THE IDENTIFICATION OF FACTORS THAT CONTRIBUTE TO THE
COMPETITIVE ADVANTAGE OF THE CATALYTIC CONVERTER
INDUSTRY CLUSTER IN THE EASTERN CAPE

by

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Submitted in partial fulfilment of the requirements for the degree of

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Promotor: Mr T S Hutton

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DECLARATION

“I, Tamaryn Manlee, hereby declare that:

- This work has not been previously accepted in substance for any degree and is not being concurrently submitted in candidature for any degree.
- This dissertation is being submitted in partial fulfilment of the requirements for the degree of Masters in Business Administration.
- The dissertation is the result of my own independent work, except where otherwise stated. A bibliography is appended.
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Tamaryn Manlee                                                                          Date
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DEDICATION

This dissertation is dedicated to my mother, Carol Lynn Manlee.

Mom, you have taught me that not everything that is faced can be changed, but that nothing can be changed unless faced. You have taught me that I must be the change that I wish to see in the world. I love you dearly and thank you for your unconditional love and support.
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ABSTRACT

The research problem addressed in this study was to determine what the main factors are that contribute to the competitive advantage of the catalytic converter industry cluster in the Eastern Cape. To achieve this objective theoretical models of competitive advantage and literature of industry clustering were identified.

For the models on competitive advantage, Porter’s diamond was used for national competitive advantage and Porter’s model on the competitive environment, which affects the competitive advantage of a region. Other theories on competitive advantage of cities and regions were identified, leading up to the theory on the cluster approach.

The literature mentioned was broken down and analysed using literature, from knowledgeable people in the automotive industry in the Eastern Cape, identified during the study. A questionnaire was developed to test the degree to which the catalytic converter industry cluster in the Eastern Cape is in agreement with the literature study. The empirical study obtained a strong concurrence with the literature study on national competitive advantage and the theory of clusters. This resulted in a strategy for the catalytic converter industry cluster to sustain competitive advantage and remain globally competitive.
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CHAPTER ONE

INTRODUCTION, PROBLEM STATEMENT AND DEFINITION OF CONCEPTS

1.1 INTRODUCTION

The South African Motor Industry is undergoing fundamental transformation in the face of the country’s re-entry into the global economy. The massive challenges faced by the industry in its quest to become internationally competitive, have necessitated greater strategic co-operation between manufacturers, component suppliers, unions and government. Many automotive component plants have opened in the Eastern Cape recently. This is supported by Van Huyssteen (1999: 16) who quotes Carlos dos Santos, Operations Director of Automotive Development Corporation (ADC), as stating: “The recent automotive investments in Port Elizabeth have materialised on the strength of the region’s motor industry successes and competitiveness”.

The Eastern Cape region was previously known as the Fish River Motor Industry Cluster before the withdrawal of certain manufacturers during the apartheid era. After the first democratic elections in 1994, investment has returned to both the country, and more importantly, the region.

According to Van Huyssteen (1999: 15) the catalytic converter manufacturers in the Port Elizabeth–Uitenhage Metropole play a major role in South Africa with a contribution (year 2000) of 70% on canning, 75% on coating and 100% on ceramic substrates. The catalytic converter industry has been set the target of producing 40% of the world’s converter requirement from a current production of 17% of the world’s market (Van Huyssteen, 1999: 15).
In addition to this, it is anticipated that the success of the Port Elizabeth motor industry cluster will have a positive effect on other non-automotive sectors in the region and will continue to attract overseas investors (Van Huyssteen, 1999: 16).

1.2 MAIN PROBLEM

The main problem to be researched in this project is as follows:

**What are the main factors that contribute to the competitive advantage of the catalytic converter industry cluster in the Eastern Cape?**

1.3 SUB-PROBLEMS

In an attempt to resolve the main problem, the following sub-problems will be used to resolve the main problem:

- What does a literature study reveal about the competitive advantages of a region?
- What does a literature study reveal about the contribution of an industry cluster to the competitive advantage of a region?
- What factors do knowledgeable people feel contribute to the competitive advantage of the catalytic converter industry cluster in the Eastern Cape?
- What strategy does the catalytic converter industry cluster in the Eastern Cape need to adopt to sustain competitive advantage?

1.4 DELIMITATION OF RESEARCH

In order to ensure that the research project is of manageable size, it is necessary to demarcate the area of research to the areas listed below. By limiting the area of research, the implication is not that research into the same topic is not needed in other industrial clusters.
1.4.1 DEMARCATION OF ORGANISATIONS TO BE RESEARCHED

The scope of the research is limited to the catalytic converter manufacturing industry and suppliers to the local and global automotive manufacturers worldwide.

1.4.2 GEOGRAPHIC DEMARCATION

The areas to be researched are those surrounding the Port Elizabeth-Uitenhage Metropole and the East London/Berlin hub in the Eastern Cape province of the Republic of South Africa. According to the Eastern Cape Development Corporation (Undated: 1), the Eastern Cape, located on the south-eastern seaboard of South Africa, is the second largest province with an area of 170 600km² and represents 14% of South Africa’s land mass. The capital, Bisho, is located 60km from East London.

Motor Industry is situated According to DTI (Undated: 2), the Fish River on the coast midway between Cape Town and Durban. The coastal city of Port Elizabeth is at the southern end of the Eastern Cape Province and is home to Volkswagen South Africa, Delta Motor Corporation (General Motors) and the Ford Engine plant. The coastal city of East London is 250km north-east of Port Elizabeth and is the home of DaimlerChrysler South Africa. Component suppliers are situated both in Port Elizabeth and East London.
1.5 DEFINITION OF KEY TERMS

In order to gain clarity on certain terms, a discussion of each term is set out below.

1.5.1 COMPETITIVE ADVANTAGE

Porter (1986: 20) views competitive advantage as a function of either providing comparable buyer value more efficiently than competitors (low cost) or performing activities at comparable cost but in unique ways that create more buyer value than competitors and, hence, have a premium price. In order to achieve this, the organisation must perform activities in the value chain more cheaply or in a unique way relative to its competitors.

Porter (1990: 37) goes on to say that a competitive advantage of lower cost and/or differentiation translates into higher productivity than that of competitors. The low-cost firm produces a given output using fewer inputs than competitors require. The differentiated firm achieves higher revenues per unit than competitors.

1.5.2 INDUSTRY CLUSTER

Porter (1990: 33) defines an industry as a group of competitors producing products or services that compete directly with one other. An industry that encompasses products where the sources of competitive advantage are similar is defined as a strategically distinct industry.

According to Conard (2000: 77) Michael Porter has convinced many influential people to see the world in terms of clusters: geographic concentrations of linked firms, suppliers, related industries and specialised institutions that occur in a particular field and can achieve unusual competitive success.
Anderson (1994: 27) defines an industry cluster as a group of companies that rely on an active set of relationships amongst themselves for individual efficiency and competitiveness.

Conard (2000: 77) says Porter feels that enduring competitive advantage in a global economy lies increasingly in local things that distant rivals cannot match in terms of knowledge, relationships and motivation. Clusters affect competition positively by increasing the productivity of all companies, driving the direction and pace of innovation and encouraging new businesses, which further strengthen the cluster.

1.5.3 CATALYTIC CONVERTER

According to Bloomfield (2000: 108) the main function of a catalytic converter is to eliminate pollutants such as carbon monoxide and noxious nitrogen oxides that exit the internal combustion engine. Not every hydrocarbon molecule burns up completely when the vehicle burns fuel and thus some of the molecules do not react with enough oxygen molecules, producing carbon monoxide and the violence of the combustion combines some of the nitrogen molecules in the air with oxygen, producing noxious nitrogen oxides.

