

The competitiveness of South African chemical firms and their expansion into the rest of Africa

Mphathisi Ntuli

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ABSTRACT

The purpose of this research is to explore the current challenges of competitiveness faced by South African chemical firms in selected sub-sectors of the chemical industry, with respect to both their domestic competitiveness and their ability to expand into the rest of Africa from a dynamic capabilities perspective. Whilst the general innovation literature has treated dynamic capabilities from a general firm level, it seems that there is very little work that has been done in the chemical industry, particularly in the South African context. Therefore, this is an area of academic research that offers bountiful opportunities to build on, and insightful findings from different industries and different geographical contexts are useful for the critical engagement of the theoretical framework.

Preliminary research shows that South African chemical companies are not competing effectively, primarily due to the legacy of protectionism and isolationism during the apartheid period. This fostered an inward looking approach and a focus on import substitution in the local market. As a result, it encouraged the building of small scale plants with capacity geared for local demand. However, it appears that this approach was not particularly profitable during the same period, but it was carried out nonetheless for political reasons aligned with the interests of the erstwhile regime. Post-1994, after the new democratic dispensation in South Africa, this situation was followed by an influx of cheap imports, high raw material prices due to import tariffs and volatile exchange rates, and this brought competitiveness challenges to domestic firms. This was exacerbated by inadequate capacities and capabilities to overcome these challenges. Notwithstanding this, a number of firms seem to have survived, due to a number of reasons, which include management processes, organisational processes, location advantages, as well as with respect to their ability to expand beyond the borders of the country including their choice of entry strategy.

The research methodology was an exploratory and qualitative study involving three firms. These firms were purposively chosen using a predefined criterion. Firstly, the selected South African chemical firms are assumed to possess business strategies that are unique, differentiated enough to make it difficult for competitors to imitate. Secondly, they are deemed to possess a location advantage if manufacturing locally versus a competitor who is importing.

The findings of the study show that these firms possess firm-specific processes, capabilities and positions within the industry that make them competitive for a while but also enable them to adapt to changes in their customer needs. The findings also show that these firms leverage resources in the form of consolidation and collaboration between various business units to achieve cost efficiencies and economies of scale. Although these firms possess a location advantage, the findings show that they are not competitive if the target market is closer to the coast as a majority of them are based inland. On the flip side, the findings show that they do not put much effort into either radical or disruptive innovation, but have an incremental form of innovation. Furthermore, they do not seem to be doing well in terms of long term commitment of resources to enhance organisational learning as a response to the changing environment. Also, they have been relaxed and slow in sensing, shaping and seizing opportunities and mitigating threats due to their internal focus. Now that things are changing quickly, their reactions seem to be a bit late.

From the research, it can be argued that the decision about which African country to expand to, as well as the choice of an entry strategy to adopt, depends on various factors. These include the country's risk profile, regulations and language among others. Furthermore, the findings suggest that these South African chemical firms have very similar structured procedures that they follow in choosing which African country to expand to as well as in choosing which entry strategy to adopt.

Therefore, based on the afore-stated findings, it can be recommended that in order to improve their competitiveness, South African chemical firms need to put more effort into innovation, diversity, learning behaviours, awareness of the internal and external environment, improved channels of communication for information

flow, and better understanding of the capabilities that they possess and need. However, the limitation of this research is that it focuses on three firms in the South African chemical industry. Therefore, the findings cannot be generalised to cover all of the industry. Future research should consider a large cross-sectional study of the entire industry. In addition, the study only looks at firms which are deemed to be competitive. There could be a need to look at firms which fail to be competitive domestically or abroad, or both, to give a balanced view of the extent to which their failure can be explained by the dynamic capabilities framework.

DECLARATION

I, Mphathisi Ntuli, 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.

Mphathisi Ntuli

Signed at Wits Business School, Johannesburg

On the 30 day of March 2015.

DEDICATION

To my mother for her continued support and unwavering belief in me, and for always driving me to succeed.

To all my siblings and family for their support and understanding

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CHAPTER 1. INTRODUCTION

1.1 Purpose of the study

The purpose of this research is to explore concepts in strategic management and innovation. It seeks to explore and understand the competitive strategies in selected firms in the South African chemical industry with respect to both their domestic competitiveness as well as their expansion into the rest of Africa.

1.2 Context of the Study

According to an article by the South African chemical industry, SACI (2012), the South African chemical industry is one of the largest of its kind in Africa and is characterised by complexity and diversity. The chemical sector is the key component of the South African industrial base with synthetic coal and natural gas based liquid fuels and petrochemicals dominating the industry as shown by firms such as Sasol, AECL, and Omnia (SACI, 2012).

The chemical industry has been shaped by the political and regulatory environment which created a philosophy of isolationism and protectionism during the apartheid period (SACI, 2012). This tended to foster an inward looking approach that minimised foreign dependency by adopting a trade policy or a government strategy which encouraged replacement of imports with domestic production for local use. This resulted in building of small scales production facilities to accommodate local demand which became uneconomical as the local market is small. Through isolation of the industry from international competition and high raw material prices as a result of import tariffs, locally processed goods have generally been less than competitive in export markets (SACI, 2012). Now that South Africa is once more fully part of the global economy, the chemical firms are realising the need to be internationally competitive and the industry is reshaping itself accordingly (SACI, 2012).

According to an article written by KPMG (2014) entitled, “The African Chemical Industry: A Hidden opportunity”, the chemical industry has a huge untapped market in the rest of Africa. This is largely driven by a large population boom, growing GDP and increased FDI inflows. Furthermore, the improvements in macroeconomic management and governance, institutional reforms and reduced incidents of armed conflicts has made Africa an attractive investment destination (IDC, 2014).

In spite of these positive developments in Africa, the chemical industry has been characterised by low investments which focus on a smaller number of segments in a smaller number of countries, of which South Africa remains the most developed economy, having one of the most developed chemical industry (SACI, 2012). In South Africa, the chemical industry accounts for about 25% of the nation’s manufacturing sales, with synthetic coal and natural gas based liquid fuels and petrochemicals dominating the sector (IDC, 2014). SA chemical producers are currently facing poor domestic demand and a volatile exchange rate that affect exports. The country’s plastic and basic chemicals output has declined throughout South Africa in recent years. This is a result of issues like labour strikes, shortage of electricity, and slower growth in consumer spending (SACI, 2012).

The outlook of the chemical industry in South Africa seems to be a mixed bag with both good things and bad things waiting to happen. On the one hand, domestic producers have benefited from both a weak rand, which has sustained competitiveness, and relatively cheaper costs when factoring transportation of imports, which has helped to maintain the current production levels (KPMG, 2014). On the other hand, a study regarding future opportunities in the chemical industry conducted by Elser, Jung, and Willers (2010) revealed that the chemical industry is facing a challenge of optimising marketing and sales channels, managing the complexity of its supply chain, as well as redefining the role of its distributors.

1.3 Problem statement

The problem is that South African chemical companies are not competing effectively primarily due to the legacy of protectionism, influx of cheap imports from outside the country, high raw material prices due to import tariffs volatile exchange rates, and inadequate capabilities needed to overcome these challenges.

The chemical industry is an integrated and complex value chain producing essential raw materials and supplies for companies in the manufacturing and industrial sector. The market is linked to the maturity of industrialization as chemicals form key ingredients for industrial development. This is influenced by region and country specific industry composition, especially the mix between manufacturing and service industries which results in varying patterns of consumption and adds significant complexities for chemical producers and distributors, who have to provide customised approaches and ensure critical mass and scale. Thus, small customers and countries are a challenge for chemical companies as they lack the infrastructure and processes to handle low product volumes or a high diversity of products. At the same time, particularly in mature markets, contribution margins are often higher in dealings with small and medium sized customers (Elser et al., 2010).

Therefore, in response to the industry and market dynamics, chemical companies have to leverage on their marketing, sales, and distribution functions and capabilities as sources of competitive advantage and differentiation (Elser et al., 2010). However, as they try to implement distinct go-to-market approaches to capture profit pools in different customer segments, they face a continuous challenge with regards to how to strike the balance between differentiated offerings and containing the resulting cost of complexity (Elser et al., 2010).

In light of this, this study aims to explore the challenges and opportunities faced by firms in the chemical industry in South Africa.

1.3.1 Main problem

This research study intends to explore the competitive strategies that are used by the South African chemical firms domestically, as well as the drivers of their choice of country and preferred entry strategy in expanding into the rest of Africa to achieve and maintain a competitive advantage even in fast changing environments.

a. Sub-problem One

The first sub-problem will explore the competitive strategies that are used by South African chemical firms domestically, and the challenges they face in maintaining a competitive advantage.

b. Sub-problem Two

The second sub-problem is to explore the drivers of their choice of country and the entry strategy of preference, in expanding into the rest of Africa, given that these represent opportunities for South African firms beyond the borders of the country.

1.4 Significance of the study

This research will provide guidance to business managers and strategy executives in the South African chemical industry to better understand what competitive strategies are currently being utilised, and what their strengths and weaknesses are in order to identify areas of improvement. As explained by Teece (2007), it will explain the sources of firm level competitive advantage over time in this industry, and provide guidance to managers / leaders to enable them to avoid the zero profit condition that results when firms compete in essentially competitive markets (Teece, 2007).

1.5 Delimitations of the study

This research will focus on three firms in the South African chemical industry and will not cover a full study on the whole industry. In addition, only the views

from senior to top management in relevant strategic positions will be considered. This research will not try to solve problems that exist within the identified firms as it only intends to explore the existing situation.

1.6 Definition of terms

Innovation can be defined as a “*process by which firms master and put into practice product designs and manufacturing processes that are new to them*” (Nelson. R., 1993).

Strategy is the creation of a unique and valuable position, involving a different set of activities, making trade-offs in competing, and forging fit among organizational activities, that is, distinctive strategy (Porter, 1996).

Operational effectiveness means performing similar activities better than rivals perform them which includes but is not limited to efficiency (Porter, 1996).

Resources can be defined as organisation’s competencies that are unique / idiosyncratic and difficult-to-trade assets (Amit & Schoemaker, 1993; Rumelt, 1984; Teece, 1980, 1982; Wernerfelt, 1984).

Tangible assets are physical things like land, buildings, machinery, equipment and capital all these assets are tangible. Physical resources can easily be bought in the market so they confer little advantage to the companies in the long run because rivals can soon acquire the identical assets (Wernerfelt, 1984).

Intangible assets refers to everything else that has no physical presence but can still be owned by the company such as brand reputation, trademarks, intellectual property, and others (Wernerfelt, 1984).

Capabilities refers to the emphasis on the key role of strategic management in appropriately adapting, integrating, and reconfiguring internal and external organisational skills, resources, and functional competencies towards a changing environment (Teece & Pisano, 1994).

Competitive advantage is the firm's ability to implement a new market strategy that facilitates price reduction, productivity and widened market opportunities (Newbert, 2008).

Dynamic capabilities can be defined as the firm's processes that integrate, reconfigure / transform, and build internal and external competencies that intend to match and shape rapidly changing environments (Ambrosini, Bowman, & Collier, 2009). These also give a view of whether the firm can achieve new and innovative forms of competitive advantage, whilst considering individual paths and market positions (Leonard-Barton, 1992).

Lean production is a business model and a collection of tactics that eliminate non-value adding activities whilst delivering a quality product cost effectively. This is also commonly referred to as product or process optimisation.

1.7 Assumptions

The following assumptions have been made regarding the study:

- The respondents have the information and are willing to share it.
- Respondents will reflect normal perspectives and experiences.
- All the three firms have a competitive strategy in response to domestic conditions as well as opportunities in the rest of Africa.

CHAPTER 2. LITERATURE REVIEW

2.1 Introduction

This literature review discusses the strategies that South African chemical firms employ beyond operational effectiveness in order to gain a competitive advantage over their competitors in the domestic chemicals industry as well as for their expansion into the rest of Africa. It seeks to address how firms achieve and sustain competitive advantage.

The chapter starts by providing an overview of innovation and strategy in firms, introduces the importance of innovation in the chemical industry and the need to achieve and maintain competitive advantage in organisations. This is followed by an overview of the importance of competitive advantage including a brief description of some of the perspectives on achieving and sustaining competitive advantage focussing on four approaches: the five competitive forces approach as explained by Porter (1979), and the strategic conflict approach as explained by Shapiro (1989). The resource based perspective (Wernerfelt, 1984) and the dynamic capabilities approach (Teece & Pisano, 1994). The discussion then narrows in the dynamic capabilities approach as the adopted lens of analysis. The literature review concludes by identifying themes which serve as a guide for the field work, presentation and analysis of results. In addition, the research problems are explored.

2.2 Innovation and strategy

A research article written by McDonough, Zach, Lin, and Berdrow (2008), argued that the traditional thinking about strategy is incomplete in its focus on the positioning of products and services. They mentioned an example of Porsche automobile holdings which sells expensive cars to wealthy individuals who value status and a thrilling ride versus Kia Motors Corp which sells utilitarian cars to customers who are merely looking for a cost effective way of transportation. This completely ignores the fact that in today's dynamic and

changing economies where customer needs and technologies are rapidly changing, companies need to continually align and reinvent themselves to capture those changes through innovation. An example would be that Kia motors have currently increased and diversified its range to accommodate various needs.

According to Mcdonough et al. (2008), for an effective strategy the product/market, knowledge, and innovation need to be aligned, and this alignment should be revisited as the competitive landscape changes. The set of strategies an organisation can execute successfully is limited by what it knows and what it needs to know and the knowledge it needs to create and share depends on the strategy it would like to execute. The difference between what an organisation knows and what it needs to know to successfully compete creates a strategic knowledge gap that needs to be filled. Another challenge applies to knowledge, where competitors can potentially challenge a rival's product or serve the same markets. Lastly, a company can choose to innovate based on current knowledge and if the knowledge is not sufficient, then that presents a gap to acquire or to develop new knowledge. In other words, an organisation can innovate by acquiring or developing new knowledge (Mcdonough et al., 2008).

Teece, Pisano, and Shuen (1997) noted that in fast changing globally competitive environments, consumer needs, technological opportunities, and competitor activity are constantly changing. Opportunities open up to both new entrants and incumbents, putting profit streams of incumbent firms under enormous pressure. In these circumstances, as noted by Teece et al. (1997), some emerging paths in the market place can be easily recognised, but most are hard to foresee. Here, sensing and shaping of new opportunities becomes much of a scanning, creation, learning, and interpretive activity. Investment in research and related activities usually becomes a necessary complement to this activity. Enterprises detect opportunities either by the fact that entrepreneurs can have different access to existing information as noted by Kirzner (1973), or that new information and new knowledge whether originating from internally or externally can create opportunities as noted by Schumpeter (1934).

2.3 Innovation and the chemical industry

In an article/research by (Spiegel & Schellerer, 2014) for the quarterly journal of business chemistry in Germany, which discusses how chemical companies can make use of existing products whilst exploring new markets, they developed a notion termed "*the hidden markets in the chemical industry*". This has been derived from the fact that the chemical industry in Germany has been saturated. The chemical industry in Germany is the driver of technology and innovation and surprisingly even more so than the well-known mechanical engineering expertise. This is because the chemical industry is the main source of input ideas to many downstream industries which accounts for about 17% of all the industry's R&D spending. As the market is saturated, besides innovation, the German chemical industry is known for its success abroad, for example, Europe, Asia, and parts of Africa including South Africa. More than 50% of the chemical industry sales are generated abroad (Spiegel & Schellerer, 2014).

The chemical industry is very heterogeneous in its nature. In addition, its long supply chain and the fact that it counts for more than 11% of all manufacturing sales make it to rank in the "*third place*" after automotive and mechanical engineering in Germany. The growth of the chemical industry in Germany has been driven by innovation which has profited the downstream industries. In turn the South African market has been having minimal growth due to congestion in the domestic market coupled with the rise of raw material prices. As a result, local multinational chemical firms like Altana, BASF, Evonik, and Lanxess have compensated their weak results in Germany with their traditionally strong business abroad, including in South Africa (Spiegel & Schellerer, 2014).

2.4 The importance of strategies for competitive advantage

The fundamental question in the field of strategic management is how firms achieve and sustain competitive advantage. As noted by Potter (1996), companies need to be flexible and respond rapidly to competitive and market changes. They must benchmark their practices continuously to achieve best

practices. They must outsource aggressively to gain efficiencies, and they must nurture a few core competencies in the race to stay ahead of rivals. The quest for productivity, quality and speed has spawned a remarkable number of management tools and techniques for example, total quality management, benchmarking, time based competition, outsourcing, partnering, reengineering, change management, etc. (Potter, 1996). The resulting operational improvements have often been dramatic, but the frustration has been the inability to translate those gains into sustainable profitability. Operational effectiveness and strategy are both essential to superior performance but work in different ways. A company can outperform rivals if it can establish a difference that it can preserve. Thus, it must deliver greater value than its competitors or create comparable value at a lower cost or do both (Potter, 1996).

According to Nielson, Martin, and Powers (2008), the effective execution of a strategy in an organisation requires articulation of the specific types of decisions and behaviours that drive performance and design in an organisation. Thus, when organisations clarify the decisions rights together with its underlying conditions and improve information flow in its activities and across the organisation, the right structure and motivators tend to fall into place (Nielson et al., 2008).

