increasingly competitive conditions (Zengin and Ada 2010).

The role of any accounting system is to provide information for assessing the economic consequences of resource allocation decisions (Kee 2001). Accuracy of data and the ability of management to justify product related decisions have been noted as a serious concern. An example provided by Cooper and Kaplan (1988) explains how a large player suspected that its cost system contributed towards increased competition by smaller players for its high-volume business.

Small firms, with no apparent economic or technological advantage were winning high-volume business with prices that were at or below the large producer and prospering at these prices. Management of the large producer believed that certain products which were difficult to produce were in fact more costly and therefore less profitable than the costing system reflected and high-volume products were in fact being over costed and in turn over priced. This phenomenon is often referred to as cross-subsidisation of products and needs to be clearly understood in order to make sensible decisions. It is in such instances where the accounting methodology employed plays a significant role in determining cost allocations and in turn product costs.

There is much debate as to whether product costs should be calculated including fixed production costs or not. Academic accountants, supported by economists, have argued strongly that variable costs are the relevant ones for product decisions. It has been demonstrated that setting marginal revenues equal to marginal costs will produce the highest profit, providing the volume of production of all products can be changed at will and there is no way to simultaneously changing the level of fixed cost. In contrast, accountants in practice continue to report full costs in their cost accounting systems as the decision to offer a product creates a long-term commitment to manufacture market and support that product. (Cooper and Kaplan 1988)

Traditional costing (also know as traditional full, absorption, or conventional costing) charges units of product with both direct manufacturing costs (direct materials and direct labor) and indirect manufacturing costs (variable and fixed costs) using volume-based cost drivers, such as units of product, machine hours, or direct labor hours (Bakke and Hellberg 1991).

In traditional costing, costs such as research and development (R&D), design, marketing, and administrative costs are not considered as a part of product costs and are expensed in the same period in which they are incurred (Lea 2007).

ABC assumes that activities consume resources, and products consume activities. Production cost is determined through a bill of activities that itemizes the activities and the quantity of each activity consumed in manufacturing a specific product (Lea and Min 2003). In ABC, all activities that support the production, sale, delivery, and customer support of goods and services are identified, and therefore, are considered product costs when appropriate cost drivers can be determined (Lea 2007)

Both traditional costing and ABC allocate overhead costs to product costs, while throughput accounting calculates product costs as the sum of the truly variable costs of production that usually includes only raw material costs (Kee 2001). Throughput accounting advocates that no cost, except raw material costs, should be allocated to products (Lea 2007).

Supporters of cost allocations suggest that cost allocation is needed because the decision to offer a product creates a long-term commitment to manufacture, market, and support that product, resulting in an increase in fixed cost (Kaplan and Cooper 1997). Additionally, cost allocation is needed due to the uncertainty about controllability of costs, resource usages, revenue, and future conditions involved in decision making (Wouters 1994), and the difficulty of demarcating between the short- and long-term (Bakke and Hellberg 1991). Kee and Schmidt (2000) indicate that the ability to change committed costs or fixed costs is subject to management control over an extended planning horizon. That is, overhead cost allocation reflects a long-term perspective of cost behavior. ABC is considered to be particularly appropriate for longer-term decisions (Bakke and Hellberg 1991). This method of absorption costing according to Dugdale and Jones (2005) has been proven to be more helpful in providing a guide to prices as overhead is included in cost calculations. However, they add that absorption costs will always be, to some extent, arbitrary because of the treatment of joint costs.

The method of allocating costs to products plays a significant role in costing accuracy. Cooper and Kaplan (1988) explain that traditional systems that assign costs to products using a single volume-related base such as machine hours seriously distort product costs. This is due to the fact that high-volume products

create fewer transactions i.e. lower number of set-ups, and therefore lower cost than low-volume items which require more set-up and should be allocated higher cost. This results in high-volume products being over-costed and low-volume products being under-costed. Where possible a different type of allocation base must be used for overhead costs that vary with the number of transactions performed, as opposed to the volume of product produced (Cooper and Kaplan 1988). This concept relates to Cooper and Kaplan's prior example in that production complexity and the number of transactions associated with the production process may lead to distorted product costs if costs are not allocated accordingly.

Additionally costs allocated to products are often calculated based on percentages of factory capacity volumes. The marketing of certain products may result in higher demand for those products. Should production adjust to meet demand a recalculation of product cost may be useful to ensure that expected margins are actually being realized. Such cost planning would aid product mix decisions.

In contrast, supporters of throughput accounting indicate that the only relevant costs for product cost decisions are raw material costs because operating expenses, which include direct labor, variable overhead, and other expenses, have already been incurred, or have been committed to be incurred, and cannot be changed in the short-term (Goldratt and Cox 1992). Spencer (1994) indicates that only throughput accounting can measure the true incremental cost (marginal cost) to effectively maximize profit by setting a product's marginal revenue equal to its marginal cost. Dugdale et al. (2005) confirms that direct costs are seen as simpler and consistent with economists' teaching on marginal analysis. However, they add that in practice direct costs may be incomplete and, even if complete, may result in low quotations.

Accounting literature suggests that throughput accounting is considered appropriate for short-term decisions, while ABC is appropriate for long-term decisions (Bakke and Hellberg 1991, Kee and Schmidt, 2000).

Vinodh, Sundararaj, Devadasan and Rajanayagam (2008) suggest that costing methodologies which have developed to support world class manufacturing strategies such as TQM, lean manufacturing, JIT and SCM have all evolved from the principles of ABC and hence methodologies which are an extension of ABC principles provide a prudent approach to costing specific competitive strategies.

2.3.3 Research Question 1:

What are the factors enabling and inhibiting the availability of optimal management accounting information within an ERP manufacturing environment?

2.3.4 Research Question 2:

Would the comparison between accounting methodologies provide a better understanding of product costs in relation to selling prices over time, given that there may be distortions in product costs resulting from existing methods of cost allocation?

2.3.5 Research Question 3:

What is the effect on production when using capacity vs demand volumes to calculate product costs assuming the same method of overhead cost allocation i.e. machine hours in both scenarios?

2.4. Decision Factors Influencing Global Outsourcing

The second sub-problem is to understand the factors, benefits and risks influencing global outsourcing decisions and examine how they are considered when formulating manufacturing strategy.

2.4.1 Global Outsourcing

Outsourcing is a fast-growing aspect of the world economy driven by globalization and rapid advance in information technology (IT), organizations strive to improve competitiveness and responsiveness to customer and market demands (Razzaque and Sheng 1998). One of the key issues to have emerged in manufacturing strategy has been the growing importance of the make or buy decision (McIvor and Humphreys 2000).

Motives to sourcing from China can be categorized into three classes: economic, strategic and environmental (Lau and Zhang 2006) or cost, strategy and politics (Kremic and Rom 2006). Perhaps the most important is the expected economic benefits, which consist of cost reduction, cost saving and capital investment reduction (Lau and Zhang 2006). It is therefore important for companies pursuing or considering global sourcing strategies to have a thorough understanding of costs involved to ensure that their perceived gains are realisable.

As a rough guideline 50 per cent of a product's quoted price can be added-on to reach the true cost of a product sourced from China (Platts and Song 2010). This research published by the University of Cambridge on the total cost of sourcing from China also states that companies perceive add-on costs to be 25 per cent of the quote product price. The implication here is that companies need to be more thorough in their identification of the true costs of overseas outsourcing and to be wary of significantly underestimating these costs. Kremic et al. (2006) substantiates this by stating that there is increasing evidence that cost savings have been overestimated and costs are sometimes higher after outsourcing.

Much research has been carried out in the field of factors influencing global outsourcing decisions, such as the use of global sourcing as a strategic tool (Samli, Browning and Busbia 1998, Kotabe and Murray 2004), the forms and effects of the international buyer-supplier collaboration (Helper and Kiehl 2004), location selection (Chandraprakaikul 2008), the factors determining whether an item should be sourced globally or locally (Smith 1999), the effect of protection

of Intellectual Property Rights (IPR) during global sourcing (Javorcik 2004), the functions and benefits of setting up an international purchasing office (Nassimbeni and Sartor 2006; Cavusgil, Yaprak and Yeoh 1993), the considerations of host environment, government, infrastructure and so on during decision making for global sourcing (Grant and Gregory 1997), the selection of globally competent managers for global supply chain management (Harvey and Richey 2001), and how global sourcing influences customers' evaluations of product quality (Li, Murray and Scott 2000). The potential limitations and negative consequences of global sourcing have also been well documented (Meixell and Gargeya 2005, Herbig and O'Hara 1996, Smith 1999, Kotabe and Murray 2004). Herbig and O'Hara (1996) suggest the disadvantages of global sourcing include: exchange rate fluctuations; political risks; cash flow issues and paper work concerns (e.g. letter of credit costs), extra cost of travel and communication, brokers' and agents' fees, etc. Meixell et al. (2005) argue that "substantial geographical distances not only increase transportation costs, but complicate decisions because of inventory cost tradeoffs due to increased lead time in the supply chain. Different cultures, languages, and practices diminish the effectiveness of business processes such as demand forecasting and material planning. Similarly, infrastructural deficiencies in developing countries in transportation and telecommunications, as well as inadequate worker skills, supplier availability, supplier quality, equipment and technology provide challenges normally not experienced in developed countries. These difficulties inhibit the degree to which a global supply chain provides a competitive advantage."

However, it is important to keep abreast with trends and cost measurement since conditions in China and globally are changing rapidly. These include, the nature of products procured are changing from low-cost consumer products to specialized and high-technology products and services (Kumar, Medina and Nelson 2009), companies are increasingly procuring products and services that are part of their core business, whereas previously, companies were mostly sourcing non-core items (Li M., Liu, Li M. and Wu 2008), and rapid changes to rules and regulations for trade within and outside of China as a result of

Chinese government economic policies. These changes require continuous review, analysis and fresh insights (Wang, Singh, Samson and Power 2011).

2.4.2 Benefits, Objectives and Anticipated Outcomes

Literature suggests that most outsourcing deals are driven by a desire to reduce cost (Kremic et al. 2006, Kakabadse and Kakabadse 2000, Lynch 2004). These include efforts to improve profitability and operating efficiency, add value to products, improve cash flow, free up capital for use in core areas and improve return on assets.

Strategic reasons for outsourcing stated by Lau et.al. (2006) include acceleration of business process re-engineering to improve performance and achieve competitive advantage, focus on core competence to improve business focus, increase competitiveness, leverage the firm's skills and resources and enhance customer satisfaction. Flexibility enhancement to reduce constraints of in-house production, convert fixed costs to variable costs, increase responsiveness to market change and reduce risks are also noted to be strategic benefits of outsourcing.

Environmental factors such as IT development to meet increasing demand for new information systems and skills, globalisation to gain global competitive advantage and partnering with suppliers to improve service quality, customer service and increase competitive advantage have all been noted in literature as being drivers of outsourcing (Lynch 2004, Lau et al. 2006, Kakabadse and Kakabadse 2005). Kremic et al. (2006) add that outsourcing activities are likely to be initiated for more than one reason and in fact, may be driven by elements from cost, strategic and political categories.

2.4.3 Risks, Obstacles and Problems

Risks, obstacles and problems associated with outsourcing have been well documented. However, it is recognised that all the potential risks of outsourcing are not currently known (Kremic et al. 2006). Lau et al. (2006) summarises obstacles and problems to be; loss of control impacting loss of core

competence and risk of alienating customers, loss of critical skills resulting in loss of competitive advantage and increased number of competitors, inadequate capabilities of service provider impacting competitive advantage and market share, loss of flexibility causing reduced responsiveness and alienating customers, failure to realise hidden costs resulting in increased operating cost, difficulty in obtaining organisational support and indecisiveness on which activities to outsource impact chances of failure. Inadequate cost and benefit systems impact return on investment and loss of competitive advantage. Fear of job loss results in resistance to change and lowers staff morale which reaches beyond the outsourced area.

2.4.4 A Framework for Assessing Total Sourcing Cost

Due to the importance of and complexities involved with understanding costs related to outsourcing to China, a framework of TAC of China sourcing has been developed by Song, Platts and Bance (2007). The framework provides a detailed listing of cost categories associated with global outsourcing which were identified in academic literature and validated with practitioners all of whom had experience of global sourcing, not only from China, but also from other countries including Lithuania, Singapore and Korea. A series of interviews were held with senior industrial managers and where additional costs not mentioned in the literature were found, these were added to the framework.

Costs are classified into set up costs and ongoing costs. As described by Platts and Song (2010), "The set up costs (Category 1) occur at the beginning stage of global sourcing projects. These are the one-off costs involved in identifying and selecting suppliers, and in setting up the supply relationship in terms of both technical capability and commercial relationships. Ongoing costs (Categories 2-8) are the costs incurred repetitively during the China sourcing process. These were categorized into costs related directly to the price charged, e.g. taxes, duty, currency conversion etc; administrative costs involved in dealing with an overseas supplier, logistics costs to cover all the transport, warehousing, expediting etc; inventory costs to cover extra stock related costs; quality costs, due to lower quality levels, rework etc; supplier management

costs covering items such as ongoing technical support, performance review, contract renegotiation etc; and other costs, such as costs of dealing with inferior infrastructure, costs of special regulations, IP costs and costs of dealing with counterfeiting.”

In summary, the main cost drivers, as discovered by Platts and Song (2010) in their case studies, which lead to the conclusion that companies are underestimating the total cost of sourcing from China are as follows:

Set-up Costs: Staff’s time cost for searching for, visiting and negotiating with supplier, preparing contracts, adding the supplier to internal IT system etc., travel expenditure (transport, food and hotel), tooling cost, cost of engineering time involved for transfer (e.g. gather information, modify the design due to different environment and IP concern, etc).

Ongoing Costs: Price, extra warehouse costs due to sourcing from China (rent, rate, light, heating, maintenance, insurance, etc), transportation by sea, by road or by train (including cost for transportation agents), compared with before China sourcing, extra costs for inspecting the products (labour and equipment), obsolescence, expediting by airfreight, tax and import duty.

Additional literature states that there is evidence that dramatic cost reductions can be possible by adopting a global outsourcing strategy even when taking into account all cost categories, as the cost of sourcing from China may still be lower than that of in-house production (Wang, Singh, Samson, Power, 2011).

2.4.5 Research Question 4:

What are the benefits, objectives and anticipated outcomes of global outsourcing opportunities considering the motivations for outsourcing to achieve competitive advantage?

2.4.6 Research Question 5:

What are the risks, problems and obstacles associated with global outsourcing strategies, are these factors known and are plans in place to mitigate potential losses?

2.4.7 Research Question 6:

Are the economic factors related to the cost of global outsourcing well understood or are these cost elements poorly estimated resulting in sub-optimal strategy formation?

2.5. Conclusion of Literature Review

The literature highlights that there are several complexities involved in understanding, gathering and maintaining ERP product costing data which could ultimately lead to sub-optimal decisions being made. Additionally there is much unresolved debate as to which accounting methodology provides managers with the most appropriate view of information in order make product related decisions and formulate manufacturing strategy. There is some agreement that Throughput accounting is considered appropriate for short-term decisions, while ABC is appropriate for long-term decisions.

It is evident from the literature reviewed that increasing global competition within the manufacturing sector is forcing companies to assess their manufacturing strategies and consider the outsourcing of production functions as a means to obtain competitive advantage. Research indicates that decisions to outsource are largely driven by expected economic benefit however, strategic, political and environmental factors also contribute significantly towards strategic decision making. The literature suggests that further research is required to fully account for all costs, benefits and risks associated with global outsourcing arrangements. This study will investigate the following research questions:

2.5.1 Research Question 1:

What are the factors enabling and inhibiting the availability of optimal management accounting information within an ERP manufacturing environment?

2.5.2 Research Question 2:

Would the comparison between accounting methodologies provide a better understanding of product costs in relation to selling prices over time, given that there may be distortions in product costs resulting from existing methods of cost allocation?

2.5.3 Research Question 3:

What is the effect on production when using capacity vs demand volumes to calculate product costs assuming the same method of overhead cost allocation i.e. machine hours in both scenarios?

2.5.4 Research Question 4:

What are the benefits, objectives and anticipated outcomes of global outsourcing opportunities considering the motivations for outsourcing to achieve competitive advantage?

2.5.5 Research Question 5:

What are the risks, problems and obstacles associated with global outsourcing strategies, are these factors known and are plans in place to mitigate potential losses?

2.5.6 Research Question 6:

Are the economic factors related to the cost of global outsourcing well understood or are these cost elements poorly estimated resulting in sub-optimal strategy formation?

CHAPTER 3: RESEARCH METHODOLOGY

This section outlines the research paradigm selected for this study and why it is suitable to achieve the objectives of this research. The case site, choice of participants and how data is collected is detailed. Thereafter techniques used to analyse and interpret the data are discussed and limitations of the chosen methodology are highlighted. This section concludes with methods followed to ensure validity and reliability of the data and findings of this study.

3.1 Research methodology /paradigm

In order to address the main problem statement of this research requires an investigation of ERP production environments and an in-depth understanding of the factors driving outsourcing decisions. According to Leedy and Omrod (2005) when there is more to be discovered beyond the literature reviewed this research leads itself to the use of qualitative research methods.

The literature suggests that there are several frameworks that can be used to understand factors affecting outsourcing decisions but that not all factors are known. Bakos and Treacy (1986) state that as an area of research matures, there is an increasing need to move beyond frameworks and toward explanatory models of the underlying phenomena and that case based research methods will allow us to build a cumulative tradition and to make normative statements to guide managerial actions.

Benbasat, Goldstein and Mead (1987) explain that case methodology is clearly useful when a natural setting or a focus on contemporary events is needed. The authors go on to say that research phenomena not supported by a strong theoretical base may be fruitfully pursued through case research and a rich natural setting can be fertile ground for generating theories.

Additionally the case method allows the researcher to answer “how” and “why” questions, that is, to understand the nature and complexity of the processes taking place (Benbasat et al. 1987). This is confirmed by Leedy et al. (2005)

who suggest that all forms of qualitative research focus on phenomena that occur in natural settings and that these phenomena are studied in all their complexity and multiple facets.

It is therefore believed that a case based research methodology is suitable for this research to understand the complexities and factors influencing manufacturing strategy formation.

3.2 Research Design

Case based research was conducted to gather actual company data for analysis and manipulation to practically assess the issues influencing manufacturing decision making specifically around outsourcing strategies.

A multiple-case design approach was followed to allow for cross-case analysis as referred to by Benbasat et al. (1987). This may however lead to more general results according to Benbasat (1987), even so sites have been carefully selected and contradictory results are expected to provide an in-depth understanding of a practical real-life scenario.

Open ended interviews were conducted with decision makers and individuals involved with accounting, production and outsourcing processes in order to gather cross-functional and multi level data. This data is intended to provide insight to the complexities associated with ERP production environments and the drivers to outsource.

This research follows an emergent design as referred to by Leedy et al. (2005). This is due to the fact that given the nature of the topic and the research process, including open ended interviews; variables which were not known to the researcher at the start of the research process are interpreted within the context of this study.

The role of the researcher is imperative to the study since the researcher's ability to collect and interpret data is vital to the success of the research (Yin 2003, Benbasat 1987). Additionally, as data has been gathered through open-ended somewhat unstructured interviews, research findings may be influenced

by the researcher's personal view. Measures have been implemented to ensure that this does not compromise the validity and reliability of the research.

3.3 Population and sample

3.3.1 Population

The company studied consists of several manufacturing entities / factories, all producing different product ranges in different geographic locations. In essence the factories are stand alone production facilities but in some cases share overhead cost. Data was collected across the factories and analysed as in context before the findings were consolidated and concluded.

The first case is a factory that has been closed down due to a global outsourcing decision that was made to import products formally produced in-house. This is an interesting case as the factory had not yet been fully depreciated and the decision to outsource resulted in a substantial capital write-off. Findings from this case site are applicable to another factory within the group which is currently producing similar products.

The second case is a factory where sub-assemblies that were produced in-house are now being sourced globally and assembled into finished products locally. In this case a foreign office has been set-up to facilitate this process. Some products are still being manufactured locally and the impact on these products provides for interesting research.

In both cases the factories have been running a reasonably new ERP system which was implemented late 2009. This system calculates the cost of products produced using accounting and production data as described in the literature review.

From the cases above it is clear that the chosen company has recently undergone decision making processes around manufacturing strategies for reasons addressed in this research. It is therefore believed that this case site is suitable for this study.

3.3.2 Sample and sampling method

Participants were selected based on their experience and ability to provide meaningful answers to the research questions. This is in line with the suggestions by Leedy et al. (2005) to select individuals who will yield the most information about the topic under investigation.

In-depth interviews were conducted with stakeholders from various functions across and levels within the business in order to gather a cross functional view as well as a multi-level perspective. 13 interviews were conducted as per the profile of respondents tabled below (Table 1).

As suggested by Benbasat et al. (1987) the researcher undertook not to harm the organisation participating in this study in any way. Participants were assured that their input will remain confidential. The researcher was granted approval from the appropriate stakeholder to access essential data.