Bloomfield (2000: 108) describes the composition of the catalytic converter as an array of tubes, each coated with a porous ceramic. Embedded in the coating are tiny particles of precious metals that serve as the catalyst. The precious metals used are platinum, palladium and rhodium. Once the exhaust heats the converter above 300 degrees Celsius (°C), unwanted molecules bind temporarily to the catalyst and are converted into innocuous chemicals. The ceramic is canned into a chamber, which is installed into the exhaust system of automotive vehicles and motorcycles.

1.5.4 CORE COMPETENCE

Johnson and Scholes (1999: 161) state that core competences are those competences which critically underpin the organisation’s competitive advantage. Johnson and Scholes (1999: 161) give as an example the
automotive industry. Ford and General Motors dominated the global market in the 1950s and 1960s through the critical success factors of market access supported by core competences of establishing dealer networks and later, overseas plants. In the 1970s, the Japanese manufacturers were significantly outperforming Ford on the quality and reliability factors, which allowed them to achieve global sales. In the 1980s, Ford and the major Japanese companies had achieved similar competence in achieving these critical success factors. The new critical success factor became the ability to provide unique product designs and features at low volumes of manufacture. This agility in design and manufacture also became a core competence in global competition. The impact of technological change and innovation has become profound in many industries, providing opportunities for new entrants to succeed as well as incumbent players to respond.

Hellriegel, Jackson and Slocum (1999: 235) assert that core competences are the strengths that make an organisation distinctive and more competitive by providing goods or services that have unique value to its customers. Core competences may strengthen the competitiveness of an enterprise by:

- Providing access to new markets;
- Making a contribution to customers’ perceived benefits from the goods or service;
- Making simple imitation difficult if the firm is highly successful.

According to Hellriegel et al (1999: 237), some of the main strengths and weaknesses may be categorised into information technologies, human resources, marketing, finance and manufacturing. The specific issues identified by middle managers may be different from those raised by top managers. Plant managers may focus on manufacturing
opportunities, threats, strengths and weaknesses whereas top managers are more likely to focus on current and potential competitors, legislation and governmental regulations and societal trends.

1.5.5 GLOBALISATION DRIVERS

According to Hill (2000: 5), globalisation is referred to as a shift towards a more integrated and interdependent world economy. The two most important components of globalisation are the globalisation of markets and the globalisation of production. Hill (2000: 5) refers to the globalisation of markets as the merging of historically distinct and separate national markets into one huge global marketplace. The globalisation of production is referred to as the tendency among firms to source goods and services from locations around the globe to take advantage of national differences in cost and quality of factors of production (Hill, 2000: 7).

Yip (1989: 741) identifies the benefits of global strategy levers as cost reductions, improved quality of products and programmes, enhanced customer preference and increased competitive leverage. To achieve the benefits of globalisation, industry globalisation drivers have been identified to provide the opportunity to use global strategy levers. Yip (1989: 743) identifies the main globalisation drivers as the market drivers, cost drivers, governmental drivers and competitive drivers. It is important to note that over time the globalisation drivers may change in line with global strategy change.

1.5.6 MOTOR INDUSTRY DEVELOPMENT PROGRAMME

South Africa’s Motor Industry Development Programme (MIDP) is a legislative policy governing the local motor industry.

According to Van Huyssteen (1999: 15), the MIDP’s main purpose is to create surplus through exports, to offset imports. According to the DTI (Current developments in the automotive industry, 2000: 3), phase VI of the local content programme, which measured local content value, enabled vehicle manufacturers to include exports as part
of their local content. This has encouraged expansion of exports, especially in components, and has placed increasing competitive pressure on the component industry. The midterm review of the MIDP by the Government has resulted in an extension of the duration of the MIDP from 2002 to 2007, giving the automotive industry additional time in which to position itself effectively and unsupported within the global village.

1.6 SIGNIFICANCE OF THE RESEARCH

The catalytic converter industry cluster in the Eastern Cape has contributed greatly to the South African economy. The research of identifying various aspects of competitive advantages that have contributed to the industry’s success will help other industries in the region and in South Africa as a whole, to become global players.

Furthermore, no research along these lines has been carried out into the catalytic converter industry in the Eastern Cape. The researcher feels that in the light of this and the fact that the cluster has been established and offers an established infrastructure, research such as this could lead to significant gains in global competitiveness.

1.7 MOTIVATION FOR THE RESEARCH

A statistical survey by the Department of Trade and Industry showed that component exports grew from R3,318 billion in 1995 to R 9,674 billion in 1999 (DTI, 2000: 13). This was explained as the global trends of vehicle manufacturers impacting significantly on the component suppliers and the increasing trend of large scale mergers. In 1999, 26.6% of South Africa’s total component exports were catalytic converters. This was an impressive statistic when compared with the second largest export component, stitched leather items, at 19.5% and the third largest export component, tyres, at 6.6%.
According to the Eastern Cape Gateway 2000 Plus (2000i: 47), Algorax constructed the first automotive catalyst coating plant in 1990. Since 1990 numerous coaters, canners and other suppliers to the catalytic converter industry have established themselves in the Eastern Cape, mostly in the Port Elizabeth-Uitenhage Metropole area. These establishments have all contributed to the catalytic converter industry cluster in the Eastern Cape. The author feels that the growth of the catalytic converter industry cluster in such a short period and its major success in global competition, is a great motivation for the research.

1.8 RESEARCH DESIGN

In this section the methodology to be followed in the research project is described.

1.8.1 RESEARCH METHODOLOGY

In conducting the research project the following procedure will be adopted to solve the main problem and the sub-problems:

1.8.1.1 Literature study

A literature study will be conducted in order to identify the key factors leading to competitive advantage of a nation and region and the success factors of the catalytic converter industry cluster in foreign direct investment. In addition to this, information on the cluster will be gathered and compared to that of the literature study. Literature will be gathered from the libraries of the Port Elizabeth Technikon, the University of Port Elizabeth, the Internet and the motor companies in the catalytic converter industry cluster.
1.8.1.2 Empirical study

The empirical study will consist of the following parts:

- A survey will be carried out in the delimited area to determine the competitive advantages of the catalytic converter industry cluster in the Eastern Cape.
- The measuring instrument to be used in the survey will be a comprehensive questionnaire developed by the researcher based on information gained from the literature study.
- The respondents will comprise general management from all companies delimited in the study.

1.8.2 THE DEVELOPMENT OF CONCLUSION

The results of the above literature study will be combined with the results of the empirical study to establish the various aspects of competitive advantages of the catalytic converter industry cluster in the Eastern Cape and a strategy for the catalytic converter industry cluster to adopt in order to remain globally competitive.

1.9 PROPOSED PROGRAMME OF STUDY

The research has been planned to include the following chapters:

Chapter 1 The problem statement and definition of key terms.
Chapter 2 The theory of competitive advantage and clusters.
Chapter 3 The competitive advantage of the catalytic converter industry cluster in the Eastern Cape from knowledgeable sources.
Chapter 4 Design and results of the empirical survey.
Chapter 5 Integration of the findings of the survey with the literature study in order to define a strategy for the catalytic converter industry cluster in the Eastern Cape to adopt, in order to sustain competitive advantage. Conclusions and recommendations.
1.10 SUMMARY

In this chapter the importance of the research project was set out. The growth of the catalytic converter industry cluster in the Eastern Cape has been high in the short life span of the industry thus far. In order to assist in the resolution of the main problem, sub-problems have been identified. These sub-problems will involve a literature study of competitive advantage and industry clusters and look at the opinions of knowledgeable people in the Eastern Cape motor industry. The study has been limited to the Eastern Cape area because of its huge success on the topic of discussion and in order to make the study manageable and focused.