A study conducted by Lei, Slocum, and Pitts R.A. (1999), on several large companies suggests that the central organisational feature that captures the benefits of innovation, individual initiative, and distinctive core competencies is a system wide focus on developing knowledge based structures that create new communication paths and encourage learning oriented behaviours. Mintzberg and Lampel (1999), Porter (1979), Simkin and Cheng (1997), and Dess & Picken (2000), describe approaches and practices that depend on the need for external awareness in various ways to express the intensity of its importance. The important insight relevant to the theme of this research that can be gleaned from this is the importance that the external environment and internal resources plays in strategy formulation and strategic management (Dess & Picken, 2000;

Lei et al., 1999; Mintzberg & Lampel, 1999; Porter, 1979; Simkin & Cheng, 1997).

2.5 Perspective on competitive strategies

In this section, a brief description is given for four perspectives on competitive strategies. The first two models of strategy emphasize exploration of market power, i.e., the five competitive forces approach as developed by Porter (1979) and the strategic conflict approach as explained by Shapiro (1989). The last two models of strategy that emphasize efficiency and innovation namely, the resource-based perspective as explained by Wernerfelt (1984), and the dynamic capabilities approach respectively.

The five competitive forces approach was developed by Porter (1979) and is rooted in the structure-conduct-performance paradigm of industrial organisation. According to the Porter's model, the industry structure shapes industry profitability as it is comprised of economic and technical characteristics that determine the strength of the five competitive forces (Chen, 2011). These five forces as identified by Porter (1979) are, the "bargaining power of buyers", the "bargaining power of suppliers", the "threat of new entrants", the "threat of substitute products or services", and the "rivalry among existing competitors". Thus, industry structure as characterised by these relative strengths, determine the industry's long term potential and how economic value is created and divided (Chen, 2011). Another competing market view is from Shapiro (1989), termed as the strategic conflict approach. Its focus is on market imperfections, entry deterrence, and strategic interactions. It uses game theory tools and implicitly views competitive outcomes as a function of effectiveness in which firms keep their rivals off balance through strategic investments, pricing strategies, signalling, and the control of information (Shapiro, 1989). Both these approaches appeared to view profitability of firms in terms of market positions, thus they emphasize the exploration of market power.

In contrast to five forces and the game theory is the resource based view as explained by Wernerfelt (1984) and the development of the dynamic capabilities

perspective. The resource based perspective emphasizes firm specific capabilities and assets and the existence of isolating mechanisms as the fundamental determinants of firm performance (Wernerfelt, 1984). Teece (1984), noted that successful firms possess one or more forms of intangible assets such as technological or managerial know-how. Overtime these assets may expand beyond the point of profitable reinvestment in a firm's traditional market. Accordingly, the firm may consider deploying its intangible assets in different products or geographical areas where the returns are higher. In other words, companies which utilise the resource-based approach invest largely in technological assets and will often possess a highly developed Intellectual property (IP) (Teece, 1984). However, the resource based approach is viewed as necessary but not enough to sustain a competitive advantage in fast changing environments as it has resulted in valuable technology with minimally useful capabilities (Teece et al., 1997). In addition, this approach is viewed as making sustained competitive advantage unlikely in dynamic markets (D'Aveni, 1994).

Winners who have demonstrated a sustainable competitive advantage have gone beyond this model. Although the resource-based view has focussed on the internal assets of the firm, many researchers have recently emphasized the importance of network relationships which may allow the firm to leverage unique resource relationships (Dyer & Singh, 1998). Thus, companies have done this by enhancing their management capability to effectively co-ordinate and redeploy internal and external competencies, resulting in quick and timely responsiveness in fast changing environments. This has been termed the dynamic capabilities model (Teece & Pisano, 1994).

Also as noted by Teece et al. (1997), dynamic capabilities in organisations are characterised by firm specific capabilities and the ability to renew competencies to respond to shifts in the business environment. These capabilities are said to be embedded to the firm's business processes, the market positions, as well as the expansion paths. The foundation of the dynamic capabilities framework is on building advantages which are distinctive and difficult to replicate. Thus, to

be strategic a capability needs to be unique, difficult to replicate and be user specific (Teece et al., 1997).

Teece and Pisano (1994), to strengthen their view further, noted that to strengthen a competitive advantage would be more difficult in markets than in firms. They say this because in firms activities are arranged and organized differently than in markets. For example, it would be easier to stimulate or drive factors like team behaviours, learning, and encourage technological transfer at firm level but that would be extremely difficult thing to do in markets. These are the activities that become routines and unique to organisations and hence difficult for competitors to copy (Teece & Pisano, 1994).

In summary, the above discussion implies that the models which emphasized the exploitation of market power are not the best to measure and drive firm level competitiveness, and that the resource based view is not enough to sustain competitive advantage in fast changing environments as it is easier for competitors to replicate.

In explaining the converging views of sensing the external environment from both a theoretical and practical point of view, Dess and Picken (2000) emphasized that they all affirm that the environment dictates what strategies the organisations should pursue to improve competitiveness. Lack of sensing both the internal and external environment will result in organisations evolving from being *“today’s peacocks to tomorrow’s feather dusters”* as Arthur Martinez, CEO of Sears, is reported to have said about organisations that are too focussed on their own internal operations (Dess & Picken, 2000). This does not preclude organisations from pursuing internal operational efficiency and excellence, but they promote the use of internal endowments to take advantage of external needs. Therefore, the capabilities as well as the resource based approach to strategy proposed by Teece et al. (1997) in their dynamic capabilities framework, affirms the need for firms to take advantage of their capabilities and assets to achieve competitive advantage. Thus, the discussion on the strategies used by firms to achieve and sustain competitive strategies in this research will be approached using this framework.

2.6 The dynamic capabilities framework

As explained in the work of Teece (2007), in '*explicating dynamic capabilities*', the business enterprise consists of idiosyncratic and difficult to trade assets and competencies which constitute resources, thus implying that competitive advantage can result from ownership of rare but relevant and difficult to trade assets, especially know-how. These resources were also identified by (Rumelt, 1984). However, these resources as mentioned in the discussion of the resource based view are not enough to secure a sustainable competitive advantage in a rapidly changing business environment which is open to global competition and characterised by dispersion in the geographical and organisational sources of innovation and manufacturing; which also requires unique and difficult to replicate dynamic capabilities (Teece, 2007). This is because in the fast paced globally competitive environments, consumer needs, technological opportunities, and competitor activities are constantly in a state of flux. This is the case where opportunities open up for both new entrants and incumbents, making it difficult for incumbents to retain profitability.

Teece (2007) noted that, dynamic capabilities possess the capacity to sense and shape opportunities and threats, to seize opportunities, and to maintain competitiveness through enhancing, combining, protecting, and when necessary reconfiguring the organisation's tangible and intangible assets. As indicated, the possession of dynamic capabilities is especially relevant to multinational enterprise performance in business environments that are fast changing (Teece, 2007). The existing literature on strategy like the one from Eisenhardt and Martin (2000) has identified an extensive collection of processes and routines that can be recognised as providing certain micro foundations for dynamic capabilities, which are factors like cross functional R&D teams, new product development routines, quality control routines, and technology transfer, knowledge creation routines, knowledge transfer routines, strategic decision making, patching, acquisition and alliance routines, learning routines, culture routines, and certain performance measurement systems as important elements (micro-foundations) of dynamic capabilities (Eisenhardt & Martin, 2000).

Hence, this research will attempt to identify and explore routines that are employed in South African chemical firms and expansion considerations (acquisitions, alliances, etc) into the rest Africa.

Furthermore, Theories of dynamic capabilities from the works of (Eisenhardt & Martin, 2000; Helfat et al., 2007; Teece et al., 1997), concerning what constitutes a dynamic capability, and on suggestions from Collis (1994), Danneels (2002), Winter (2003), and Zahra, Sapienza and Davidsson (2006); Ambrosini, Bowman and Collier (2009) have concluded that there exist a hierarchy of capabilities. That is, they proposed that there are three distinct types or levels of dynamic capabilities which are, “*incremental*”, “*renewing*”, and “*regenerative*” capabilities. Eisenhardt and Martin (2000) have argued that dynamic capabilities may also be used in stable environments. This decomposed the three into two, ie, “*incremental*” (same as a ‘zero level’ capability) and “*renewing*” (‘first order’ dynamic capability) dynamic capabilities (Eisenhardt & Martin, 2000). Then, as Winter (2003) suggested that dynamic capabilities themselves need to be refreshed in what he categorises as ‘higher order’ dynamic capability, which gives rise to the “*regenerative*” dynamic capabilities.

It is important to note that according to this theory, management perceptions of environmental dynamism, its perception of resources, and hence its perceived need for a change are critical determinants of the decisions to develop and deploy the above mentioned different forms or levels of dynamic capabilities (Teece, 2007).

- Incremental dynamic capability:

This refers to the basic requirement to adapt (incremental adjustments and continuous improvements) the resource stock of the firm even in a stable environment. The resource stock does not get transformed in these change processes as they are only incrementally adjusted. An example would be continuous improvement in quality control (Ambrosini et al., 2009).

- Renewing dynamic capabilities

These are concerned with the capacity of the firm to purposely create, extend or modify its resource base, as otherwise they would not be able to survive and prosper under the conditions of change (Helfat et al., 2007). An example would be introducing new product lines, brand extension to new product application, process replication, etc.

- Regenerative dynamic capabilities

This refers to when the dynamic capabilities themselves need to be renewed, that is, when the current dynamic capabilities are perceived to be insufficient to impact appropriately upon a firm's resource base (Ambrosini et al., 2009). Regenerative capabilities are mostly applied by firms whose managers perceive that the environment is unstable, and perceive external changes to be nonlinear and discontinuous (D'Aveni, 1994). We consider the four main dynamic capabilities of reconfiguration, leveraging, learning and integration (Bowman & Ambrosini, 2003). Examples of '*leveraging*' would be where a business unit leverages its best practices dynamic capability and extend it to other related business units. New product developments can be achieved through '*learning*' of existing processes, establishment and development of specialist research teams and other skilled groups. '*Reconfiguration*' can be achieved by transferring of production to low cost countries, and acquisition of other firms, restructuring, outsourcing, etc. By '*integration*' a firm can develop a culture encouraging collaboration and experimentation and hence facilitating innovation (Ambrosini et al., 2009).

DYNAMIC CAPABILITIES FRAMEWORK

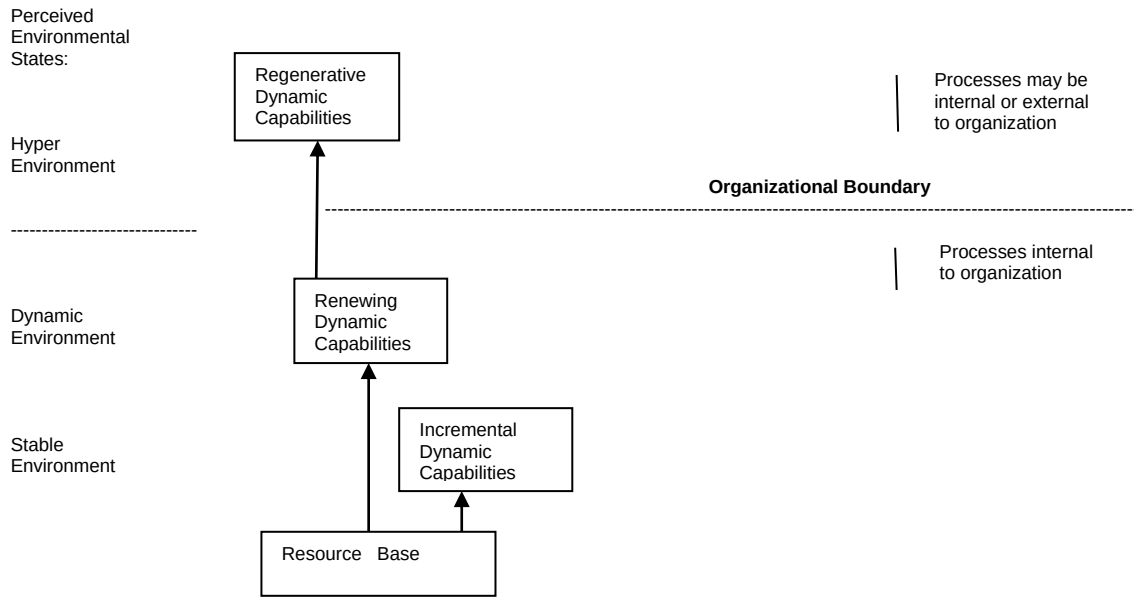


Figure 1: The hierarchy of dynamic capabilities (Ambrosini et al., 2009)

The above mentioned version of Ambrosini et al. (2009) dynamic capabilities synthesises previous understandings of dynamic capabilities and tries to systemize them into a coherent framework consisting of three levels. Within each level of capabilities, one or more of the above mentioned four main dynamic capabilities can be identified, namely leveraging, learning, reconfiguration and integration. These will be the themes that will be used in this research to address the research questions.

The version of the framework that will be operationalised in the remainder of this report is described using the afore- mentioned themes which will consist of subthemes.

2.7 Introduction to Themes and Sub-Themes

Based on the literature review of the adopted dynamic capabilities framework, the following are the themes that have been identified as building blocks. Some of these themes also contain sub-themes that will also inform the subsequent thematic analysis.

Theme 1: Organisational processes

Sub-Theme 1: Integration / Coordination:

It is a manager's responsibility to integrate or coordinate activities inside the firm (internal activities) whose strategic advantage further requires integration of external activities such as technology, strategic alliance, buyer-supplier relations, customer support, product development routines, culture, quality routines, lean production routines, etc. These coordination activities become the routines and different firms coordinate these in different ways making them firm-specific routines which are difficult to imitate / copy (Teece & Pisano, 1994).

Sub-Theme 2 Leveraging:

Leveraging is an assisted advantage, for example, it can be where a strategic business unit (SBU) that is leveraging its "best practices" dynamic capability and extends it to other related SBUs (Ambrosini et al., 2009). Ambrosini et al. (2009), describe leveraging as referring to extending an activity that is operating in one area of the firm into another area, of which brand extension would be one example.

Sub-Theme 3: Learning

"Learning is a process by which repetition and experimentation enables tasks to be performed better and more quickly and new production opportunities to be identified" (Teece & Pisano, 1994, p. 544). According to Lei et al. (1999), firms can capture the benefits of innovation, initiative, and corporate competence building by creating new organisation designs that promote flexibility and fast response. Learning becomes the result of long term commitment of resources from management to enable fast responses to changing environment and strategy. An example would be establishment and development of specialist research teams and other skilled groups.

Sub-Theme 4: Reconfiguration and Transformation

According to Amit and Schoemaker (1993) , in rapidly changing environments, firms need to be able to reconfigure their asset structure to accomplish the necessary internal and external transformation. In general, the strategic value of a firm's resources and capabilities are enhanced the more difficult they are to buy, sell, imitate and substitute (Amit & Schoemaker, 1993).

Teece (2007) explained that managers influence the development and deployment of strategic assets by adopting a process perspective (in contrast to an input-output model). This perspective recognizes distinct phases of development, the importance of feedback, and the need for vision. It also entails careful scripting of how resources, information and people are combined and sequenced over time in order to evolve specific capabilities. Thus, the ability to measure the requirements for a change and to make the necessary adjustments seems to depend on the ability to scan the environment, to evaluate markets and competitors (Teece, 2007). This can be achieved by transferring production to low cost countries, acquisition of other firms, restructuring, and outsourcing, etc.

Theme 2: Opportunities in the rest of Africa

This will entail the drivers of their choice of country as well as the choice of the entry strategy they use, in expanding into the rest of Africa, given that these present opportunities for South African firms beyond the borders of the country.

Theme 3: Positions:

This refers to the determination of a strategic posture of a firm using its location with respect to its business assets. These are the difficult to trade knowledge assets (could be R&D, design, brand equity, software, human and organisational capital) like technological assets, and assets complementary to them, as well as reputational and relational assets. These help determine the firm's market share and profitability at any point in time (Teece & Pisano, 1994).

Sub-Theme 1: Complementary assets

As explained by Teece (1986), complementary assets are the upstream and downstream assets necessary to successfully commercialize an invention or technology. These can have many purposes within the firm, or can be specialized and co-specialized assets that are firm specific to the innovation and do not easily trade on markets. Identification and control of complementary assets that are hard to acquire are important innovations that contribute to a firm's profitability (Teece, 1986). Services such as marketing, competitive manufacturing, and after-sales support are almost always needed. These services are often obtained from complementary assets which are specialized (Teece, 1986). These capabilities give firms a competitive advantage over their competitors as they are difficult to imitate.

Sub-Theme 2: Location Assets

Uniqueness in location can give rise to non tradable location capabilities which are difficult to replicate. These could be the result of lower transport costs, superior convenience, etc. (Teece & Pisano, 1994).