Table 1: Profile of Interviewees

Title of Interviewee:
Director and General Manager Operations
Group Components Manager
Factory Manager
Strategic Projects Manager
Strategic Sourcing Manager (China)
Manager Business Process Improvement & Six Sigma Black Belt
Six Sigma Black Belt
Business Manager: Hardgoods
General Manager Information Services
Manager: Planning & Controlling
Financial Manager: Operations
Financial Controller: Manufacturing
Management Accountant: Component Manufacturing

3.4 The research instrument

An interview schedule (Appendix A) was used as the primary research instrument. The questions were grouped into the categories of; ERP Production Environment, Accounting Methodology and Global Outsourcing Decisions in line with the research questions being addressed. Depending on a participants role within the organisation, knowledge and experience some topics were answered more meaningfully than others. However all questions were asked to all participants to gain a view of cross functional understanding within the organisation. The questions were intentionally open-ended to facilitate discussion on the various topics and allowed the participant to speak freely about the subject in the aim to gather data beyond the literature reviewed.

In cases where the participant was unsure of a question's meaning the literature was referred to in order to explain the context of the question however, care was taken not to provoke an invalid response.

Participants were asked during the interview to provide supporting documentation where appropriate.

3.5 Procedure for data collection

Yin (2003) identifies several sources of evidence that work well in case research, these include; documentation consisting of written material ranging from memoranda to newspaper clippings to formal reports, archival records such as organisation charts, service, personnel or financial records, interviews which may be open-ended or focused, direct observation which is the absorbing and noting of details, actions or subtleties of the fields environment and physical artefacts such as devices, outputs and tools. Benbasat et al. (1987) states that ideally, evidence from two or more sources will converge to support the research findings.

In this study data was collected via a largely open-ended interview process using an interview schedule (Appendix A) to ensure that all aspects of the research questions were covered in the interviews. The interview schedule was

sent to participants before the interview was held in order for the participant to gain understanding of the context of the interview. The aim was to capture an individual's knowledge, experiences, perceptions, feelings and opinions. Data collected during the interview was documented and sent to the participants for review and to add any additional information which they believed was relevant to this study. This process ensured that the researcher captured the essence of the information provided without including her own personal views.

Participants were asked to provide any documentation which they believed would contribute towards this study and substantiate their input. Follow up consultations were not required to ensure that the researcher has a clear understanding of information provided.

Direct observation evidence was not used in this study as the risk of misinterpretation was too high which would lead to skewed results.

3.6 Data analysis and interpretation

The analysis of case data depends heavily in the integrative powers of the researcher Benbasat et al. (1987). The authors go on to state that by using multiple methods of data collection, the opportunity for triangulation of data arises and this lends greater support to the researcher's conclusions.

Rowley (2002) suggests that, although there are no recipes for the analysis of case results, good case study analyses adhere to certain principles. These principles have been considered in this study, they include; the use of all relevant data, consideration of all major rival interpretations as obtained in the literature and interviews, the addressing of the most significant aspects of the case study which focuses on answering the "what" and "why" questions and drawing on the researcher's prior knowledge in an objective manner.

Benbasat et al. (1987) explains that the key elements of data analysis are also critical to the written results of case research. As much as possible, the contextual and data richness of the study should be presented, and a clear chain of evidence from the initial research questions to the conclusions should

be established. The researcher's reasoning in establishing cause and effect or drawing out hypotheses should be clearly stated and defended. The research should move from objectives and questions, to assumptions and design choices, to specific data uncovered, and finally to results and conclusions. It is the intention of this study to follow this logical approach to present the reader with the opportunity to assess the reliability and validity of the study's findings.

3.7 Limitations of the study

- The ability of the researcher to collect, analyse and interpret the data to provide meaningful results.
- The knowledge, experience and willingness of the participants to contribute towards this study.

3.8 Validity and reliability

Validity refers to the extent to which this study interprets the purpose of the study, being an analysis of the factors influencing strategic global outsourcing decisions within ERP manufacturing environments. Reliability is related to the accuracy of the findings. This study aims to present valid and reliable findings and conclusions.

3.8.1 External validity

The ability to generalise case study research findings across persons, settings and times has been questioned by researchers (Meredith 1998, Eisenhardt 1989). Being a case study this research is context specific and therefore it may result in poor external validity. Due to the potential to result in poor external validity, sample choice has been carefully considered. Production environments selected and the outsourcing decisions they face are common to the local manufacturing industry. Additionally multiple sites have been selected which would enhance the external validity of this research.

Leedy et al. (2005) suggests that external validity is also enhanced by the fact that the research takes place in a “real life setting”.

3.8.2 Internal validity

Internal validity refers to the extent to which this research covers the topic of analysing strategic global outsourcing decisions within an ERP manufacturing environments. In order to gain a substantive view, the existing ERP environment is studied in detail before relating it to the factors influencing global outsourcing.

Rowley (2002) argues that one of the great strengths of case studies (when compared to other research methods) is that it allows for evidence to be collected from multiple sources. As data is to be collected from multiple sources, triangulation will be used to cross check responses and confirm the validity of the data.

Where conflicting views are found further investigation may be required or they may result in findings, i.e. that different functional areas are not aligned and don't share the same views. Yin (2003) suggests that by using triangulation of data a more objective understanding of the data can be obtained across the different sources and therefore it assists in data convergence.

3.8.3 Reliability

Reliability relates to the accuracy and precision of the research. Interviews allowed participants to respond freely however, care was taken to insure that interviews remained focused on the research topics. The interpretation of data collected from interviews was validated by respondents. During the data analysis phase data was sorted and condensed to relevant aspects. This process largely depends on the ability of the researcher.

CHAPTER 4: PRESENTATION OF RESULTS

4.1 Introduction

Results pertaining to each research question are presented and described in this chapter. Where possible, interviewee's responses are summarised in common themes which emerged during the interview process. A conclusion is drawn for each research question.

For further reading the interview transcripts have been placed in Appendix B.

4.2 Demographic profile of respondents

Following interviews conducted with stakeholders from various levels of the organisation within the operations and accounting functions, the cross functional nature of the subject became even more apparent. In order to gain a better understanding of the interdependencies between functions additional interviews were conducted with stakeholders from the marketing department and information services.

4.3 Results pertaining to Research Question 1

What are the factors enabling and inhibiting the availability of optimal management accounting information within an ERP manufacturing environment?

In identifying factors enabling and inhibiting the availability of optimal management accounting information within an ERP manufacturing environment three main themes emerged. Even though the interview question was open ended and did not address the themes specifically almost all interviewee's stated factors which related to people, systems and data.

4.3.1 The Human Factor

The majority of factors enabling and inhibiting the availability of optimal information relate to the human factor. There is general consensus that the company suffers from a lack of skills and knowledge required to manage the supply chain within an ERP environment. It is believed that complexity and the lack of fundamental understanding of the supply chain are real issues. The implications of actions on downstream functions are not well known and often result in the company learning hard lessons. It was highlighted that a mind shift change is required and that managers need to invest in a learning process to better understand the integrated nature of the business and the ERP system in order to empower themselves. Additionally it was stated that through staff turnover manufacturing history has not been adequately passed on over the years from a business and systems perspective which has led to a diluted knowledge base.

There is also consensus that the level of personnel employed by the factories influences the ability to gain value from the system and that additional accounting resources are required who are closely aligned with operations and can strategically analyse costs in order to be more proactive than reactive. The Group Components Manager adds that it is understood that the acquirement of these skills has a cost implication however there is agreement that the current admin accounting function is not adequate for the cost base.

A few interviewees mentioned that measurements were driving behaviour, in some areas it was felt that they are not driving optimal behaviour however there is a view that this is improving. It is agreed that departments should not work in silos but aim to benefit each other especially at an operational level.

4.3.2 System Design

In the area of system design it is agreed that the SAP platform is leading ERP technology and in principle the design is correct. The General Manager Information Services confirms that configuration changes are seldom required; however continuous improvement is imperative as the exploitation of SAP

functionality is believed to be of benefit to the business. Interviewees from the business agree that the current functionality is better than that of the old system however legacy logic has been transferred to SAP which is believed to inhibit SAP potential.

There are concerns around the complexities and lack of flexibility of the system to provide an accurate total view of profitability which impairs decision making. It was also stated that the reporting system does not support the required level of detail well and when it is necessary to download data for manual manipulation a single source of truth is compromised.

The General Manager Operations highlights the room for improvement in that information is mostly reactive but the business needs to be aware upfront. In some cases by the time information is acted upon the company is already in a different seasonal trend. Dashboarding of key performance indicators and benchmarks to manage with reduced cycle time was identified as key area for improvement.

It is widely supported that a good planning system with full integration across functions would improve operational efficiency. However, problems experienced with erratic factory demand generated by the recently implemented Advance Planning Optimiser (APO) system were mentioned and that the implications of sophisticated planning systems need to be well understood and considered especially when integrated with operational activities.

4.3.3 Data Integrity

Both system design and data integrity factors are closely related to the human factors enabling and inhibiting the availability of optimal information. The knowledge and skills required to design, implement, support and maintain the system are again acknowledged, now with reference to data integrity. It is stated that the understanding of data and how it fits into the bigger picture is lacking. Business lessons have been learnt in the importance of maintaining accurate master data as well as understanding the impact of master data changes.

It is the view of Information Services that master data maintenance is a specialist role, not an admin function. A centralised master data maintenance function is good as master data must be right as SAP is the least flexible system if data is not correctly maintained and shouldn't even be implemented if this is critical aspect is ignored. Contradicting this view, Operations believes that a central master data function removes understanding and insight of the implications of the data from the people using the data as well as provides little understanding of context for those maintaining the data. This lack of knowledge and the style of central master data maintenance, i.e. copying existing records results in likely inaccurate results.

It is understood that master data should be kept up to date with business changes but this does not happen and when cost does not match actual production, major variances occur until alignment is achieved. Additionally the more assumptions about structures made instead of proper activity based costing the less valuable the information. It was suggested that more ongoing attention is required to maintain production master data so that the system is adaptable to business changes.

The interviewee's agree that SAP needs to be correct and not be second guessed if the data it provides is to be used in decision making. Data integrity is identified as an issue, when figures are reported from different business areas they often don't tie up and this leads to lost confidence in the accuracy of the information. Decisions are thus made with little or incorrect information based on assumptions and common sense as opposed to facts from the system.

It is recognised that spending time and effort, investing in the ERP system to build trust in the system output is absolutely worthwhile. Without reliable information the factories are in a defenceless position however with trustworthy data are able to present an argument. There is general agreement that expenditure on system upkeep is money well spent.

4.3.4 Conclusion

In general more emphasis is placed on factors inhibiting the availability of optimal management accounting information within an ERP manufacturing environment and areas for improvement than the factors enabling the availability of optimal management accounting information within an ERP manufacturing environment.

4.4 Results pertaining Research Question 2

Would the comparison between accounting methodologies provide a better understanding of product costs in relation to selling prices over time, given that there may be distortions in product costs resulting from existing methods of cost allocation?

In order to address this question the company's accounting methodologies employed were investigated followed by issues around cost allocations and product mix and concluded by gathering opinions on whether costing simulations would provide a better understanding of product costs within the current operating environment.

4.4.1 Accounting Methodology Employed

There is consensus that the factories use a flavour of activity based costing (ABC) with smeared overhead from very broad buckets to derive standard costs. To calculate the standard, costs are rolled up based on bills of material's (BOM's) and routings, absorption costing is used to recover all factory overheads. However, other business costs such as sales and marketing are not allocated to products. Standard costs are used to calculate cost of sales and value inventory. As per audit requirements the calculation is consistent year on year.

A few interviewees mentioned that the company battles to understand current standard costs and from there decision making becomes difficult. A number of reasons were mentioned supporting this statement, they include; the inhibiting

factors relating to the availability of optimal management accounting information such as out of date master data, assumptions based on old processes, lack of knowledge and understanding. Related to out of date master data and invalid assumptions, the standard cost calculation process is a once off exercise performed to calculate cost which is already old by the time the budget is complete; a more dynamic process is required to see a true picture of cost. There are also some accounting methodologies which have been implemented based on fear or error, such as the use of standard costing for raw materials in case an error is made in the procurement process resulting in an incorrect price being passed on to production, this is believed to be against best practice and should not be the basis of methodology decisions.

It was stated that standard costing is used because ABC demands too much information and that complexity is not desired in order to understand if the company is making money - easy implementation and maintenance is preferred. There is also a view that Throughput accounting is great in theory and may help to avoid fights between departments although it doesn't change the amount of money the company makes and practically it would be difficult to implement.

The Financial Controller: Manufacturing believes that the standard cost should be the ideal and the company should work towards this cost, the standard at the beginning of the month should be compared to the actual cost at the end of the month. Corrective actions to reduce differences can then be implemented and this would help with management.

4.4.2 Cost Allocations and Product Mix

There is consensus that overhead costs are affecting the company's competitiveness, as the cost base has escalated over time. It is believed that standard costs are roughly 25% off actual costs. In addition costing errors have been reported which are in the region of five to ten million rand in a cost pool of under a hundred million, given the size of the cost pool, these are significant.

Costs are allocated to products based on their margins ability to absorb cost and remain profitable. There is belief that is not correct as it does not provide a view to drive correct focus on pushing volumes of products which are truly more profitable and initiating improvement projects for those which are less profitable. There is no evidence that the optimal product mix is being produced. It appears that product mix is fairly dictated by the planning function and set according to sales demand as opposed to factory capability.

There is much confusion around whether products are being cross-subsidised or not or to what extent. It was mentioned that assumptions influencing costing at a point in time are no longer valid. Interviewee's agree that previous accountants manipulated figures to make products viable. However, this knowledge has not been documented or adequately passed on and if managers are not fully aware of costs and cross subsidisation it is impossible to compare like for like as suppliers would have accurate costing of products offered in competition to products produced in house.

Interviewees' suggest that there should be understanding of fundamental cost and the ability to decide what the standard cost should be. There is agreement that true costs should be known but there are also views that it should be possible to manipulate overheads as companies have cash cow products which are able to absorb more overheads. The Group Components Manager provides the example of new products which would be too expensive until required volumes are reached and in order to grow market share a basket of goods is required. In this case it would be useful to cross subsidise products. There is an opposing view which suggests that the company should not cross subsidise, there should rather be loss leaders which are produced to form part of a basket of products but that true cost is known for decision making. The company can then have a plan to improve or else the company may exit a profitable market and carry on with products making losses. The company could in fact become a commodity producer instead of offering a differentiated product. There is also an assumption that customers want a basket of products however there is no evidence to prove this. The company could be making product lines which the customers don't even care about. An option would be to stock a competitors

product to provide a shopping cart experience but the company is unable to make such decisions when the true cost is not known.

It was stated that strategic decisions should be made based on the material component, so that interdepartmental allocations do not influence decisions especially if the standard costs are not trusted. However, lessons have been learnt where a product which used to absorb much overhead is now being bought in resulting in overheads needing to be absorbed by other products. This has a domino effect on the profitability of the remaining manufactured products.

It is also agreed that a simplified cost structure may reduce the opportunity for inaccuracy and that there is a trade off between effort required at a detailed analysis level vs overall profitability.

4.4.3 Costing Simulation

Cost modelling capabilities are perceived to be a great tool. There have been some improvements made in this area but further enhancements would be beneficial in order for the company to be more proactive than reactive. There was mention that it is not known if the information currently available is being used effectively however some costing analysis is being performed.

Graphical representations of information would also be helpful. There is a belief that the presentation of relevant information could assist in the alignment of the operations and marketing functions and the understanding of the company's offering in relation to that of competitors.

It was stated that costing simulation would help in decision making but should be an ongoing exercise and not a once off project each time a decision is to be made. It would assist in stakeholders understanding and should be used for scenario planning for strategic decision making and not necessarily for the calculation of standard cost. Scenario planning would also help to determine which behaviours the company wants to drive in order to make more money.

It was again highlighted that it would be useful to have close by costing support providing different ways to see cost and be able to explain the workings and

implications. Skills and knowledge of current accounting practices are required to perform this function effectively.

There is general consensus that costing simulation enabling comparisons between accounting methodologies would provide a better understanding of product costs in relation to selling prices over time, given that there most likely are distortions in product costs resulting from existing methods of cost allocation.

4.5 Results pertaining to Research Question 3

What is the effect on production when using capacity vs demand volumes to calculate product costs assuming the same method of overhead cost allocation i.e. machine hours in both scenarios?

There are several opposing views on whether capacity or demand is being used to calculate product costs. In summary though most agree that the volume figure used to calculate product costs, known as capacity, is determined by reviewing sales demand and then working out the capacity and therefore results in a “mixed” capacity.

Historically capacity was used to calculate product costs however due to capacity being in excess of demand standard costs were too low and major under recoveries were realised. There is a view that capacity is used because it is easy to understand and people see capacity as fixed however one should look at demand over time. Ideally capacity should be aligned with demand; the factories should be right sized conservatively and then have a mechanism such as outsourcing in place to supplement excess demand.

There is a strong view that demand should be used as long as it is under capacity to avoid major under recoveries of factory cost. This predicted demand should however be based on what the company can sell and not on what marketing would like to sell, existing business cases and economic factors etc. must be taken into account. Demand also provides a better platform for debate, if costs are too high marketing must sell more etc.

Almost all interviewees mentioned that there is misalignment between the factories and the marketing / sales function. This is believed to be caused by conflicting measures. For example marketing is incentivized on margin and not on volume which is the driver that affects factory cost recoveries whereby the factories are measured. There is concern that marketing is not accountable for predicted volumes and that the volume mix effect on product costs is more sensitive than one imagines.

It was stated that since the planning function has come into play there is a more robust sales and operations planning process moving in the company in the right direction. There is an opposing view that the SOP process does not work well and that there is too much finger pointing. It is also believed that this process is still focusing too much on short term demand and should look at a five year horizon. However it is agreed that the SOP process should be the source for volume planning and that forecasting tools would be beneficial.

All agree departments should come together and arrive at a balance between; the size of the market and market share, how much more of the market the company can capture, optimum pricing to get optimum volume and then check capacity, either invest or decide on what to do with surplus.

The balance between capacity and demand is anticipated to be more effective going forward as the budget has been agreed between departments.

4.6 Results pertaining to Research Question 4

What are the benefits, objectives and anticipated outcomes of global outsourcing opportunities considering the motivations for outsourcing to achieve competitive advantage?

4.6.1 Benefits, Objectives and Anticipated Outcomes

Repeatedly the interviewees stated that the fundamental objective of global sourcing is to acquire products at lower cost or at least at a globally competitive level whilst retaining quality in order to significantly increase volumes sold.

It is believed that competitive product costs allow the company to gain market share which was being lost before the decision was made to globally source products. Gross margins have increased not only from lower product costs but also from losses that were being experienced whilst still producing in-house.

The General Manager of Operations stated that the landed costs of commodities which the company used to produce are 25 – 40% less than the in house manufactured cost. Supporting this statement, the Group Components Manager agrees that a cost saving of 40% is being realised through globally sourced products being used in local production.

Many believe that South African manufacturers' lack of cost competitiveness is due to low productivity levels. It was stated that raw material and machining costs are in line with global players as too are labour costs, however a labourer in China produces about 4 times more output than that of an equivalent South African labourer. Reasons for the significantly higher Chinese productivity include the fact that most companies are family owned and this brings about different behaviour, decisions are based on emotion and pride and businesses deliver a lot more than one would think. This ability to produce significant volumes out plays competitors who are just not achieving the same critical mass.

So although the South African labour input cost is low, it is high given productivity levels and when unit costs are globally benchmarked South African labour is expensive. Not only from an in house perspective but local suppliers who also attract high labour costs make raw materials expensive. It was mentioned that this critical aspect is not discussed in labour negotiations and this brings about another benefit to global outsourcing which is if industrial relations are not strong it is just easier to outsource thereby eliminating the need to manage labour related issues.

Compensation for skills deficiency or poor local quality were also stated as benefits expected from global outsourcing. Especially as the quality from China has been improving and for the products in question is believed to be at the required standard.

Other benefits include supply continuity, multiple suppliers or suppliers with multiple production lines to reduce stock shortage risks, access to markets in supplying country, access to a wider range of products, an enhanced range which is more profitable, better cost, innovation and quality. However, there is agreement that continuous effort is required to find low cost suppliers in order to keep ahead of competitors and if growing the business targeting the right suppliers first to get exclusivity could be used as a blocking strategy to ensure competitive advantage. There is a view that liability could be shared with suppliers, making environmental, health and safety overheads someone else's problem. Additionally less capital outlay is required when following a global sourcing strategy than one of in house production.

Generally there is a belief that buying in products is just easier than manufacturing from a cost complexity perspective, outsource agreements can be easily terminated and volume adjustments in line with business trends are easier to manage and control. However in contradiction there are managers who are not in favour of global outsourcing and do not believe that global outsourcing strategies are beneficial for the company.

4.6.2 Measurement of Benefits

There is some consensus that benefits are being measured and that decision taken to globally outsource certain products is correct. Overall profitability is measured and the price of imported products has been compared to that of previously manufactured items. However, there are references to the fact that profitability improvements and benefits realised are not meeting original business case predictions. This is due to the fact that the manufacturing sourcing strategy deployment has been slower than expected and internal overhead costs are still being incurred and will be until the predicted future state is realised. Currently the project is in an interim phase where components are sourced globally and assembled locally which attracts cost both locally and globally. Additional time was also required for skills transfer and exchange rate fluctuations have negatively impacted the landed cost. This has resulted in existing products being more expensive but over time it is believed this will be

corrected and overall product costs will be lower. The Strategic Sourcing Manager did state that unit cost savings are being realised in excess of the original business case and that the quality is ok. However, volume growth is not good, as no growth has been experienced and volumes have been lost which were not predicted. Not all the reasons are known but it is suggested that the global recession may be impacting volumes, possibly the move to source globally was made too late and customers were already thinking about alternate suppliers, some customers were not happy with the fact that the company was importing and the sales function is also battling in South Africa, the organisation has changed, been consolidated, restructured etc. and sales have been lost. Much time is spent defending existing volume instead of on growth.