In addition to this, key terms have been defined in order to give the reader an understanding of these in the context of the study. Finally, a proposed outline of the methodology to be used in resolving the main problem and sub-problems posed, with a list of chapter contents, has been set out in order to give the reader an insight into the process followed in writing up the study. In Chapter Two, the theory of competitive advantage and clusters will be discussed.
CHAPTER TWO

THE THEORY OF COMPETITIVE ADVANTAGE AND CLUSTERS

2.1 INTRODUCTION

Global competitiveness has forced companies to change business strategy in order to retain and sustain competitive advantage. Thomas, Pollock and Gorman (1999: 70) illustrate how today’s competitive environment has changed from the past. In the past, managers were able to focus on the internal environment (organisational culture, firm competences and process advantages) and the local national environment (local labour markets, customer/supplier relationships, direct competition and local competitor innovations) in determining the company’s competitive stance. In today’s global society, managers have had to look at national sources of competitive advantage as well.

Chapter Two comprises a literature study of competitive advantage and clusters. The discussions that will ensue look at the conditions that affect competitive advantage on a national level and the forces that yield competitive advantage in a region. Both national and individual competitive advantages contribute to how an individual organisation competes with the rest of the world. The value chain becomes crucial in the organisation as it is a source of competitive advantage. Competitive advantage forces the organisation to perform activities in the value chain more cheaply or in a unique way relative to competitors. This requires careful management of the value chain and its linkages. Creating competitive advantage is necessary to survive in the
ever-changing global world. This is perceived as innovating new and better ways to compete in an industry and bringing these innovations to the market. The competencies and management styles needed to support different competitive advantage strategies need to be identified and implemented in order to sustain competitive advantage.

According to Hill (2000: 7), firms are sourcing goods and services from locations around the globe to take advantage of national differences in quality and factors of production. This is known as the globalisation of production. Large and smaller firms are taking on this component of globalisation. This is creating opportunities for companies to function as clusters in order to improve the economic development of a region. The discussions will look at competitive advantage in a city or region, and how this has built up to the cluster approach in an industry. The cluster and its mutually supporting benefits to the economy will be discussed in detail. The applications of industry clustering can affect different time horizons and the outcome depending on the reason and strategy for the cluster.

2.2 NATIONAL COMPETITIVE ADVANTAGE: PORTER’S DIAMOND

Hill (2000: 139) declares that Porter’s “diamond” consists of four broad attributes of a nation that shape the environment in which local firms compete, and these attributes promote or impede the creation of competitive advantage. These attributes are factor conditions, demand conditions, related and supporting industries, firm strategy, structure and rivalry.
According to Porter (1990: 71), the determinants, individually and as a system, create the context in which a nation’s firms are born and compete. The context in which a firm is born and competes can be described as the availability of resources and skills necessary for competitive advantage in an industry; the information that shapes what opportunities are perceived and the directions in which resources and skills are deployed; the goals of the owners, managers, and employees that are involved in or carry out competition; and most importantly, the pressures on firms to invest and innovate. Porter (1990: 71) stresses that nations succeed in particular industries because their home environment is the most dynamic and the most challenging, and this stimulates and encourages firms to upgrade and widen their advantages over time.

Porter (1990: 72) uses the term, the national “diamond”, when he refers to the determinants as a system. Nations are most likely to succeed in industries or industry segments where the national diamond is the most favourable. Porter (1990: 72) goes on to say that the more dynamic the national environment, the more likely it is that some firms will fail, because not all have equal skills and resources, nor do they exploit the national environment equally well. Yet these companies that emerge from such an environment will be successful in international competition.
The determinants of the national diamond will now be looked at individually and in more detail:

### 2.2.1 FACTOR CONDITIONS

According to Hill (2000: 139), factor conditions relate to a nation’s position in factors of production such as skilled labour, location or the infrastructure necessary to compete in a given industry.

Factors can be grouped into a number of broad categories (Porter, 1990: 74-75):

- **Human resources**: the quantity, skills and cost of all levels of personnel, taking into account standard working hours and work ethic.
- **Physical resources**: the abundance, quality, accessibility and cost of the nation’s land, water, mineral, hydroelectric power sources, and other physical traits. Climate, location and geographic size are included as a part of a nation’s physical resources. The time zone of a nation relative to other nations may also be significant in communicating on a global basis.
- **Knowledge resources**: the nation’s attributes on scientific, technical and market knowledge on goods and services. Examples of knowledge resources are universities, government research institutes, business and scientific literature, trade associations, private research facilities, market research reports and databases.
- **Capital resources**: the amount and cost of capital available to finance industry. Capital comes in various forms such as debt (secured or unsecured), high-risk, high-yield bonds, equity and venture capital. Each form of capital has its own varying terms and conditions attached to it.
- **Infrastructure**: the type, quality and user cost of infrastructure available that affects competition, including the transportation system, the communications system, postage system, payments or funds transfer, health care, etcetera. Infrastructure also includes factors that affect the quality of life and the attractiveness of a country as a place in which to live and work. Examples of such factors are housing, schooling and cultural institutions.
According to Porter (1990: 75), a country’s firms gain competitive advantage if they offer products and services embracing low cost differentiation and high quality, which are all significant to competition in a particular industry.

To understand the role of factors in competitive advantage, Porter (1990: 77) discriminates among types of factors, the two important distinctions being between basic and advanced factors.

### 2.2.1.1 Basic factors

Porter (1990: 73) says each country possesses or inherits basic factors of production, which are inputs necessary to compete in an industry. Examples of basic factors of production are natural resources, capital, climate, location, unskilled and semi-skilled labour and demographics. According to Porter (1990: 77), basic factor creation requires relatively low private and social investment. Basic factors may provide initial advantage for a country’s firms, but are unsustainable, hence unimportant to national competitive advantage. The unimportance of basic factors is due to their diminished necessity, their widening availability, or ready access to them by global firms through foreign activities or sourcing on international markets. These same considerations make the returns available to basic factors low, irrespective of their location.

### 2.2.1.2 Advanced factors

According to Porter (1990: 74), advanced factors are created within a nation. Examples of advanced factors are communications infrastructure, skilled labour, research facilities and technological know-how. According to Hill (2000: 140), Porter views the advanced factors as the most significant for competitive advantage, as, unlike basic factors, advanced factors are a product of investment by individuals, companies and the government. They are necessary to achieve high-order competitive advantages such as differentiated quality products and world-class technology. The time it takes to develop advanced factors through investment and the extent and difficulty of the
required investment varies dramatically (Porter, 1990: 77). The institutions required to create advanced factors need sophisticated human resources and/or technology.

Porter (1990: 78) says it is important to recognise that a country’s advanced factors are often built upon basic factors. Hill (2000: 140) says the relationship between advanced factors and basic factors is complex, as basic factors can provide an initial advantage that is reinforced by investment in advanced factors. Basic factor pools must be sufficient in quantity and quality to allow for the creation of related advanced factors. Furthermore, disadvantages in basic factors can create pressure to invest in advanced factors.

Advanced factors are integral to innovation and the design and development of a firm’s products and processes. Porter (1990: 78) says that such activities best take place at the home base and must be closely connected to the firm’s overall strategy. Hence advanced factors are more difficult to procure in global markets or to obtain from afar via foreign subsidiaries.