Sub-Theme 3: Reputational assets

An organisation's reputation is widely recognised as a valuable resource and an organization's communicative response to crisis can impact both negatively and positively on reputational damage (Winkleman, 1999). Also (Teece et al., 1997) confirms that reputation gives a good overview of firms and shape the response of customers, suppliers and competitors.

Sub-Theme 4: Institutional assets

As explained by Teece et al. (1997), these are public policies like regulations, IP regimes, tort laws, antitrust laws, etc. that are crucial elements of the business environment, although there is a location factor to this as well, that is, whether a firm is affected by the same policies as a competitor.

Theme 5: Path dependencies

The directions and choices of opportunities made by organisations are guided by its history and experiences (Zollo & Winter, 2002). Path dependency not only defines what choices are open to the firm today, but also place boundaries around what its internal repertoire is likely to be in the future (Ambrosini et al., 2009).

Theme 6: Management processes

Sub-theme 1: Sensing, shaping and seizing opportunities and Threats

Nelson and Winter (1982) noted that firms need to identify and shape opportunities, meaning they need to constantly scan, search and explore across all technologies and markets both local and abroad. As an example, they need to engage investment in research activities, probe customer needs and technology possibilities, latent demand, the evolution of industry, intensive industry and customer analysis, etc. (Teece, 2007). They must not only sense and shape but must also be able to seize these opportunities in time before a competitor does.

Sub-Theme 2: Flow of Information

Teece (2007) noted that if the sensing, creative and learning ability are only left to a few individuals, then the firm is in a vulnerable state. The more likely successful approach would be to embed the scanning, interpretative and creative processes inside the organisation itself. As explained by Teece et al. (1997), if an organisation is more decentralized, then it is less likely to miss market and technological developments, as it minimises information decay that you will find in a centralised environment as it moves up or down the hierarchy. It is important that management is kept informed from every angle so as to make quick and informed decisions before a competitor does (Teece, 2007).

2.8 Conclusion of Literature Review

In summary, the literature review has touched on theoretical concepts that will be used in the remainder of the research report. These are various concepts from various researchers, practitioners and scholars, as referenced in the subject of competitive strategy and innovation applicable to this study.

Firstly, it has been emphasized that in today's dynamic and changing economies where customer needs, technological opportunities, and competitor activities are rapidly and constantly changing, companies need to continually align and reinvent themselves to capture those changes through innovation. This point has been further explained in terms of the importance of an alignment of product/market knowledge, and innovation in order to execute a successful strategy which should also be continuously revisited as the competitive landscape is rapidly changing. It can also be noted that, in fast changing environments, opportunities open up to everyone and the incumbent's profitability is put under enormous pressure. This is where the theories emphasize the importance of the ability to sense, scan, shape opportunities and threats and also be able to seize them in time before a competitor does. This is where investment in research and related activities become necessary complementarities to sustain competitiveness and stay relevant.

The chemical industry has been viewed as very heterogeneous, with diverse competitors and there has been very minimal research conducted in the chemical industry from this research context especially in South Africa. Operational effectiveness which was profitable for some time in the past is no longer enough to sustain competitiveness as it can be easily copied, and it now needs to be incorporated with a differential strategy. For success, this differential strategy must deliver greater value than its competitors or create comparable value at a lower cost or do both. For effective execution of a strategy, an organisation requires articulation of the specific types of decisions and behaviours that drive performance and design an organisation. The importance of industry and competitor analysis which most firms do not put much effort into is emphasized in having a successful strategy.

The theories also note that one central organisational feature that captures the benefits of innovation, individual initiative, and distinctive core competencies is a system-wide focus on developing knowledge based structures that create new communication paths and encourage learning-oriented behaviours. Learning-oriented behaviours bring diverse skills which produce innovative solutions, and results in quick responsiveness in fast changing environments.

There are various approaches and practices that discuss the need for external awareness in various ways to express the intensity of its importance. The reason is that most firms that are so internally focussed in their internal processes, as a result, fail to capture and shape opportunities in time or minimise threats. Mintzberg and Lampel (1999), Porter (1979), Simkin and Cheng (1997) & Dess & Picken (2000), describe approaches and practices that depend on the need for external awareness in various ways. The important insight relevant to the theme of this research that can be gleaned from this is the importance that the external environment and internal resources plays in strategy formulation and strategic management. (Dess & Picken, 2000; Lei et al., 1999; Mintzberg & Lampel, 1999; Porter, 1979; Simkin & Cheng, 1997).

Then, there is a section that discusses "*the perspective in competitive strategy*". In this section, a brief description is given for four perspectives on competitive strategies. These are the five competitive forces approach, the strategic conflict approach, the resource based perspective, and the dynamic capabilities approach respectively. In this discussion, the final implication was that the models which emphasized the exploitation of market power are not the best to measure and drive firm level competitiveness as well as the resource based view is not enough to sustain competitive advantage in fast changing environments as it is easier for competitors to replicate their processes. So the final discussion was on the dynamic capabilities approach which is the adopted framework for this research.

In another view to simplify the dynamic capabilities, various theories have concluded that there exist a hierarchy of capabilities. That is, they proposed that there are three distinct types or levels of dynamic capabilities, which are,

“incremental”, *“renewing”*, and *“regenerative”* dynamic capabilities (Ambrosini et al., 2009).

Based on the literature review of the adopted dynamic capabilities framework, the following are the themes that have been identified as building blocks. Some of these themes also contain sub-themes that will also inform the subsequent thematic analysis. These themes and subthemes are listed below:

- Organisational processes
 - Integration / coordination
 - Leveraging
 - Learning
 - Reconfiguration and Transformation
- Positions
 - Complementary assets
 - Location assets
 - Reputational assets
 - Institutional assets
- Path dependencies
- Managerial processes
 - Sensing and shaping opportunities and threats
 - Flow of information
- Opportunities into the rest of Africa

In light of this literature review and the main problem and sub-problems as stated in chapter 1, the following research questions arise:

Sub-problem One

The first sub-problem will explore the competitive strategies that are used by South African chemical firms domestically, and the challenges they face in maintaining a competitive advantage.

Research Question 1

What are the competitive strategies that are used by the South African chemical firms domestically, and the challenges they face in maintaining a competitive advantage?

Sub-problem Two

The second sub-problem is to explore the drivers of their choice of country as well as the choice of the entry strategy they use, in expanding into the rest of Africa, given that these present opportunities for South African firms beyond the borders of the country.

Research Question 2

What are the most important factors that determine which African countries to expand to, as well as the firms' choice of an entry strategy?

CHAPTER 3. RESEARCH METHODOLOGY

This section describes the methodology used, and the research design through which the methods are implemented. This will apply to the benefits and shortcomings of the outlined approach.

The population sample and the reasons for the choice of sampling is explained. This is then followed by information on the sample, sampling method, as well as the research instruments used.

Lastly, the data gathering procedures as well as how the data has been analysed and interpreted is discussed. Then this section is wrapped up by discussions on limitations, validity and reliability of the research.

3.1 Research methodology / paradigm

A qualitative approach which uses a multiple case study that includes interviews and documentary evidence will be employed.

Qualitative research is defined as a research strategy that usually emphasizes words rather than quantification in the collection and analysis of data. As a research strategy, it is broadly inductivist, constructionist, and interpretivist, but qualitative researchers do not always subscribe to all three of these features (Bryman, 2012). The research strategy used in the research is interpretivist.

To explain further, the inductive view is the relationship between theory and research, whereby the former is generated out of the latter.

An epistemological position described as interpretivist, means that in contrast to adoption of a natural scientific view of quantitative research, the stress is on the understanding of the social world through an examination of the interpretation of that world by its participants.

An Ontological position described as constructionist, implies that social properties are outcomes of the interactions between individuals rather than phenomena 'out there' and separate from those involved in its construction.

According to Creswell (2003), the qualitative approach is adopted when a topic or notion needs more research done in order to get a deeper understanding of what it is.

This is true of a component of research being used as the evolution of competitive strategic concepts have been swift due to the rapid evolution of things like globalisation, technology, innovations, etc in the manufacturing sectors.

As little work has been done in this field, especially in the South African context, a qualitative exploratory approach may bring more information that would not have been unearthed with direct interviewing or quantitative approaches. As stipulated by Creswell (2003), the choice of a research instrument to adopt is determined by the type of research problem and the audience that one is to address.

3.2 Research Design

A research design provides the framework for the collection and analysis of data. A choice of research design reflects decisions about the priority being given to a range of dimensions of the research process (Bryman, 2012).

This research has adopted an exploratory study using a multi-case study of three South African chemical firms. This has been achieved through an interview approach followed by a qualitative content analysis of documents. This approach has been the most relevant for this research as it has allowed time to gather enough one-on-one semi-structured interviews. This has enabled the understanding of behaviours and the meaning of those behaviours in a specific social context.

The reason for adopting the qualitative approach is that the discussion and thus the freedom to probe the respondent would result in greater sharing of information which could only have been done on a face-to-face interview basis, where there is an opportunity to note and analyse both verbal and non verbal expressions. According to Kalof, Dan, and Dietz (2008), the reason for open

ended questions is that there is a great deal of new information that could come out in an interview if you allow respondents more freedom to answer open ended questions compared to asking closed ended questions, which would limit the information one can retrieve.

A comparison of domestic firms in the South African chemical industry was researched to uncover their sources of competitive advantage.

3.3 Population and sample

3.3.1 Population

The population were senior management and / or strategic managers in relevant positions. The sampling followed a purposive non-probability fashion. It consisted of a total of fourteen interviews, that is, four respondents in from Sasol Limited, three respondents from Omnia Holdings, and seven respondents from African Explosives and Chemicals industry (AECI). The respondents were chosen irrespective of gender, race and age but with a significant number of years working experience within the particular firm.

3.3.2 Sample and sampling method

The sampling followed a purposive non-probability fashion as selection of respondents has been a direct reference to research questions. Hence a purposive sampling method has been used.

Bryman (2012) noted that purposive sampling is a non-probability form of sampling where the researcher does not seek to sample research participants on a random basis. Its goal is to sample cases/participants in a strategic way so that those sampled are relevant to the research questions that are being posed (Bryman, 2012).

Table 1: Profile of respondents

Description of respondent type, e.g. Manager, Union representative, student		No of participants
Sasol	Vice presidents	2
	Senior managers: Strategy	2
Omnia	Managing Directors	2
	International Business Manager	1
AECI	Managing directors	6
	Executive Director	1

3.4 The research instrument

This research used a semi-structured open ended interview schedule. This has been decided on as this type of instrument allow for exploration and discussion on themes that have been identified, which has led to additional knowledge being gained from the respondents.

A questionnaire schedule as well as a covering letter to motivate participation is attached in the appendix section.

3.5 Procedure for data collection

Research was conducted by means of scheduled appointments with the chosen respondents for an interview that lasted for approximately one hour. Since the respondents were senior executives in organisations, scheduled appointments were appropriate to create a platform for a thoughtful and lengthy discussion.

The interviews questions were structured for ease of note taking. However, Willig (2008) noted the importance of maintaining a balance between control of the interview and its direction so as to allow enough space for the respondent to redefine the topic under investigation. The interviews were also audio recorded after receiving consent from the respondents as note taking could not capture all the information from the respondents. Willig (2008) has also noted that note

taking is itself disruptive as it impacts on the bond or relationship between the interviewer and the interviewee as it interferes with the non-verbal communication that could have been derived in the process. Thus, recording was a much more accurate way of gathering the information and have an in-depth understanding of the manager / executive's viewpoint.

3.6 Data analysis and interpretation

Data has been analysed by means of key themes and sub-themes that have been identified in the theoretical framework. Themes and sub-themes have been tied back to answer the research questions as mentioned in the first chapter. Thus, a thematic analysis was the key to answer the research questions. Final results were assessed from an overall stand point and compared to the academic literature on the topic at hand, with findings being noted accordingly.

3.7 Limitations of the study

Thirteen of the respondents were interviewed in their workplaces, whilst one was interviewed at a restaurant due to the respondent's availability and time constraints. Whilst it was difficult to assess if all the respondents gave honest and accurate answers, there was no obvious reason to assume that they were not responding in an honest and accurate manner. All respondents are based at their head offices which are located around Johannesburg in the Gauteng province.

As the respondents are in the leading positions of their chemical firms, the chosen sample was the correct one to answer the questions.

3.8 Validity and reliability

Reliability, replication, and validity are presented as the criteria for assessing the quality of social research (Bryman, 2012). Validity is the level of accountability and correctness that is strived for in data collection. "*Validity is*

concerned with congruence or a 'goodness of fit' between the details and the research, the evidence and the conclusions drawn by the researchers" (Kalof et al., 2008, p. 156). There are two types of validity, that is external validity and internal validity. *"Reliability is concerned with consistency"* (Kalof et al., 2008, p. 156). The information must also be trustworthy and dependable.

3.8.1 External validity

"External validity is the ability to generalise from a study to a larger population" (Kalof et al., 2008, p. 156). Another similar explanation of external validity by Bryman (2012), where he explains it as concerned with the question of whether the results of a study can be generalized beyond the specific research point. As this research is based on carefully structured interviews with top executives who drive these businesses, one can be convinced that they know what they are talking about and is relevant for this research. The thematic analysis pertaining to the feedback from the interviews that was used was carefully reviewed through content analysis, as all the information was recorded. Standardising the method employed by using a framework has also created some uniformity on how the data was analysed. One can confidently confess that the chosen companies are the long established and biggest South African chemical companies and hence can give one a better understanding of what is happening in the industry in general.

3.8.2 Internal validity

Bryman (2012) has explained internal validity as relating to the issue of causality, in other words, as concerned with the question of whether a conclusion that incorporates a causal relationship is true. Also, Kalof et al. (2008) noted that, drawing suitable or fitting deductions from the information generated from the interview is internal validity. Internal validity is maximised in this research as the research questions were very specific and so is the research presented in this document. Uncertainty regarding the required information from the respondents that could lead to misinterpretations has been minimised.

3.8.3 Reliability

Bryman (2012) has explained reliability as concerned with the question of whether the results of a study are repeatable. A similar explanation from Kalof et al. (2008), who confirms that reliability is concerned with steadiness and regularity of information. Research is considered reliable if there is a pattern found in the answers and the findings are similar and revealed consistently throughout the data collection.

In the adopted research where open-ended questions were asked to reach conclusions from the knowledge of the respondents, reliability and consistency were important considerations. Lastly, the clarity of the themes from an established, well-defined theoretical framework maximised reliability. There was uniformity in terms of the results from the interviews which showed how these firms differentiate themselves in order to stay relevant.

CHAPTER 4. PRESENTATION OF RESULTS

Using the afore-mentioned building blocks from the chosen dynamic capabilities framework, the following is a presentation of the findings:

4.1 Introduction

Background of Firms

The research was conducted on three South African chemical firms as noted in the research methodology chapter. The three South African firms are Sasol Limited, AECI and Omnia Holdings. These firms have very similar offerings in terms of product lines, but they differentiate themselves in various ways in the supply chain and whether one is manufacturing locally from feedstock to final product, or another is importing part of the products and assembling locally into finished goods, or yet another is importing finished goods. The difference varies as well as to whether the target market is domestic or across the South African borders. It also depends on whether the product offerings are commodity or specialty/ performance in nature.

The following will briefly give a profile followed by research findings for each firm.

Background of respondents

The background of the respondents is very similar in all the companies as they are acting in the roles of managing director or vice president, and a few are in senior strategic management positions.

4.2 SASOL Ltd

Brief profile

Sasol is an integrated energy and chemical company with head offices based in Johannesburg (Gauteng province), and manufacturing facilities based in

Sasolburg (Free State province) and Secunda (Mpumalanga province). Sasol develops and commercialises technologies to produce a variety of product lines that include chemicals, liquid fuels, and other forms of energy. The company is committed to its home base of South Africa but is also expanding across the borders based on structured value propositions.

Sasol is structured in various business units which have recently been consolidated in terms of product offerings which are currently termed as Base chemicals and Southern African energy (SAE). The new base chemicals division is a consolidation of those division that were formerly known as Sasol solvents, polymers, fertilizers and explosives (Nitro), wax, etc. The SAE division is a consolidation of those that were formerly called, Sasol oil, Sasol energy, and Sasol gas.

4.2.1 Organisational processes

a. Integration / Coordination

In Sasol, a manager's responsibility includes the integration and coordination of activities inside the firm, that is, internal activities, in addition to the integration of external activities such as technology as a means of strategic advantage. This includes the way management coordinates processes through a combination of the nature of products they offer, how they market these products and how they differentiate themselves from the competitor. In a commodity business, they differentiate themselves from competitors on service, price and the people that support the business. For performance chemicals, they physically differentiate, that is, they find different uses and different applications for chemicals, which bring them closer to the customers or distributors. It is very easy for competitors to copy Sasol in the commodity business; however, the method used is what differentiates firms from one another. These differentiations include the partnerships and the relationships they have, and the quality of their services. Sasol is the biggest differentiator on the quantity side as they can sell in bulk, in other words, they can produce and supply big volumes better than anyone else in the country. However it is not

impossible or difficult for competitors to copy. Another factor which they find beneficial specifically to the export side is the size of one's bank account, in other words, the ability they have to bankroll customers, and finance distributors along the way, and that is not impossible for competitors to copy. On the performance chemical side, technical support and the specific product application is the differentiator. Sasol's IP for performance chemicals is not easy for competitors to copy. Examples of these include surfactants that are applied into the drilling of oil and gas, detergents, shampoos, chemicals, waxes, etc. Once the company has the product, then employee's skills become their biggest differentiator in how they go about servicing the customer and building partnerships.