There is a feeling that savings expected may be unrealistic based on the amount of saving in relation to the factory cost base. In reality the level of overhead reduction required to achieve projected savings is unlikely to be possible. It has also come to light that costs shared between factories / product lines were not well understood at the time of decision making and that remaining overheads are now crippling the factories / product lines still in operation.

The Six Sigma Black Belt responsible for the business case which lead to the factory closure decision stated that the scope of the initial project was a make or buy decision and that it is now up to finance to measure the benefits. Although it was stated that factory accountants assist in verifying savings, the Financial Controller: Manufacturing mentioned that commercial accounts are only consulted when there are questions but were not involved in the original business cases and now cannot match reality to the original predictions. Additionally the global sourcing business cases do not detail how and when benefits should be measured in order to assess the strategic direction. The Management Accountant: Components Manufacturing, stated that no savings have been shown to date and that current standard costs are compared to landed costs (price plus freight) without taking into account additional overheads. This is substantiated by the Manager Business Process Improvement & Six Sigma Black Belt, who added that overall losses are being

incurred due to the fact that overheads have not yet been reduced as predicted. The General Manager Information Service adds that measuring, managing and continuous improvement is not properly in place.

4.7 Results pertaining to Research Question 5

What are the risks, problems and obstacles associated with global outsourcing strategies, are these factors known and are plans in place to mitigate potential losses?

4.7.1 Risks, Problems and Obstacles

Interestingly in contradiction to the benefit belief that buying in products is just easier than manufacturing from a cost complexity perspective, the General Manager of Operations stated that there can be just as many problems with outsourced operations as with in house operations and that there is in fact more complexity when importing. To illustrate this point he mentions that even in China it would be preferable to have an in house manufacturing facility in order to maintain control as operations are equally as complex for others and it can be difficult to find reliable partners' which leads to increased supplier management costs. Additionally, contractors are in business for their own gain, and the company would do better spending more to offer a better service. Depending on which functions are outsourced there is a risk that the company distances itself from its customers, which may result in lost relationships that have detrimental effects for the company. It is believed that aspects which are unique to the company business should not be outsourced.

The Group Components Manager states that local manufacturers are not investing in plant and given the cost and complexities to manufacture competitively, South Africa may lose any remaining ability forever. If South Africa does not protect its manufacturing the country will become a net consumer and unable to provide labour or add value and there needs to be a level of employment to protect consumption. Trade unions and the Department of Trade and Industry are campaigning for consumers to support local

manufacturing; this would assist in house production but poses a risk to global outsourcing and needs to be taken into consideration when making such decisions. The company needs to keep abreast with these developments to understand their impact on their business. Having a production facility may result in the company having an advantage over importing competitors and enable the company to take the moral high ground. Caution was added by the General Manager of Operations that even if the government intervened, business viability should never be placed on government grants etc.; if the business is not competitive without assistance, then the business is not sustainable.

It was stated that possibly the biggest risk is putting all your eggs in one basket when selecting a country to source from. Many risks emerged around political and cultural factors affecting the source country and whether their ability to supply cost competitive products is sustainable. It is agreed that low cost countries will have wage increases and in the long term low cost labour is not sustainable. Environmental considerations will also increase in developing countries resulting in increased cost. A few interviewees stated that the current sourcing strategy is only medium term and that the company needs to be on the lookout for the next cheap location. The Financial Controller: Manufacturing raised a valid point that there is a moral and ethical consideration not to be forgotten, that the company does not want to deal with companies which abuse their staff or do not follow the expected safety standards.

The Strategic Sourcing Manager in China explained that there are strong contrasts, some operations are really basic environments where people sit on the floor whilst working and products are stacked in huge piles, not very high tech and then there are impressive first world operations which could be anywhere in the world operating with the latest Japanese techniques. Both extremes consist of large organisations and depending on the products required the challenge is that the company needs to deal with both types of organisation. It would be less risky if all companies had strong management systems in place but this depends on how supported the industry is. Language barriers are great,

for example, one can only talk to sales people who may be able to speak English but can't talk to anyone in operations.

There is agreement that a major risk for the company is poor quality due to the fact that the company offers a premium brand and wishes to protect the brand and customer loyalty. Poor quality is an especially big issue for semi-finished items as it affects ongoing production when the quality is passed on to the finished product and may result in losses on value add. Quality and the risk of defective materials / machining is also a big problem when there is an issue as quantities arrive in large batches and supply constraints arise associated with re-order lead times. Even though samples are good, bad batches have been experienced and the more global the supply chain the greater the risk of poor quality cost is to the business.

A view was expressed that local manufacturing quality failures have been blown out of proportion, as even the culprit's complaints have been very low in relation to their received volumes. It is believed that poor quality issues are driven by perception which may incorrectly influence make or buy decisions.

Related to quality there is a liability risk which should not be ignored. The company has always had this risk however with less control over the production process the risk of faulty equipment is greater and in the event of a failure could be considerable.

As the company offers a differentiated product the loss of intellectual property (IP) is also seen to be a significant risk. Since IP has been given away this could be leaked to the market even though efforts have been made to spread requirements amongst suppliers. The Strategic Sourcing Manager in China explains that currently differentiated products eventually become commodities which can be produced by anyone and competition is rife. The company is not positioned to compete merely on a volume and cost basis. As the company takes incremental steps in the move away from local production to foreign operations the risks increase. He adds that the project is on a "slippery slope" and the company may feel pain later on around the decision to have local R&D separated from production. Design and production are closely interlinked and

this approach breaks up the product design life cycle of R&D into proto-type, into production and finally into mass production, thus eliminating learning's and opportunities along the process to ensure successful delivery to market.

Linked to the incremental nature of the manufacturing sourcing strategy deployment, there is a worry that the company is "half pregnant", still incurring the fixed cost of manufacturing and additional cost of importing. Remaining costs of outsourced departments need to be absorbed by other business areas making them unprofitable. A half baked (make and buy) scenario is dangerous as the company must make sure that overheads are reduced in order to get returns on outsourcing strategies as predicted. There are views that the company should pick one way or the other as it is now in the worst possible scenario with less control over quality and not achieving the full benefit of cost reduction. Difficulties have been experienced in updating the ERP system to encompass the new outsourcing strategy and hence the related data in the system is incorrect. This is highly detrimental for future decision making.

An interesting aspect was raised around decisions being influenced more than ever by conditions at the point in time which they are made. It was suggested that a long term view should be taken on factors such as exchange rates and commodity prices with knowledge of suppliers, i.e. the impact of new / more local steel suppliers. There is also consensus that current strategy is short term in nature and neither substantial or concrete. Some sensitivity analysis is performed to support business cases however it is not normally clear at which point a scenario becomes unviable. Numbers are derived at a high level when not all the building blocks are in place.

The risks mentioned associated with global outsourcing are far in excess of the benefits, additional risks include:

Exchange rates may turn unfavourably and result in imported products costing more than local production costs. This cannot be mitigated in the local market if competitors are producing locally.

Price escalations which are out of the company's control are a known risk. The company has little prevention of increasing prices, which could even change

over night. Prices are negotiated with suppliers but there is a risk that they may change, i.e. if the steel price increases.

Local producers could outplay importers depending on conditions, i.e. more steel suppliers enter the market locally.

Greater certainty in demand forecasting is required due to reduced flexibility in lead times and increased stock holding. Obsolete stock is now a greater risk as more parts are being managed. Increased work in capital, goods in transit damage and losses, piracy on the high seas, non delivery from suppliers and increases in importing customs and taxes all pose a risk to the company as well as hidden costs of managing outsource partners along the supply chain.

If outsourced service providers belong to unions which are different to that of the company, strike action affects the organisation more frequently thus negatively impacting customers more often. Additionally more strikes may affect customers due to the extend supply chain, such as at the harbour, customs, transportation and in own industry.

Measurements drive behaviour and outsourcing makes profitability per full time employee look better, there is a risk that this may drive the incorrect behaviour. The availability of skills also affects the outsource decision.

From a totally different perspective a risk was raised that the company has a lack of understanding of the market place. This is supported by the fact that cost was used as the main reason to import however now even at a lower cost, volumes are not being reached. Related to market knowledge, loss of volumes due to ex-employees now competing in the same market has been experienced. Additionally existing and potential customers may source directly from the East, resulting in further loss of volumes. The parent company may too source from an alternate supplier. The base of the decision needs to be sound; it may also not be the correct decision to follow competitors.

4.7.2 Risk Mitigation

Given that major competitors are importing, there is consensus that importing risks float with competitors as all will be in the same position should a major risk be realised. It is understood that political factors may change in China however the entire market will be affected. The company has a sourcing team in place monitoring the global market to ensure that they are able to achieve first mover advantage should a more competitive manufacturing environment emerge. Countries such as Vietnam, Indonesia and India are kept on the radar but currently do not have infrastructure to match China. It is believed that China will still be leveraging their population dynamic and infrastructure for the next five to ten years retaining their competitive advantage. As the north of China is still relatively under developed to the south there is still room within the country to expand and exploit manufacturing opportunities and therefore it is not necessary to move now.

Where products are being imported from China, cultural change has been significant and communication is critical. Cultural barriers have been experienced and Chinese nationals have been employed to overcome potential obstacles. Much time and effort has been spent to change mind sets from mass production to emphasis on quality.

As the company offers a premium brand the process of global sourcing is handled differently to that of regular procurement as the process is technical in nature. The process needs to be very well managed as the company owns the design and is liable to its customers. Local processes are converted into designs; product and process specifications are created and translated into Chinese. Suppliers are required to produce according to the company's specification. The company will not select products from a catalogue and will only engage with reputable manufactures that have suitable premises and infrastructure. Suppliers are audited and trained. Quality checks are done upfront and ongoing at their plants and further quality checks are done locally. It is acknowledged that the foreign office which was set-up to facilitate the process has proven to be a major advantage. Close management in source country is doing a good job in keeping costs low by stopping poor quality goods

in China. So far quality risk has been sufficiently mitigated and no bad product has reached an end customer. The cost of the foreign office could be off set with local losses had they occurred without the foreign office being in place. The benefit is anticipated to outweigh the cost as the sooner poor quality is detected the better, at the supplier is the best possible scenario. The Group Components Manager adds that immediate communication helps to resolve any quality related issues, he states, "This is the magic".

The Strategic Sourcing Manager explains that the loss of intellectual property is a risk mainly around stealing designs and selling to the same market. Some suppliers manufacture for the same market and these are higher risk. As there is low control over IP in China, there are examples of where this has happened. Where the technology required to produce is low, generally trustworthy suppliers are sought. Where the technology required to produce is high more care is taken to protect IP, the manufacture of components is outsourced to different suppliers who are not likely to be competitive within the same market. No one supplier has the entire set of IP and design is still based locally.

To avoid the risk of the company's product range falling into the commodity bracket, the company needs to continuously change products, be progressive and evolving. Regeneration is vital to set the pace as the company must be a leader and maintain a competitive edge. An initiative to develop differentiated products for the parent company to enhance the group capabilities which outside suppliers would not be able to achieve is being reviewed. There is competition within the group and products need to be differentiated in order to ensure business. Increased sales would enable the company to turn over stock quicker and reduce the risk of increased stock holding.

It is believed by a few of the interviewees that exchange rate risk is not a major factor since the company procures in USD and as 30% of the product is exported and billed in GBP, USD and Australian Dollars, exchange rate fluctuations are off set and relatively easy to manage. Sourcing from multiple countries could mitigate exchange rate risks however this is not the current approach. Hedging can be used but due to onerous accounting regulations is

normally only done for large capital projects and not for stock. Hedging could also only mitigate short term risk but could not mitigate long term trends.

In order to mitigate the risk of supply delays the company could identify alternate suppliers however this would come at a cost and is not possible for all products, i.e. the differentiated products where IP is protected.

An idea was raised which would mitigate many of the risks associated with global outsourcing and if successful currently outsourced manufacturing could be brought back to South Africa and new business won. This idea proposes to try the Chinese model locally, on a voluntary basis where employees are paid according to productivity. Control of quality, training and general oversight would be in house and easier to manage. Integration into the existing organisation structure would need to be considered however there are huge international opportunities which could quadruple volumes. It was stated that the parent company is willing to assist in this regard providing the required standards are met. The company currently holds 30% of the market share and with increased market demand will be able to set the standard.

Either way it is agreed that focus should be placed on marketing to explain under recoveries. It was suggested that a market intelligence department may help to identify potential customers and explain why volumes are not being achieved. The company should actively pursue any potentially suitable opportunities.

4.8 Results pertaining to Research Question 6

Are the economic factors related to the cost of global outsourcing well understood or are these cost elements poorly estimated resulting in sub-optimal strategy formation?

There is general consensus that some cost factors are taken into account but that the company is probably not accounting for significant cost and it is unlikely that known costs are closely monitored. The Manager: Planning & Controlling states that there is more focus on import costing however it is still reactive as

opposed to proactive and generally all related costs are probably not well known, i.e. carbon emissions from diesel ships etc. The Financial Manager: Operations agrees that costs relating to global sourcing are not well understood as they are cross functional in nature and there is a communication breakdown between the affected functions. The Financial Controller: Manufacturing believes that the calculated cost of global outsourcing will be as good as an assumption because it is not known or well understood. Outsourced product cost needs to include local activities and therefore becomes similar costing to that of a factory. It was added that focus has been placed on understanding importing costs as the Finance Director has co-ordinated sessions between the various parties (distribution, storage, accounting etc.) to gain an overall view since not all cost is landing in one cost pool.

There is also agreement that there are too few accounting skills for the significant global outsourcing operations. Currently there is not a dedicated resource to understand and manage this cost pool. The Business Manager: Hardgoods adds that the company needs to consider analysis paralysis however, better information would be beneficial.

The Strategic Projects Manager details the process which was followed from a cost perspective when considering the outsourcing decision which resulted in factory closure, he states that investigations were performed to assess if the company could source the raw materials at a lower cost however this did not prove to be fruitful as the major component is steel and there is no pricing parity within South Africa with Mittal being the only supplier and charging the LME price. He adds that it was also not viable to import steel as the benefit in price would have been negated by import taxes. Break-even analysis was also conducted to determine the required volume to be produced in order to match the imported price and a great disparity was found. In 2007/2008 the factory was producing 5500 tonnes per annum, at the time of the study the market demand was 2300 tonnes per annum, partly caused by the global recession and lost contracts. The break-even analysis reflected that the factory would need to produce 1050 tonnes per month to match the imported price. As the

landed cost of the imported product was cheaper than that of the in-house produced raw material component the decision was made to import.

The Strategic Sourcing Manager explains the costing challenges faced for the factory importing semi-finished items, he states that the transition phase is difficult to quantify, but that the before and after should be possible. He mentions that the unit cost is easy but cross functional costs are not and overall group savings reporting adds complexity as inflation and commodity drivers need to be taken into account. Volatile exchange rates and commodity prices as well as the multi year project duration also add to the difficulty of accurate costing. He believes that operational costs are not well understood and the company should be doing a better job. He states that it is probably not possible to track all cost as this is fundamentally very tough but it is important and there should be a model which shows how cost is being tracked. He adds that operations have various tracking measures but there needs to be a higher level of understanding from an accounting perspective as this would assist from a timing and business benefits perspective in understanding the impact of shifting strategies. He states that no clear numbers currently exist which makes decision making difficult and that the company needs to get the standard costs right as a starting point. The Group Components Manager confirms this statement by stating that the effects of new strategies on product costs have not been accurately represented in the system. He adds that some products have been updated to reflect new standard costs and it is envisaged that all will be updated within the next year. However, changes to the current standard cost are not understood and additionally outsourcing has transitional cost such as moving staff, flights etc. hence the company is incurring “double” expenditure. Additional costs of retrenchment, logistics; greater lead times are not being well accounted for as it is problematic to quantify these costs.

It is believed that Chinese producers are able to offer a lower cost product as they receive tax breaks of around 17% per product invoiced from their government. In their costings they quote the LME price for steel however there are many suppliers and hence more competition which results in better prices. They are also able to achieve economies of scale and economies of learning as

they produce macro volumes in comparison to micro volumes produced in South Africa. It was stated that some Chinese plants make in one week what is produced in SA in a year. Products are cheaper as overheads are spread over greater volumes and price benefits are gained from their suppliers due to their buying power. Also there are multiple manufactures and more choice in supply of raw materials and labour, the network effects is great and South Africa would battle to get the same cost effects. It is true that Chinese labour and management costs are rapidly rising however they are still much lower than that of South Africa. Base salaries are high in South Africa and the company pays even more.

There is agreement that the company should pay attention to understanding the following; cost of forward cover and upfront payments when dealing with China, lead times, risk of no delivery, implications of cancelled orders due to communication break downs between different cultures and languages, cost of foreign office, cost of shipments which can't be used, the cost of obsolete stock, and potential loss of IP. It was mentioned that Finance reports on working capital costs (stock, inventory, creditors), and distribution.

The Factory Manager stated that the total cost of poor quality is not recorded in SAP. Raw materials may be returned to the vendor plus possibly the shipping cost recharged however overheads relating to inspection, supplier negotiations, cost of placing a new order and lead time, lost customers etc. are not all quantified or charged back to the supplier. Some items can be sold as swarf to recoup costs but some suppliers want the goods returned and in these instances admin costs can not be recovered. She suggests that cost of poor quality systems exist which could be bolted on to SAP to provide better information. These supplier performance systems calculate the amounts to be passed back to the supplier.

It was stated that shipping costs are monitored to ensure optimal, high volume / cheaper, routes and ports are utilised. Air freight costs are also monitored as a transportation option in case of unforeseen stock shortages however this has not been needed to date. Additionally depending on the nature of the product and its ability to travel, scrap factors need to be taken into account.

The Financial Manager: Operations adds that there are transport and freight costs to consider which are often higher in the case of imported product as local production plants are strategically placed within the country to facilitate supply.

There is concern that exchange rate fluctuations are not considered as a material factor in costing decisions and hedging costs are not included in calculations, even though it is agreed that only so much hedging can be done.

For better understanding of the cost of global outsourcing, the Financial Manager: Operations suggested that import costs should be collected on an internal order or project, i.e. one cost bucket so that they can be contained, analysed and understood. Although this may be tricky there should be a way and the same logic should apply to exports. This is supported by the General Manager Information Services who agrees it is all about knowing the true cost and having competencies in place to make strategic decisions based on facts.

General consensus is that more focus needs to be placed on outsource costing as the company could lose a lot even on one order and especially as outsourcing has become a chosen strategy.

4.9 Summary of the results

Through the interviewees' open and honest participation, a board perspective is presented substantiating the factors influencing global outsourcing decisions, including suggestions to optimise decision making ability for strategy formation. Much detail was gathered on the existing production environment, its ERP costing environment and its integration with supporting functions. Interesting facts around the benefits, risks and economics of global outsourcing are shared.

CHAPTER 5: DISCUSSION OF THE RESULTS

5.1 Introduction

Results pertaining to each research question are discussed and explained in this chapter with reference to literature review findings and the sub-problems that this study explores. Firstly to gain a thorough understanding of an ERP production environment of a manufacturing entity; including accounting system analysis and its integration with the production function and secondly to assess the economic, strategic and political factors influencing global outsourcing decisions and how these are accounted for in practice.

5.2 Demographic profile of respondents

Initially interviewees were selected from the accounting and manufacturing functions that are closely involved with global outsourcing strategy formation or largely affected by its implementation. As the interviews progressed, it became apparent that there are strong dependencies, which appear to be misaligned between functions, extending beyond that of accounting and manufacturing. In an attempt to gain a broader perspective additional interviews were conducted with stakeholders from the marketing department and information services. This provided valuable insight to behavioural drivers and complexities experienced from multiple perspectives.

5.3 Discussion pertaining to Research Question 1

What are the factors enabling and inhibiting the availability of optimal management accounting information within an ERP manufacturing environment?

It is true as stated by Lea, Gupta and Yu (2005), that the implementation of the SAP ERP system enables integration through a common database and that the subsystems “talk” directly to each other making data available in real time.

However, as discovered there are several factors inhibiting the availability of suitably consolidated data for decision making. These factors are easily grouped into the categories of people, systems and data.

A general lack of skills and knowledge required to manage the supply chain within an ERP environment is prevalent. This appears to be due to the cross functional complexities of business processes and systems supporting these processes. This aspect is not unique, as stated by Lea et al. (2005) that although cross-functional data is available in an ERP environment, it is often not well understood across functional areas and due to this can be poorly maintained when the various functional areas are not aware of the impact on others. It was highlighted that there is a “culture of delegation” within the company and that a mind shift change is required. Managers need to invest in a learning process to better understand the integrated nature of the business and the ERP system in order to empower themselves. Behavioural issues may stem from dysfunctional KPI measurements which are said to be driving sub-optimal divergence instead of convergent behaviours to deliver overall company objectives. There also appears to be resourcing voids in key areas where operations and accounting should overlap in order to strategically analyse costs with the aim of being more proactive than reactive to business trends.