Porter (1990: 78) goes on to differentiate between generalised factors and specialised factors:

- **Generalised factors** can be deployed in a wide range of industries and support only more common types of advantage. An example of a generalised factor would be a pool of well-motivated employees with tertiary educations. Activities dependent on generalised factors (such as labor-intensive assembly operations requiring semi-skilled employees) can often be readily performed at a distance from the home base.

- **Specialised factors** involve narrowly skilled personnel, infrastructure with specific properties, knowledge bases in particular fields, and other factors relevant to a single industry. Specialised factors are more integral to innovation and provide a more decisive and sustainable base for competitive advantage than generalised factors. According to Porter (1990: 79), specialised factors are necessary for more
sophisticated forms of competitive advantage and require more focused, and often riskier, private and social investment. Specialised factors are necessary at a firm’s home base and less effective at a foreign site.

Porter (1990: 79) concludes that the most significant and sustainable competitive advantage results when a country possesses factors needed for competing in a particular industry that are both advanced and specialised. The availability and quality of advanced and specialised factors determine the level of competitive advantage that can be achieved.

Porter (1990: 79) stresses that the standard for specialisation also tends to rise continuously, as today’s specialised factors tend to become tomorrow’s generalised factors. Hence a factor pool is a depreciating basis for sustainable advantage unless it is constantly upgraded and specialised.

2.2.1.3 Factor creation and deployment

The factors-creating mechanisms in a country are more important to competitive advantage than the country’s current factor pool. According to Porter (1990: 80), nations succeed in industries where they are particularly good at creating and, most importantly, upgrading the necessary factors. This would mean that the country possesses high-quality institutional mechanisms for specialised factor-creation.

Porter (1990: 81) goes on to say that government efforts to create advanced and specialised factors often fail unless they are closely coupled to industry, because government entities are slow or unable to identify new fields or the specialised needs of particular industries. A significant direct investment by firms, trade associations and individuals in factor-creation, as well as close coupling of private and public investments, are characteristics of internationally successful national industries.

Porter (1990: 81) also stresses that no nation can possibly create and upgrade all types and varieties of factors. Which types are created and upgraded, and how effectively, depends heavily on the other determinants, such as home-demand conditions, the
presence of related and supporting industries, company goals and the nature of domestic rivalry. Even the direction of government investments is strongly influenced by the other determinants.

Porter (1990: 76) holds that competitive advantage from factors depends on how efficiently and effectively they are deployed. This reflects the choices made by a country’s firms about how to mobilise factors as well as the technology they use. Where factors are deployed in an economy is also crucial, because technological expertise and the most capable human resources can often be utilised in a variety of industries.

The availability of factors is not sufficient to explain competitive success; other determinants in the diamond will be necessary to explain where factor advantage translates into international success, because these shape the way factors are deployed.

2.2.2 DEMAND CONDITIONS

According to Hill (2000: 139), demand conditions are the nature of home demand for the industry’s product or service. Johnson and Scholes (1999: 109) state that home-demand conditions provide the basis on which the characteristics of the advantage of organisations are shaped. Porter explains that most firms are typically sensitive to the needs of their closest customers (Porter, 1990: 86). This creates pressures for innovation and quality and shapes the attributes of domestically made products. Porter (1990: 86) goes on to say that nations gain competitive advantage in industries or industry segments where the home demand gives local firms a clearer or earlier picture of buyer needs than foreign competitors can have.

Nations also gain competitive advantage if home buyers pressure local firms to innovate faster and achieve more sophisticated competitive advantage compared to foreign competitors. Where foreign and home-market needs diverge, signals from the home market usually dominate (Porter, 1990: 87). A product’s fundamental or core design nearly always reflects home-market needs. All these considerations make proximity to the right type of buyers of decisive importance in national competitive
advantage. Porter (1990: 87) believes that selling to foreign buyers is not a good substitute.

2.2.2.1 Composition of home demand

There are three characteristics of the composition of home demand particularly significant to achieving national competitive advantage: segment structure of demand, sophisticated and demanding buyers, and anticipatory buyer needs. These characteristics will be looked at in more detail:

(a) Segment structure of demand

Porter (1990: 87) describes the segment structure of home demand as the distribution of demand for particular products or services. Porter (1990: 87) goes on to say that a country’s firms are likely to gain competitive advantage in global segments that represent a large or highly visible share of home demand, but account for a less significant share in other nations.

Porter (1990: 87) recognises that the size of segments may be important to national advantage where there are significant economies of scale or learning. Nations in which a segment is largest in absolute terms may gain advantages in reaping economies of scale. However, the absolute size of segments within a nation plays a complicated role in competitive national advantage. This is because firms compete globally and can achieve a large scale even if their home market is small. Porter (1990: 87) explains that the more significant role of segment structure at home is in shaping the attention and priorities of a country’s firms. The relatively large segments in a nation receive the greatest and earliest attention by the country’s firms in allocating product design, manufacturing, marketing resources, etcetera.

Porter (1990: 88) adds that one implication of the importance of segment structure is that small nations can be competitive in segments that represent an important share of local demand but a small share of demand elsewhere, even if the absolute size of the segment is greater in other nations. In some industries, the range of segments in the
home market influences competitive advantage. In highly engineered or tailored products and services, exposure to a wide range of significant segments at home provides experience that can be used in entering foreign markets.

Porter (1990: 89) states that the presence of large segments in a nation that require more sophisticated forms of competitive advantage, is particularly valuable. These large segments provide a visible path for local firms to upgrade their competitive advantage over time. Positions in such segments are more sustainable.

(b) Sophisticated and demanding buyers

According to Porter (1990: 89), more important than the segment structure of demand, is the nature of home buyers. A country’s firms gain competitive advantage if domestic buyers are among the world’s most sophisticated and demanding buyers for the product or service. Proximity, both physical and cultural, to these buyers helps a country’s firms perceive new needs. It also allows close contact in the development process and, when buyers are companies, creates opportunities to implement joint development work in ways that are difficult for foreign firms to compete with. Hill (2000: 140) states that sophisticated and demanding buyers pressure local firms to meet high standards of product quality and produce innovative products. Porter (1990: 89) goes on to say that buyers are demanding where home product needs in an industry are stringent or challenging because of local circumstances, or other reasons such as natural resources availability, taxation and tough regulatory standards. Porter (1990: 90) states that buyers also tend to be more demanding when facing competition than if they are tightly regulated or hold a monopoly. This enhances competitive pressure and stimulates more attention to new product innovation and creates greater efforts to control costs.

(c) Anticipatory buyer needs

According to Porter (1990: 90), a country’s firms gain advantages if the needs of home buyers anticipate those of other nations. This means that home demand provides an early-warning indicator of buyer needs that will become widespread. This stimulates
continuous upgrading of products over time and the ability to compete in emerging segments. If home demand is slow to reflect new needs, particularly sophisticated needs, a country’s firms are at a disadvantage (Porter, 1990: 91).

**2.2.2.2 Demand size and pattern of growth**

Porter (1990: 92) asserts that the size and pattern of growth of home demand can reinforce national competitive advantage in an industry, provided that its composition is sophisticated and anticipates international and not only domestic needs. Home-market size proves to play a complex role in national competitive advantage. Porter (1990: 92) goes on to say that some authors argue that a large home market is a strength, because of the existence of economies of scale. Other commentators see it as a weakness, reasoning that limited local demand forces firms to export, important to competitive advantage in global industries. Other important aspects of home demand are:

(a) **Size of home demand**

According to Porter (1990: 93) large home market size can lead to competitive advantage in industries where there are economies of scale or learning, by encouraging a country’s firms to invest in large-scale facilities, technology development and productivity improvements. Porter (1990: 93) says that the most important question in industries characterised by substantial economies of scale is which of a country’s firms will move first to reap them in producing products that will also meet foreign buyer needs. Porter (1990: 93) states that this is a function of the other determinants, especially home-demand composition.