On the agricultural and explosives side, Sasol does not see their main organisational processes that account for their success as unique as there are other competitors that are similar in store capacity as them. Therefore, it is more of a barrier to entry than a competitive position. They have good technology and good assets in place, and their approach is holistic. Sasol employees have to understand what the customer needs are, and there is no point in producing 1000tons of poor quality products as customers will be dissatisfied. Sasol emphasized that it comes down to technology and the people who make their products. Employees need to work together as a team and understand what the business is all about. ISO accreditation is a requirement that Sasol is expected to have in order to be awarded business. They do not believe that it is difficult for their competitors to copy in practice, but are convinced that they have a solid network of existing customers and that it is very difficult to change an incumbent supplier in their line of business.

In both their base chemicals business as well as the SAE side, Sasol views incentives for employees work in building a performance driven culture, but one should be incentivised on something he / she has control of. They see pros and cons of short term and long term incentives, for instance, it can be an issue when the financial crisis looms and you have short term incentives, implying that there is a risk element to it. On the other hand, it is a challenge to influence day-to-day performances if you have long term incentives, thus a trade-off of

benefits in both the long term and short term. For the top management or organisational level, if the market is down it should be performance based as one cannot expect massive bonuses if the business is not performing. The lower down the organisation, for an example, on the operational side, their incentives are weighted to their own line of sight. This means that there is no one size fits all and they believe that money as a motivator is situational. One executive made the following statement in that regard:

“For incentives, at the senior level people are fairly well incentivised around their broad objectives and with this it does drive the right behaviour and forces various management functions to drive that down the line.”

However, the executive added that they do not reward junior level employees, as they mention that incentives are not such a big contributor with them.

In a big corporate like Sasol, risk taking is low. They are allowed to take business risks but are not allowed to jeopardise the business in terms of safety and risks nor break the law. Sasol believes that it is a lot less risk tolerant proportionately as a larger company than it would be for a small entrepreneurial organisation, in terms of risk and reward balance. They have a delegation authority, so that a manager can approve procedures to a certain level. They follow well-thought out and well-planned procedures. Also, the environment with the organisation has been static for years and there was no significant change. It is only in recent times that they have been experiencing change and it has not been received kindly by employees. Thus, their tolerance to change is low.

b. Leveraging:

In terms of leveraging best practices, Sasol has various practises that they implement:

1) Sasol has developed best practises around sales and marketing to increase profits and these cut across all the marketing groups. They have a standard way of training any marketing, sales and support teams person. Two very

standard programs are being rolled out globally and that has really contributed a huge value to their bottom line.

2) On the production side, over the years, they have had a range of production initiatives and production excellence that have driven best practise and are still under way. Sasol does not have one standard way across its businesses given the various countries that Sasol operates in, even within South Africa, it is not yet fully standardised. However, the culture and the way of extracting best practises are well understood.

3.) On the safety side, it is standardised worldwide, and it helps drive the mentality of a standard way of a preferred way of doing things.

4) In their nature of business and the products they offer, quality has to be a given because there exist very quantifiable standards which need to meet certain specifications, thus ISO certification.

5) In terms of innovation (technology) and manufacturing, Sasol has capital-intensive processes which are costly and take time. As a result, innovation is not much of an initiator in their commodity business. For Sasol, innovation applies more where they differentiate themselves, as in the product development side where product application is the driver. Also in their core technologies they keep innovating, for an example, in their famous Gas-To-Liquid (GTL) technology which they own. They have a special R&D department known as Sasol technology (SASTEC) which is driving innovative initiatives. Having said that, they do not innovate on a product that can be supplied by a third party, but they form an alliance through the use of a licensing agreement.

On their base chemicals side, to capture changing customer needs, Sasol ranges from fuels to hundreds of various chemicals. It is based on customer's needs. With fuels, they develop products to adapt to new technologies or new engines. For chemicals, they are mostly on the commodity side with no rapid changes in customer needs, but in their performance chemicals they will adapt the various molecular structures of various products to suit specific customer needs. An example would be if there is a new performance chemical need like a new shampoo that does something different to hair or a new surfactant

application, they will have a need. A lot of their performance chemical technologies are licensed, so they do not have significant ability to adapt processes and develop new products for customer's needs.

They have two approaches to determining which products to produce locally. One is the nature of their production process, for instance, they have certain products which come out naturally as by-products. Therefore, if there is enough application or consumption, they will separate and start producing it. The second approach is more typical of how they go about looking for what is in demand out there, so they continuously scan to see what the trends or new grades are. They will then make a decision on whether to start producing the new product or not based on the size of the potential market and what the competitors are doing. In general, they import to a very small degree as the market for the specialty or performance side is not very large. The understanding of customer needs and tailor making solutions is also very important in their agricultural and explosives business.

c. Learning

Historically, Sasol has been very poor at ensuring learning or flow of knowledge between employees, as a result of the previous organisational structure which was composed of various business units which were autonomous and had very little interaction between each other. Thus, best practice knowledge was not always transferred across business units. However, this is slowly changing given the new operating model. Before, Sasol had about ten different business units, and now they are down to two which has enabled a common way of doing things, enabled the transfer of knowledge etc. They also have within the group, centres of excellence (support centres) which they use to disseminate information and meetings. These hubs (centres of excellence) are located at centres or branches and spoke to other areas depending on the department. For example, for sales, they meet once or twice a year, for safety it is twice a month, and at senior levels they meet more often. Lastly, the learning between employees is more open within levels for instance if one is in operations then they learn from peers at the same level. The same applies if you are at the top management level across the organisation.

d. Reconfiguration and Transformation

In terms of determining the correct timing for transformational or reconfiguration strategies, Sasol has a very structured strategy process that is bottoms-up from various business units, they can make decisions within mandates given by the group and then match that with some top-down strategy from the board level and the General Executive Committee (GEC), and either of those can drive transformational and reconfiguration strategies. They have the view that not everything can be picked up at one centre, and that they certainly cannot be able to pick up every trend. An example is that one may pick up trends in the oil and gas business but not chemicals, so you rely on the chemicals side to drive alliance and acquisition strategies there. In some areas it is driven at a group level. In cash constraint situations, joint ventures are one common way that they tend to grow. This helps them to reduce exposure, by getting partners on board. Thus, in Sasol, transformational strategies happen both ways. They have a structured process that once a year looks at each business area holistically, so one of their mandates is looking at how they are delivering on long term plans, and the macro environment around that. That evaluation is often what drives transformational and reconfiguration strategies, as they will decide on issues of whether to shut down a certain production or shift it elsewhere.

They also have a very strict process in South Africa where they review each producing asset both internally and in the context of what is happening elsewhere. They do regular benchmarking leading to some recommendations. Generally, it is a combination of internal and external analysis and matching the two and the mismatch will drive the transformational and reconfiguration strategy. Lastly, pressure from stakeholders is the next one. Sasol is currently undergoing major restructuring, where they have recently reduced the number of business units, consolidated along the way, and as a result, this initiative has removed a lot of fixed costs.

Every five or six years, they go through a much broader strategic review of the company. They bring in other experts to evaluate it. They have a mergers and acquisitions (M&As) department that drives the process but the business side is driven by the business units. A recommendation to divest the business because

it is not profitable or there are no resources or skills to improve it will be driven by business units but the actual execution would be run with an M&A's department based in Rosebank. This is small unit which operates indirectly under their finance division. The M&As unit will follow processes and communicate with banks but what they cannot do is to identify the opportunities for each business unit because they are too diverse, and so each business unit has to identify its own opportunities. It is either proactively driven or something they come across and then they will involve the M&A department. Over the years they have not had a large amount of acquisitions. Sasol has not had these partly because of a rather stable environment and because of the cost to the company of acquiring and integrating, which Sasol has not been doing that well because it is difficult if the company is not doing it on a regular bases. Also, the fact that Sasol has been growing at a regular rate in rather static conditions had a contribution, but now things are changing.

4.2.2 *Opportunities in the rest of Africa*

In determining which African countries to expand to, Sasol goes through a very structured process at a very high level of looking at the demand for certain products, and applications. In some instances, they look at applications in various industries with various products which they try and map. They do that initially by getting published data to assess what is out there, where they either buy or use the expertise of someone who is an expert. In that way they identify potential markets, then they go and do the work themselves by physically putting people on the ground and then talk to suppliers, distributors, and agents who are already in that country, in order to validate available information. Based on that, they will decide if that is an attractive market where they can go into, by being customer-specific. They will try to get every detail before they go in with as low risk as possible.

They also look at the growth of that sector and nature of the business. They emphasize that one needs to identify the strength of distributors and how the business is done. They sell to distributors who in some areas control all the marketing. Typically, they like to understand the market themselves and get

customers themselves even if they will use a distributor. They go there with a conscious view to grow and try and establish a reputation. In Africa, joint ventures are more advantageous as they look for partners who know the local environment and the people, and as such can navigate the regulatory side of it. Another consideration is capital, as a lot of the business is capital intensive, so that means they de-risk if they bring partners in. Many of the countries in Africa require a local partner. This is a requirement which is very common in most countries.

Logistics are also an issue as trade routes are congested at the ports for South African exports, resulting in delayed deliveries versus competitors from other countries which have manufacturing sites located closer to the coast and have less congested ports. This of course depends on the destination. Africa is a strategic destination for Sasol as they are still very small in Africa partly because of their product offerings, and if there is a market for their products.

The view from the agricultural and explosives side of Sasol, in determining which African countries to expand to, in the first place is strategic alignment. As they say, if one is a feedstock driven company, for example gas, there is no point of going to a country that does not need gas. If you are a market driven company, then there's no point going to a country with no customers or money. Other issues they consider are free trade, ease of doing business, risk, policies, government, instability, language, corruption, and culture. They emphasize that Africa is not the United States of Africa, as there are fifty-odd African countries that are very different with different needs, agendas, and requirements from each other.

Their preferred entry strategy is situational. As they manufacture locally, if one takes Namibia as an example, the logic for them would be to start exporting products, understand the market, and establish a presence by putting up an office. In that way, rather than exporting to that country, they start importing raw materials and finished products from that country, which is followed by building a local beneficiation assembly. If one can source raw materials in that country, then one can start manufacturing. If one has resources then one can start growing organically. However, if one is going into mining then finding an asset

to exploit or develop is the way to go, and set up company infrastructure, and align oneself to local laws (example, indigenisation laws like 50% local equity partner). The further one moves up the value chain to manufacturing and resource development, the higher the risk, the higher the reward, and the higher the involvement one must engage in. Lastly, they emphasize that lack of research or sometimes it takes a long time to make a decision, by which time the opportunity is lost.

4.2.3 Positions

a. *Complementary assets*

When it comes to innovative complementarities, Sasol's manufacturing is proprietary technology on their chemicals business but their applications are technical R&D applications supported with marketing. For their performance chemicals as an example, they have a combination of marketing, technical application R&D and their ability to innovate around structural molecules.

On the fertilizers and explosives business, fertilizers are a classic commodity, whereas explosives are not sold as a commodity but they also provide a service and technical support. Explosives are more product, customer and industry specific. Sasol makes agricultural chemicals in performance chemical departments managed from Europe.

b. *Location assets*

In relation to location-related advantages or disadvantages, there are two sides to that coin. In South Africa, they obviously have an advantage as they manufacture locally and most of their products compete with imports. There are some exceptions like polymers and fuels where they do not really have competitors. They have a location advantage in the South African market versus imports since the imports have to be transported to get to the South African markets. Even with chemicals is the same, their manufacturing sites are based inland and Gauteng is the biggest market. In Durban likewise, they still have an advantage over competitors based overseas.

The flip side of that is when they ship it to elsewhere such as China or Europe, as they are at a disadvantage in comparison to a local producer. The nature and remote location of South Africa puts them at a disadvantage even to others shipping into these countries. As an example, the Middle East shipping into Europe, their manufacturing is based on the coast and their volumes of ships coming is more than in South Africa, and for them it takes 6 weeks to get there compared to shorter time periods with other producers. Another example, in delivering to Nigeria from the South African base, they can take up to 120 days to get the polymer the north of Lagos whilst a competitor in India will do that in about 40 days. There are not enough vessels coming through regularly, internal logistics like rails, and South African ports are congested and have higher costs, hence the supply chain is a challenge for them.

Typically, they are not competitive unless they are competing locally. They have advantages in SADC countries close to South Africa. From the South African base, other countries like India and the Middle East have a competitive advantage to countries like Kenya (East) and Nigeria (West). It mostly depends on who they are competing with, but they are neither the most nor the least competitive out there. Sasol's production base is driven by the feedstock they have and because of the limited demand of the local demand in South Africa, Sasol would normally go and grow the business outside of South Africa, and competitors bring products that are not manufactured locally, which in most instances they bring finished products into the country.

The chemical industry in South Africa is not that big because you don't have the economies of scale and the market to import and then produce is not enough. You are more competitive importing the finished product. AEL, a division of AECL, buys ammonia from Sasol as well as imports and produces explosives. Sasol does not sell to everyone as they would rather use a distributor and distribution is of no interest to them. In their view, they see AECL to have become more of a service business than technology as they have put warehouses in all the regions.

The view from the agricultural and explosives business is not different to the base chemicals side as they say, wherever your assets are and your feedstock

is, if you are backward integrated on your feedstock and your assets are sitting on that feedstock, then one has a geographical location advantage around that site. For an example, their fertilizer site is located in Secunda in the Mpumalanga province, meaning that they are not competitive in Durban because another competitor can import products. Fertilizers from Middle East are shipped in and land it in the Durban harbour cheaper than Sasol can rail it down to a Durban farm. It is a geographic advantage based on trade routes. They have competitors located near the coast who are competitive there because they import. Sasol is also competitive in Sub-Saharan Africa. It has all to do with location, distance, and trade routes. They view It as cheaper to bring products from Europe or the Middle East to supply north of the equator countries.

c. *Reputational assets*

In terms of achieving and maintaining a good reputation, Sasol agrees that one has to be compliant, have integrity when doing business, have consistent quality, be reliable and follow the law. Sasol's values of safety and integrity are very important to them. Safety is even more important in the mining and explosives markets. For example, in the year 2014 in the agricultural sector of Sasol, there was a grey area around the quality of a product. They could have kept quiet and got away with it as tempting as it sounded, but they got the facts together and found that it was something they did wrong. They owned up to it, and admitted their fault to their customers and as a result, they emerged victorious with a reputation for being honest.

d. *Institutional assets*

As far as institutions or public policies are concerned, on their chemicals side in South Africa, they do not have incentives outside a few tax breaks. They do not get duty protection on their products, thus affecting their competitiveness. Protection is product specific and they have lost a lot of their protection in this sector. It used to be there, however six years ago it was removed. They view the South African government as trying to achieve low prices to their customers to make them more competitive. They do not get better regulation versus other

countries like China to the African countries. However, IP protection in South Africa is very good for them. Labour is also not cheaper so it does affect competitiveness. Their biggest issue in South Africa is the market is small and the economies of scale are a challenge.

4.2.4 Path dependency

Sasol's input, output and internal processes including expertise that they have is guided by their existing GTL technology which they own. It can make it difficult to adapt to new technology but if there is enough need to acquire new technology, then they license that technology.

4.2.5 Management Processes

a. Sensing, shaping and Seizing of Opportunities and Threats

Sasol does not attend conferences as much as they used to before as many conferences do not present relevant or new information. In keeping up with new trends in the industry, Sasol has analysts and people doing the research for them. In addition, they get an idea of the trends and latest technology from people launching their product, that is, their sales team. They use the internet, conference papers, and their own networks that allow them to keep up to date. They also use their sales people, product managers, and analysts to actually go out and meet people. They do not really attend trade shows but they attend big congresses where they do not listen to people or presentations but meet suppliers and customers and listen to what the competitors have to say. They also use expert contacts in oil and chemicals like management consultants who provide pricing information, trade data, etc and who pick up the big trends. So it is more on the network of contacts and less on trade shows and conferences.

b. Flow of Information

Sasol has shifted from a decentralised method to a more hierarchical approach where decisions are made at head office level; this change occurred in the last 18 months. They reckon that while it is centralised, people are empowered and

expected to make decisions at a business unit level where they are making it a lot less hierarchical. The delegation authority is much broader than it used to be. The business units are accountable for the decisions they make for as long as they are within a mandate. They have been taking out (pushing down) the hierarchy as much as possible to line managers as they mention that they have given them the tools, the structures and learning guides and then they hold them accountable. They all agree as they mention that, the overall strategy is set by the board so it is hierarchical. It's hierarchical at the top and as you go down one works within boundaries.