From a systems perspective, the SAP ERP system product cost planning functions are used to calculate the cost of goods manufactured (COGM) as detailed by SAP AG (2001). There is general consensus that the core system is sound and that configuration changes are seldom required. However there is concern that legacy logic has been built into the system and that this may be inhibiting SAP potential. There is also valid concern around the complexities and lack of flexibility of the system to provide a timeous accurate total view of profitability which impairs decision making. Supporting this concern Lea et al. (2005) explains that technical and functional system knowledge is required in order to present the data a format that facilitates understanding and scenario analysis for decision making. This leads to cumbersome manual manipulation of out-dated and inaccurate data, often at an inappropriate level of detail which may lead to non-optimal decisions being made. It was suggested that

dashboarding of key performance indicators and an integrated planning system may assist in the alignment of functions and the attainment of operational efficiencies. It is noted that continuous improvement is imperative for the system to deliver business benefit.

SAP states that in order to calculate the cost of goods manufactured, information from various SAP modules is accessed. For example, the material costs for a finished good are calculated using the associated bill of material (BOM) and the master records of the materials in the BOM. The production costs are calculated using the associated routings and overheads. Costing results in turn are used by other components for example, to update the standard price in the material master and carry out material valuation using the calculated prices. SAP goes on to explain that the costs may then be analyzed and business decisions such as "make or buy" can be made. However caution is expressed that given the integrated nature of the data SAP recommends that a thorough check is made to ensure that the correct data is accessed for the quantity and value structures before starting Product Cost Planning, in order to ensure that the costing results are reliable.

The company is following this exact process to calculate product standard costs however, from the above it seems obvious that the master data being used in the calculation needs to be as accurate as possible to provide a reasonable view of reality but this is not the case and hard lessons have been learnt in the importance of maintaining accurate master data as well as understanding the impact of master data changes. Information services stated that master data must be right as SAP is the least flexible system if data is not correctly maintained and shouldn't even be implemented if this critical aspect is ignored. Some debate was generated as to whether master data should be maintained by a central function or maintained de-centrally by users of the data, either way the importance of data maintenance and the far reaching implications of data values should be well understood. Attention to this vital aspect should be ongoing in nature to ensure that data is kept up to date with business changes which is not currently happening and major variances occur which are impossible to avoid until alignment is achieved.

Given the above all agree that data integrity is an issue which needs to be addressed and that SAP needs to be correct and not be second guessed if the data it provides is to be used in decision making. There should also be one source of data as figures reported from different business areas often do not tie up which leads to lost confidence in the accuracy of the information. Decisions are thus made with little or incorrect information, based on assumptions and common sense as opposed to facts from the system.

5.4 Discussion pertaining to Research Question 2

Would the comparison between accounting methodologies provide a better understanding of product costs in relation to selling prices over time, given that there may be distortions in product costs resulting from existing methods of cost allocation?

In order to assess if a comparison between accounting methodologies provide a better understanding of product costs the current accounting methodology was investigated. It became apparent that the accounting methodology has been passed on over time and that little theoretical knowledge is now applied to the process. The application of alternate accounting methodologies is almost non existent. Literature suggests that cost management strategies are among the most important techniques employed by manufacturers to monitor the profitability of operations in ever-changing, increasingly competitive conditions (Zengin and Ada 2010). If the costing system fails to determine the cost of differentiation accurately the company may be trying to compete in an unprofitable market segment (Cooper and Kaplan 1988). Examples of this phenomenon are provided in the literature review chapter.

There is consensus that the factories use a flavour of activity based costing (ABC) with smeared overhead from very broad buckets to derive standard costs. To calculate the standard, costs are rolled up based on bills of material (BOM's) and routings, absorption costing is used to recover all factory overheads. However, other business costs such as sales and marketing are not allocated to products. Standard costs are used to calculate cost of sales and

value inventory. According to the literature this approach is a combination of Traditional costing and ABC. As stated by Cooper and Kaplan 1988 this is the preferred method of accountants in practice as the decision to offer a product creates a long-term commitment to manufacture market and support that product. However they add that academic accountants, supported by economists, strongly believe that variable costs are the relevant ones for product decisions and have demonstrated that setting marginal revenues equal to marginal costs will produce the highest profit, providing the volume of production of all products can be changed at will and there is no way of simultaneously changing the level of fixed cost. Given that the company has experienced substantial volume changes without proportional reduction of fixed cost, it may be beneficial to consider this approach as an alternate view used for decision making. It was stated that strategic decisions should be made based on the material component however overheads need to be well understood in order to ascertain the overall implications of the decision being made.

It was stated that standard costing is used because some of the alternate accounting methodologies are difficult to implement in practice. Although there is merit to a simplistic approach the dangers of this should be well understood. Cooper and Kaplan (1988) explain that traditional systems that assign costs to products using a single volume-related base such as machine hours, as the company does, seriously distort product costs. This is due to the fact that high-volume products create fewer transactions i.e. lower number of set-ups, and therefore lower cost than low-volume items which require more set-up and should be allocated higher cost. This results in high-volume products being over-costed and low-volume products being under-costed.

This principle is substantiated by the Management Account responsible for product costing who states that costs are allocated to products based on their margin's ability to absorb cost and remain profitable. There is belief that this is not correct as it does not provide a view to drive correct focus on pushing volumes of products which are truly more profitable and initiating improvement projects for those which are less profitable. Given the behaviour which the

costing methodology is driving there is a risk that optimal product mix and marketing strategies are not being pursued.

The company battles to understand current standard costs and from there decision making becomes difficult. A number of reasons were mentioned supporting this statement, including the inhibiting factors related to the availability of optimal management accounting information such as out of date master data, assumptions based on old processes; lack of knowledge and understanding. Related to out of date master data and invalid assumptions, the standard cost calculation process is a once off exercise performed to calculate cost which is already old by the time the budget is complete.

There is unquestionably agreement that a more dynamic process facilitated by experienced accountants and systems is required to see a true picture of cost. It would assist in stakeholders understanding and should be used for scenario planning for strategic decision making and not necessarily for the calculation of standard cost. Given that there are distortions in product costs resulting from existing methods of cost allocation a comparison between accounting methodologies would provide a better understanding of product costs and influence selling strategies over time.

5.5 Discussion pertaining to Research Question 3

What is the effect on production when using capacity vs demand volumes to calculate product costs assuming the same method of overhead cost allocation i.e. machine hours in both scenarios?

The volume effect on product costs which arose out of the literature review completes this research on the first sub-problem, to gain a thorough understanding of the ERP costing environment of a manufacturing entity. Findings were gathered beyond that of the literature reviewed and highlight some pertinent issues.

The company uses a volume figure to calculate product costs, which is determined by reviewing sales demand and then working out the capacity.

It was highlighted that the effect this figure has on product costs is more sensitive than one imagines.

There is a strong view that demand should be used as long as it is lower than capacity to avoid major under recoveries of factory cost. Predicted demand should however be realistic based on what the company is able to sell. It is felt that demand also provides a better platform for debate and this is needed as it is apparent that there is misalignment between the factories and the marketing / sales function. This is believed to be caused by conflicting measures. All agree departments should come together and arrive at a balance between; the size of the market and market share, how much more of the market the company can capture, optimum pricing to get optimum volume and then check capacity, either invest or decide on what to do with surplus.

The influence that the volume figure has on product costs and resulting profitability is well understood; hence the company has been addressing the accuracy of these figures. It is believed that although there is still room for improvement the sales and operations planning process is moving in the company in the right direction and will in time focus on a longer term timeframe.

5.6 Discussion pertaining to Research Question 4

What are the benefits, objectives and anticipated outcomes of global outsourcing opportunities considering the motivations for outsourcing to achieve competitive advantage?

Undoubtedly the company's fundamental objective of global sourcing is to acquire products at lower cost or at least at a globally competitive level whilst retaining quality in order to significantly increase volumes sold. This is exactly in line with what the literature suggests is perhaps the most important motive for global outsourcing, the expected economic benefits, which consist of cost reduction, cost saving and capital investment reduction (Lau and Zhang 2006). Supporting this statement many other studies report that most outsourcing deals are driven by a desire to reduce cost (Kremic et al. 2006, Kakabadse and Kakabadse 2000, Lynch 2004). As organizations strive to improve

competitiveness and responsiveness to customer and market demands, outsourcing is a fast-growing aspect of the world economy (Razzaque and Sheng 1998).

Linked to economic benefits the company is realising increased profitability through unit cost reductions of up to 40% and reduced losses from production even though overheads have not been eliminated as predicted. Unit cost reductions are believed to be a result of higher productivity levels of foreign manufacturers and the sheer economies of scale which they are able to achieve. Increasing in house productivity levels is a challenge and outsourcing eliminates the need to manage labour related issues. However, the critical anticipated gain in market share through more competitively priced products has not been achieved. Additionally instead of gaining from capital investment reduction, the company has incurred substantial asset impairments as a result of global outsourcing decisions. The literature suggests that perceived gains are often overstated.

Kremic et al. (2006) states that outsourcing activities are likely to be initiated for more than one reason and in fact, may be driven by elements from cost, strategic and political categories. This is true in that the company is driven by the need to ensure supply continuity and reduce stock shortage risks, gain access to new markets and products and benefit from improved innovation and quality. However, although these aspects were mentioned they are not the company's primary drivers to outsource and in fact mostly raise risks for the company associated with global outsourcing operations.

Strategic reasons for outsourcing stated by Lau et.al. (2006) include acceleration of business process re-engineering to improve performance and achieve competitive advantage, focus on core competence to improve business focus, increase competitiveness, leverage the firm's skills and resources and enhance customer satisfaction. Flexibility enhancement to reduce constraints of in-house production, convert fixed costs to variable costs, increase responsiveness to market change and reduce risks are also noted to be strategic benefits of outsourcing. Other than the desire to increase competitiveness and responsiveness to market change, strategic reasons for

outsourcing do not appear to be majorly affecting the company's global outsourcing decisions. Some environmental benefits were raised such as reduction in health and safety management and the view that liability could be shared with suppliers. However, these too do not appear to be key drivers of the company's global outsourcing decisions.

The literature reviewed does not elaborate on the measurement of benefits however it is believed that the implementation of a process to measure and manage anticipated outcomes would assist in the understanding of factors influencing predicted benefits and highlight areas for improvement.

5.7 Discussion pertaining to Research Question 5

What are the risks, problems and obstacles associated with global outsourcing strategies, are these factors known and are plans in place to mitigate potential losses?

The potential limitations and negative consequences of global sourcing have been well documented (Meixell and Gargeya 2005, Herbig and O'Hara 1996, Smith 1999, Kotabe and Murray 2004). The company is aware of many of the risks and complexities associated with global outsourcing, it was stated by the General Manager Operations that there is in fact more complexity when importing as opposed to producing in house. These complexities include loss of control, difficulty in finding reliable suppliers, the hidden costs of supplier management, and the risk that the company distances itself from its customers which may result in lost relationships that have detrimental effects for the company. These findings are in line with the summary of obstacles and problems written by the authors Lau et al. (2006) which includes loss of control impacting loss of core competence and risk of alienating customers, loss of critical skills resulting in loss of competitive advantage and increased number of competitors, inadequate capabilities of service provider impacting competitive advantage and market share, loss of flexibility causing reduced responsiveness and alienating customers and failure to realise hidden costs resulting in increased operating cost.

The literature highlights the rapid changes to rules and regulations for trade within and outside of China as a result of Chinese government economic policies and that these changes require continuous review, analysis and fresh insights (Wang, Singh, Samson and Power 2011). The company is aware of this risk as it was mentioned by a few interviewees that the current sourcing strategy is only medium term in nature and that the company needs to be on the lookout for the next competitive location in order to make a timeous move. South African government intervention was also discussed as it is believed that South Africa will need to protect its manufacturing or the country will become a net consumer and unable to provide labour or add value when there needs to be a level of employment to protect consumption. Additionally Trade unions and the Department of Trade and Industry are campaigning for consumers to support local manufacturing and it is acknowledged that if this progresses, having a local production facility may result in the company having an advantage over importing competitors and enable the company to take the moral high ground. The problem is that once manufacturing capability is lost it is unlikely that it will ever be regained and this possibility of competitive advantage may not be a reality.

Although it is believed that aspects which are unique to the company business should not be outsourced, the literature states that companies are increasingly procuring products and services that are part of their core business, whereas previously, companies were mostly sourcing non-core items (Li M., Liu, Li M. and Wu 2008). There is a risk that this will affect the company as already more items than predicted are being sourced globally. In this case the loss of IP is considered to be a major risk to the company. Although this is acknowledged and mitigation procedures are in place, there is a risk that current protection of IP measures such as multiple supplier selection and in house R&D may not be sustainable in the long term as differentiated products become commodities, research and development may not be able to be competitively innovate given that they will not have access to production lines or skills to test designs.

Meixell et al. (2005) argues that substantial geographical distances not only increase transportation costs, but complicate decisions because of inventory cost tradeoffs due to increased lead time in the supply chain.

This research presents many risks around the globally extended supply chain, these included contrasts in the operating practices of suppliers, increased frequency of strike action affecting customers, exchange rate fluctuations, uncontrollable price escalations, greater certainty required in demand forecasting due to reduced flexibility in lead times and increased stock holding, increase in obsolete stock, increase in working capital, goods in transit damage and losses, piracy on the high seas, non delivery from suppliers and increases in importing customs and taxes. Many of these risks are thought to be mitigated by the fact that major competitors are importing and all will be in the same position should a major risk be realised. It was however stated that perhaps following competitors may not be the optimal strategy and could in itself pose a risk in that local producers could outplay importers depending on conditions, i.e. more steel suppliers enter the market locally. Not mentioned in the literature reviewed a valid point was raised which adds that global outsourcing decisions are influenced by the conditions at the point in time which the decision is being made, caution should be exercised and although difficult given the nature of variables to be considered a longer term view should be predicted.

The literature also supports the fact that different cultures, languages, and practices diminish the effectiveness of business processes such as demand forecasting and material planning. Similarly, infrastructural deficiencies in developing countries in transportation and telecommunications, as well as inadequate worker skills, supplier availability, supplier quality, equipment and technology provide challenges normally not experienced in developed countries. These difficulties inhibit the degree to which a global supply chain provides a competitive advantage and supports the concern the company has around quality management especially as the company offers a premium brand. Robust measures such as the formation of the foreign office to monitor quality and the employment of Chinese nationals to overcome cultural and language barriers is proving to be highly successful.

There are mixed views around in house manufactured quality, however there is a risk that quality perceptions around locally produced items may be incorrectly influencing make or buy decisions.

Related to quality is liability risk, this was not mentioned in the literature reviewed however it should not be ignored as it comes at a huge cost to company in the event of a quality failure.

It is recognised in the literature reviewed that all the potential risks of outsourcing are not currently known (Kremic et al. 2006). There is much concern that the company's currently half baked (make and buy) scenario is dangerous as overheads must be reduced in order to get returns on outsourcing strategies as predicted. There are views that the company should pick one way or the other as it is now in the worst possible scenario with less control over quality and not achieving the full benefit of cost reduction. Additionally this brings about fear of job loss, low morale and challenges in maintaining productivity levels and systems supporting interim processes when the final state is not known by all. The authors Lau et al. (2006) add that fear of job loss results in resistance to change and lowers staff morale which reaches beyond the outsourced area.

Another perspective not addressed in the literature reviewed was the risk that drivers of outsourcing decisions and the anticipated outcomes need to be well understood. For example the primary driver to outsource (the assumption that price reduction would increase sales volumes) was possibly not complete and that there are in fact other issues influencing the success of global sourcing strategy execution such as understanding of the market place.

In accordance with the literature many risk factors are known and some mitigation procedures are in place however also in line with the literature probably not all risks are known and if any are realised there could be significant implications for the company. For strategy formation and operations more focus should be placed on risk identification, probability of occurrence, degree of impact and mitigation.

5.8 Discussion pertaining to Research Question 6

Are the economic factors related to the cost of global outsourcing well understood or are these cost elements poorly estimated resulting in sub-optimal strategy formation?

The literature suggests that it is important for companies pursuing or considering global sourcing strategies to have a thorough understanding of costs involved to ensure that their perceived gains are realizable, especially as cost reduction is widely considered to be the primary driver for outsourcing decisions.

Studies have also shown that as a rough guideline 50 per cent of a product's quoted price can be added-on to reach the true cost of a product sourced from China (Platts and Song 2010). This research published by the University of Cambridge on the total cost of sourcing from China also states that companies perceive add-on costs to be 25 per cent of the quote product price. In the company's Manufacturing Sourcing Strategy business case, 15% of the material cost was added for transit charge, which incorporated warehousing, shipping and forward cover expenses. It is unclear if this was intended to be the total cost of sourcing from China but never the less is substantially lower than that of case studies quoted in the literature reviewed. The literature suggests that companies need to be more thorough in their identification of the true cost of overseas outsourcing and to be wary of significantly underestimating this cost. Kremic et al. (2006) substantiates this by stating that there is increasing evidence that cost savings have been overestimated and that costs are sometimes higher after outsourcing. For the company this is true and believed to be caused by the "double" (local and global) expenditure being incurred until the final state of the sourcing strategy is achieved.

There is general consensus that some cost factors are taken into account but that the company is probably not accounting for significant cost and it is unlikely that known costs are closely monitored. Due to the importance of and complexities involved with understanding costs related to outsourcing to China, Song, Platts and Bance (2007) developed a framework which provides a

detailed listing of cost categories associated with global outsourcing. These categories were identified in academic literature and validated with practitioners all of whom had experience of global sourcing, not only from China, but also from other countries including Lithuania, Singapore and Korea. When comparing this study's results to the framework each and every cost category item from initial set-up costs to ongoing operational costs were reported by the interviewees. Additionally it was mentioned that costs such as carbon emissions from diesel ships etc. are not known but there is awareness that the impact of these costs should be investigated. It comes to light that the issue is probably around the tracking of cross functional costs which is fundamentally very tough but is believed to be important and there should be a model which shows how cost is being tracked. Some operational cost monitoring is performed but it was stated that there needs to be a higher level of understanding from an accounting perspective. It is also apparent that many of the factors inhibiting the availability of management accounting information in the manufacturing environment are the same factors inhibiting the ability to get a clear view of the cost of global outsourcing. These factors include limited cross functional knowledge and communication, lack of experienced dedicated accounting skills, system constraints and outdated / inaccurate master data used in cost calculations.

Another aspect which was raised but not detailed in the literature reviewed is the fact that the company has a view on factors influencing their suppliers cost, i.e. factors which enable China to produce more competitively. It is important to have this understanding and monitor these factors as they become important in strategy formation. There is a view that the company made the decision to source from China too late and now the company wants to be on the leading edge of Operations trends.

In some cases where a products landed cost has been less than the raw material cost required for production, decision making was perhaps easier but given the number of variables which impact the cost of globally sourced items it is acknowledged that more focus is required on managing costs better, especially as outsourcing has become a chosen strategy.

The literature adds that there is evidence that dramatic cost reductions can be possible by adopting a global outsourcing strategy even when taking into account all cost categories, as the cost of sourcing from China may still be lower than that of in-house production (Wang, Singh, Samson, Power, 2011). Never the less the company has taken actions to improve the understanding of global sourcing cost in order to be more proactive than reactive to cost trends.

5.9 Conclusion

To a large extent the findings of this study are in line with the literature reviewed. There are aspects in all areas which present factors beyond those stated in the literature reviewed, which was the intention and result of the open ended interviews.

CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

A thorough understanding of the ERP production environment of a manufacturing entity has been gained. Factors relating to people, systems and data integrity are presented as enabling and inhibiting the availability of optimal management accounting information. It has been ascertained that a comparison between accounting methodologies would provide a better understanding of product costs in relation to selling prices over time, given that there are distortions in product costs resulting from existing methods of cost allocation. Volumes used to calculate standard costs have a significant impact on the final calculated product cost and demand is believed to be the most appropriate source in determining volume information.

The anticipated benefits and their measurement, risks and their mitigation plans, as well as the understanding of economic factors influencing global outsourcing decisions are also well understood.

There is a over riding theme of cross functional dependence which spans the entire organisation and raises interesting complexities as were often alluded to in the literature reviewed. Questions raised in this study have been found to have a significant impact on the formulation of manufacturing strategy which supports the overall company strategy. Conclusions from this study are presented in this chapter followed by recommendations for stakeholders' consideration in an attempt to improve current operations.

6.2 Conclusions of the study

Following an analysis of the company's ERP production environment it appears that although the company has leading edge systems technology, due to the factors inhibiting the understanding and availability of cross functional

information, the company is possibly not in the best position to ascertain whether global outsourcing or investing in the manufacturing function would lead to greater improved operating performance, based on factual data in which the business has confidence. The main factor determining this statement is the lack of skills and knowledge required to manage the supply chain within an ERP environment, from a process, systems and accounting perspective. This partly stems from what was alluded to as a “culture of delegation” and results in an inadequate focus being placed on understanding the implications of actions and attention to critical functions such as data maintenance in order to ensure data integrity. The cause of this cultural aspect is not clear as senior management appears to be relatively hands on. This behaviour is prevalent at a middle management level and could in fact be caused by a lack of knowledge. In some cases, particularly in the accounting function, there is just not enough resource capacity to support operations at a strategic level. Additionally, much reference is made to conflicting performance measures which are believed to be driving sub-optimal behaviour.