Porter (1990: 93) states that the size of home demand may be significant in some industries. Local firms often enjoy some natural advantages in serving their home market. Preferred access to a large domestic customer base can be an advantage for investment by local firms.
Porter (1990: 93) goes on to say that home-market size is most important to national competitive advantage in certain kinds of industries (or segments), especially those with heavy research and development (R&D) requirements, substantial economies of scale in production, needs for sophisticated technology, or high levels of uncertainty. In such industries, the proximity of large home demand is comforting in making investment decisions, especially early in an industry’s development. However, large home demand is not an advantage unless it is for segments that are demanded in other countries.

According to Porter (1990: 94), home-market size is an advantage if it encourages investment and reinvestment. The challenge arising from a large home market providing such opportunities is that firms may see little need to pursue international sales. Porter (1990: 94) stresses that it may undermine dynamism and become a disadvantage. Other determinants such as the intensity of domestic rivalry are decisive in whether a large home market proves to be a strength or a weakness.

(b) **Number of independent buyers**

Porter (1990: 94) asserts that the presence of a number of independent buyers in a country creates a better environment for innovation than is the case where one or two buyers dominate the home market for a product or service. A number of buyers will each have innovative ideas about what the product needs. This competitive, pressurised environment will increase the knowledge of market information and motivate progress. A number of independent domestic buyers also stimulates the progress of entry and investment into the home market. The reason for this is that the perceived risk that a firm will be shut out of the market and limiting the bargaining power of a dominant buyer, is reduced.

(c) **Rate of growth of home demand**

According to Porter (1990: 94), the rate of growth of home demand can be as important to competitive advantage as its absolute size. The rate of investment in an industry is a function of how rapidly the home-market size is growing. Rapid domestic
growth leads a country’s firms to adopt new technologies faster, with less perceivable danger of the investment being made redundant, and to build large, efficient facilities with the confidence that they will be utilised.

(d) Early saturation

Porter (1990: 96) says early penetration helps local firms become established. Early saturation forces them to continue innovating and upgrading. A saturated home market creates pressure to cut prices, innovate on product features and performance, and provide other incentives for buyers to replace old products with newer versions. The result is a shakeout of the weakest firms and often the emergence of fewer but stronger local rivals.

2.2.2.3 Internationalisation of domestic demand

According to Porter (1990: 97), there is a third way in which home-demand conditions contribute to national advantage – namely, through mechanisms by which a nation’s domestic demand internationalises and attracts a country’s products and services abroad.

(a) Mobile or multinational local buyers

Porter (1990: 97) says an advantage is created for the country’s firms if the country’s buyers for a product or service are mobile or multinational companies, as these domestic buyers are also foreign buyers. According to Porter (1990: 98), the existence of mobile or multinational local buyers highlights the opportunity of establishing an overseas presence by a country’s firms and may provide the conviction to pursue such a presence by lowering the perceived risk. Porter (1990: 98) goes on to say that a similar set of arguments applies where home buyers are multinationals, with subsidiaries or operations in many other nations. Multinationals often prefer to deal with suppliers of products and services based in their home nation, particularly in the early years of operating abroad but often long after their international position is
established. Buyers’ preference for home-grown suppliers provides an early momentum for suppliers to move abroad and a base of foreign demand.

(b) Influences on foreign needs

Porter (1990: 98) holds that another way in which domestic demand conditions can pull through foreign sales is when domestic needs and desires get transmitted to foreign buyers. An example of this is when foreigners come to a country for training.

Porter (1990: 99) goes on to say that domestic buyer needs are also transmitted abroad through exports that influence culture, such as movies and television programmes. Emigration, which creates a base of foreign demand, exposes foreigners to national tastes and norms that may prove appealing. Another means by which home demand is transmitted is via political alliances or historical ties. This embeds in foreign nations such things as the legal system, product or technical standards, et cetera. None of these is significant to competitive advantage, unless home demand is advanced and sophisticated.

2.2.3 RELATED AND SUPPORTING INDUSTRIES

According to Hill (2000: 139), related and supporting industries define the presence or absence in a nation of supplier industries and related industries that are internationally competitive. Johnson and Scholes (1999: 110) say one successful industry may lead to advantages in related and supporting industries. The reason for this is the supplier industries produce inputs that are widely used and are important to innovation or internationalisation. The presence of competitive industries in a nation that are related is no less significant.

Hill (2000: 141) says that the benefits in advanced factors of production by related and supporting industries should be transferred into an industry, thereby helping it achieve a strong competitive position internationally. One of the consequences of this is that successful industries within a country tend to be grouped into clusters of related industries.
2.2.3.1 Supplier industries

According to Porter (1990: 101-103), the presence of internationally competitive supplier industries in a nation creates advantage in downstream industries in several ways:

- Efficient, early and rapid access to the most cost-effective inputs.
- An advantage of home-based suppliers is the ongoing coordination of linkages in the value chain. Foreign suppliers are rarely a complete substitute, even if they have local subsidiaries.
- The process of innovation and upgrading: Competitive advantage emerges from close-working relationships between world-class suppliers and the industry. Suppliers help firms perceive new methods and opportunities to apply new technology. Firms gain quick access to information and new ideas and to supplier innovations. The exchange of research and development (R&D) and joint problem solving lead to faster and more efficient solutions. Through this process, the pace of innovation within the entire national industry is accelerated. All these benefits are enhanced if suppliers are located in reasonable proximity to firms.

According to Porter (1990: 103), having a domestic supplier industry is far preferable to relying even on well-qualified foreign suppliers, as the home market is highly visible to domestic suppliers. Proximity of managerial and technical personnel, along with cultural similarity, tends to facilitate free and open information flow and reduce transaction costs.

Porter (1990: 104) goes on to say that a country’s firms receive maximum benefit when their suppliers are themselves global competitors, because then the suppliers will possess the desire to upgrade their own advantages, thereby providing the needed technology flow to their home-based customers. Home-based suppliers with international positions are also more valuable sources of information and insights. Porter (1990: 104) goes on to say that “captive” suppliers, dependent solely on a firm
or the national industry, will provide less motivation to improve or upgrade. Local suppliers that are strong by world standards still affect competitive advantage in downstream industries even when they are not in industries that compete globally.

2.2.3.2 Related industries

According to Porter (1990: 107), national success in an industry is particularly likely if the nation has competitive advantage in a number of related industries. Related industries are those in which firms can coordinate or share activities in the value chain when competing, or those that involve products that are complementary (Porter, 1990: 105).

Porter (1990: 106) goes on to say that the presence of an internationally successful related industry in a country provides opportunities for information flow and technical interchange. The presence of a related industry also raises the likelihood that new opportunities in an industry will be perceived. This also provides a source of new entrants which bring a new approach to competing. The presence of successfully related industries in a country may also hasten the development of supplier industries that serve both.

According to Porter (1990: 107) the benefit of both the home-based suppliers and related industries depends on the rest of the diamond. Few advantages may be obtained without the access to advanced factors, efficient home demand conditions and active rivalry.