4.3 OMNIA Holdings

Brief Profile

Omnia Holdings is a diversified provider of a variety of chemical products that are sold to the mining, agriculture and the chemical industry. Omnia has its head office based in Johannesburg, South Africa and has operations that extend beyond the borders. It has technologically advanced plants to manufacture core materials such as nitric acid and explosives emulsions. It offers products and solutions to its customers through its three diverse divisions which are the chemicals division (Protea chemicals), the agriculture division (Omnia fertilizer) and Bulk Mining Explosives (BME).

4.3.1 Organisational processes

a. Integration / Coordination

Omnia -Protea chemicals buy most of their chemical products both locally, and import others based on availability and costs. By the very nature of this business model, cost effective and strategic buying becomes the key to competitiveness as it is a low margin and high volume operation. The second process is they have an enormous supply chain infrastructure scattered throughout the regions which are South, East, West and North Africa, and their ability to operate that as efficiently at the lowest possible costs without compromising customer service levels is critical for competitiveness. The third

one is the quality of their sales force and the ability of their sales team to extract the best possible pricing they can from their customer base. Their processes are very sales driven and it is not impossible for competitors to copy them.

On the explosives and agricultural side, they do not have long chains of command like their competitors, that is, they have quick decision and quick response making procedures. They use entrepreneurial business flair with a culture of empowering people to try new things.

b. Leveraging

In terms of leveraging best practices, they initially had discrete business units located geographically, and about a couple of months ago, have started to re-organise these businesses along national functional lines (example, finance, supply chain, admin, HR, etc.). Cape Town, JHB and Durban, for example, used to run fully fledged business models with all the associated functions. The reason for this move was that there was a lot of disjoints and inefficiencies between those discrete businesses. That's where they are convinced to have identified best practices. They now have a supply chain or distribution facility in Cape Town, JHB and Durban and are benchmarking them against each other and are looking into these early stages to optimizing and standardising. They have found it difficult to standardise in the preceding structure because the businesses were geographically disperse and often they would run in the interests of their own separate businesses rather than in the interests of the group. They had activities taking place at a local level that were at odds with the strategic national position, or in conflict with one of the other business units. They had a lot of duplication of resources and in the new structure have been able to remove unnecessary costs out of the business, so there have been a number of retrenchments as they have centralised on finance and admin. Through this high degree of centralization, they have been able to reduce the number of purchase orders issued so deliveries have increased per ton, etc. Performance statistics have shown that it has been a significant improvement. They recognise that the risk with this move is that you breed a level of bureaucracy and inefficiency associated with the central control. Both centralisation and decentralisation have pros and cons.

Omnia-Protea Chemicals do not develop new products. There is no chemical innovation taking place in their business, so in the main, its new products introduced to their range would be born of sales and marketing people who interact with consumers, and covering a market opportunity that they see as attractive. They would qualify that as a business opportunity and if they have to source that product, will then go and look for one globally and try and get a supplier that is strategically supportive of this market. They would then evaluate their level of support on a market based on their commercial netback. So they would have to give them a reasonably good commercial netback that is embedded in the value proposition. That will be the process they follow in developing a new product, so the innovation is in identifying customer needs and it is largely from the sales team interacting with the customers.

On the explosives and agricultural side, from a production point of view, as they manufacture locally, they leverage resources. Explosives and fertilizers share nitric acid, it is the feedstock for both, but on the rest of it the real leveraging comes from leveraging of knowledge, and leveraging of energy.

c. *Learning*

Omnia - Protea chemicals see themselves as very poor in learning between employees. They have the Omnia academy that is based on the principle where someone who has a unique skill, then they develop a course to help others improve on that field as well, but that does not work as efficiently as they would like. One executive made the following statement in that regard:

“It’s hard to get people to share their knowledge”.

From the explosives and agriculture side, they view learning as a problem in all big companies. They have conferences where they will invite technical people or at least part of them to share knowledge, culture, and understanding what the business is about.

d. *Reconfiguration and Transformation*

In determining the correct timing for transformational and reconfiguration strategies, they have been through transformation in the way they are reorganising their business structure which is mostly driven by performance concerns. They confirm that it is rare that these strategies are implemented when things are going well. They mentioned that it is opportunity-driven in some respects, as one might have a strategy to build an alliance and not have an available partner, so the identification of a need for some sort of reconfiguration or transformation and the circumstances under which you can transform might be different in terms of timing.

From the explosives and agricultural side, there's never a correct time or a bad time for reconfiguration and transformational strategies, but it has to be linked to the strategic vision of the company.

4.3.2 *Opportunities in the rest of Africa*

In determining which African countries to expand to, it is around common logistics when one look at Africa. Locally manufactured goods in South Africa can only be competitive in areas closer to their production site but as one gets further away and closer to the coast then imports starts to become a threat. At some point, it becomes cheaper to buy from closer to the coast than inland. In other words, one's ability to penetrate with local products is constrained ultimately by logistics. Logistically, the closer you are to your factory the better you are placed, as someone importing from the coast cannot be competitive than you. The closer you are to the coast as a potential customer the more that becomes a threat to a manufacturer which is located inland. On the other hand, they import a lot of their products from the East, through the Eastern ports. Most of South Africa's developed economy is on the eastern side of the continent. This means that in Durban, Port Elizabeth, Cape Town, Richards Bay; Mozambican ports- Beira, Maputo; North Dar es Salaam, to the North of Mombasa, their suppliers are competitive into these ports. An example is if a competitor is coming out of South America, they struggle to get competitive because they have to come much further and right around. They get

competitive in the other African countries by making use of the blocks rather than countries. These blocks are locations which are East , West, North and Southern Africa. They prefer to go independently as they don't like joint ventures as these haven't worked well with them in the past.

On the explosives and agricultural businesses, they look at the potential of the country. As an example for the explosives business, they look for a country where there are rich mineral deposits, there is potential for mining. Then they do feasibility studies where they will consider safety from an investment point of view. From that information, they decide on the value proposition for that customer.

4.3.3 Positions

a. Complementary assets

As for innovative complementarities, they have a significant supply chain backbone that can make it easy to add new products and customers onto an existing network. Their innovation is not in the supply chain but in the ability of a salesperson to identify new customer needs, the products required, and the ability to source them and drop them into their existing supply chain structures. On the explosives and agricultural side, they advertise. As they say, *"If you go out to the mining world, you will see BME is linked to explosives, as you will see adverts saying "for explosives, think BME".*

b. Location assets

On the Omnia – Protea chemicals business, they do not see themselves as having a location related advantage but more of a scale based advantage. This is because most of their competitors have infrastructure in the same geographies as they do. In Africa, they have a stronger presence than their competitors, thus allowing them to offer the international suppliers a pan Sub-Saharan service, which some of their competitors can't offer. They also have a broader product base so customers can get all their products from one stop-shop for convenience purposes. The other benefit they have is economies of

scale, simply because they have significant volumes allowing them to get lower unit cost benefits.

On the explosives and agriculture business, they are of the view that since they are manufacturing in the middle of South Africa, in other words, they are located inland, then they have a natural advantage on cost that someone importing to the local market.

c. *Reputational assets*

In achieving and maintaining a good reputation, from the Omnia- Protea chemicals side, as a listed company, they have governance that is an integral part of their business. There are monthly reporting, checks and balances, internal auditing, etc. those hopefully prevent any kind of reputational issues from arising. From the external point of view, they seek to comply as best as they can with all the laws of the country. They go beyond that in terms of responsible care given that they are trading in chemicals, so they have a cradle to grave commitment and disposing of waste responsibly. They have ISO accreditation in safety, health, environment and quality.

On the explosives and agriculture business, after safety, the brand value is the most important thing they have. Their brand stands for *reliable, dependable and sustainable*.

d. *Institutional assets*

All the Omnia businesses view institutions as that same for everyone, so they do not have any competitive advantage because of institutions or public policies.

4.3.4 Path dependency

At Omnia - Protea chemicals, they do not have any kind of formal review of projects but they are obliged to do five-year reviews for the holdings board. Whenever they request capital from the board, a motivation is sent to the board and five years later it gets reviewed in terms of performance. Sometimes they

feel they need to improve, but it is essentially closing the loop on a project scope. Overall, they are guided by the existing infrastructure for their activities.

On the explosives and agricultural businesses, they are also guided by the existing technology which is the feedstock of various fertilizers and explosives.

4.3.5 Management processes

a. Sensing and shaping of opportunities and Threats

In keeping up with new trends in the industry, they interact a lot with a host of different people, in most of the industry sectors as affiliates in industry institutions, and product sectors, and attend global trade shows.

b. Flow of Information

From the Omnia – Protea chemicals business, in coordinating information and decision making, they are getting more centralised with the new structure. From the explosives and agricultural side, they have policies on corporate governance, so decisions are made at the head office level.

4.4 AECI group

African Explosives and Chemicals industries (AECI) is an explosives and specialty chemicals firm domiciled in South Africa that offers products and services to a diverse manufacturing base and mining both in South Africa and internationally. AECI's businesses are characterised by application know-how and service delivery. They often operate in niche markets and are supported by leading technologies which are developed In-house or are sourced from international partners. Their various businesses that serves diverse markets are African Explosives Limited (AEL) which is a manufacturer of commercial explosives; Chemsystems provides chemical products to a diverse range of industries through its seven business units; Crest chemicals offers a variety of

commodity and specialty chemicals, Improchem that provides solutions for improving water, energy, and gas; and Experse that manufactures emulsion based specialty chemicals for the agricultural and mining industry, etc.

4.4.1 Organisational processes

a. Integration / Coordination

On the agricultural chemicals business, they see the world as much more competitive, and their unique technology gives them a competitive edge. They are of the view that in order to beat the competitors one needs to come up with a collective effort that ensures that it is more difficult to copy and be aware that what is relevant today is not relevant tomorrow as one needs to keep changing and keep evolving. They acquired distributors and that is one of the key reasons why their business has grown so dramatically.

Distributors have several agents who get paid to sell. They looked at what motivates agents, which they found was competitive remuneration, for both local and international product ranges, to count a few. They would enhance a product range that an agent can sell, so not only their products but all the other multinational products as well, and include financial backing. In other words, they have the financial backing, they have the footprint that the multinationals will want to use, and they have the best competitive products, so now they are ticking off remuneration, product range, and a few others as well. If an agent doesn't get paid commission on time, with inaccuracies then that can be upsetting. They developed a business system in place, which has given the agents the transparency to see how their commission have been calculated, and ensure that they get their remuneration on time. Furthermore, in the administration aspect of things, the agent has to fill out a credit application on their behalf for the customer, he has to make sure the customer's records are up to date, and that when the customer pays, it gets processed correctly. This whole function gives them a competitive edge. All the companies require agents with the ability to do stocking, forecasting, and they can operate as a proper business. They constantly innovate and think of ways to make the distributors comfortable working with them. Other competitors don't offer these. They

understand that sticking to only your game easily gets commoditised and they have to keep finding new ways to secure their future. They recognise themselves as not just selling chemicals but providing total plant nutrition solutions, which includes health requirements of being organic, etc. They are aware that competitors can copy them but they keep innovating.

One of the reasons for success on the specialty chemicals business is that they operate in a sphere where innovation is the key. They have got a bulk comparison with other businesses their size. They have a well-established R&D department where they spend a lot of time, money and resources developing new products. This does not come in a radical or disruptive form but more incremental innovation. It is mostly development that is driven by pool factors from customer needs of which they will basically make custom made formulations on products to satisfy those needs. That does not mean that competitors cannot copy these but it does make them unique for some time. They would then complement these with a lot of training resulting in a lot of knowhow which can be tacit knowledge overtime making it more difficult for competitors to copy. One executive made the following statement in that regard:

“Many people could probably come close to copying our product if they have it, but it is not quick and easy as that”.

This is also because they complement their technologies by basically having their people in the fields; they would have special dosing equipment for their products, and would have application expertise that they use for their products, which is very important for the total package of their products.

On the Chemsystems business, they are a sales and marketing driven organisation which focuses on value adding activities, meaning that, they seek to follow a business model that adds value to a customer for which they can get a premium. They give special emphasis on compliance issues like safety, BEE, etc., which they view as onerous preventing them from being a low cost producer as they have to get a premium for all that. As they are a sales driven business, they invest heavily in sales people who spend a lot of time with customers, interacting with them and building relations.

As part of their strategy to differentiate themselves, they entrench what is called "*the value triad*", which implies that they recognise a customer to be a body who only buys for three reasons, roughly identified as, 1) you reduce his costs, 2) you increase his profitability, and 3) you play in his emotional space; so they focus on those. They believe that as a supplier, having all other things being equal, if you have a better relationship, a better track record, and a better credibility and pedigree you will get the business. The afore-stated also needs to be a differentiated value proposition since their competitors can copy it. That happens to be their basic business model. They then seek to differentiate through engaging with their customers, intensive sales training, intensive understanding of their customer's needs, and really attempting to solve their customer problems and find out where they can add value. An example would be if they had a business that deals with toxic lead based chemicals such that people have to wear masks, gloves etc. They would pack it into sealed plastic bags, and it would go to their customers who use it in their formulations to make products such as PVC. Then their customers would have to take this packaging, put it in a special place and throw it in a registered landfill because it's been contaminated with a hazardous chemical, which is lead in this example. For their customers, it is not cheap to dispose these empty contaminated bags. So as a differentiating factor, they started supplying them in returnable packaging in the form of bins which they have built a special safe location at the customer's production plant. They monitor it and when the customer has finished the product inside the bin, then they pick it up, fill it up, and take it back to the customer's plant. In that way, they have invested in the customer's plant, at the same time hooking the customer's business in, whilst saving the customer a lot of money on the other hand. They train their sales people to be good at identifying similar type of opportunities, which are unique.

From the water, energy and gas side, the main process that accounts for success according to them is tenacity, staying power and understanding what the customer needs. From their perspective, they work hard at not being a supplier to a customer but to be a business partner. They try and focus on understanding the customers' needs and their long term vision and strategy so as to align themselves better to support the customers in their processes. They

try and quantify the value that they bring to the customer, in other words they don't just make a value proposition of what they can do, but they also quantify it in rand or monetary terms what benefits the customers will benefit from doing business with them. Of course, this is not difficult for competitors to copy but they spend a lot of time training their people to understand the value proposition offering and the ability to bring that to the customer. This is a process that they implemented and formalised with international technology partners.

b. Leveraging:

On the agricultural chemicals side, in leveraging between different business units, they have taken a number of new people so they bringing their best practices because they are expanding holistically. Before it was really poor, but now the new CEO changed that with a new approach that emphasize collaboration between various AECI entities, which is very important. They see the benefits already.

In leveraging best practices on the specialty chemicals side, they leverage people's expertise from various processes. An example is in their surfactant technology operations, where they move people in between various operations such as mining emulsifiers, fertilizer coatings, and urethanes; which are all surfactant based processes. In that way they cross pollinate in a synergistic manner. They have one laboratory facility and two factories based in Durban, whereby the production personnel oversee both of them. As it is very similar technologies, it allows them to benefit from that. In terms of the production side, the fact that they have vast quantities that go through their operations allows them to achieve lean production and economies of scale as a result they believe to have one of the lowest cost manufacturing facilities in the world for products applicable to emulsifying explosives. They have highly skilled people with PhDs and several Masters Qualifications working on surfactant base chemistry to develop new products and they can rotate and cross-pollinate and that is giving them a competitive advantage. That is one aspect of the business where they are innovative.

From the Chemsystems business, they have best practices across a couple of forums, as they have technical forums and manufacturing forums, where intergroup best practices and ideas are shared. They have lots of collaboration and sharing between group companies and between business units. Chemsystems leverage resources like operations platform-finance, IT, warehousing, Safety, Health, Environment and Quality (SHEQ), engineering, logistics and support functions like, shipping, procurement which all becomes a common platform providing services to business units. This is one best practice shared between seven branded business units. As a result of this collaboration, they get economies of scale and businesses that are in decline and get repositioned into intensive care in this grid until resurrected and then gets back to the bigger AECI group. These businesses are mostly affected by changes in life cycles, changes in the competitive landscape, and changes in customer landscape to be repositioned.

In order to develop new products and processes on the agricultural chemicals side, they have invested in distribution, and information sharing. The farmers are the ones who are the first to identify a particular problem. An example would be an outbreak of a particular insect where there is no existing chemical to remove it or it has developed resistance to the existing chemical, then that drives a need for a new product.

On the specialty chemicals side, most of their competitors supply locally, but they mostly supply about 20 different countries in six continents except Antarctica so far and for a South African operation to have such a diverse reach is quite unique in their kind of business. They would develop products based on application needs. They would do this by having technical sales people going to different areas and determine what the unique requirements of the various operations are, e.g. going into the middle of Russia where it is very cold and one needs to produce an emulsifier that does not degrade within those temperatures, so they would then produce products that are stable at -40 degrees Celsius, would be adaptable, and does not degrade. Another example is in South America where they send people readily about eight times per year seeing what the products are there, and customising to very high temperatures,

very high humidity because the intent is to make sure that the coating remains intact and does not bleed off under those vigorous conditions.

On the chemsystems business, in order to develop new products to capture changing customer needs, they listen to customer needs or it is driven by technology which they take to the customer. Some of the drivers are green technology, safety and environmentally-friendly technologies which are the new emerging technologies which they focus on. On a new technology, they focus on development and not on research. This is where they find new chemicals and put them together in a different way, and find applications for them. In other words, they do application and product development. As mentioned, these can be driven by green initiatives and the likes. Customers always want cost effective products or improved performance.