It is apparent that the organisation is aware of these inhibiting factors and attention is being placed on addressing these issues. For instance it is acknowledged that continuous improvement is imperative from a systems perspective to provide a consolidated view of cross functional data, facilitating the alignment of functions across the organisation and enabling scenario planning capability. The basics however should not be ignored as incorrect source data and opposing objectives will lead to inaccurate projections.

Based on the accounting methodology results indicating that system data is outdated and, taking the above into consideration, it is imperative for the company to review and align product costing with current operations to obtain a realistic view. This is especially true as it is believed that standard costs vary from actual costs by approximately 25% and significant costing errors have been reported. It is agreed that a more dynamic process of costing simulation would help in decision making and that the comparison of accounting methodologies would prove to be beneficial. Although there is a trade off between overall profitability simplicity and effort required to practically

implement and maintain theoretical accounting methodologies, caution is raised that the current methodology could be driving sub-optimal product mix decisions and marketing strategies.

This is primarily due to the fact that costs are allocated to products based on their ability to absorb cost and continue to show a positive margin, as opposed to true costing which would promote the marketing of products which are more profitable and initiating of improvement projects for those which are less profitable.

The volume effect on product costs provided a significant finding for this study. It has been ascertained that product costing and factory recoveries are hugely sensitive to predicted demand and production volumes respectively. It became apparent that departments are not aligned and should come together to arrive at a balance between; the size of the market and market share; how much more of the market the company is able to capture, optimum pricing to get optimum volume and then adjust capacity accordingly (either invest in production or decide on what to do with surplus capacity).

Given the existing production environment the study moved on to examine the economic, strategic and political factors influencing global outsourcing decisions and how these are accounted for in practice within a manufacturing environment.

Although multiple benefits were stated undoubtedly the company's fundamental objective of global sourcing is to acquire products at lower cost, or at least at a globally competitive level whilst retaining quality in order to significantly increase volumes sold. The reasons provided for the company's in house production inability to compete on price relate to productivity levels and economies of scale which are not obtainable under local conditions. The measurement of benefits however is unclear, it is believed that there are savings at a unit cost level but since overheads have not been reduced as desired, overall losses are being incurred. This is believed to be an interim state and that overall profit will increase once the Manufacturing Sourcing Strategy is fully implemented. However the Manufacturing Sourcing Strategy is largely dependent on volumes

and it is imperative that market share is won and that volumes increase or operational improvements will be in vain.

Detail obtained on company strategy and in turn manufacturing strategy is vague and this brings on risk associated with the global outsourcing strategy. Whilst the strategy is being shaped there are views that the company should finalise the strategy timeously as it is now in the worst possible scenario with less control over quality and not achieving the full benefit of cost reduction. Additionally, morale is low which is having a detrimental affect on the company, beyond the areas directly affected by global outsourcing.

There is much concern over intellectual property protection given that the company offers a premium brand. Also, the new outsource strategy brings into question the company's ability to continue to be innovative and bring new products into the market given the loss of critical manufacturing skills and a production base, which will jeopardise the company's ability to prototype new designs and trial them in the market. Cultural barriers, environmental and safety standards and political risks in source country are raised as well as the possibility of South African government intervention. Many other risks including loss of control and supplier management, customer liability, decisions being influenced by conditions at a point in time or by preconceived ideas, exchange rate fluctuations, increased strike action, uncontrollable price escalations, time implications of an extended supply chain, following competitors and the need to find the next low cost location are all mentioned.

A risk affecting the company whether make or buy is the strategy, is the risk that the company does not understand the market or is not able to increase market share and achieve volume growth.

Although risks are widely acknowledged and some mitigation plans are in place a single realised risk may leave the company in an irreversible defenceless position.

The economic factors relating to the total cost of global outsourcing appear to be well understood however poorly estimated and reported due to the fundamentally tough nature of gathering of cross functional costs and the

inhibiting factors associated with understanding cost across the organisation as stated above.

The company has however taken actions to improve the understanding of global sourcing cost in order to be more proactive than reactive to cost trends especially as global outsourcing has become a chosen strategy for the company.

6.3 Recommendations

As the main factor inhibiting the ability to make sound decisions based on factual data is lack of skills and knowledge required to manage the supply chain within an ERP environment more emphasis should be placed on education initiatives. Additionally as it was mentioned that knowledge transfer has failed across generations it appears that the company's training approach is not successfully informing and enabling employees. Process oriented training, supported by system key stroke should be formally trained as opposed to relying on word of mouth, on the job instruction. Training programs must be designed from a cross functional perspective highlighting the implications of actions on other functions. Accessible high quality training material must be kept up to date and presented by experienced trainers.

Stringent data maintenance rules should be implemented and if not adhered to disciplinary action should be enforced. Once source system credibility is established the implementation of sophisticated planning tools would be beneficial in aligning functions and strategy formation.

Recruitment of experienced, skilled commercial accountants who are up to date with current accounting practices and possess strong IT and ERP skills would assist in the analysis of data to proactively identify trends and provide insight at a strategic level. This is imperative to understand the complex implications of cross functional strategies.

In order to address cultural / motivational aspects employees need to be measured such that responsibility and accountability is enforced. The

implemented measures must be in line with departmental and overall company strategy to provide individuals with a sense of purpose and align functions across the organisation. Strategy must be clearly communicated and understood by all to reduce morale issues and focus the company on moving forward. Currently factory employees are uncertain and believe they are getting “mixed messages” from senior management. This is detrimental to the company as time is wasted pondering their future. The Group Components Manager is widely respected across the organization and most importantly by the factory employees, this is apparent when visiting the factory. Given the current manufacturing situation and challenging labour conditions this management style and approach is an asset that should be supported by the rest of the business and channeled to drive operations performance with appropriate focus on finance and marketing.

The project office is a good idea to ensure business improvement initiatives are delivered. However although there is merit in neutral Six Sigma Black Belt practitioners, they should have the capability to interrogate the system, research subject matter across the business and make recommendations bearing in mind the significant implications of their findings. This does not appear to be the current status quo and is concerning that executives are presented data for decision making which is more than likely flawed or accountability for this data is deferred to the contributing departments. It is agreed that the business should support initiatives however there should be some accountability bestowed upon the project delivery responsible, including the subsequent measurement of project success to ensure that care is taken to accurately predict and interpret the situation being addressed.

In the case of decision making such as make or buy it may prove beneficial to split the study into two competing arguments presented by different individuals - a make argument and a buy argument. This approach could eliminate the risk of skewed research results stemming from preconceived ideas, enabling both presentations to sell the merits of their perspectives. Caution is required to ensure that practitioners are of equal ability or findings may be skewed influencing sub-optimal decisions.

As strategies and processes change it is imperative that the system is kept up to date. This should be part of daily activities and not process improvement projects once mini re-implementations are required. The factories are currently reviewing and aligning product costing with current operations to gain a realistic view. This process was initiated by IS, however ownership and ongoing support should reside in the business to ensure a level is reached where product costs are well understood and can be explained to stakeholders who have a vested interest, i.e. marketing and executive management.

Armed with solid costing information, attention needs to be paid to the marketing of products in order to increase market share and generate higher volumes. The factory staff providing a technical support service to group procurement may assist however they should be focused on R&D, productivity, quality and running the factories. It would be better to find the right personality, working closely with the factories, to break down barriers of the past and to market the products across the parent company's global footprint. Price elasticity effects on volume studies should be conducted to formulate appropriate market penetration and growth strategies taking into account required margins and impact on existing markets.

The benefits of the global outsourcing strategy are concerning especially as accountants state that expected savings may be unrealistic and that overall losses are being incurred. Care needs to be taken to ensure that like for like is being compared when benefits are presented. It is agreed that more emphasis needs to be placed on the understanding of global sourcing cost in order to be more proactive than reactive to cost trends.

In the medium term cost savings may be realized but it has been highlighted that it is necessary to continuously reassess the strategy and source of supply. If the company aims to be leading, is the strategy to jump from one low cost location to the next sustainable? Complexities involved with obtaining the desired quality from new suppliers and the fact that it may prove to be difficult to be competitively innovative locally without production skills and facilities to test the end to end operations process challenge this assumption. This may lead to the company becoming a supplier of commodities with no real capability to

compete in the long term. A suggestion is to bring back the manufacture of highly differentiated items, possibly trying the voluntary model whereby employees are paid based on productivity, which would eliminate many of the risks associated with global outsourcing, especially around control, protection of IP and ability to manufacture innovative products. The production of fewer product lines should present opportunities for improved operational efficiencies and may enable the company to extend its product offering in the future once cost control has been regained. As political and economic conditions change this would place the company in an advantageous position over importing competitors providing the company can weather the storm and address the volume related marketing issues.

6.4 Suggestions for further research

The literature suggests that there is a complex dynamic between a firm's management accounting system and production system, accordingly as this research evolved in examining the factors influencing global outsourcing decisions and ERP in a South African manufacturing environment additional questions arose which may be suitable for further research, these include:

Does the implementation of ERP software disempower employees from a reduction in knowledge perspective? As processes, daily tasks, responsibilities, etc. are to a large degree automated by the system, is the employee base becoming more distant from the real background processes and theory? If so what is the cost to company and how should this be mitigated? Is this a national or global trend whereby ERP systems are removing the thought process from the business users and thereby diluting the ability of business to change to new market conditions and challenges?

Are the roles of traditional accountants / managers changing with advancements in systems and technology? How should the generation gap be addressed or will it fade out over time?

What are the differences and similarities, benefits and risks associated with local vs global outsourcing?

Is a company's share price affected when divesting manufacturing, considering core capabilities, competitive advantage and the effects on short, medium and long term sustainability?

Benefits, risks and costs of global outsourcing are well documented but how should these be optimally measured and managed given the difficulties of consolidating cross functional information?

Would the study of global outsourcing decisions in different geographies, industries or company's produce similar results?

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APPENDIX A

Interview Schedule

ERP Production Environment:

1. What are the factors enabling and inhibiting the availability of optimal management accounting information within your ERP manufacturing environment?

Accounting Methodology:

2. Which accounting methodology is employed by the company, i.e. activity based costing, throughput accounting etc. and what are the reasons for this selection?
3. What are the implications of the method of cost allocation? Do you believe that products are costed fairly and that the optimal product mix is being produced?
4. Would the comparison between accounting methodologies provide a better understanding of product costs in relation to selling prices over time?
5. What is the effect on production when using capacity vs demand to calculate product costs? Which volume is used by the company to calculate product costs and why?

Global Outsourcing Decisions:

6. What are the benefits, objectives and anticipated outcomes of global outsourcing? Have these been measured? Are they in line with the original business cases?
7. What are the risks, problems and obstacles associated with global outsourcing? Are there plans in place to mitigate these risks? Have any new risks been identified since the decision was made to outsource?
8. Do you believe the economic factors relating to the cost of global outsourcing are well understood and closely monitored? Which cost categories are taken into account?

APPENDIX B

Interview Transcripts

Results pertaining to Research Question 1

What are the factors enabling and inhibiting the availability of optimal management accounting information within an ERP manufacturing environment?

The Human Factor

Director and General Manager Operations
No comment.
Group Components Manager
<p>SAP contains much detail however there is an inability to process the data adequately. The factories in fact require more resources to understand the data and tailor the functionality to meet the factory needs. More detail is required by the factories than for other areas in the business which leads to frustration when required to comply with a group template. More energy and effort is required to manage the level of detail. The full potential of SAP is not realised.</p> <p>The level of personnel employed by the factories influences the ability to gain value from the system. The majority of employees only have enough system knowledge to get by and it is not foreseen that it will be possible to recruit the level of skill required to derive value.</p> <p>Complexity and the lack of fundamental understanding of the supply chain are real issues.</p> <p>Insight to interpret information comes through experience and much of this has been lost through staff turnover. Only one person performing an accounting function dives deep into the detail and once problem areas are identified does</p>

not have the mandate to action. Factory managers who do not understand the accounting are at a great disadvantage however there is a lack of interest in gaining this understanding. Managers need to have an interest and spend the required time to resolve this issue as currently they feel helpless but don't want to invest in this learning process.

There is culture of delegation within the company which results in failure to get things done.

Modern management requires to know more about ERP and this is not being achieved which is a mistake. It would be better to ignore other areas of business than this as it is in essence ignoring financial statements. There should be no excuses for not understanding issues and processes and being able to identify trends across the supply chain.

Group accounting has the knowledge to support the factories however they are not as closely aligned with the factories as previous accounting functions when each factory had their own accountant, it is well understood that this is becomes too expensive.

Factory Manager

Generally there are not enough SAP skills and the implication of actions is not well understood. The practical is not easy to understand in the system.

Strategic Projects Manager

Understanding of SAP and information that SAP is able to provide is a major inhibiting factor. An ERP system should be able to provide all parties within an organisation a view to sustainability of the various business units.

A mind shift is required to accept true cost and adjust operations accordingly. Skills to cost correctly according to actual cost drivers probably exist within the company but attitude, motivation, nature of the characters involved are preventing the time and effort from being spent to improve.

Strategic Sourcing Manager (China)

Accountants don't understand the business or operations don't understand accounts, possibly a combination of both. There is a basic understanding of cost centres but everything else is not clearly understood especially recoveries between functions and the effect of volumes and raw material price changes.

Manager Business Process Improvement & Six Sigma Black Belt

Lack of knowledge, skills and understanding of the impact of actions on downstream functions leading to garbage in garbage out. Knowledge transfer to subsequent generations has failed and current resources just can't manufacture to the required standard anymore, this contributes to the general lack of understanding and manufacturing documentation. Employees should know how to make products that are 80+ years old without needing to experiment with recipes i.e., fluxes.

Senior management is removed from detailed costing, rightly so, only the current Group Components manager makes an effort to participate in factory costing. There is no highly skilled cost accountant within the factory environment, this person is needed in a full time capacity to support management and should have an in depth understanding of daily activities not just be involved in a yearly budget fully absorbed process based on historic parameters.

SAP has the potential to give all required and more however there is a need to exploit the system functionality. The Group Components manager has started to look at evolution but is not supported by sufficiently skilled accountants. More than one person should be allocated given the cost base of the factories. Additionally outsourcing costing is also not done by a skilled accountant.

Six Sigma Black Belt

Not a SAP user, if information is needed data is requested from applicable departments. Six Sigma is focused on understanding pain points and assisting in decision making. Project leaders are mostly likely not the expert in the area of the project but are required to build a team of experts, it is important to pull in the right skills. Without the knowledge to source data, the project team has to rely on others. Resistance has been experienced when requesting data, “not my job” mentality. It helps to have a point of contact and there have been thoughts about value chain mapping to document where to go for different types of data.

In the case of make or buy decisions many divisions are consulted in the process. Divisions are supportive of such projects however there has been some pointing between departments but this is normal in any company. The MD’s scorecard should filter down however this doesn’t happen; even some General Managers just do it for reporting which does not drive the right behaviour. Scorecards are being worked on.

Business Manager: Hardgoods

Not a SAP user; group finance distributes packs which present overall profitability however product managers should be looking at more detail. Would love to measure gross margin return on investment (GMROI) and return on capital employed for hardgoods. The information may exist but not in a structured way.

In the last few years Finance has been running the company by providing information but not giving valuable information to the business to make operational decisions. Business should also be more involved. Every department has its challenges, Finance needs to cover costs but effort on cost allocation should be made with the business and likewise from a factory perspective. Departments shouldn’t work in silos but aim to benefit each other. There is a costing meeting which addresses cross functional issue however this needs to be more operational.

General Manager Information Services

Manufacturing history has not been adequately passed on, legacy was reliant on a few individuals who were involved in the migration onto SAP but subsequently left the company and nobody has picked up a super user role to ensure, master data, system configuration and functionality are aligned to processes. Business changes are not reflected in the system due to fear of breaking the system. A switch from manufacturing to outsourcing for example would require system changes which as far as is known have not been reflected in the system accordingly.

Accounting support for the factories is currently at an admin level. Given the cost base the right level of skills should be deployed. Currently there is nobody analysing data at a strategic level which leads to knee jerk reactions as opposed to acting on facts identified timeously. Given the losses being experienced more needs to be spent on the appropriate level of skills.

It is not the role of IS to validate production master data such as BOM's and routings. From a costing perspective there have been challenges to provide an adequate level of IS support however this has been addressed by making use of consulting skills. Ultimately the knowledge should reside within the business.

Manager: Planning & Controlling

Knowledge transfer from the initial project to support was not good enough, only a few resources remain with the required level of system knowledge.

Due to the centralised structure of the accounting function, accountants responsible for factory accounting do not report into the factories which leads to less focus on factory costing due to other priorities.

Time is limited to analyse detail. More resources are required at a strategic level to analyse costs from the beginning to the end in order to be more proactive than reactive, i.e. analysis of variances at production order level as opposed to at an Income Statement level. However as actual consumption is not captured in all cases, only really for material used, variance analysis is limited which

affects decision making.

The factory accountants have some SAP experience and seem to be coping well at an operational level but lack data for strategic decision making.

Management accountants do not report areas for improvement. They are qualified but are lacking experience and more skills are required. There used to be a financial manager at each factory however there is a cost trade-off to consider. Management should be challenging and getting closer to the numbers to build confidence in the figures.

Financial Manager: Operations

There is a general lack of knowledge and ability to link physical activities to the figures being reported. Production functions are not aware of the cost associated with the products being produced.

There is better alignment between functions since KPI's are used to measure managers on their performance as this forces individuals to be accountable for their operating costs.

Financial Controller: Manufacturing

People using SAP don't have exposure to the intricacies of SAP to achieve objectives. Materials management and production users ask finance their areas, they may be trained but they don't understand. The system is not wrong; users just don't understand or know how to use the system.

Management Accountant: Component Manufacturing

There is a complete breakdown / no adherence to internal controls, i.e. there is a standard policy on inventory counts however this is just not done by the factories. There are too many excuses for non conformance due to the amount of work involved, i.e. number of line items is difficult to manage such as obsolete stock, and nobody wants to work through the detail.

Measurement is driving behaviours, i.e. cost is posted to the incorrect buckets

to make KPI's look good. This hides the truth, the creativity is amazing but true cost is never known. This happens in the case of repairs and maintenance where cost is moved from repairs and maintenance if the fault is caused by production.

Behaviours need to change, however management accounts is not responsible for behaviour. Senior management has set views which are not easily influenced and it becomes difficult to explain if there is no listening. Pressure is being felt from senior management and is flowing down driving good behaviour but it will take time to close all the loop holes as the factories got away with murder in the past.

System Design

Director and General Manager Operations

A good planning system with full integration across functions would improve operational efficiency. Even though MRP etc. is implemented it is not optimally used.

Efficiencies in the system need to be continually improved; the problem with month end reporting is that the business only receives the information in the middle or towards the end of the month following the month in which it refers to. By the time information is acted upon its four months later and probably in a different seasonal trend. Dashboarding key performance indicators and benchmarks to manage with reduced cycle time would be a great advantage.

Screens placed in assembly areas indicating production status and targets which can be easily understood would also improve operational efficiency and enable sales to load the factories.

Group Components Manager

As the factories fall slightly off the group template they have to drive hard to get support. Production IS support assists in patching minor issues as opposed to providing fundamental leadership in process improvement and a deep understanding of problems. IS skills are lacking in the production arena. Improvements have been made in modelling product costs.

Factory Manager

Recently implemented Advance Planning Optimiser (APO) functionality is placing erratic demand on the factories as the plan changes weekly and there is no stage gate which enables validation of demand before generating independent requirements for finished goods. Planned orders need to be manually converted, subsequently generating requirements for dependent items. As some finished goods can either be made or bought in, careful consideration is required when converting planned orders or totally incorrect requirements could be generated. The factories are finding it difficult to keep up with required system processing and managing the business accordingly.

Factories which have a board spectrum of raw materials are more sensitive to changing APO demands and the impact needs to be thought through better. APO resources are limited in manufacturing experience and should possibly seek advice on optimal processing for a manufacturing environment from an experienced consultant. This is primarily due to the nature of the manufacturing process being different to that of procuring to sell, i.e. purchase orders are raised on the factories which create production orders which create more purchase requisitions thus generating more demand and processing complexity than what is seen in the APO system.

Strategic Projects Manager

The system needs to be flexible to aid in the input and management of data in order to facilitate decision making.

Strategic Sourcing Manager (China)
No comment.
Manager Business Process Improvement & Six Sigma Black Belt
The more items which are backflushed as opposed to being confirmed in actual quantities the more the results are averaged resulting in the inability to perform variance analysis.
Six Sigma Black Belt
There are so many reports it is difficult to know where to start when collecting data for analysis. Additionally people need to enter data into the system, sometimes data is collected from log sheets or random spreadsheets that results in credibility questioning.
Business Manager: Hardgoods
<p>Information is mostly reactive but the business needs to be aware upfront.</p> <p>The system records transactions at the spot rate as opposed to the secured forward cover rate. If the exchange rate moves unfavourably revenue may be reflected below cost. It is crucial to understand true cost, cost to manufacture, cost to serve etc. to make informed decisions. For example if cost to serve is greater than the mark-up this affects the decision to sell.</p> <p>Operating in volatile markets requires flexibility to predict scenarios. Scenario levers which when adjusted present options, i.e. high exchange rate, low steel price – make and when this switches – import.</p>

General Manager Information Services

The SAP platform is leading ERP technology and should enable the business to operate with latest accurate information.