2.2.4 FIRM STRATEGY, STRUCTURE AND RIVALRY

Hill (2000: 139) says firm strategy, structure and rivalry refers to the conditions in the country governing how companies are created, organised and managed and the nature of domestic rivalry. Hill (2000: 141) states that Porter makes two points here. First, nations are characterised by different management methodologies, which either help or do not help to build national competitive advantage. Second, there is a strong
association between vigorous domestic rivalry and the creation and persistence of competitive advantage in an industry. Vigorous domestic rivalry induces firms to improve efficiency and become better international competitors. Domestic rivalry creates pressure to innovate, improve quality, reduce costs and to invest in upgrading advanced factors.

2.2.4.1 Strategy and structure of domestic firms

According to Porter (1990: 108), national circumstances affect the way in which firms are managed and choose to compete. Porter (1990: 108) goes on to say that no one managerial system is universally appropriate. Firms with management practices and organisational structure favoured by the national environment, which are best suited to the industries’ sources of competitive advantage, will tend to succeed. According to Johnson and Scholes (1999: 110), in Germany the usage of systematic, often hierarchical processes of management have been successful in providing reliable and technical excellence in engineering industries. According to Porter (1990: 108-109), the important national differences in management practices and approaches occur in various areas. Examples are training, orientation of leaders, group versus hierarchical style, decision-making tools, the nature of the relationships with customers, labour and management, the attitude toward international activities and the ability to coordinate across functions. These differences in managerial approaches and organisational skills create advantages and disadvantages in competing in different types of industries.

Porter (1990: 109) stresses the importance of labour management relationships as they are directly linked to the ability of the firm to improve and innovate. Many aspects of a nation influence the ways in which a firm is organised and managed. Examples of these are the attitude of people towards authority and management and vice versa, norms of interpersonal interaction, and social norms of individualistic or group behaviour.

Industries will succeed where these goals and motivations are aligned with the sources of competitive advantage. According to Porter (1990: 110), company goals are more strongly determined by ownership structure, the motivation of owners and holders of debt, the nature of the corporate governance and the incentive processes that shape the
motivation of senior managers. Individual goals reflect the motivation of the individuals who manage and work in firms. Important determinants of individual behaviour and effort are the reward systems under which employees operate, the country’s tax structure and the attitude towards wealth of the employees in a nation.

Porter (1990: 113) states that creating and sustaining competitive advantage in many industries requires ongoing investments to upgrade skills, better understanding of the industry and exchanging ideas across functions. The attitude of risk taking is an important aspect of personal goals, which influences the ability to achieve success in particular industries. Some nations, for example Germany and Singapore, view failure as catastrophic, where other nations view a failure or two as acceptable.

2.2.4.2 Domestic rivalry

According to Johnson and Scholes (1999: 110), domestic rivalry and the search for competitive advantages within a nation can provide organisations with bases for achieving such advantages on a more global scale. Porter (1990: 117) argues the viewpoint that domestic competition is unimportant in global industries by saying that nations with leading world positions often have a number of strong local rivals. In global competition, successful firms compete vigorously at home and pressure each other to improve and innovate. Additional scale is obtained by selling worldwide. The scale of the entire national industry becomes as important as that of individual firms.

Porter (1990: 117) says domestic rivalry becomes superior to rivalry with foreign competitors when improvement and innovation are recognised as the essential ingredients for competitive advantage in an industry. In a closed economy, monopoly is profitable. In global competition, monopoly will lose to firms from more competitive environments.

Porter (1990: 118-120) goes on to say that rivalry among firms with the same home base is beneficial for the following reasons:
Domestic rivalry creates pressures to innovate in ways that upgrade the competitive advantage of a country’s firms. Strong competitors create pressure on each other to improve. One domestic rival’s success proves to others that advancement is possible and also attracts new rivals to the industry.

Active feuds between domestic rivals are common, and often associated with international success in an industry. Domestic feuds receive special attention and the press and investment analysts constantly compare one domestic competitor with others.

Vigorous local competition pressures domestic firms to sell abroad in order to grow. Where there are economies of scale, local competitors force each other to look abroad for the goal of increasing efficiency and profitability.

Stronger domestic firms are strengthened and become more experienced in competition through domestic rivalry.

Domestic rivalry also creates advantages for the entire national industry that are external to any particular firm. This enhances innovation with new products and approaches, which builds defence against foreign penetration.

According to Porter (1990: 120), the geographic concentration of rivals in a single city or region within a country magnifies the benefits of domestic rivalry. Though any one firm must move fast to sustain its advantage, the whole national industry is dynamic and sustains, or even widens, its advantages over foreign rivals which lack the same structure.

Porter (1990: 122) states that the advantages of domestic rivalry are cancelled if there is no effective rivalry among the competitors.

2.2.5 FOREIGN DIRECT INVESTMENT

According to Hood and Peters (2000: 72), Porter does not allow for the factor of foreign direct investment (FDI) as he regards the domination of an industry by manufacturing activity of foreign-owned firms as a measure of competitive weakness. On the contrary, Hood and Peters (2000: 72) say the foreign manufacturing
subsidiaries over time may be able to contribute higher value to product and process innovation, as well as to the upgrade of the host country’s “diamonds” to which they belong through development of stronger based linkages. This would benefit the industry in greater exposure to globalisation and often plays an important role in sustaining local growth and development by driving continuous improvement in the local system of flexible production. Such foreign-owned firms will have an effect on the industry cluster to which they belong.

2.3 THE COMPETITIVE ENVIRONMENT

According to Johnson and Scholes (1999: 115), Porter’s five forces analysis is a means of identifying the forces which affect the level of competition in an industry and which can be used as a tool to identify competitive strategy in an industry. These five forces are the threat of new entrants, the bargaining power of buyers and suppliers, the threat of substitute products or services and competitive rivalry.

Figure 2.2: The five competitive forces that determine industry competition

Source: Adapted from Porter (1990: 35)

According to Austin and Guthrie (1996: 91), understanding these forces allows organisations to take proactive strategic approaches to defend themselves against
competitors. Existing processes, internal and external, can be broken down to identify areas that offer the greatest opportunities for competitive advantage.

Porter (1990: 34) says firms that are successful respond to the environment and attempt to influence the environment in their favour. It is the change in industry structure or increasing the firm’s competitive advantage that underlie shifts in competitive position. Porter (1990: 35) goes on to say that the strength of each of the five competitive forces is a function of industry structure or the industry, and how economics and technology affect it. Each force in the industry structure will be looked at individually in more detail:

2.3.1 THREAT OF NEW ENTREANTS

According to Johnson and Scholes (1999: 115) the threat of entry to an industry will depend on the extent to which there are barriers to entry. Barriers to entry differ by industry and product/market. Austin and Guthrie (1996: 92) state that the threat of new entrants is high in industries with low entry barriers. Some examples are as follows:

- *The capital requirement of entry*: The capital cost of entry will vary according to technology and scale. Industries that have low investment costs may see new entrants on a continual basis.
- *Legislation or government action*: Legal restraints on competition vary from patent protection to control of markets by regulation, through to direct government interaction.
- *Brand loyalty*: Buyers are often attached to established brands. According to Strickland and Thompson (1999: 78), high brand loyalty would mean that a
potential entrant must build a network of distributors and dealers and be prepared to spend money on advertising and sales promotions to overcome customer loyalties.

- *Access to distribution channels*: In the case of consumer goods, a potential entrant may face the barrier of gaining access to customers. Strickland and Thompson (1999: 79) state that new entrants may have to ‘buy’ distribution access by offering better margins to dealers and distributors. This may have negative effects on a potential entrant’s profit margin, if the product does not gain acceptance.