On the water, energy and gas side, in order to develop new products to capture changing customer needs, they use a global technology partner to do the research and bring new products and processes. They have ability to tailor-make and apply this technology to suit local conditions. They have a marketing and technical department that looks at the applicability of the technology in the African context. To determine which products to introduce locally, they make use of their marketing department together with their international partners. They have industry experts who look at trends and developments, but they also independently attend global conferences and have representations in conferences that are important to them. They make sure that they get a feel for what those industry trends are based on, which they then align themselves to the changes. There is a shift from chemical to mechanical technology solutions in water treatment and they understand that they need to align themselves accordingly. They manufacture everything locally, but it is mostly cost - driven whichever is cost effective and is satisfying the specific customer need. Things also have to be produced by certain standards. It is driven by quality, cost, safety, environmental legislation and the performance of the product itself. Cost-performance ratio is very important.

c. Learning

On the agricultural chemicals business, they view learning in between employees as always a challenge when a firm gets bigger, that is why they formed a technical committee because they do not want an agent's request voicing a specific customer's concern, to fall on deaf ears. This committee also minimises the risk in research of developing a product that is completely irrelevant to the market. They are of the view that, if they have a technical committee conducting research and development and monitoring regulations, in addition have regional sales managers and technical advisers, then they all collectively will be able to provide the best opinion for their products.

From the specialty chemicals business, they have a flat structure and every second month they have technical people who visit them and give presentations on the various projects they are working on. In other words they will get an opportunity to share ideas and insights with external entities. Also, they have an extensive use of cross pollination of the people doing the development work as they sit in the same building for various projects. So there is some element of learning from each other.

On the Chemsystems side, their businesses are only silos to the extent that they are experts in their own businesses, as for learning there is a lot of collaboration. They have adopted what they termed "multi-level calling", for instance if they have a key customer, they make sure to call at various levels from an MD down to an operator. This results to a multi-level relationship with the entire organisation. So there is a lot of learning in that process, and a lot of exposure to the business. They also use Customer Relation Management (CRM) tools which are freely accessible to each business making the flow of information easy.

From the water, air and gas side, they have a regional structure and different departments, of which training and information sharing is easier in head office because everyone is there and there is easy interaction between people. Interaction becomes a challenge when it comes to the various regions including their African footprint, and hence information sharing is very limited. As a result,

they are creating electronic platforms such as e-learning through their alliance with their international partners and have developed local training sessions and training courses to stimulate interaction between people.

d. *Reconfiguration and Transformation*

In order to determine the correct timing to implement reconfiguration and transformational strategies, they use their “gut feel” quite often in the agricultural chemicals side. They recognise the need to be ahead of the game and sometimes one has to reshape it and be proactive as waiting for someone else to change first is not always a good thing. They keep aware of international strategies and changes. Regulations are a big driver for change as products are moving away from hard chemistry to greener biological products, which forces them to adapt. There is no good time and they always involve committee and distributors and share information.

On the specialty chemicals business, they have tried having alliances with competitors or other people in their industry and it has not worked particularly well for them. For that reason they are not keen on having any kind of alliance. In terms of alliances with customers, they always see an opportunity to develop a product alongside them to come with a new technology, and that is the only appropriate time that is relevant to them, when there is a specific customer need to develop a product. In terms of transferring production to low cost countries, their concern there is getting their Intellectually Property compromised, concerned about the correct scale, the correct engineering and systems, etc and as such it is not in their pipeline. They believe that rolling that in another country could be extremely expensive to ensure that they do not compromise their process standards. The only time they can consider it is when they have a very low concentrate or low active content of a product where they can then send a concentrate and whatever diluents that can be used, meaning it would be a consideration which they can favour to manufacturing of a lower technology type of a product but they have not considered that idea even under the conditions just mentioned. Finally, they see the cost of transporting from

their South African base to most of their destinations as small in-comparison to what the conversion cost would be in that country.

From the Chemsystems side, they do not believe that there is a right or wrong timing as they are always transforming. They mentioned an example of a business they are trying to realign. As an example, this business missed out on new technology change which the opposition got. These happened as a result of not watching the new trends and they were very slow to react. They have done a lot of things in progress but the timing is a difficult thing to them. As one executive made the following statement in that regard:

“This is one of the things we don’t do well, we tend to hang on too long, we tend to try to flog a little harder when it comes to exiting a business or restructuring we tend to be a bit reluctant. They become your babies, you nurture them but there comes a time when you have to realise that you have to end it. We just tend to be clinical.”

From the water, energy and gas business, acquisitions are really around footprint and technology and how that fits into your overall strategy, so if they have a strategy to move into Africa, and an acquisition gives them an opportunity to enhance their footprint, then they consider it or if it gives them additional technology that they do not have which would satisfy a customer need, then also they consider it. They don’t have a specific timing to make a transformational strategy; it’s a question of alignment with their strategy. They have monthly executive meetings and senior management quarterly meetings where they review strategy and then communicate the progress on certain areas of that strategy and share insights. The outcome would then be communicated to the whole company and intranet sites where people can view key initiatives for the year. This is where people are expected to align their activities with those initiatives. They have regional managers who need to make sure their team is aligned to what is needed. These initiatives are driven by the top management’s perceived customer expectations which employees follow.

4.4.2 Opportunities in the rest of Africa

In determining which African countries to expand to for the agricultural chemicals side, they confidently confirm that it is easy for them to determine which African countries to expand to by looking at size of agricultural interests, but have to look at opportunities and one has to look at governments, governance, corruption, and whether one knows other companies that are already there. One has to note that just because some countries are small numerically does not mean that there are no opportunities or great potential. You can combine to work with a group of small farmers and get them to work collectively and supply to them. It is not really important about a specific country but more about the opportunity you can identify. They try to stay away from politically unstable countries and try and establish collaboration partners, form an alliance or partner with an existing business, or they look for another healthy business that already exists that has a good track record and have survived the underlying political and economic instabilities. They have a mergers and acquisitions unit which is about three years old. They confirm the importance of an expert's assistance in order to be successful in acquisitions and this unit has been very useful in that regard.

The water, energy and gas business, view the African countries as presenting a good opportunity for their growth. This is because these countries have some need for water chemistries and energy even if it's just the municipalities which require clean water for its people, to include the locals, and rural environments, where people need clean drinking water. That all presents them with vast opportunities. Secondly, there is a big issue on waste water management, sewages, streams and rivers, which is another opportunity for them and everyone else. Whether there's money or budget is a different story, but the opportunity is there. Then if one looks at expansion in the oil and gas industry, countries like Nigeria, Angola, Mozambique, Tanzania, Madagascar, and all other countries that have oil and gas opportunities, guide them to look for partnerships and alliances in those countries. On top of oil and gas, they target mining. This is where they would grow a back end and follow their sister companies like AEL which has a footprint in a lot of countries with mining and

mining facilities like Zambia, DRC, Ghana, Mali, etc. They are still looking for opportunities to expand into the Arabian countries, and for them it is important to look at the industry groups. They look at the local economic conditions of a country like Nigeria, Ghana, Zambia, Mozambique, where there is a growing middle class, where there is an expectation to have better food, to have more refined foods, the ability to spend, and with that comes a move away from traditional food to more processed foods and with that comes expansion. If there are existing food plants, for example, some countries already have companies like Cadbury, Nestle, Parmalat, etc, and as their footprint increases the people's potential to spend in these countries, then it also enhances their opportunities to operate in those countries as well.

They view buying companies in a form of mergers and acquisitions as their key growth strategy. The organisation is making use of an existing mergers and acquisitions department that has been created a few years ago to assist with all the necessary work of doing an analysis of a target and potentially country to expand to and hence the relevant entry strategy. These checks and balances will include everything like legislation, regulations, credit risks, the ease of doing business, local requirements, potential local partners, language, religion, culture, etc. They also consult with specialist consultants like Frost and Sullivan to do risk analysis and feasibility studies for them.

Examples of the necessity to undergo all these checks are to register a company in Angola is exorbitant. In Nigeria, you need a local partner and corruption is an issue. In North Africa, religion might be an issue, etc, and these are vital to know beforehand. Their drive is to expand to these African countries for as long as there is potential to make money. Mining for them is a very generic operation which operates the same way in any country. Energy is big business in Africa and all they need to understand is the decision making criteria. All the afore-mentioned factors determine if they do business in the African countries or not. Hence they view mergers and acquisitions in Africa as their key growth strategy.

4.4.3 Positions

a. Complementary assets

For agricultural chemicals side, one innovation has been the ability of having their own technical department, i.e., people that advise on which product to use so they can have the best product range without being influenced by the bias of multinational sales people.

From the specialty chemicals side, a better way is to present at trade shows where they get clients. Also, the after sales service that they offer is a key part of their business.

For the water, energy and gas side, they complement by having people on the customer sites. They don't sell a product and walk away. They sell a product, apply it, measure the benefits for the customer, optimize it, and change it to fit the customer's premises and that enhances a continuation of communication with the customer and after sales service. This requires a lot of training of people, not only in technology but also in customer's technology. Local manufacturing has given them a competitive edge. Understanding new technologies, rolling out new technologies, and having a marketing department that can keep them abreast with new technologies is important. Also the understanding the transition or potential move of the marketplace from pure chemistry to combination of mechanical and chemistry.

b. Location assets

From their specialty chemicals side, they have a location advantage as their factory is in Embongitwini down in Durban which is very close to the port, so it allows them to convert imports and quickly export from Durban without having to experience road freight to Johannesburg which could have been prohibitively expensive. The other advantage is it is at a national key point with few electricity cuts.

From the water, energy, and gas business, this boils down to the local production which gives them flexibility, and an opportunity to have a shorter

supply chain than most people that import directly from Europe. Lastly, it gives them an opportunity to tailor-make solutions for their customers and makes changes as and when needed, which gives them the competitive advantage in the markets that they serve.

c. *Reputational assets*

They all agree that in order to achieve and maintain a good reputation one has to be reliable and supply a quality product and be credible. Ethics are very important for them. In principle, they are good for what they stand for, so they don't walk away from a problem. They do not walk away from difficulties and they don't give up and work hard to solve customer's problems and become partners with their customers. The customers see them as part and an essential part of their business and they work together in resolving issues. They deliver on their promises and hold themselves accountable.

d. *institutional assets*

They all do not see any competitive issues with public laws for as long as everyone is playing in the same field. They all follow the laws and going green is a challenge, but is voluntary. From the agricultural side they view antitrust laws as a big issue, and the importance of complying with the department of agriculture as they need to register their products. They also have to make sure that they do not have any bi-products like oil as it is considered hazardous in some applications.

4.4.4 *Path dependency*

In learning from past projects and documenting, they use what they term as "*lessons learnt*". But they also have a philosophy that says just because it failed before, doesn't mean the same venture will fail again. They don't have a formal process of documenting. As one executive mentioned:

"we are not strong at that in terms of revisiting projects, post-mortems, and looking at what went wrong and right and it is something that we need to improve on. It's an informal process of learning."

When it comes to product development and implementation it's clearly defined and structures from marketing and research which is well documented. They claim to know what they have learnt, what works and what doesn't. They have a structured way when it comes to market research, feasibility studies etc.

They are all guided by their existing technologies and structures in their internal processes and the markets that they serve.

4.4.5 Management processes

d. Sensing and shaping Opportunities and Threats

To keep up with new trends from the agricultural chemicals side, the feedback they receive from customers is the most important. Others include the governing bodies for the industry, workshops by regulatory authorities, and they participate in international conferences.

On the specialty chemicals and Chemsystems side, they attend all the key conferences from business and trade shows. They also interact with customers and they belong to industry institutions

e. Flow of Information

In terms of the way the companies coordinate information, there is a certain amount of both decentralisation and hierarchy. In the regions and within departments in those business units, they try and stimulate decentralised decision making with regard to what's important for the customer, what needs to be done, how do they support the customer and what service commitments they give to the customer. So that's the reason they refer to themselves as having a bit of decentralisation. The overall direction and company values and alignment is hierarchical from top management based at head office, which makes the decisions and set standards and everyone else is expected to operate within those standards and align within those beliefs and strategic intents. As one executive made the following statement:

You see we actually struggle with hierarchical versus decentralisation as the capital expenditure has to be managed centrally and the hurdle rate has to be

met when you are spending capital. We have what we term as the “freedom within a framework” and we have believed that it is the best philosophy for the business.

4.5 Summary of results

Table 1: Summary of Results / findings

Themes & subthemes	SASOL	OMNIA	AECI
Organisational Processes • Integration • Leveraging • Learning • Reconfiguration & Transformation	• $Y \rightarrow Z$ • Y • X • Y	• $Y \rightarrow Z$ • Y • X • Y	• Z • Y • X • $X \rightarrow Y$
Positions • Complementary assets • Locational assets • Reputational assets • Institutional assets	• Z • - • O • Z • X	• Z • - • O • Z • X	• Z • - • O • Z • X
Path dependencies	• Z	• Z	• Z
Managerial processes • Sensing & shaping opportunities and threats • Seizing opportunities • Information flow??	• Y • - • - • Y • O	• Y • - • - • Y • O	• Y • - • - • Y • O
Opportunities in the rest of Africa	• Y	• Z	• Z

KEYS

W: The criterion is not practiced or does not contribute to competitiveness and they don't see the need to address it

X: This does not contribute much to competitiveness, but acknowledge the need to address this criterion but it is very difficult for them or they do not know how to improve it.

Y: They are slowly in transition to address this criterion,

Z: The organisation is addressing this criterion fully and is working well, giving them a competitive advantage

O: This is situational. It either works well or does not work. It could also mean that it is not clear

Y→Z: Undergoing a transition or slowly transforming from Y TO Z

X→Y: Undergoing a transition or slowly transforming from X TO Y

-: Means there is no response required in this field of the table or it is an empty space in the table.

The above table shows the following general patterns, which I will further explain in terms of themes and sub-themes below:

4.5.1 Organisational processes

a. Integration / Coordination

All three firms, Sasol, Omnia, and AECI coordinate activities or processes that are firm specific. The processes become routines that they differentiate themselves by, but they are all very slow in integrating a culture that is encouraging collaboration and experimentation and hence facilitating innovation. These routines give them a competitive advantage for a while as they become unique and difficult for competitors to replicate.

b. *Leveraging*

They all have business units which have for a very long time been operating in silos but now as environments are unstable, they are transforming into various ways of consolidation and collaboration. This is where they leverage resources like functional units, expertise, and best practises like quality, safety, marketing, etc. On the speciality side AECI leverages expertise across business units and that is also part of their collaboration process.

c. *Learning*

They have confirmed as being poor in learning in between employees as they have been operating as silos. They need to improve on this aspect as they are failing to capture the benefits of innovation, initiative, and corporate competence building which promote fast responsiveness in fast changing environments and strategy.

d. *Reconfiguration and Transformation*

They have all been slow in undertaking reconfiguration strategies, like restructuring, transferring of production, etc. The reason for this is that the environment has been static for a long time, so they were too inwardly focussed in their internal processes. It is also very interesting to note that one executive from Sasol made the following statement:

I don't believe there's a right time for anything. Organisations such as Sasol and other organisations need to revisit their structures, processes and strategy on a regular basis. Strategy is a long term thing but the market, customer dynamics, and competitive activities are changing, so we need to be at the forefront all the time to know exactly what's happening out there so you can effect things in time. We should have done this restructuring many years ago. Sasol has room for improvement. It's taken long and I think because its legacy from having management structures many years ago, lack of innovation from the same minds who have been there long ago-group think. Every organisation needs to have the agility and the ability to reinvent itself on a continuous basis and don't

wait 5-10 years. Your strategies can remain the same but your tactics have to change.

4.5.2 Opportunities in the rest of Africa

Deciding which African country to expand to depends on various checks and balances, and if there is a market for their products and services in that country. These South African firms have very similar structured procedures that they follow, and to choose which entry strategy to use, for example, by licensing, or joint ventures, etc. It also depends on the country's risk factors like regulations, the ease of doing business, corruption, etc. The demand for chemical products is very small in South Africa, so expansion to or exporting to the other African countries is very strategic for their growth. The firms use this capability to enhance their competitiveness.

4.5.3 Positions

a. Complementary assets

They have all been differentiating themselves by complementing their diverse processes in various ways in order to stay relevant and improve competitiveness.

b. Location assets

This aspect is situational, as the firms which manufacture locally have a location advantage in the South African market more especially inland as their manufacturing plants are based inland, but the coin changes if a competitor is importing and the customer base is near the coast. Although they can overcome that challenge by building a warehouse there or through a distributor, it is usually a challenge. They are also competitive in the neighbouring countries like SADC. As the South African market is small, so there is lack of demand so they need to expand but they struggle getting competitive to further away countries from the South African base as they compete with other countries like India and the Middle East, which have manufacturing facilities

near the coast. Another challenge is congestion at the South African ports due to low volumes that makes them take longer to deliver to some of these countries.

c. *Reputation assets*

They all agree that a good reputation is very important for their sustainability and they maintain that through various factors such as reliability, corporate governance, ISO accreditations, compliance with the law, integrity, good governance and responsible care, for an example responsible waste disposal), and the kind of relationships that they build with their customers.

d. *Institutional assets*

They do not feel there is anything specific that gives them a competitive advantage as far as institutions are concerned, as everyone is playing on the same field, except that IP protection is good in South Africa, so their IPs are well protected which is a competitive advantage. Also antitrust laws which are competition laws are big in South Africa but they affect everyone the same way.