Configuration changes are not required; issues arise due to data integrity, continuous improvement on master data maintenance is imperative.

Manager: Planning & Controlling

Although ERP is being used it is difficult to get a total profitability view, including all costs from production, warehousing, sales etc. Sales and COS is reported at a product level but the true cost including the distribution network is not accurately included to provide a true understanding of profitability. It is difficult to make decisions without this view.

Most functionality is available but not used due to resource constraints.

Financial Manager: Operations

The Business Warehouse (BW) reporting system lacks flexibility; it does not have true pivot functionality. Users are forced to download data in order to pivot. Users require the ability to see the same total in different ways; this is the essence of data analysis.

Data structures such as cost centre hierarchies are lost when drilling down however improvements to the way hierarchies are stored in the data base and in turn their functionality is currently being implemented to address this issue however Excel pivots are still going to be required.

Exporting of data leads to many lookups and manual manipulation of data in Microsoft Access. This data is then emailed to users in Excel for their analysis. Users are comfortable with Excel functions so this approach makes it easier for them to work with the information provided.

System and network performance is also an issue. Due to speed and the number of records / level of detail required makes BW a difficult tool to use

effectively; drilling down to line item level is required. Operations pack workbooks which contain several queries have also experienced many such performance related issues. It is felt that money was not well spent on BW and that the company may have been better off making use of SAP R3 (source system) reporting capabilities such as report painter and ABAP query or exporting the data directly from SAP. Additionally the R3 reports reflect real time data as opposed to BW which is only updated nightly. This prevents users from instantaneously assessing the impact of any postings made.

There are no problems with the source system; in principle the design is correct. BW does reflect SAP R3 unless there is a problem with an update. One source of truth should be used by all and if there is disagreement this should be resolved in the source system.

There are always ways to improve and the company should use more SAP functionality such as production variance analysis. However, cost vs benefit needs to be considered as to whether it is worth it to incur more admin cost to arrive at the same high level answer.

Financial Controller: Manufacturing

The system is not flexible and is based on legacy as opposed to what SAP is capable of; this is based on previous SAP experience and causes a stumbling block.

Management of resources is not geared towards achieving financial results; the current set-up is better for materials management and production and then only considers the needs of finance. Financial calculations can be done manually but the system can do them faster.

Management Accountant: Component Manufacturing

SAP shows the differences in variance analysis by production order, so the processes are good and there is visibility to calculate rates. The functionality is believed to be better than the old system however legacy data has been transferred to SAP.

Data Integrity

Director and General Manager Operations
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No comment.

Group Components Manager

Skills are also lacking in the area of master data maintenance. Contributing to this is the central master data function which removes power, understanding and insight of the implications of the data from the people using or trying to interpret the information based on this data. Learning is achieved through costly mistakes. When master data items are created they get copied without insight and users hope for the best. This lack of knowledge and style of updating master data results in likely inaccurate results. The BOM's are believed to be pretty accurate as these are easily determined. Routings are less accurate as these are difficult to interpret and need to be simplified in order to understand the numbers. Legacy information still haunts the system which is causing frustration as it is not being appropriately addressed due to the effort involved and perceived risk of the exercise.

Spending time and effort, investing in the ERP system to build trust in the system output is absolutely worthwhile. Without reliable information the factories are in a defenceless position however with trustworthy data are able to present an argument. Rands spent on system upkeep is monies well spent.
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Factory Manager
<p>Lessons have been learnt in the importance of maintaining accurate master data as well as understanding the impact of master data changes. Access to changing master data and the effects of mass changes have also proven to be inhibiting factors. Material master mass changes made centrally without integration knowledge have had major negative impacts on production system functionality. Reliance on a central master data maintenance function causes frustration.</p> <p>It would help if master data and processing was more flexible to allow an item to be made or bought as required. This inflexibility also only allows for one standard cost to be maintained for a material and as the manufactured cost is used, purchase price variances are generated when the item is procured.</p>
Strategic Projects Manager
<p>SAP needs to be correct and not be second guessed if the data it provides is to be used in decision making. When input data is wrong it affects the high level data which decisions are based on. For example when standard costs are calculated based on business case models and not on current scenarios product costs are distorted and gross under recoveries are realised. In the case of a plant which was closed standard costs reported in the system were less than the actual costs to produce which made decision making based on this data problematic.</p> <p>When figures are reported from different business areas they often don't tie up and this leads to lost confidence in the accuracy of the information.</p>
Strategic Sourcing Manager (China)
No comment.

<p>Manager Business Process Improvement & Six Sigma Black Belt</p>
<p>Data quality related to activity based measures such as time and motion studies build in accuracy of master data however the view is that this has not been kept up to date and that gut feel and hearsay indicate that this data is fairly inaccurate. Routings based on historical data distort the results. The more assumptions about structures made instead of proper activity based costing the less valuable the information.</p> <p>Possibly old Mapics data is used instead of evolving to use ERP logic hence information is limited by Mapics.</p>
<p>Six Sigma Black Belt</p>
<p>The biggest challenge for Six Sigma projects is always credible data collection. This takes a long time, often impacting project timelines. Measurement systems analysis (MSA) is used to predict confidence intervals on all data, the derived confidence levels result in mind set changes based on the data presented.</p>
<p>Business Manager: Hardgoods</p>
<p>Challenges are confidence in the accuracy of figures presented and the correct allocation of costs to reflect true working capital, distribution etc.</p> <p>Over the years costs have just moved and moved. SAP has been blamed for incorrect master data resulting in lost confidence.</p>
<p>General Manager Information Services</p>
<p>Data integrity is an issue and the understanding of data and how it fits into the bigger picture is lacking. Decisions are thus made with little or incorrect information based on assumptions and common sense as opposed to facts from the system.</p> <p>Master data maintenance is a specialist role, not an admin function. This business has been advised as such on several occasions. Centralised materials management master data maintenance is good and an effort is being made to</p>

<p>recruit an intelligent finance data manager. Master data must be right as SAP is the least flexible system if data is not correctly maintained and shouldn't even be implemented if this is critical aspect is ignored.</p>
<p>Manager: Planning & Controlling</p>
<p>There is a trade off to consider between cost, time and effort required to capture and analyse actual data. Currently only high level deviations to standard costs are known. It is not known if the decision to outsource some items and not others is correct.</p> <p>Purchasing provides input prices which are then updated in the system. Simulation is not done with forecasted input prices. Manufacturing resource planning could be used better to provide a view 12-24 months ahead. If not done it becomes impossible to make informed decisions.</p>
<p>Financial Manager: Operations</p>
<p>There is a need to build trust in the system; different figures are being reported from different sources.</p> <p>Problems occur when finger errors are made which then cause postings in the wrong place.</p> <p>There may be faulty master data and routings could be manipulated to make the figures look good but the methodology is understandable and it is believed that costing results are fairly accurate.</p>
<p>Financial Controller: Manufacturing</p>
<p>No comment.</p>
<p>Management Accountant: Component Manufacturing</p>
<p>The system is not kept up to date with business changes. Assumptions are made which impact master data leading to standard costs not being updated in time with physical processing. Therefore cost does not match actual production</p>

and major variances occur until alignment is achieved. More ongoing attention is required to maintain production master data so that the system is adaptable to business changes.

Results pertaining Research Question 2

Would the comparison between accounting methodologies provide a better understanding of product costs in relation to selling prices over time, given that there may be distortions in product costs resulting from existing methods of cost allocation?

Accounting Methodology Employed

Director and General Manager Operations
No comment.
Group Components Manager
Full absorption costing is used to allocate factory costs to products however other business costs such as sales and marketing are not allocated to products. This would result in higher standard costs possibly leading to sub-optimal decisions being made.
Factory Manager
Standard costs are calculated based on BOM's and routings. The routings are probably the most accurate in relation to volume estimates but even they are averaged. As processes are generic across product groups some level of generic routings would be better for costing as this would highlight variability in the material component as opposed to in the process. Currently routings are not used to determine capacity and therefore do not need to be as definitive.

Strategic Projects Manager
<p>A once off exercise was performed to analyse the true cost of the product being considered in the make or buy decision which resulted in a factory closure. A zero based budget approach was used to derive the true cost of conversion taking into account raw materials and direct costs such as labour and electricity. Land and buildings, rent etc. was not included as the cost was already much higher than the competing imported material, in fact even the raw material on its own was higher than the landed cost of the imported material.</p>
Strategic Sourcing Manager (China)
<p>The company battles to understand current standard costs and from there everything else becomes difficult. The factories use a sort of ABC costing with smeared overhead from very broad buckets. The problem starts with the budget and the inability to simulate “what if” scenarios which leads to bad decisions.</p> <p>Throughput accounting is great in theory and may help to avoid fights between departments although it doesn’t change the amount of money the company makes and practically it would be difficult to implement.</p>
Manager Business Process Improvement & Six Sigma Black Belt
<p>Elements of activity based costing are used but not properly for reasons relating to factors inhibiting the availability of optimal management accounting information. The aim is to fully absorb costing in the manufacturing chain, all costs incurred are absorbed into the product cost but how is questionable, not properly. Recent ABC studies to validate what is used to allocate costs have not been done; historic knowledge has been passed down. When things change such as processes or machinery, factors are not reconsidered. Even manual processes replaced by CNC machines may still be based on old principles.</p>
Six Sigma Black Belt
<p>No comment.</p>

Business Manager: Hardgoods
Costs are smeared, far from true activity based costing (ABC). ABC is needed to be able to manage costs against one another.
General Manager Information Services
<p>A flavour of activity based costing is implemented.</p> <p>There are some accounting methodologies which have been implemented based on fear or error, such as the use of standard costing for raw materials in case an error is made in the procurement process resulting in an incorrect price being passed on to production. This should never be the basis of methodology decisions especially when going against best practice.</p>
Manager: Planning & Controlling
<p>Standard costing is used which is ok. Scenario planning could be better. A budgeting tool which could provide a 24 month rolling forecast would help as opposed to the current once off exercise performed to calculate cost which is already old by the time the budget is complete. The overhead rates stay the same for the entire year; these should be more dynamic to see a true picture of cost. If the functionality to determine the overhead rates is well understood they should be calculated every three months. This will bring costs more in line with reality.</p> <p>Problems arise as the same material number is being used for a few items which are procured or manufactured and as only one standard cost is allowed detailed analysis of the purchase price variance account is required.</p>
Financial Manager: Operations
A few methods of cost allocation have been tried but basically costs have to be allocated based on the business structure. In some areas cost pools can be managed but in others where costs are allocated from multiple sources it becomes difficult for the business to understand. Assessments are broken down

by cost category to assist managers in understanding the cost breakdown.

Full absorption costing is used in the factories; the principle is that the products absorb all costs. A true unsubsidised cost should be reflected to gain a better understanding of profitability. There may be cases where less profitable products will need to be made anyway to gain business.

Cross subsidising has been removed as far as possible; the ability to do it is limited unless data is manipulated in the routings.

Financial Controller: Manufacturing

Standard costing is used as ABC demands too much information, firstly to identify cost drivers and then to implement and maintain. Full absorption costing is easier. Complexity is not desired in order to understand if the company is making money, easy implementation and maintenance is preferred.

Standard cost should be the ideal and the company should work towards this cost, the standard at the beginning of the month should be compared to the actual cost at the end of the month. Corrective actions to reduce differences can then be implemented, this would help with management.

Management Accountant: Component Manufacturing

Standard cost is used to value inventory, as per audit requirements this is consistent year on year. To calculate the standard, absorption costing is used to recover all factory overheads.

Cost Allocations and Product Mix

Director and General Manager Operations

Costing principle should be simple, a pool of costs should equal the total allocated to all products. This does not appear to be the case and requests to explain this have not been fulfilled. Therefore the standard costs calculated by the system appear to be incorrect.

Group Components Manager

Product mix is fairly dictated by the planning function. In order to grow market share a basket of goods is required. In this case it would be useful to cross subsidise products however this is left up to the factories which have limited ability to implement this. Traditionally the business assisted the factories in this process. An example is a product which used to absorb much overhead as it touched many areas of the factory is now being bought in resulting in overheads needing to be absorbed by other products. This has a domino effect on the profitability of the remaining manufactured products. That being said true cost is also very important and a view of both methodologies would be best.

The legacy system could allocate accurate true product cost and enable the user to set transfer costs which were sometimes above or below the true cost. Currently the system produces a standard cost which assumes that all master data is perfect. Decisions are based on these standard costs and result in bad decisions being made such as the now bought in product example above where there was no understanding of how the product contributed to the overall factory cost.

There should be understanding of fundamental cost and the ability to decide what the standard cost should be.

Overhead costs are affecting competitiveness, material cost is on par with other manufacturers and direct labour is not an issue however in some cases due to long service, costs have escalated above industry norms. As mentioned above it should be possible to manipulate overheads as companies have cash cow products which are able to absorb more overheads. Another example is the case of new products which would be too expensive until required volumes are reached. However, overall the company's cost base has escalated over time and is now just too high to produce competitively.

Product managers should realise true cost. If decisions are taken to drop products based on SAP standard cost this does not reflect an entrepreneurial approach and the organisation becomes a shop. Lessons will be learnt the hard

way as in the case of total overheads now being allocated to fewer products where continuing to produce may have been a better long term decision.

Factory Manager

Legacy system accounting is not known. The legacy system approach to balance the books doesn't work in SAP. In an effort not to cross subsidise many products are more expensive than they should be. For example one product line has employees dedicated to it where their time is only partially spent on that line; the remaining proportion of their time related cost is not allocated to their other activities.

Time is spent trying to separate product line costs when practically it would be better to share the cost given current operations, unless there is a clear benefit. A simplified cost structure would reduce the opportunity for inaccuracy. There needs to be a balance between detail and value add.

Strategic Projects Manager

Costs are allocated to products based on their margins ability to absorb cost and remain profitable. This is not correct as it does not provide a view to drive correct focus on pushing volumes of products which are truly more profitable and initiating improvement projects for those which are less profitable.

Strategic Sourcing Manager (China)

The whole factory is costed fairly but by product probably not. Once the standard cost is not good and all else is based on this, fundamental errors are made. Costing errors in the region of five to ten million rand in a cost pool of under a hundred million are significant. It is believed that the standard cost is roughly 25% off.

Strategic decisions should be made based on the material component so that interdepartmental allocations do not influence decisions especially if the standard costs are not trusted.

<p>Manager Business Process Improvement & Six Sigma Black Belt</p>
<p>Previous accountants manipulated figures to make products viable. This knowledge has not been documented or adequately passed on. Little effort to hand over, to make sure others know what is known, has been experienced.</p> <p>If you are not fully aware of costs and cross subsidisation it is impossible to compare like for like as suppliers would have accurate costing of products offered in competition to products produced in house. This is less relevant when making complete i.e. entire plant, outsourcing decisions than when outsourcing specific items. In the case of specific items a full understanding of product cost is imperative for decision making. However, even in the case of outsourcing an entire plant the implications on remaining plants should not be forgotten.</p>
<p>Six Sigma Black Belt</p>
<p>No comment.</p>
<p>Business Manager: Hardgoods</p>
<p>The legacy of cross subsidisation done for strategic reasons is not documented and was not passed on. Assumptions made at a point in time have since changed and may no longer be applicable.</p>
<p>General Manager Information Services</p>
<p>Products are not costed fairly and there is a belief that the optimal product mix is not being produced. The factories are not able to flex production based on demand to fully meet customer needs and maximise recoveries. This is due to perceived system inflexibility, inability to adhere to processes and lack of understanding of information available.</p> <p>Issues explaining under recoveries could related to direct costs being too high, significantly higher than the budget, probably incurring additional cost not foreseen in importing and still carrying overhead related to manufacturing. Maybe the budget was wrong.</p>

The company shouldn't cross subsidise, there should rather be loss leaders which are produced to form part of a basket of products but that true cost is known for decision making. The company can then have a plan to improve else the company may exit a profitable market and carry on with products making losses. The company could in fact become a commodity producer instead of offering a differentiated product. There is also an assumption that customers want a basket of products however there is no evidence to prove this. The company could be making product lines which the customers don't even care about. An option would be to stock a competitors product to provide a shopping cart experience but the company is unable to make such decisions when the true cost is not known.

Manager: Planning & Controlling

Historical cross subsidisation of products maybe should be included in standard costs but should not be used for decision making. Materials are ok but labour, processing and overhead costs require attention.

The optimal product mix is not being produced as there have been too many changes.

Financial Manager: Operations

Product mix is based on sales demand which is not the optimal mix for the factories but optimal for sales. It becomes a sales vs production debate which sales seem to win.

Longer runs, less change over's and staggered production to not run out of stock would be best for the factories. Currently there are change over's over different diameters etc.

It is easier and less complex to buy in product than to manufacture.

Financial Controller: Manufacturing

There is no "correct" way of overhead allocation, it is possible to argue endlessly over variable vs fixed cost but it is the bottom line which is important.

The policy around overhead allocation depends on which behaviours the company wants to drive.

It is believed the products are costed fairly overall however by default due to the way costs are allocated there is cross subsidisation occurring. Therefore fair to which products becomes the question. A clear understanding of cost drivers is required to determine the best split. Currently there is cost loading on items which are able to absorb more cost. It is important to know which items these are and business knowledge helps in this regard. Additional items such as depreciation which are not part of the true cost should not be included in the product cost. The method of cost allocation should be flexible or the company could lose money due to incorrect pricing.

Optimal product mix is according to what is being sold and items which bring in more profit. It is important that these items are costed correctly; other items just need to be marketable and kept going. Production should be planned accordingly and costs should follow.

Management Accountant: Component Manufacturing

For 2012 the products will be costed more fairly than they were for 2011 due to new system functionality facilitating the process of allocating overheads.

In 2011 there was an assumption that one plant would only produce high volume and another low volume however in practice the high volume plant continued to produce both high and low volume. This led to inaccurate costing which was not updated to be in line with reality.

The main production plant does not know how to split cost and still doesn't know. A decision was taken to close one of the production lines and import the product. There is an unproven belief that this product was loaded with overhead since the product was used by another division within the group and capitalised as a company asset. Hence the product was not under margin pressure as there were no external sales and cost could be easily hidden. There has been an attempt at removing the direct cost through retrenchment and impairment of assets however not all overhead cost has been removed. The remaining

product lines will now carry more cost. Major under recoveries are being experience by the plant.

The 2012 budget process has been the first to truly allocate cost as before a percentage change on legacy data was used. It is not possible to see the impact since the cost was never truly allocated before. However even in the 2012 budget there are no rules stating how pooled overheads are split by product lines. Costs are still allocated on the basis of which products are able to absorb the most cost.

Products which require the most time from the cost centre get the highest cost. Therefore high volume products are getting more cost than low volume products. There needs to be thought about how overhead cost allocations are done so that cost is not just allocated to products which can absorb the cost. However the company also can't just stop producing the low volume products as this would lead to the high volumes products needing to pick up additional cost. Assumptions are made at a point in time and as the business is changing rapidly the system is not keeping up. There needs to be better management of the system.

Costs centres are also not well managed, i.e. costs posted to the cost centres are not correct. Examples are labour heads allocated incorrectly to people processing purchase requisitions without understanding the implications. Due to volume of transactions and work load managers only focus on high value purchase requisitions and things tend to fall through the cracks.

Costing Simulation

Director and General Manager Operations
No comment.
Group Components Manager
Cost modelling capabilities are a great tool. It would also beneficial to be able to change BOM and routing data in costing simulations to assess production

scenarios. A graphical representation of this information would also be very useful.

Improvements have been made in the area of cost modelling however the system does not produce the results which the business is happy to accept. It has been proven that the system calculates the cost correctly based on the production master data maintained and by utilising actual costs in cost roll ups to determined what the standard cost should have been to fully recover all factory expenses. This exercise proved that the actual costs are in fact higher than the standard costs budgeted for next year; this is due to the fact that higher volumes are included in the budget. In order to reduce existing under recoveries, standard costs need to be increased.

Would like to be more proactive in predicting the recovery situation to identify where expenses could be saved i.e. maintenance. Additionally this data could be used in explaining the cost implications of decisions.

Factory Manager

Information to highlight the level of control the factory and procurement has over cost when compared to sales would be useful. For example marketing does not give in on margin but pushes back on the factories to reduce cost. There is no compromise on margin; Marketing is measured on margin and not volume. The factories are under recovering based on the volume budget which was agreed and used to derived standard costs. However, marketing has no incentive to obtain predicted volumes which leads to a conflict between marketing and the factories as marketing is not held to task to achieve agreed volumes. In order to drop standard costs volumes need to increase, if volumes drop marketing complains about the high standard costs. Senior management is looking at the factory recovery line and not the service level. Perceptions are driving the wrong behaviour.