### 2.3.2 BARGAINING POWER OF BUYERS AND SUPPLIERS

The next two forces can be considered together because they are linked. According to Johnson and Scholes (1999: 117), buyer bargaining power is likely to be high when:

- There is a high concentration of buyers, particularly when the volume purchases of the buyers are high;
- The supplying industry comprises a large number of small operators;
- There are alternative sources of supply;
- Buyers are well informed about seller’s products, prices and costs and therefore have a better bargaining position;
- The cost of switching a supplier is low or involves little risk.

According to Johnson and Scholes (1999: 119), supplier bargaining power is likely to be high when:

- There is a concentration of suppliers rather than a fragmented source of supply;
- The cost of changing suppliers, from one supplier to another, is high;
- The supplier’s customers are highly fragmented, so their bargaining power is low;
- Product or service is not easily available to customers (Austin & Guthrie, 1996: 92).
2.3.3 THREAT OF SUBSTITUTE PRODUCTS OR SERVICES

Strickland and Thompson (1999: 81) assert that readily available and attractively priced substitutes create competitive pressure by placing a ceiling on the prices an industry can charge for its products. This pressurises industry members to reduce their prices and find ways to absorb price cuts with cost reductions. Another determinant of the strength of competition from substitutes is how difficult or costly it is for the industry’s customers to switch to a substitute. According to Johnson and Scholes (1999: 120), the threat of substitution may take different forms:

- Product-for-product substitution with the aid of technological advances. An example of this is the digital video display (DVD) rendering the compact disc (CD) redundant, as the CD did to the vinyl record before it.
- Substitution of need by a new product or service replacing an existing product or service.
- Generic substitution occurs where products or services compete for need.

2.3.4 COMPETITIVE RIVALRY

According to Johnson and Scholes (1999: 120), organisations need to be concerned over the extent of direct rivalry between themselves and competitors. The most competitive conditions will be those in which entry is likely, substitutes threaten and buyers or suppliers exercise control. According to Strickland and Thompson (1999: 74), some industries rival each other in price competition, sometimes resulting in prices below the level of unit costs, which may force losses on most rivals. In other industries, rivalry is focused on factors like new product innovation, quality, durability,
performance features, services and brand loyalty. Other forces that affect rivalry are (Johnson & Scholes, 1999: 121-123):

- The extent to which competitors are in balance: Where competitors are of roughly equal size, there is a danger of intense competition as one competitor attempts to gain dominance over another.
- Market growth rates may affect rivalry: In situations of market growth, an organisation might expect to achieve its own growth through the growth in the market place. In situations where markets have matured, market growth may have to be achieved by taking market share from competitors.
- The existence or development of global customers may increase competition among suppliers as they try to win their business on a global scale.
- High fixed costs are likely to result in competitors cutting prices to obtain the turnover required.
- Differentiation: In commodity markets where products or services are not differentiated, there is little to stop customers switching between competitors.
- High exit barriers to an industry will increase competition. An example of an exit barrier is a high investment in non-transferable fixed assets such as a specialist plant.

2.4 SOURCES OF COMPETITIVE ADVANTAGE

Porter (1990: 40) holds that competitive advantage grows out of the way firms organise and perform discreet activities. Johnson and Scholes (1999: 455) say the competences needed by an organisation will vary according to the competitive strategy of the organisation. To gain competitive advantage over its rivals, a firm must either provide comparable buyer value but perform activities more efficiently than its competitors (lower cost), or perform activities in a unique way that creates greater value and commands a premium price (differentiation). Johnson and Scholes (1999: 456) define differentiation as “the understanding of customer needs and being able to
provide these product features and services”. Figure 2.3 shows the activities performed in competing in a particular industry, known as the value chain.

Figure 2.3: The value chain

![Value Chain Diagram]

Source: Adapted from Porter (1990: 41)

According to Strickland and Thompson (1999: 115), the value chain starts with raw material supply, continues on through parts and component production, manufacturing and assembly, wholesale distribution, and retailing to the ultimate end user of the product or service. Strickland and Thompson (1999: 115) go on to say that a company’s value chain includes a profit margin. A markup over the cost of performing the firm’s value-added activities is part of the buyer’s price. Creating value that exceeds the cost of doing the activity is an important business objective. According to Johnson and Scholes (1999: 455-456), a low price positioning will need to have real cost advantages in the value chain. Innovation is crucial with regard to survival in cost reduction.

All the activities in the value chain contribute to buyer value. Every activity employs purchased inputs, human resources, technology combinations, and depends on the firm’s infrastructure, for example general management and finance. Porter (1990: 41) goes on to say that strategy guides the way a firm performs individual activities and organises its entire value chain. Firms gain competitive advantage from devising new ways to conduct activities, employing new procedures, new technologies or different
inputs. Activities vary in their importance to competitive advantage in different industries (Porter, 1990: 41).

Competitive advantage is likely to be attained through multiple linkages within the value chain. One activity performed can spill over to affect the cost and effectiveness of performing other activities. Hence, the value chain can be seen as an independent network of activities, connected by linkages (Porter 1990: 41).

Linkages often create trade-offs in performing different activities that must be optimised. A company must resolve such trade-offs in accordance with its strategy to achieve competitive advantage.

These linkages also require activities to be coordinated. Porter (1990: 42) suggests this is an important way to reduce the combined time to perform the activities, increasing competitive advantage.

Porter (1990: 42) goes on to say that careful management of linkages can be a decisive source of competitive advantage. Strickland and Thompson (1999: 116) state that it is normal for the value chains of rivals to differ. This condition complicates assessing rivals’ relative cost position as the firm may have difficulty perceiving the linkages of the rival. Obtaining the benefits of linkages requires both complex organisational coordination and resolution of difficult trade-offs across organisational lines.

According to Porter (1990: 42), gaining competitive advantage requires that a firm’s value chain is managed as a system rather than a collection of separate parts. Reconfiguring the value chain, by relocating, reordering, regrouping or even eliminating activities, is often at the root of a major improvement in competitive position.

Strickland and Thompson (1999: 117) hold that a company’s value chain is embedded in a larger system of activities that includes the value chains of its upstream suppliers and downstream customers or allies engaged in getting its product to end users. Linkages not only connect activities inside a company but also create
interdependencies between a firm and its suppliers and channels. A company can create competitive advantage by better optimising or coordinating these links to the outside through the value chain system for an entire industry, not just the company’s own value chain (Porter, 1990: 42).

Porter (1990: 43) goes on to say the value chain provides a tool for understanding the sources of cost advantage. Successful cost leaders draw cost advantages from throughout the value chain. Gaining cost advantage also usually requires optimising the linkages among activities as well as close coordination with suppliers and channels.

Porter (1990: 43) also shows how the value chain exposes the sources of differentiation. Differentiation results from the way a firm’s products, associated services and other activities affect its buyers’ activities. The varying bases for differentiation in different industries will prove to be important to national competitive advantage.

According to Porter (1990: 44), the value chain allows a deeper look at the role of competitive scope in gaining competitive advantage. Scope shapes the nature of a firm’s activities, the way they are performed and how the value chain is configured. A firm’s collaboration or partnership with its suppliers to reduce supplier costs or improve supplier effectiveness can enhance the firm’s own competitiveness (Strickland & Thompson, 1999: 118-119).

Porter (1990: 43) goes on to say that a prominent reason why firms gain competitive advantage is that they choose a different scope from competitors, by focusing on a different segment, altering geographic breadth or combining the products of related industries.