4.5.4 *Path dependency*

They are guided by their existing technologies, it is too expensive to switch or change technologies but they incrementally innovate on existing technologies. They do have their own proprietary unique technologies to differentiate themselves like the famous Sasol GTL technology. This makes it difficult to adapt to new technologies, making them too slow to react to changing technologies at times. They counter this disadvantage by having a licensing agreement to be able to accommodate such technologies. Those who do not manufacture locally are also guided by their operational structures, their expertise and processes and the arrangements that have been established with key stakeholders.

4.5.5 Managerial processes

a. Sensing, Shaping and seizing opportunities and threat

They don't put much effort on sensing the external environment as they are internally focussed as a result they sometimes react late and loose some opportunities. The current consolidation of structures as one executive said, he believes it was supposed to have been effected long time ago. Another executive from AECI who also mentioned a story of a business unit which is in decline because they did not react quickly to adapt to a new technology and a competitor did.

b. Flow of information

Also the coordination of information has been very poor, as they were operating in silos but they are convinced that information flow was easy within the individual business unit. Sasol and Omnia – Protea chemicals have recently consolidated their various businesses to a few, which is becoming more centralised and hierarchical as they will all have decisions made from the head office level. They all have what they call "freedom within boundaries", It is hierarchical and centralised in the sense that the head office makes the strategy and rules and the decision making, and the business units are to follow those and any decision they make should be within those boundaries. In that sense they view it as decentralised at business unit levels because they can make some kind of decisions within set boundaries. AECI is also transforming into a collaboration arrangement within its various business entities, but they also follow a freedom within boundaries hierarchical arrangement.

CHAPTER 5. DISCUSSION OF THE RESULTS

5.1 Introduction

This chapter compares and contrasts the research findings from all three companies (Sasol, Omnia and AECL), with reference to the literature review. It will be discussed according to the identified set of themes and subthemes.

5.2 Demographic profile of respondents

The respondents were top management in positions of vice presidents in Sasol, as well as managing directors and a few senior strategic positions from both Omnia and AECL. They all had an undergraduate qualification of either engineering or science (chemistry) or commerce; coupled with an MBA / MBL. They also all had a significant number of years working experience within their organisations.

5.3 Discussion pertaining to identified themes

5.3.1 *Organisational processes*

a. Integration / Coordination

All three firms, Sasol, Omnia, and AECL coordinate activities or processes that are idiosyncratic. These coordination activities become the routines and different firms coordinate these in different ways making them firm-specific routines which are embedded in the firm and are difficult for competitors to imitate / copy. These in turn benefit the organisation in various ways like reduced costs, economies of scale, etc., in other words they give them a competitive advantage.

The above approach agrees with the literature of Teece et al. (1997), where he explains that organisational processes often show high levels of coherence. He further mentions that when this occurs, it often becomes difficult for competitors

to replicate, as it becomes embedded in the organisation and requires systemic changes throughout the organisation and inter-organisational linkages. Also, according to Winter (2003), the processes become a form of organisational routines. The differences in coordination routines are firm-specific and organisations benefit in issues like development costs, lead times, and quality through having these, as explained by (Teece & Pisano, 1994).

b. Leveraging

Sasol and Omnia, each had multiple business units which had for a very long time been operating in silos, but now as environments are unstable, they are consolidating these into a few in order to leverage resources, and functional units, and thus saving costs. Sasol leverages best practices, where they have a standard way of training and marketing, production excellence, quality and safety. Various AECI entities are undergoing collaboration between various business units. Also, this is where they leverage resources like functional units, expertise, and best practises like quality, safety, marketing, etc. In turn, these approaches results to costs savings through economies of scale, and others, in that way competitiveness in enhanced. This is consistent with Ambrosini et al. (2009), who describes leveraging as referring to extending an activity that is operating in one area of the firm into another area, in other words it is an assisted advantage. Similarly on collaboration, Doz and Shuen (1990), have pointed out that collaborations can be tools for new learning where strategic routines which were not recognised can be unveiled.

c. Learning

All three companies Sasol and Omnia and most AECI entities have confirmed each of their companies as being poor in learning between employees as they have been operating in silos and as they confirmed that it is hard to get people to share knowledge, especially when a company is getting bigger. They hope to improve this with the newly consolidated structure, which has enabled a common way of doing things and enabled the transfer of knowledge. Also, most AECI businesses have confirmed the difficulty in this aspect, except the AECI specialty chemicals side which has an extensive use of cross pollination of its

people, and Chemsystems which has what they term a “*multi-level calling*” process with some level of learning.

Now, these companies, need to improve in this aspect as they are not utilising what the literature suggests: “*Learning is a process by which repetition and experimentation enables tasks to be performed better and more quickly and new production opportunities to be identified*” (Teece & Pisano, 1994, p. 544). According to (Lei et al., 1999), firms can capture the benefits of innovation, initiative, and corporate competence building by creating new organisational designs that promote flexibility and fast responses. Learning becomes a result of long term commitment of resources from management to enable fast responses to changing environment and strategy. An example would be the establishment and development of specialist research teams and other skilled groups (Lei et al., 1999).

d. *Reconfiguration and Transformation*

All three companies have been slow in undertaking reconfiguration strategies, such as restructuring, transferring of production, etc. The reason for this is that the environment has been static for a long time, so they were too inwardly focussed in their internal processes. Sasol has a very structured strategy process that is bottoms-up from the business units, where they make decisions within mandates given at the board level and then they match that with some top-down strategy from the board level. These get reviewed annually in terms of implementation and the macro environment surrounding those issues. Both Sasol and Omnia- Protea chemicals have been through transformation in the way they are reorganising their business structures which is mostly driven by performance concerns. They confirm that it is rare that these strategies are implemented when things are going well. Omnia explosives and agricultural chemicals, and AECI all confirm not to have a specific time for the reconfiguration and transformational strategies as these happened if they are aligned with the bigger corporate strategy which is also reviewed annually.

From the above discussion, it is clear that their approach is reactive and clinical, as waiting for yearly reviews can have disastrous effects in fast changing environments, as one executive confirmed that it is rare that these strategies get implemented when things are going well. According to Amit and Schoemaker (1993), in rapidly changing environments, firms need to be able to reconfigure their asset structure to accomplish the necessary internal and external transformation. In general, the strategic value of a firm's resources and capabilities are enhanced the more difficult they are to buy, sell, imitate and substitute (Amit & Schoemaker, 1993).

Teece (2007) explained that managers influence the development and deployment of strategic assets by adopting a process perspective (in contrast to an input-output model). This perspective recognizes distinct phases of development, the importance of feedback, and the need for vision. It also entails careful scripting of how resources, information and people are combined and sequenced over time in order to evolve specific capabilities. Thus, the ability to measure the requirements for a change and to make the necessary adjustments seems to depend on the ability to scan the environment, to evaluate markets and competitors (Teece, 2007). This can be achieved by transferring production to low cost countries, acquisition of other firms, restructuring, and outsourcing, etc.

5.3.2 *Opportunities in the rest of Africa*

Sasol follows a very structured process at a very high level of looking at the demand for certain products in terms of application in various industries, which they try and map. To identify potential markets, they make use of specialists, consultants and published data, suppliers, distributors, and agents to validate available information. In ensuring that they go in as low a risk as possible, they check issues such as free trade, ease of doing business, policies, government, political instability, language barriers, corruption, and culture among others. They go there with a conscious view to grow and try and establish a reputation. In Africa, joint ventures with a local company has advantages as they can

navigate the regulatory side as well as minimise risk in sharing the costs and issues of indigenisation.

On the agricultural and explosives businesses of Sasol, as they are also a feed stock driven company, in deciding which country to grow to depends on whether there is a strategic alignment to that move and also if there is a market for their products. Their preferred choice of entry strategy is situational, but generally the logic would be to start exporting products, understand the markets, establish presence by putting an office, and in that way you start importing products, then start assembling locally, import raw materials and have a local beneficiation assembly.

They all made mention of the issue of logistics as trade routes are congested at the ports for South African exports, resulting in delayed deliveries versus competitors from other countries which have manufacturing sites located closer to the coast and have less congested ports. This of course depends on the destination. Africa is a strategic destination for Sasol as they are still very small in Africa. At Sasol these are driven from both a group level and business unit level, where they also make use of a mergers and acquisitions unit that they have.

With Omnia - Protea chemicals, it is around common logistics when one look at Africa. This means that, due to their nature of business which is high volume and low margins, common logistics are important for them as they would minimise transportation costs by delivery to multiple customers using common logistics. Locally manufactured goods in South Africa can only be transported competitively to neighbouring countries, as the further one goes, then they become less competitive versus the imports. At some point, it becomes cheaper to buy from closer to the coast than inland. In other words, one's ability to penetrate with local products is constrained ultimately by logistics. Logistically, the closer you are to your factory the better you are placed, as someone importing from the coast cannot be competitive than you. The closer your customer is to the coast, the more that becomes a threat to an inland manufacturer. They prefer to go independently as they don't like joint ventures as these haven't worked well with them in the past.

AECI business shares the same views as Sasol and Omnia in terms of checks and balances, but they add they also look at countries with small markets and supply them collectively. This means to them, it is not really important about a specific country but more about the opportunity they can identify.

They are also similar to each others in terms of their preferred entry strategy as they also establish collaboration partners, form an alliance or partner with an existing business, or they look for another healthy business that is already existing that has a good track record and have survived the underlying political and economic instabilities. They also have a mergers and acquisitions unit which is about three years old. They confirm the importance of an expert's assistance in order to be successful in acquisitions and this unit has been very useful in that regard.

Lastly, they all make use of a Mergers and Acquisitions (M&As) department. These firms each possess this department to serve as an advisory unit in case these alliances occur and they have all confirmed that it is important to have expert personnel to drive these kinds of processes as their chances of failure are also very high, either due to incomplete or improper research or even lack of experience in these procedures. They emphasize that sometimes they take too long to make a decision and as a result some opportunities get lost to a competitor. All the afore-mentioned factors determine if they do business in the rest of Africa or not. Hence, they view Africa as their key growth strategy.

5.3.3 *Positions*

a. *Complementary assets*

They have all been differentiating themselves by complementing their diverse processes in various ways in order to stay relevant and improve competitiveness.

Sasol has proprietary technology, which they complement with technical R&D, marketing, and innovation around structural molecules. Omnia has a significant supply chain backbone that can make it easy to add new products and

customers onto that backbone as well as advertising in their explosives and agricultural side. AECI complements its processes with technical support, presentations at trade shows, after sales support, competitive manufacturing, and innovations with environmentally friendly solutions. These give them a competitive advantage over their competitors as they make it difficult for them to copy.

Their approach is important for their competitiveness, as explained by Teece (1986) that identification and control of complementary assets that are hard to acquire are crucial to capture rents from innovations. According to him, in almost all cases, the successful commercialization of an innovation requires that the know-how in question be utilized in conjunction with other capabilities or assets. Services such as marketing, competitive manufacturing, and after-sales support are almost always needed. These services are often obtained from complementary assets which are specialized (Teece, 1986).

Also as Willig (1979) has noted, that there exists a very useful resource that comes in the form of complementary knowledge, in accumulation of knowledge via R&D. This is derived from pre-existing know-how within the firm derived from technology related R&D and operations. As inputs are shared jointly resulting in smooth processes over time, this knowledge can produce economies of scope and scale (Willig, 1979). Furthermore, Helfat (1997) examined knowledge complementarities as one of several influences on dynamic knowledge accumulation in response to changing market conditions (Helfat, 1997).

b. Location assets

Sasol and Omnia agriculture and explosives manufacture locally so they have a locational advantage in the South African market as their manufacturing plants are based inland and the biggest market is inland, meaning that a competitor who is importing bears an extra cost burden to transport it here. They are also competitive in the neighbouring countries within SADC. Omnia – Protea chemicals have a stronger presence than their competitors in Africa, thus because of their locations there, it allows them to offer the international

suppliers a pan sub-Saharan service, which some of their competitors can't offer. Lastly, AECI specialty chemicals have a location advantage as their factory is in Embongitwini down in Durban which is very close to the port, so it allows them to convert imports and quickly export from Durban without having to experience road freight to Johannesburg which could have been prohibitively expensive. The other advantage is that it is located at a national key point with few electricity cuts. These advantages give these firms a competitive advantage over their competitors.

This discussion agrees with the literature, as explained by Teece (1994), some sources of difficult to replicate competitive advantages can come from location and geographically related factors. These manifest themselves in lower costs, convenience, and others (Teece & Pisano, 1994).

c. Reputational assets

They all agree that a good reputation is very important for their sustainability and they maintain that through various matters like being reliable, corporate governance, ISO accreditations, being compliant with the law, integrity, good governance and responsible care (example responsible waste disposal), and the kind of relationships that they build with their customers. The responses they get from the reputations that they build and maintain contribute to their sustained competitive advantage.

This discussion is also in line with the literature as Winkleman (1999) noted that, an organisation's reputation is widely recognised as a valuable resource and an organization's communicative response to crisis can impact both negatively and positively on reputational damage (Winkleman, 1999). Also, Teece et al. (1997), confirms that reputation gives a good overview of firms and shape the response of customers, suppliers and competitors.

d. Institutional assets

All these South African chemical firms follow the laws. The antitrust laws which are competition laws are a big issue in South Africa, but these public policies do not specifically have an effect on their competitiveness as they affect everyone the same way. IP protection is good in South Africa, meaning that their IP is well protected. This is a crucial element for fair business practices.

As explained by Teece et al. (1997), these are public policies such as regulations, IP regimes, antitrust laws, etc. that are important elements of the business environment. This also depends on whether the competing firms are affected by the same laws, depending on where they are located.

5.3.4 Path dependency

Sasol, Omnia agriculture and explosives, and some various AECI entities have proprietary technologies that they own and they manufacture locally to serve various markets. All these firms are guided by their existing choice of technologies, as they confirm that it would be difficult and expensive to change but they incrementally innovate on them. As a result, they find it difficult or very slow to adapt to new technologies, but they counter that by having an alliance in the form of licensing if there is a significant demand for new technology. Omnia – protea chemicals and a few AECI entities do not manufacture locally, but their history of existing structures, processes, and expertise is guiding their paths,

This is in line with the literature, because the directions and choices of opportunities made by organisations are guided by its history and experiences (Zollo & Winter, 2002). Path dependency not only defines what choices are open to the firm today, but also place boundaries around what its internal repertoire is likely to be in future (Ambrosini et al., 2009).

5.3.4 Managerial processes

a. Sensing and shaping & Seizing Opportunities and Threats

In keeping up with new trends, Sasol confirmed that managers attend conferences far less today than before, as they have a view in that conferences tend to put out information that is already there. They have analysts and people doing the research, they use the internet, conference papers, their own networks, and sales people, product managers, and analysts to actually get out and meet people. In Omnia and AECI they interact with customers, attend global trade shows, brand recognition exhibitions and are affiliated to the industry institutions.

They do not put much effort on sensing the external environment as they are internally focussed as a result they react late and loose some opportunities. The current consolidation of structures as one executive in Sasol said, he believes it was supposed to have been put into effect a long time ago. Another executive from AECI who also mentioned a story of a business unit which is in decline because they did not react quickly to adapt to a new technology and a competitor seized the opportunity.

The afore-stated examples are a result of not utilising the sensing, shaping and seizing capability. Nelson and Winter (1982) noted that firms need to identify and shape opportunities, meaning they need to constantly scan, search and explore across all technologies and markets both local and abroad. As an example, they need to engage investment in research activities, probe customer needs and technology possibilities, latent demand, the evolution of industry, intensive industry and customer analysis, etc. (Teece, 2007). They must not only sense and shape but must also be able to seize these opportunities in time before a competitor does.

b. Flow of Information

In describing how these firms coordinate information, they have a similarity as they have shifted from a decentralised by business unit to a more hierarchical approach where decisions went all the way to top management level which has changed in the last couple of months. They reckon it is centralised but people are empowered and expected to make decisions in their work stations, but these should be within predefined boundaries.

Their approach refutes the literature by Teece (2007), as he noted that, if the sensing, creative and learning ability can be left to a few individuals then the firm is in a vulnerable state. The more likely successful approach would be to embed the scanning, interpretative and creative processes inside the organisation itself. As explained by Teece et al. (1997), if an organisation is more decentralized, then it is less likely to miss market and technological developments, as it minimises information decay that you will find in a centralised environment as it moves up or down the hierarchy. It is important that management is kept informed from every angle so as to make quick and informed decisions before a competitor does (Teece, 2007).