<p>Strategic Projects Manager</p>
<p>Costing simulation would help in decision making but should be an ongoing exercise and not a once off project each time a decision is to be made as resources are wasted in this process including the time of senior management when they are needed to get involved in the detail.</p>
<p>Strategic Sourcing Manager (China)</p>
<p>More cost modelling is required so that people can understand the implications of decisions being made. Must have different methodologies to present scenarios for strategic decision making not necessarily for the calculation of standard cost. This becomes more relevant when more options are available i.e. when there are many products and multiple production facilities which can make the same products. When there is just one factory decision making tends towards marketing ability.</p> <p>It would be good to have close by costing support, providing different ways to see cost. History is also useful. Must have a person to provide operations with this information and be able to explain the workings and implications.</p>
<p>Manager Business Process Improvement & Six Sigma Black Belt</p>
<p>Costing simulation may help to explain why sales are saying that we are costing ourselves out of the market. This would be an interesting exercise to understand how a supplier can make the same for less given that material and machine prices are relatively similar.</p> <p>ABC is thought to be the correct method however skills are required to do it properly. Even prior accountants who appear to have had deeper insight may not have been up to date with current accounting practices.</p>
<p>Six Sigma Black Belt</p>
<p>No comment.</p>

Business Manager: Hardgoods

Cross industry benchmarking may be beneficial if data is freely available.

Iterative selling prices to determine what costs should be may also help. Although some products are market leaders.

The company must constantly compare to competitors to know true efficiency, i.e. what is the company's distribution cost in relation to competitors in order to understand the level to sweat the assets.

Competitors selling prices are provided as a guideline to the factories to provide them with import alternatives to benchmark against. This is not intended to threaten the factories but to give them ranges to work within. If manufacturing is lost it will not be regained. Marketing wants to support the factories by providing them with market information which places them in a good position to be competitive. It is not necessarily about being cheaper but offering an innovative differentiated product where the intellectual property is owned by the company.

It's not all about reducing cost; there have been cases where prices have been dropped to increase volumes.

Operating in volatile markets requires flexibility to predict scenarios. Scenario levers which when adjusted present options, i.e. high exchange rate, low steel price – make and when this switches import. Value can be gained or lost based on turning points and how quickly the company can adjust determines success.

General Manager Information Services

It may help to benchmark overheads against that of competitors to determine the nature of the business. Ascertain if the factories have a diminishing return, are more sales and marketing people for example required for one division than for other divisions.

Determine how realistic profitability reporting is and make use of the data. The data is available but not sure if it is being used.

<p>Manager: Planning & Controlling</p>
<p>The system should have more detailed components of the standard cost make-up within the general ledger to assist decision making.</p> <p>It may be beneficial to work backwards from a competitive selling price to arrive at a target cost.</p>
<p>Financial Manager: Operations</p>
<p>Costing analysis is done at the levels of product group, factory and overall manufacturing. Actual vs budget, current period, year to date and prior year is reviewed. This provides a financial view of operations however it should be linked physical production.</p> <p>This information is made available to the sales function however it is not known if they act on it.</p>
<p>Financial Controller: Manufacturing</p>
<p>Costing simulation must be flexible in order to make decisions and understand which behaviours the company wants to drive in order to make more money. For example scenarios relating to the following factors could be assessed; cost can be controlled where sales is more of a given, overheads could have an impact but the bottom line is more important, when overheads are already covered do new customers need to be loaded or would the company rather make smaller margins and build relationships whilst loading the plant so that employees are working daily since idling capacity must be paid for anyway.</p>
<p>Management Accountant: Component Manufacturing</p>
<p>A view from selling price backwards to determine what cost should be may reflect that margins are too high in the current economic climate. Comes back to measurement as the sales function is driven by margin.</p>

Results pertaining to Research Question 3

What is the effect on production when using capacity vs demand volumes to calculate product costs assuming the same method of overhead cost allocation i.e. machine hours in both scenarios?

Volume Effect on Product Costing

Director and General Manager Operations
No comment.
Group Components Manager
<p>Capacity is manipulated to produce a lower / required product cost. No theory just a preferred method. When capacity is set higher than the demand there is an under recovery risk however it is in the interest of the factory to push sales. If capacity is set too low this would result in a slightly higher cost which may lead to bad decisions being made.</p> <p>There is a division between the cost i.e. the factories, and the sales functions which has become a real stumbling block. The factories are under constant threat of new suppliers being found who offer products at lower prices than the factory can produce. This is worrying for the factories and an uneven playing field since the competitive products are not being costed like for like with the factory products.</p>
Factory Manager
<p>Costing volume is a thumb suck / guess based on the year to date product mix. It is generated from opinion and becomes a key driver which if wrong causes the incorrect standard cost of products. Additionally volumes are estimated at the part number level at a point in time which causes major sensitivities.</p> <p>Traditionally marketing used to provide volumes, now the factories provide the figures but marketing is not tasked to get the volumes. A rolling forecast from</p>

exports may help but at this point APO is too erratic.

Additionally when overhead costs are allocated to products another estimate is made which is also dependent on volume mix and is more sensitive than one imagines.

Strategic Projects Manager

Costs should be calculated and updated according to current business scenarios and not based on out dated business cases. Efforts should be focused on obtaining as accurate as possible true cost of products. There does not appear to be a long term i.e. 18 months+ demand plan to base capacity decisions on.

Strategic Sourcing Manager (China)

Demand should definitely be used as long as it is under capacity. Costing should however be based on what we can sell and not on what we would like to sell. Have used capacity in the past however this is sometimes double the volume of demand which leads to gigantic under recoveries. If costing is based on demand Marketing can be held accountable for realising for achieving the planned volumes. If costing is based on capacity it becomes difficult to hold any department accountable for taking corrective action and may result in products being sold at a loss and bad decisions being made based on incorrect standard costs. If opportunities for growth exist, products can be re-costed, departments should come together to achieve the overall best possible scenario. Demand provides a better platform for debate, if costs are too high marketing must sell more etc.

Manager Business Process Improvement & Six Sigma Black Belt

Traditionally capacity has been used to determine product costs, this is completely wrong unless capacity is aligned with demand and currently this is questionable. Capacity is used because it is easy and people see capacity as fixed however one should look at demand over time, preferably a 5 year forecast, to get the correct capacity. The factory needs to be flexed based on

demand and not capacity. It is also believed that capacity as historically designed way back is being used without bearing to current demand. The company costs to capacity and makes to demand, this leads to gross under or over absorbing of costs, mostly under absorption as less is sold given the available production capacity.

The factory should be right sized conservatively and then have a mechanism such as outsourcing in place to supplement excess demand.

The factory used to produce to capacity however since the planning function has come into play there is a more robust sales and operations planning process moving in the company in the right direction. Planning however is still focusing too much on short term demand and should look at a five year horizon. Advanced Planning Optimiser (APO) software should have the potential to facilitate this.

Six Sigma Black Belt

No comment.

Business Manager: Hardgoods

The balance between capacity and demand is believed to be more effective going forward as the budget was agreed between departments. However, Marketing is measured on margin maintenance as opposed to growth and this drives the wrong behaviour as marketing is not incentivised to sell if it impacts the margin. Factories have conflicting measures of capacity and asset utilisation where higher volumes are desired to reduce under recoveries which may result in excess stock.

Departments should come together and arrive at a balance between; the size of the market and market share (which can't be greater than the market, sounds obvious but this happens), how much more of the market can the company capture, optimum pricing to get optimum volume and then check capacity, either invest or decide on what to do with surplus.

General Manager Information Services

If demand is used instead of capacity costing would be better. Variances are too high indicating that product costs are not what they should be. Historically prices were too high but the company got away with it. Now with increased competition and the economic slowdown customers are looking elsewhere and the brand has diminished.

Manager: Planning & Controlling

The Sales and Operations Planning (SOP) process does not work well. There is too much finger pointing, the factories must produce because marketing can sell but the departments don't talk to one another and when marketing doesn't sell there are excuses.

Marketing does not have a forecasting tool. It would be better to have a tool which allowed stakeholders to provide input as opposed to centrally processed guess work. This would enable sales to provide conservative estimates, marketing to challenge them and arrive at volumes which the factories are able to produce. Deviations from the forecast could be managed and if reliable would change the mind-set of production.

Currently capacity is compared to demand and a percentage acceptable difference is agreed. If the SOP process was working well this should be the source.

Measures may be wrong in terms of the scorecard driving incorrect focus. These are internal measures where additional benchmarking may be beneficial.

Financial Manager: Operations

Ninety percent of factory capacity is used to calculate the product costs however this capacity is determined by reviewing sales demand and then working out the capacity and therefore results in a "mixed" capacity.

Marketing has told the factories that they are able to sell all that the factories can make however this is not the case and the factories have scaled down

capacity.

Analysis is done to determine what the standard costs should have been based on actual volumes. This is not far off now that volumes are picking up but year to date reflects inaccurate product costs and large under absorptions.

Financial Controller: Manufacturing

Excess capacity is effectively pushing prices up, however there is no point in producing excess stock and selling at a lower price since customers perceive that lower prices infer inferior quality. A middle ground between capacity and demand needs to be found. Information and understanding to make the right decisions would help.

Capacity tends to make the prices lower since the market has shrunk.

Management Accountant: Component Manufacturing

In the past budgeted sales volumes were used to calculate product costs however sales had inflated demand, even exceeding factory capacity but didn't sell anywhere near this and the standard costs were way too low. It was then decided to use factory capacity to calculate the standard cost and explain variances. This approach also results in standard costs which are too low and is sensitive to product mix. Product mix is based on prior year actually manufactured not sold because some stock is sitting in the warehouse and there is also a combination of made and bought in items. Better forecasting from sales and marketing would help. The factories are measured on making according to the marketing plan.

Results pertaining to Research Question 4

What are the benefits, objectives and anticipated outcomes of global outsourcing opportunities considering the motivations for outsourcing to achieve competitive advantage?

Benefits, Objectives and Anticipated Outcomes

Director and General Manager Operations

The drivers of outsourcing depend on one business to the next; however common considerations exist when making such decisions.

A benefit of outsourcing distribution for example is that a fixed cost is known as opposed to in house costs which vary. Additionally drivers and their related labour issues are not the company's problem. It is easier to adjust distribution in peak times when hiring in trucks and given the iritic nature of current business this is increasingly frequent. No capital outlay is required when leasing assets.

If industrial relations are not strong it is easier to outsource. If there is a need to reduce overheads there are advantages to outsource since agreements can be easily terminated. Additionally outsourced labour can be adjusted according to peak and non peak requirements.

In the South African scenario global players are controlling commodity prices. Raw material and machining costs are in line with global players as too are labour costs, however productivity levels are an issue which result in being unable to compete with foreign producers. China achieves its level of productivity due to punitive labour laws and productivity is about 4 times higher than that of an equivalent South African labourer. The South African labour input cost is low but high given productivity levels. Unit costs need to be measured and globally benchmarked make South African labour expensive. This critical aspect is not discussed in labour negotiations.

Factories are losing money year to date. There have been many once off events such as plant and machinery and stock write offs, due to ineffective

stock counts, obsolescence and loss of major contracts.

The landed costs of commodities which the company used to produce are 25 – 40% less than the in house manufactured cost. As competitors are importing the company could no longer compete with a product which was being manufactured at the same cost as the market selling price, the margin was totally eroded. Hence the decision to import particular products.

Group Components Manager

A commodity production facility which was shut down and replaced by a global sourcing strategy is proving to be highly successful. Competition in this market is rife and given the nature of the product cost is key factor. In addition to a skills shortage and bad management from the outset, the expensive local plant was unable to produce the required quality. In this case there was no other option but to outsource in order to remain competitive. This decision is now influencing the search for similar opportunities and caution should be exercised. The factories have learnt that they should support their internal customer's better, i.e. higher service levels. The company's own factories should provide a better service than others to stay in business.

In another plant a cost saving of 40% is being realised through globally sourced products being used in local production. In this case products are differentiated and thus have a competitive advantage. Intellectual property (IP) has remained company property and is protected by using multiple suppliers to produce different components. Technology facilitates this arrangement and a foreign office employing Chinese nationals has been set-up to monitor quality and manage supplier relationships. The nature of the business may evolve as more products get reliably manufactured globally to receiving royalties for designs where products are shipped directly to customers. Currently products are received in South Africa, quality checked, packed and exported or on sold to the local market. In some cases they are used in local manufacturing. The royalty model is similar to that followed by technology giants such as Apple.

Chinese producers make significant volumes.

Factory Manager

Initial cost benefit must weigh up against where the supplier resides, for example China is not as low cost as it used to be. Overheads increase as operations get bigger.

The move to China is just the first step; continuous effort is required to find low cost suppliers in order to keep ahead of competitors. The company has a tendency to make a step and stop however the company needs to retain the ability to move. Flexibility of procurement and pricing models are key to staying ahead of competitors.

Strategic Projects Manager

Competitive product cost allows the company to gain market share which was being lost before the decision was made to globally source products.

Gross margins have increased not only from lower product costs but also from losses that were being experienced whilst still producing in-house.

Strategic Sourcing Manager (China)

Fundamentally the driver to source globally was that the products were not globally competitive from a cost perspective. Quality and design is good however the cost base to produce the items in South Africa makes the products too expensive. Not only from an in house perspective but local suppliers who also attract high labour costs make raw materials expensive. Critical mass is not achieved in South Africa.

The objective of global sourcing is to source products at lower cost or at least at a globally competitive level whilst retaining quality in order to significantly increase volumes and not lose existing volumes. Volumes are primarily expected to be gained from the European parent company.

Most Chinese companies are family owned and this brings about different behaviour. Decisions are based on emotion and pride and businesses deliver a lot more than one would think. Experience gained in China could influence

<p>some local process improvements but probably not to the extent to regain competitive advantage from producing locally. Changing people's mind sets influenced by cultures etc. is difficult.</p>
<p>Manager Business Process Improvement & Six Sigma Black Belt</p>
<p>Lower cost, sourcing cheaper than the company can produce is seen to be the main benefit of global outsourcing.</p> <p>Supply continuity, multiple suppliers or suppliers with multiple production lines reduces stock shortage risks, this has been a problem in the past when the local factories have not been able to produce required quantities.</p>
<p>Six Sigma Black Belt</p>
<p>Chasing lower cost to make a decent margin is the primary anticipated benefit. Given the figures it just made sense to import from China.</p> <p>Quality from China has been improving and for the products in question it is believed to be at the required standard.</p> <p>The factory had also not been producing a constant supply and by importing it was thought to ensure consistent supply to customers.</p>
<p>Business Manager: Hardgoods</p>
<p>Access to a wider range of products, enhanced range which is more profitable, better cost, innovation and quality are some of the anticipated benefits.</p> <p>The company needs to be aware globally and have a broader perspective, if growing the business targeting the right suppliers first to get exclusivity could be used as a blocking strategy to ensure competitive advantage.</p> <p>The global group procurement function has better leveraging than the company has with local suppliers.</p>

General Manager Information Services

Cost reduction benefits derived from low cost locations and synergy benefits from mass production are anticipated.

Compensation for skills deficiency or quality as well as reduction in human capital and issues relating to labour may prove to be beneficial.

Shared liability with suppliers, environment, health and safety overhead becomes someone else's problem.

Access to markets in supplying country, follow the customer concept may create new opportunities.

The current position is largely a result in lack of investment in capital which should have been done years ago. The company chose to enjoy short terms gains and now are faced with resulting losses. Capital investment needs to be ongoing. Manufacturing is largely manual and high tech machinery is non existent. By following a global outsourcing strategy, less capital investment is required.

Manager: Planning & Controlling

Due to the exorbitant standard cost of materials being produced at one of the company's plants causing the plant to perform at a loss triggered investigations which lead to the plant being shut down and products formerly produced are now being imported. This influenced decisions taken at other plants however it has proven to be an easier decision to shut an entire plant than to outsource the production of certain components as shared overhead costs are not avoided.

It is intended that global outsourcing will improve the company's competitive position which has been compromised due to lost volumes which may have resulted from increased competition and the company taking their eye off the ball. There is no point in producing if it can't be done competitively, emotion must be removed from decision making and an objective independent view should be taken. Loss of market share could also stem from parent company's

mind-set however it's the factories own fault as their quality is not up to scratch. Once or twice companies within the group have wanted to source elsewhere due to quality issues and they can't be blamed. Linked to quality, safety is a major issue and has cost the company in the past. Some of these factors may be alleviated by following a global sourcing strategy.

Product development time needs to be reduced and produce the right spec and quality as quickly as possible. Innovation is required in order to renew and differentiate as the company cannot be a lost cost producer. The company needs to offer customers products which will help their businesses. Possibly wouldn't be in this situation if more had been invested in research and development. Products can only be leading for so long before IP moves on and products become commodities. At this point it is probably just time to buy from the lowest source.

Financial Manager: Operations

Cost benefit is derived from China as they are competitive due to sheer volumes which they produce. Cheaper, same quality and constant rate of supply from outside suppliers (this relates to global as well as local suppliers) are anticipated benefits.

Financial Controller: Manufacturing

Benefits are not known since personally not in favour of global outsourcing. Could be beneficial for countries or may lower cost to increase sales and therefore make more profit.

Management Accountant: Component Manufacturing

Cost is foreseen to be the main benefit in order to become more competitive.

Measurement of Benefits

Director and General Manager Operations
No comment.
Group Components Manager
Benefits are behind the original business case as volumes are not as high due to the global recession.
Factory Manager
No comment.
Strategic Projects Manager
Profitability and benefits as detailed in the business cases to outsource are monitored monthly and are showing that the decisions made are correct. There have however been some delays in reaching targets due to additional time needed for skills transfer and reduction in overheads. This has resulted in existing products being more expensive but over time this will be corrected and overall product costs will be lower.
Strategic Sourcing Manager (China)
The project implementation has been slower than expected. Unit cost saving are being realised in excess of the original business case and the quality is ok. However, internal overhead costs are still being incurred and will be until the project is complete; currently the project is in an interim phase where components are sourced globally and assembled locally which attracts cost both locally and globally. In the final state it is planned that only R&D will be performed locally. Volume growth is not good, as no growth has been experienced and volumes have been lost which was not predicted. Not sure of all the reasoning although globally the economy is battling impacting volumes, possibly the move to source globally was made too late and customers were already thinking about alternate suppliers. Much time is spent defending

<p>existing volume instead of growth. The sales function is also battling in South Africa, the organisation has changed, been consolidated, restructured etc. and sales have been lost.</p>
<p>Manager Business Process Improvement & Six Sigma Black Belt</p>
<p>No comment.</p>
<p>Six Sigma Black Belt</p>
<p>Quality has been technically tested and believed to be of the required standard. Marketing was also happy with the imported quality however some customers were not happy with the fact that the company was importing and some major customers were lost. Not all products come from China; some premium grade is imported from Italy.</p> <p>The scope of the initial project was a make or buy decision, it is now up to finance to measure the benefits. These are being measured and significant savings have been shown, hence the correct decision was made. However costs shared between factories were not well known at the time of the decision to import, there was not enough information available to understand the impact that closing a factory would have on the remaining factory which is now bearing the remaining overhead.</p>
<p>Business Manager: Hardgoods</p>
<p>The objective is to understand the benefits of manufacturing vs importing, use global benchmarks and source components where in house production is inefficient. Know the elements for success, people need to get together to figure this out and determine if the company has a competitive advantage or should focus on research and development. Business cases must be thought through in time for change.</p>

General Manager Information Services
<p>Benefits are being measured however are not in line with business cases due to exchange rate movements and the recession resulting in lower demand.</p> <p>Measuring, managing and continuous improvement is not properly in place, should focus on low hanging fruit.</p>
Manager: Planning & Controlling
No comment.
Financial Manager: Operations
<p>Savings are being measured however there is a feeling that savings expected may be unrealistic based on the amount of saving in relation to the factory cost base. In reality the level of overhead reduction required to achieve projected savings is unlikely to be possible. Factory accountants assist in verifying savings.</p>
Financial Controller: Manufacturing
No comment.
Management Accountant: Component Manufacturing
<p>No savings have been shown to date. Current standard costs are compared to landed costs (price plus freight) without taking into account additional overheads.</p>

Results pertaining to Research Question 5

What are the risks, problems and obstacles associated with global outsourcing strategies, are these factors known and are plans in place to mitigate potential losses?

Risks, Problems and Obstacles

Director and General Manager Operations

There can be just as many problems with outsourced operations as with in house operations. There is more complexity when importing, even in China it would be preferable to have own factory. It depends on the drivers for outsourcing to determine which method will meet the company's objectives, i.e. the need to reduce labour problems or heads would provide a case for outsourcing.

Aspects which are unique to the company business should not be outsourced. For example when outsourcing distribution, control is lost which may result in the relationship with the customer being lost, since drivers interface directly with customers. The distribution business is equally hard for contractors and it can be difficult to find reliable contractors which require less supervision, this leads to increased supplier management costs. Contractors are in business for their own gain, the company would do better spending more to offer a better service.

If outsourced service providers belong to unions which are different to that of the company, strike action affects the organisation more frequently thus negatively impacting customers more often.

Labour and skills core to the business are kept in house. The availability of skills also affects the outsource decision.

Measurements drive behaviour and outsourcing makes profitability per full time employee look better, there is a risk that this may drive the incorrect behaviour.

Trade unions and the Department of Trade and Industry are campaigning for consumers to support local manufacturing; this would assist in house production

but poses a risk to global outsourcing and needs to be taken into consideration when making such decisions. The company needs to keep abreast with these developments to understand their impact on their business. Having a production facility may result in the company having an advantage over importing competitors and enable the company to take the moral high ground.

If South Africa does not protect its manufacturing the country will become a net consumer and unable to provide labour or add value. There needs to be a level of employment to protect consumption. However, business viability should never be placed on government grants etc.; if the business is not competitive without assistance, then the business is not sustainable.

Loss of intellectual property and increased stock holding are also risks of global outsourcing. More detail and other risks are documented in the manufacturing sourcing strategy business case.

Group Components Manager

Quality and the risk of defective materials / machining becomes a big problem when there is an issue as quantities arrive in large batches. Even though samples are good, bad batches have been experienced.

Related to quality there is a liability risk which should not be ignored. The company has always had this risk however with less control over the production process the risk of faulty equipment is greater and in the event of a failure could cost the company a fortune.

Obsolete stock is now a greater risk as more parts are being managed.

Currently differentiated products become commodities which can be produced by anyone and competition is rife. The company cannot compete merely on a volume and cost basis.

Local manufactures are not investing in plant and given the cost and complexities to manufacture competitively, South Africa may lose any remaining ability forever. Nationalisation of the steel industry would be supported.

Factory Manager

Remaining costs of outsourced departments need to be absorbed by other business areas making them unprofitable.

Although competitors are also subject to exchange rate risk they are still managing to supply product cheaper, it's about the margin. Competitors are willing to drop their margin to get business and hold market share.

Unstable forecasts are a greater risk due to increased lead times and stock holding.

Non delivery from suppliers.

Poor quality is a big issue as it effects ongoing production resulting in sub-standard finished goods. Additionally local in process scrap is small / normal. Where quality issues have been reported they related to the end of process, being the final packaging / aesthetic value but the product was up to standard. These issues were not measured before and hence did not receive much attention however checks are now in place. Amount produced against reported quality problems is better than the six sigma guideline. Loud voices are blowing quality issues out of proportion as even the culprit's complaints are very low in relation to their received volumes. Poor quality issues are driven by perception at a senior management level which may incorrectly influence make or buy decisions.

The more global the supply chain the greater the risk of poor quality cost is to the business.

Strategic Projects Manager

Exchange rates, political and cultural factors have been considered as risks but are being managed as per the risk mitigation procedures stated below.

Quality is a risk as the company has chosen to protect its brand and continue to

offer a premium product.

Time and effort was underestimated to train local staff on new procedures. Even though a receiving and inspection function had always been in place, employees required assistance with the switch from checking raw materials to checking finished goods.

Difficulties have been experienced in updating the ERP system to encompass the new outsourcing strategy and hence the related data in the system is incorrect. This is highly detrimental for future decision making.

Strategic Sourcing Manager (China)

The major risks for the company are around quality due to the fact that the company offers a premium brand and wishes to protect the brand and customer loyalty. Related to this the loss of intellectual property (IP) is also seen to be a significant risk.

In China there are strong contrasts, some operations are really basic environments where people sit on the floor whilst working and products are stacked in huge piles, not very high tech and then there are impressive first world operations which could be anywhere in the world operating with the latest Japanese techniques. Both extremes consist of large organisations and depending on the products required the challenge is that the company needs to deal with both types of organisation. It would be nice if all companies had strong management systems in place but this depends on how supported the industry is. Language barriers are great, for example, one can only talk to sales people who may be able to speak English but can't talk to anyone in operations.

As the company takes incremental steps in the move away from local production to foreign operations the risks increase. The project is a slippery slope and the company may feel pain later on around design. If the company shuts down local production with a view to assemble in China it will be difficult to design products which are not being manufactured on site as design and production are closely interlinked. The company may slip up on this front as this

has not been well thought out.
Manager Business Process Improvement & Six Sigma Black Belt
Exchange rate impact on product costs, increased Lead times, quality and time related to distance if orders arrive which are not to specification are risks relating to global outsourcing.
Six Sigma Black Belt
<p>Fluctuations in exchange rate were considered in the make or buy decision making process.</p> <p>Prices are negotiated with suppliers but there is a risk that they may change, i.e. if the steel price increases.</p> <p>There is a risk that the increased storage and distribution cost results in the total cost of the product being uncompetitive.</p>
Business Manager: Hardgoods
<p>Fluctuating exchange rates, increased lead times and work in capital, quality, IP protection and price escalations which are out of the company's control are all known risks.</p> <p>A half baked (make and buy) scenario is dangerous as the company must make sure that overheads are reduced in order to get returns on outsourcing strategies as predicted.</p>
General Manager Information Services
Risks include exchange rate risk, poor quality, goods in transit damage and losses, piracy on the high seas, increases in importing customs and taxes and hidden costs of managing outsource partners. Increased certainty in demand forecasting is required due to reduced flexibility in lead times. Additionally more strikes may affect customers due to the extend supply chain, such as at the harbour, customs, transportation and in own industry.

Low cost countries will have wage increases and in the long term low cost labour is not sustainable. Environmental considerations will also increase in developing countries resulting in increased cost. The current sourcing strategy is only medium term; the company needs to be on the lookout for the next cheap location.

There is a worry that the company is “half pregnant”, still incurring the fixed cost of manufacturing and additional cost of importing. The company should pick one way or the other as it is now in the worst possible scenario with less control over quality and not achieving the full benefit of cost reduction.

Manager: Planning & Controlling

Risk is discussed, possibly the biggest risk is putting all your eggs in one basket when selecting a country to source from. The company has little prevention of increasing prices, which could even change over night.

With a fluctuating currency, input costs swing with the Rand where dependent on imports. This leads to decisions being influenced more than ever by conditions at the point in time which they are made. Instead a long term view should be taken on exchange rate and commodity prices with knowledge of suppliers, i.e. the impact of new / more steel suppliers. Transactions must be at the spot rate. Hedging can be used but due to onerous accounting regulations is normally only done for large capital projects and not for stock.

Local producers could outplay importers depending on conditions, i.e. more steel suppliers enter the market locally.

Since IP has been given away this could be leaked to the market even though efforts have been made to spread requirements amongst suppliers.

A longer term view is required; currently there is a short term strategic view which is not substantial or concrete. Numbers are derived at a high level when not all the building blocks are in place.

Financial Manager: Operations

Exchange rates may turn unfavourably and result in imported products costing more than local production costs. This cannot be mitigated in the local market if competitors are producing locally.

Logistical risks are complex especially when imported products are feeding into local production as the quality is passed on to the finished product and may result in losses on value add. There is slightly less risk when importing and on selling finished goods however process should be streamlined and include only reliable people and companies. In this case cost saving should not be the only driver as the company needs to ensure a constant supply.

The political situation in the source country also poses a risk.

Financial Controller: Manufacturing

There is a risk that the company has a lack of understanding of the market place. This is supported by the fact that cost was used as the main reason to import however now even at a lower cost volumes are not being reached. The base of the decision needs to be sound; it may also not be the correct decision to follow competitors. The company may need to contain costs but where are the sales? Production could move to Britain or Belgium but without sales it is irrelevant.

Poor project management of the move to outsource is a risk; stakeholders are still trying to identify how savings should be measured. Vague risk mitigation plans are stated in reaction to political and exchange rate risks. Commercial accounts are only consulted when there are questions but were not involved in the original business cases and now cannot match reality to the original predictions. Operational issues were also overlooked having not had appropriate operational input into the business cases.

Loss of volumes due to ex-employees now competing in the same market.

Risk of not receiving stock, increased lead times, these have been experienced.

Related to supply delays strikes in source country pose a risk. Is the supply sustainable in the long term?

Quality and protection of the brand, is a risk when the company needs to care more for its customers.

Language barriers make it difficult to trade.

There is a moral and ethical consideration, the company does not want to deal with companies which abuse their staff or do not follow the expected safety standards.

Management Accountant: Component Manufacturing

Exchange rate movements can make decisions taken a year ago completely invalid.

Increased stockholding is a risk as a lot more stock is required.

Quality is a huge risk and loss of intellectual property is also a concern as there is no guarantee that this will be protected.

Risk Mitigation

Director and General Manager Operations

It is believed that it is generally not beneficial to outsource distribution, it would be better for the company to own all the trucks and work on a global procurement plan to gain bulk procurement benefits. Management would be kept in house and a better line of sight would be achieved without sharing customer information. Distribution is seen to be a core competence and can be used to improve service levels.

Where products are being imported from China, cultural change has been significant. Communication is critical and much convincing was needed to persuade the board and parent company that global outsourcing is an

appropriate strategy for the company.

Importing risks float with competitors as all will be in the same position should a major risk be realised, given that major competitors are importing. However, first prize would be to try the Chinese model locally, on a voluntary basis where employees are paid according to productivity. Control of quality, training and general oversight will be in house and easier to manage. Integration into the existing organisation structure will need to be considered. If successful currently outsourced manufacturing could be brought back and new business won. There are huge international opportunities which could quadruple volumes. The parent company is willing to assist in this regard providing the required standards are met. The company currently holds 30% of the market share and with increased market demand will be able to set the standard.

Loss of intellectual property is mitigated by spreading supply and assembling locally. The company needs to continuously change products, be progressive and evolving. Regeneration is vital to set the pace as the company must be a leader and maintain a competitive edge. Increased sales would enable the company to turn over stock quicker and reduce the risk of increased stock holding.

Group Components Manager

Immediate communication helps to resolve any quality related issues, this is the magic. The foreign office was set-up to mitigate this risk and has proven to be a major advantage. The process needs to be very well managed as the company owns the design and is liable to its customers. It is believed that the parent company may have some insurance cover in the event of equipment failure due to poor quality however the details are vague.

An initiative to develop differentiated products for the parent company to enhance the group capabilities which outside suppliers would not be able to achieve is being reviewed. There is competition within the group and products need to be differentiated in order to ensure business.

Factory Manager

Close management in source country is doing a good job in keeping costs low by stopping poor quality goods in China. The cost of the foreign office could be off set with local losses had they occurred without the foreign office being in place. The benefit is anticipated to outweigh the cost as the sooner poor quality is detected the better, at the supplier is the best possible scenario.

Strategic Projects Manager

Exchange rate risk is not a major factor since the company procures in USD and as 30% of the product is exported and billed in GBP, USD and Australian Dollars, exchange rate fluctuations are off set and relatively easy to manage.

Political factors may change in China however the entire market will be affected. The company has a sourcing team in place monitoring the global market to ensure that they are able to achieve first mover advantage should a more competitive manufacturing environment emerge. Countries such as Vietnam, Indonesia and India are kept on the radar but currently do not have infrastructure to match China. It is believed that China will still be leveraging their population dynamic and infrastructure for the next five to ten years retaining their competitive advantage. As the north of China is still relatively under developed to the south there is still room within the country to expand and exploit manufacturing opportunities and therefore it is not necessary to move now.

In order to ensure the required standard is met the company has set up a supply quality division in China to control and improve processes and relationships. Suppliers are required to produce according to the company's specification. The company will not select products from a catalogue and will only engage with reputable manufactures that have suitable premises and infrastructure. Suppliers are evaluated and audited however they may look good on paper until work begins. Much time and effort has been spent to change mind sets from mass production to emphasis on quality.

Cultural barriers have been experienced and Chinese nationals have been employed to overcome potential obstacles.

Strategic Sourcing Manager (China)

As the company offers a premium brand the process of global sourcing is handled differently to that of regular procurement as the process is technical in nature. Local processes are converted into designs; product and process specifications are created and translated into Chinese. Suppliers are audited, trained, quality checks are done upfront and ongoing at their plants and further quality checks are done locally. So far quality risk has been sufficiently mitigated and no bad product has reached an end customer.

Loss of IP is a risk mainly around stealing designs and selling to the same market. Some suppliers manufacture for the same market and these are higher risk. As there is low control over IP in China, there are examples of where this has happened. Where the technology required to produce is low, generally trustworthy suppliers are sought. Where the technology required to produce is high more care is taken to protect IP, the manufacture of components are outsourced to different suppliers who are not likely to be competitive within the same market. No one supplier has the entire set of IP and design is still based locally.

Manager Business Process Improvement & Six Sigma Black Belt

Sourcing from multiple countries could mitigate exchange rate risks however this is not the current approach. Hedging is used to mitigate short term risk but cannot mitigate long term trends.

A quality check is done in source country to mitigate the effects of poor quality however some products have still arrived in South Africa which do not meet the required standard.

Six Sigma Black Belt
Exchange rate risk was taken into account at the time of the make or buy decision by modelling scenarios using Crystal Ball software with the aid of Standard Bank data.
Business Manager: Hardgoods
Some risk management is done by procurement. Depends on the company's risk appetite, i.e. is the company taking the lead and changing the rules of business, this will obviously attract more risk.
General Manager Information Services
No comment.
Manager: Planning & Controlling
Decisions must be made with a view of where the currency is likely to be based on inflation differentials / economically sanitised numbers as opposed to a short term perspective.
Financial Manager: Operations
No comment.
Financial Controller: Manufacturing
Focus should be placed on marketing to explain under recoveries, a market intelligence department may help to identify potential customers and explain why volumes are not being achieved. The company should actively pursue any potentially suitable opportunities.
In order to mitigate the risk of supply delays the company could identify alternate suppliers however this would come at a cost and is not possible for all products, i.e. the differentiated products where IP is protected.

Management Accountant: Component Manufacturing
No comment.

Results pertaining to Research Question 6

Are the economic factors related to the cost of global outsourcing well understood or are these cost elements poorly estimated resulting in sub-optimal strategy formation?

Global Outsourcing Cost Management

Director and General Manager Operations
No comment.
Group Components Manager
<p>Cost implications are closely monitored however not accurately represented in the system. Some products have been updated to reflect new standard costs, it is envisaged that all will be updated within the next year.</p> <p>The company should pay attention to understanding the following, the cost of obsolete stock, implications of cancelled orders due to communication break downs between different cultures and languages, cost of shipments which can't be used and potential loss of IP.</p>
Factory Manager
<p>Total cost of poor quality is not recorded in SAP. Raw materials may be returned to the vendor plus possibly the shipping cost recharged however overheads relating to inspection, supplier negotiations, cost of placing a new order and lead time, lost customers etc. are not all quantified or charged back to the supplier. Some items can be sold as swarf to recoup costs but some suppliers want the goods returned and in these instances admin costs can not</p>

be recovered.

Cost of poor quality systems exist which could be bolted on to SAP to provide better information. These supplier performance systems calculate the amounts to be passed back to the supplier.

Strategic Projects Manager

Shipping costs are monitored to ensure optimal, high volume / cheaper, routes and ports are utilised. Air freight costs are also monitored as a transportation option in case of unforeseen stock shortages however this has not been needed to date.

When considering the specific outsourcing decision resulting in factory closure, investigations were performed to assess if the company could source the raw materials at a lower cost however this did not prove to be fruitful as the major component is steel and there is no pricing parity within South Africa with Mittal being the only supplier and charging the LME price. It was also not viable to import steel as the benefit in price would have been negated by import taxes. Additionally due to falling volumes there was no benefit to import chemicals required as no volume discounts could be gained.

Break-even analysis was also conducted to determine the required volume to be produced in order to match the imported price and a great disparity was found. Before the recession in 2007/2008 the factory was producing 5500 tonnes per annum, at the time of the study the market demand was 2300 tonnes per annum, partly caused by a lost contracts. The break-even analysis reflected that the factory would need to produce 1050 tonnes per month to match the imported price.

Findings were reviewed and challenged from multiple functional areas and were well received and accepted by the business as they were based on facts and figures. Especially as the landed cost of the imported product was cheaper than that of the in-house produced raw material component. Further cost analysis such as the impact of regaining market share was not done.

Further to the costing, skills were limited as old employees had left the company. It was considered to get help from the global parent company however the factory was making losses of R2mil per month and gradually losing market share. By shutting the factory the losses were immediately put back into the company's bottom line.

As the company had a market share of 2300 tonnes per annum this enabled the company to negotiate a better price than competitors and as a result have been steadily winning back business and increasing market share.

It is believed that Chinese producers are able to offer a lower cost product as they receive tax breaks of around 17% per product invoiced from their government. In their costings they quote the LME price for steel however there are many suppliers and hence more competition which results in better prices. They are also able to achieve economies of scale and economies of learning as they produce macro volumes in comparison to micro volumes produced in South Africa. Products are cheaper as overheads are spread over greater volumes and price benefits are gained from their suppliers due to their buying power.

Strategic Sourcing Manager (China)

The company is probably not accounting for significant cost. Changes to the current standard cost are not understood and then outsourcing has transitional cost such as moving staff, flights etc. hence the company is incurring "double" expenditure. Additional costs of retrenchment, logistics, greater lead times are not being well accounted for, it is problematic to quantify these costs.

Based on the business case the transition phase is difficult to quantify, the before and after should be possible. The unit cost is easy but cross functional costs are not and overall group savings reporting adds complexity as inflation and commodity drivers need to be taken into account. Volatile exchange rates and commodity prices as well as the multi year project duration also add to the difficulty of accurate costing. Operational costs are not well understood and the company should be doing a better job. This is important in gaining trust that the

project is succeeding for operational and political reasons. It is probably not possible to track all cost as this is fundamentally very tough but it is important and there should be a model which shows how cost is being tracked. Operations have various tracking measures but there needs to be a higher level of understanding from an accounting perspective. This would assist from a timing and business benefits perspective in understanding the impact of shifting strategies. No clear numbers currently exist which makes decision making difficult. Need to get the standard costs right as a starting point.

China's competitive advantage is pure scale some plants make in one week what is produced in SA in a year. Also there are multiple manufactures and more choice in supply of raw materials and labour, the network effects is great and South Africa would battle to get the same cost effects. If the company could get more volume the cost would come down.

It is true that Chinese labour and management costs are rapidly rising however they are still much lower than that of South Africa. Base salaries are high in South Africa and the company pays even more.

There are too few accounting skills for significant global outsourcing operations.

Manager Business Process Improvement & Six Sigma Black Belt

Some cost factors have been considered but it is not likely that they are closely monitored. There is not a resource dedicated to this.

Exchange rates are not considered a material factor in costing decisions.

Six Sigma Black Belt

There are so many factors that it is difficult to understand all the economics. It is important to know who to ask for information. There is a lot of data involved and some data is outside of the system.

In the case of the specific outsourcing decision resulting in factory closure, analysis began with the profit and loss statement in order to identify factors contributing to their under recovery. The scope of the project was a make or buy

decision including what the product cost was, what it could be if factors influencing the cost were changed and then compared to an imported price.

Risks assessed included import pricing parity and exchange rates were simulated to present worst, best and most likely scenarios. Exchange rate information was provided by Standard Bank.

Many divisions were consulted to gather information to understand the impact of the decision. Planning provided input on storage and warehousing, being affected by increased safety stock due to greater lead times and distribution costs from ports. Marketing provided forecast volumes and the factory was tasked to assess if their capacity and was able to meet the demand. Simulation was done on factory costs to understand if costs could be reduced, starting with variable costs which the company has control over. Raw materials are the highest cost component and hence procurement was contacted to see if they were able to negotiate better prices or even import raw material at a lower cost.

Divisions were supportive of the project as most knew about the state of the plant and what was trying to be achieved. There was some finger pointing between departments but this is normal in any company.

The project had a strong champion in the Operations director who pushed the project along. Initially the project champion wanted to save the plant however he changed his mind when viewing the data.

Business Manager: Hardgoods

Procurement manages price and freight. Finance reports on working capital costs (stock, inventory, creditors), distribution. Cost of forward cover and upfront payments when dealing with China, not sure. Lead times, risk of no delivery and IP not costed. Cost of foreign office overhead forms par of other cost of sales.

Costs are obviously being measured to some extent, need to consider analysis paralysis. Better information would be beneficial.

General Manager Information Services

Would like to believe costs are known and hope that they are being measured and recovered where possible.

Exchange rates pose an issue as only so much hedging can be done. Costs around scrapping when items do not meet the required quality and are only identified once received locally and need to be analysed. Costs associated with the team in China were probably underestimated, the long term plan should not include expats but not sure of the true cost. Unsure how well true cost of time, shipping and import customs are being accounted for.

Lower margins being realised on imported items could be due to optimistic savings predictions or imports being increased in price to include overhead costs not yet removed from operations.

All about knowing the true cost and having competencies in place to make strategic decisions based on facts. Finance should not be hung up on financial statements but focus on good / right decisions.

Manager: Planning & Controlling

There is more focus on import costing however it is still reactive as opposed to proactive.

Depending on the nature of the product and its ability to travel, scrap factors need to be taken into account.

Generally probably not well known, i.e. carbon emissions from diesel ships etc.

Financial Manager: Operations

Costs relating to global sourcing are not well understood. Costs are cross functional in nature and the marketing function does not speak to everyone.

There are transport and freight costs to consider which are often higher in the case of imported product as local production plants are strategically placed

within the country to facilitate supply. There is also not enough exchange rate buffer built in and hedging costs are not included.

Some focus has been placed on understanding importing costs as the Finance Director has co-ordinated sessions between the various parties (distribution, storage, accounting etc.) to gain an overall view since not all cost is landing in one cost pool.

Imports should be collected on an internal order or project, i.e. one cost bucket so that they can be contained, analysed and understood. Although this may be tricky there should be a way. The same should apply to exports.

More focus needs to be placed on outsource costing as the company could lose a lot even on one order and especially as outsourcing has become a chosen strategy.

Financial Controller: Manufacturing

The calculated cost of global outsourcing will be as good as an assumption because it is not known or well understood. Outsourced product cost needs to include local activities and therefore becomes similar costing to that of a factory. The company needs to gain an understanding of the general cost make-up and compare to other sources.

Management Accountant: Component Manufacturing

Savings are being monitored but not well known, i.e. exchange rate predictions are not done. Additionally as overheads are not included in imported cost, possibly the right costs are not being compared.