The above explanation is in line with the fact that some dynamic capabilities focus on the reconfiguration of resources within firms, Hansen (1999) noted that when these happen, transfer processes that include routines for replication are used by managers to copy, transfer and recombine resources, especially knowledge based ones (Hansen, 1999).

Also as Burgelman (1994) noted, resource allocation routines are used to distribute scarce resources such as capital and manufacturing assets from central points to within a hierarchy (Burgelman, 1994). Now, one can say that the findings are in contradiction with some theories which talk against hierarchy and centralisation as causing some bottle necks in processes; as these companies are moving towards more hierarchy and centralisation. But now, at a more strategic level as mentioned by Eisenhardt and Galunic (2000), that co-

evolving starts involving the routines by which managers connect webs of collaborations among various parts of the firm to generate new resource combinations with more synergies (Eisenhardt & Galunic, 2000). These in turn become more competitive as companies start generating rents.

It can also be noted that, in fast changing globally competitive environments, consumer needs, technological opportunities, and competitor activity are constantly changing. Opportunities open up to both new comers and incumbents, putting profit streams of incumbent forms under enormous pressure. In these circumstances, as noted by (Teece et al., 1997), some emerging paths/trajectories in the market place can be easily recognised, but most are hard to notice. Here, sensing and shaping of new opportunities becomes much of a scanning, creation, learning, and interpretive activity. Investment in research and related activities usually becomes a necessary complement to this activity. Enterprises detect opportunities due either to the fact that entrepreneurs can have differential access to existing information as noted by (Kirzner, 1973), or that new information and new knowledge whether exogenous or endogenous, can create opportunities as noted by (Schumpeter, 1934). Also, according to Nelson and Winter (1982), companies need to constantly scan, and search across all technologies and markets, both local and abroad; in order to identify and shape opportunities before competitors do.

5.4 Conclusion

The discussion with respect to the identified themes is summarized below. Furthermore, it succinctly addresses the research questions posed in chapter 2, with respect to the analysis carried out.

5.4.1 Research Question 1

What are the competitive strategies that are used by the South African chemical firms domestically, and the challenges they face in maintaining a competitive advantage?

- *Part 1 of research Question 1: What are the competitive strategies that are used by the South African chemical firms domestically?*

a, *Integration / Coordination*

The research findings on the researched South African chemical firms are in line with the literature as managers in these firms integrate and coordinate organisational processes and develop capabilities that become routines that are embedded in these firms. These become routines that are idiosyncratic to the firm making it difficult for competitors to imitate giving them a competitive advantage. These firms benefit in various aspects, like development costs, lead times and quality through having these, thus leading to enhanced competitiveness.

b. *Leveraging*

The researched South African firms' approach confirms the literature as they are leveraging various aspects of their resources from skills or personnel expertise to collaboration between various business units, as well as in integration of various functional capabilities and business units. This capability in turn results to shared costs and efficiencies from scale, thus improving competitiveness.

c. *Complementary assets*

The firms have various complementarities to their processes that put them in unique positions making it difficult for competitors to copy or replicate. They keep adapting or evolving these capabilities in order to stay relevant. Their approach in this aspect confirms the literature and is giving them a competitive advantage.

d. *Location assets*

The South African chemical firms who are manufacturing locally have a location advantage in the South African market versus imports. They are also competitive in the neighbouring countries such as those in the SADC region versus competitors from countries like India, China, etc. They struggle being

competitive to the countries in further proximities from the South African base. The other part is where, Omnia which has a stronger presence in Africa, which allows them to offer the best possible customer service better than competitors. Lastly, some like AECI specialty have a location advantage by being next to the coast, as they import, convert and export without having to transport the goods to inland. Overall, these firms' approach confirms with the literature as they are strategically aligned to capture the best of their current locations in terms of costs and convenience to enhance competitiveness.

e. *Reputational assets*

A good reputation is very important for their competitiveness and they try to be compliant in every respect and maintain good relationships with all stakeholders. This also confirms with the literature, as it is definitely working in their favour from all stakeholders, resulting to a positive response from suppliers and customers. Thus, it enhances their competitiveness.

- *Part 2 of Research Question 1: What challenges do they face in maintaining a competitive advantage?*

a. *Learning*

As Sasol and Omnia have been operating in silos, there has been very little innovation and benefits from this capability in terms of improving their competitiveness. AECI specialty which has an extensive use of cross pollination of the people, and Chemsystems which has what they term a “multi-level calling” process with some level of learning. As they are not utilising much of this capability as the literature suggests, then there is very little that they benefit from it in terms of enhancing competitiveness.

b *Reconfiguration and Transformation*

Again, as they were so relaxed in stable environments for a long time, and because of their internal focus, they have been very slow in implementing the necessary transformational and reconfiguration strategies in time. As a result, they were not doing enough sensing of the external changes and have failed to

seize some opportunities like some technological changes that could have enhanced their competitive advantage.

c *Sensing, shaping and seizing of opportunities and threats*

They attend conferences to keep up with trends, but their approach refutes the literature, they are not putting enough effort on this capability, so as to capture, shape and seize opportunities and remove threats in time before a competitor does. This is a very important management function, and if done correctly could have a significant effect in enhancing one's competitive advantage.

d. *Flow of Information*

Also, the coordination of information to capture what is available out there, both internally and externally is not well organised in most instances. Lastly, the fact that they are changing their organisational structures to become more centralised and hierarchical is debateable as it has its pros and cons. On the negative side it can lead to delayed information flow and decision making processes, and other bottle necks. The positive is they are cutting unnecessary costs through collaboration and scales, thus enhancing competitiveness.

e. *Location assets*

This aspect is also a challenge in that they struggle being competitive to the countries in further proximities from the South African base. Also, the fact that the market for chemical products is very small in South Africa, so expansion to the African countries is very strategic to their growth.

5.4.2 Research Question 2

What are the most important factors that determine which African countries to expand to, as well as their choice of entry strategy?

- *Part 1 of Research Question 2: What are the most important factors that determine which African countries to expand to?*

a. *Opportunities in the rest of Africa*

In deciding which African country to grow to depends on various checks and balances and they have very similar structured procedures that they follow. Firstly, they follow procedures where these initiatives need to be strategically aligned with their broader corporate objectives. It is also very important for them that there is enough market for their products and services in that country, although AECI agricultural business and Omnia have confirmed a size of the market in a country as not much of a determining factor as they can supply many customers collectively for as long as its common logistics and they can save costs along the way. These checks and balances are to ensure that they go into these African countries with as low risk as possible. Some of the factors they look at are issues like corruption, regulations, culture, politics, market knowledge, ease of doing business, etc. They make use of various sources of information to include existing suppliers, expert advice, management consultants, various data bases, distributors, agents, etc. in order to validate available information. These are followed by the necessary feasibility studies and due diligences.

Lastly, they all make use of a Mergers and Acquisitions (M&A) departments. These firms each has this department to serve as an advisory unit in case these alliances occur and they have all confirmed that it is important to have expert personnel to drive these kinds of processes as their chances of failure are also very high, either due to incomplete or improper research or even lack of experience in these procedures. They emphasize that sometimes they take too long to make a decision and as a result some opportunities get lost to a competitor. All the afore-mentioned factors determine if they do business in the rest of Africa or not. The demand for chemical products is very small in South Africa, so expansion or exporting to the rest of the African continent is very strategic to their growth. The South African chemical firms utilise this capability to enhance their competitive advantage positions. .

- *Part 2 of Research Question 2: What are the factors that influence their choice of entry strategy?*

They are also similar in terms of their preferred choice of entry strategy depending on the experience and whether one prefers going alone or partner.

Either way the choice of entry strategy is situational, but generally the logic would be to start exporting products, understand the markets, establish presence by putting an office, and in that way you start importing products, then start assembling locally, import raw materials and have a local beneficiation assembly. Another option would be to form an alliance with an existing business, in which way one would look for a healthy business that is already existing in that country that has a good track record and has survived the underlying political and economic instabilities. Sasol, as an example is of the view that joint ventures with a local company is advantageous for them as the local partner can navigate the regulatory side, as well as minimise risk in sharing the costs and cover the common issues of indigenisation. Overall, there is no one size fits all, as it is all situational, but thorough research is very vital for success.

CHAPTER 6. CONCLUSIONS & RECOMMENDATIONS

6.1 Introduction

This chapter will include an overall conclusion of the study, followed by recommendations and suggestions for further research.

6.2 Conclusions of the study

The ambition of the study was to explore concepts in the strategic management of innovation and seeks to understand the competitive strategies in the selected sub-sectors of the South African chemical industry with respect to both, their domestic competitiveness as well as their expansion into the rest of Africa. The research was informed by various theoretical models of strategy beginning from those that emphasize the exploitation of market power to those that emphasize efficiency. Examples of the market power models are, the five competitive forces and the strategic conflict, whilst the efficiency models are the resource-based view and the dynamic capabilities models. This research has adopted the dynamic capabilities framework.

These researched firms have different business models, but have very similar offerings in terms of product lines. They differentiate themselves in various ways in the supply chain and on whether one is manufacturing locally from feedstock to final product, or on whether one is importing part of the products and assembling locally into finished goods or importing finished goods. It also varies as well as to whether the target market is domestic or across the South African borders. It also depends on whether the product offerings are commodity or specialty in nature.

Firstly, they get competitive by having firm specific processes that are unique and differentiated, to make it difficult for competitors to copy. This makes them competitive for a while but they keep adapting to changes in their environment. They also leverage their various resources in the form of consolidation and collaboration between various business units, which helps them to keep costs

low with economies of scale. They have a location advantage if manufacturing locally versus a competitor who is importing, but then they are not competitive if the target market is closer to the coast versus imports which are located near the coast as they are mostly based inland. The same applies to the neighbouring countries like in the SADC region, where they find themselves competitive as they are in close proximity versus most foreign competitors. As the local demand for chemicals is low, they view African countries as strategic to their growth. They possess various complementarities to their processes that put them in unique positions in the market making it difficult for competitors to copy. The afore-mentioned factors give them a competitive advantage.

On the flip side, they do not put much effort into disruptive or radical innovation, but have an incremental form of innovation, where they differentiate their processes in their technologies or supply chain. In terms of learning between employees for quick responses in fast changing environments, they have not been doing that well, hence haven't benefited much from learning in improving their competitiveness. Also, they have been slow in sensing and shaping opportunities and threats, whilst seizing opportunities as they have been too internally focused, thereby losing some opportunities. Also, due to environments which were static, they relaxed and now things are changing quickly, their reaction is a bit late much of the time, as some of the interviewed executives have confirmed.

Deciding which African country to expand to as well as a choice of entry strategy to adopt is situational. It depends on various factors such as whether there is a market for their products and services in that country. It also depends on whether the initiative is part of their broader corporate strategy. The same applies to their choice of entry strategy, which is also situational and depends on whether one prefers to go alone or partner. There are various factors which are different from country to country such as corruption, politics, ease of doing business, etc. that play a big role in getting to the actual decisions that they adopt. As mentioned, the demand for chemical products is very low in South Africa, so expansion to the African countries is very strategic for their growth. The researched South African chemical firms utilise the capability of growing

their businesses in the African countries so as to enhance their competitive advantage.

6.3 Recommendations

- In order to improve competitiveness, they need to put more effort into innovation and view diversity as an important factor and not just BEE, but also skills, culture, age group and other factors which can be very beneficial in achieving a sustainable competitive advantage.
- They also need to put effort to encourage learning both internally and externally, so as to capture the benefits of innovation, initiative, and corporate competence. This in turn will enable quick responses to fast changing environments and strategy. Learning becomes a result of long term commitment of resources from management to enable fast responses to changing environment and strategy.
- As the demand for chemical products is very small in South Africa, the expansion to the African countries is strategic for their growth opportunity and Africa is open for business.
- They need to put more effort into balancing the external and internal environment, by looking more closely and follow new trends. Their focus should not just be based in internal processes but should be open to the external environment so that they can sense, shape and seize opportunities and threats and ensure that they get implemented in an effective manner so as to improve competitiveness and stay relevant.
- They need to improve their channels of communication so that there is easy flow of information that can be shared either from bottom up or top down, to encourage innovative participation from every employee.
- Also from an innovation point of view, they are all intolerant of risk taking, as they term it as *"freedom within boundaries"*. They can consider loosening up there and encourage participation from employees at all levels.
- Lastly, they need to be aware of the importance of understanding ones capabilities in terms of how they are created and function. This is

because a manager can understand markets, but without the understanding of the firm's capabilities, then it would be difficult to enhance its competitive advantage.

6.4 Suggestions for further research

As these companies have mentioned, the fact that they are changing their organisational structures to become more centralised and hierarchical is debateable as it has its pros and cons. One might say it could be cyclical in nature. Further research in looking at the best practice of what really works could be interesting. From the afore-stated scenario of consolidating and centralisation, research on the role of cultural diversity when consolidation happens to very geographical and culturally diverse multinationals would be helpful.

This research only focused on South African firms, it will be interesting to look at the foreign multinationals as well. It would also be interesting to research the difference between those who invent and the ones who make profit from innovation. This is because as we have seen through this study, it is not really just the IP but more the nature of knowledge which could be tacit, differentiating with complementary assets, and the whole asset positioning part, among others, that contribute to one's profitability.

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Appendix A – Actual Research Instrument

The Graduate School of Business Administration

2 St David's Place, Parktown, Johannesburg, 2193

PO Box 98, WITS 2050, South Africa

Telephone: +27 11 717 3495

Facsimile: + 27 11 717-3514

Website: www.wbs.ac.za



Dear Sir or Madam,

I am an MBA student at Wits Business School in Johannesburg. As part of the requirements for the degree, my research project explores concepts in the strategic management of innovation and seeks to understand the competitive strategies of South African chemical firms, both domestically and with respect to their expansion into the rest of Africa.

As I gather information for my research, I would be honoured to obtain your perspectives on how your firm organises itself in order to be more competitive and innovative and what opportunities and challenges it faces in doing so. I would be grateful if I could speak with you for about 30 minutes and certainly no more than 45 minutes in a face-to-face interview with you to gain your insights on some of my questions.

Confidentiality will be observed and the final report will be for academic purposes only.

I will be available to meet with you at your office, at any day and time of your convenience from now until March 10, 2015. Should you have any additional questions about the nature of this project, you may contact my research supervisor through the details copied below.

Dr. Diran Soumonni, Senior Lecturer, Wits Business School

Tel: 011-717-3646

E-mail: Diran.Soumonni@wits.ac.za

I understand that you have a busy schedule and thank you in advance for your kind consideration.

Yours Sincerely,

Mphathi Ntuli

082 973 1169

mphathi.ntuli@gmail.com

Appendix B - Actual Research Protocol



- Can you please tell me about your job title, and what it entails?
- Can you please tell me how you prepared yourself or what prepared you for this position in terms of experience and formal education?
- What would you say are the main processes that account for your success? Is it difficult for competitors to copy them?
- Can you describe what aspects of your organisational or work culture contribute to your success (e.g. Incentives)?
 - Does the organisational culture allow ambiguity, risk taking, and tolerance of change?
- What best practices (e.g. quality, lean production, innovation) is the organisation leveraging between different business units or departments?
- How do you develop new products and processes to capture changing customer needs?
 - How do you determine which products to introduce locally for users?
- How do you ensure effective and efficient distribution of your products?
- How does your organisation keep up with new trends in the industry?
 - Do you attend conferences, trade shows or further education?
- How does the organisation ensure effective teams which learn from each other to disseminate knowledge amongst employees? Are the reporting structures conducive to the free flow of information?

- How would you describe the way the organisation coordinates information and the decision making? For e.g. would you say it is decentralised or hierarchical?
- How do you determine the right timing for transformational strategies (e.g. alliance and acquisition routines, transferring of production to low cost countries, acquisition of other firms, restructuring, outsourcing etc), and ensure that they get implemented in an effective manner so as to improve competitiveness?
- What innovative complementarities (e.g. marketing, after sales support, competitive manufacturing, etc) have been beneficial to an effective rollout of new products and services?
- Can you comment on any location-related advantages or disadvantages with respect to your supply chain?
- How does your organisation achieve and maintain a good reputation?
- How do institutions or public policies (e.g. Regulations, IP regimes, tort laws, antitrust laws, etc) affect your competitiveness?
- Does your organisation have a specific approach or a way of learning from past projects and documenting these lessons for the future?
- In your experience, what is the role of diversity in meeting your organisational goals?
- In closing sir, how do you determine which African countries to expand to? What are the main factors that facilitate or impede that?

Appendix C - Actual Research Protocol



- I, the undersigned, have read and understood the Study Information Sheet provided by Mr Mphathi Ntuli.
- I have been given the opportunity to ask questions about the study.
- I understand that taking part of in the study will include being interviewed and perhaps audio recorded.
- I have been given adequate time to consider my decision and I agree to take part of the study.
- I understand that my personal details such as name and employer address will not be revealed to people outside the project.
- I understand that my words may be quoted in publications, reports, web pages and other research outputs but my name will not be used.
- I agree to assign the copyright I hold in any material related to this project to the researcher, Mphathi ntuli
- I understand that I can withdraw from the study at any time and I will not be asked any questions about why I no longer want to take part

Name of
Participant_____Date:_____

Participant
Signature_____Date_____