2.5 CREATING COMPETITIVE ADVANTAGE

Porter (1990: 45) says firms create competitive advantage by perceiving or discovering new and better ways to compete in an industry and bringing them to the market. This would be described as innovation, which Porter (1990: 45) describes to include improvements in technology and better methods or ways of doing things. According
to Waits (2000: 37), the business world’s term for innovation has been reduced to a simple statement: Innovate or perish. Nations that organise their knowledge (research and development activities, specialised workforces and unique business infrastructure) to support industry innovation are most likely to capture technology-driven, globally competitive industries. Innovators not only respond to possibilities for change, but also force it to proceed faster. This would involve investment in developing skills and knowledge, and usually in physical assets and marketing effort. Innovation shifts competitive advantage when rivals either fail to perceive the new way of competing or are unwilling or unable to respond. Porter (1990: 45-47) describes the most typical causes of innovations that shift competitive advantage as follows:

2.5.1 NEW TECHNOLOGIES

Technological change can create new possibilities for the design of the product, the way it is marketed, produced or delivered, and the ancillary services provided. According to Waits (2000: 37), technological change is one of the fundamental forces causing structural shifts in the economy. Technology can create or destroy industries.

2.5.2 NEW OR SHIFTING BUYER NEEDS

Competitive advantage shifts or is created when buyers develop new needs or their priorities change significantly. Established competitors may fail to perceive the new needs or be unable to respond because meeting them demands a new value chain.

2.5.3 THE EMERGENCE OF A NEW INDUSTRY SEGMENT

The opportunity arises when a new distinct segment of an industry emerges or a new way is conceived to regroup existing segments. The possibilities encompass not only new customer segments but also new ways of producing particular items in the product line or new ways to reach a particular group of customers.
2.5.4 SHIFTING INPUT COSTS OR AVAILABILITY

Competitive advantage frequently changes when a significant change occurs in the absolute or relative costs of input such as labour, raw materials, energy, transportation, communication, media or machinery. According to Strickland and Thompson (1999: 87), the widening and shrinking differences in the cost and efficiency among key competitors tends to alter the state of competition. This may reflect new conditions in supplier industries or the possibility of using a new or different type of quality of input. A firm gains competitive advantage by optimising opportunities based on the new conditions while competitors are left with assets and approaches linked to the old conditions.

2.5.5 CHANGES IN GOVERNMENT REGULATION

Adjustments in the nature of government regulation, in such areas as product standards, environmental controls, restrictions on entry and trade barriers, are other common stimuli for innovation, which may result in competitive advantage. According to Strickland and Thompson (1999: 88), in international markets, host governments can drive competitive changes by opening up their domestic markets to foreign participation or closing them to protect domestic companies.

2.6 SUSTAINING COMPETITIVE ADVANTAGE

According to Strickland and Thompson (1999: 135), a company’s competitive strategy consists of its business approaches and initiatives to attract customers and fulfil their expectations, to withstand competitive pressures and to strengthen its market position. As mentioned in Chapter One, Porter (1986: 20) views competitive advantage as a function of either providing comparable buyer value more efficiently than competitors (low-price strategy), or performing activities at comparable cost but in unique ways that create more buyer value than competitors (differentiation strategy).

Table 2.1 shows the competences and management styles needed to support these different strategies:
Table 2.1: Competences and management styles

<table>
<thead>
<tr>
<th>LOW-PRICE STRATEGY</th>
<th>DIFFERENTIATION STRATEGY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underlying Competences</td>
<td>Underlying competences</td>
</tr>
<tr>
<td>‘Process’ design</td>
<td>‘Product’ design</td>
</tr>
<tr>
<td>Labour supervision</td>
<td>Marketing</td>
</tr>
<tr>
<td>Easily produced ‘products’</td>
<td>Creative flair</td>
</tr>
<tr>
<td>Low-cost distribution</td>
<td>Research capability</td>
</tr>
<tr>
<td></td>
<td>Corporate image</td>
</tr>
<tr>
<td>Requiring</td>
<td>Requiring</td>
</tr>
<tr>
<td>Tight cost control</td>
<td>Looser control</td>
</tr>
<tr>
<td>Detailed reporting</td>
<td>Simpler reporting</td>
</tr>
<tr>
<td>Highly structured tasks</td>
<td>Strong coordination</td>
</tr>
<tr>
<td>Quantitative targets</td>
<td>Market-based incentives</td>
</tr>
</tbody>
</table>

Source: Adapted from Johnson & Scholes (1999: 455)

In order to sustain competitive advantage the competences needed by an organisation vary according to strategy (Johnson & Scholes, 1999: 455-458):

- A low price positioning will need to have cost advantages on one or more of its underlying competences. All this requires a mindset where innovation in cost reduction is regarded as essential to survival.

- For a differentiation strategy, understanding the needs of the customer is crucial. The business must also have the ability to transform the customer’s needs into appropriate products or services. The value chain is of importance here as differentiation is likely to be achieved through multiple linkages within the value chain. This stresses the importance of creativity and the management of products and process innovations throughout the value chain. According to Strickland and Thompson (1999: 106), some of the competitive capabilities for a differentiation strategy are: Short development times in bringing new products to the market, organisational agility in responding to shifting market conditions, research and
development organisations with the ability to keep the company’s pipeline full of innovative new products.

- Switching costs may be built into products or services. This would improve the business’s competitive standing as the actual or perceived cost to a buyer of changing source of supply may be high, thus allowing the business to achieve a differentiated position in the market.

2.7 THE COMPETITIVE ADVANTAGE OF CITIES AND REGIONS

According to Porter (1990: 157), the conditions that underly competitive advantage are often localised within a country, though at different locations for different industries. The reason why a particular city or region is successful in a particular industry is captured by the same considerations embodied in the “diamond”. An example Porter (1990: 158) gives is the location of the most sophisticated buyers, possession of unique factor-creating mechanisms and a well-developed local supplier base.

Locational effects are powerful even if cultural, political or cost differences between locations are small. However, Porter (1990: 158) still stresses the importance of nations. Many of the determinants of advantage are more similar within a nation than across nations. Examples of the importance of national boundaries are determinants such as government policy, legal rules, capital market conditions and factor costs. Social and political values and norms are linked to nations and are slow to change. However, Porter (1990: 158) says that it is the combination of national and intensely local conditions that fosters competitive advantage. National policies will be inadequate in and of themselves. State and local government can play a prominent role in industry success.

Porter (1990: 158) goes on to say that falling communication and transportation costs and the reduction in barriers to trade and international competition make locational advantages for industry innovation even more significant. The reason for this is that firms with true competitive advantages are more able to penetrate other markets.
While classical factors of production are more accessible because of globalisation, differential knowledge, skills and rates of innovation increasingly determine competitive advantage in advanced industries, which are embodied in skilled people and organisational routines. According to Porter (1990: 158) the process of creating skills and the important influences on the rate of improvement and innovation are intensely local. This concludes that more global competition makes the home base more important, not less important.

2.8 THE CLUSTER APPROACH IN COMPETITIVE INDUSTRIES

According to Waits (2000: 37), the industry cluster concept has proved to be a powerful framework for companies to organise, work together and work with government to meet their needs and promote their interests. Porter (1990: 148) states that the nature of the “diamond” promotes the clustering of a nation’s competitive industries. The reasons for clustering grow directly out of the determinants of national advantage and are a result of their systemic character. One competitive industry helps to create another in a mutually reinforcing process. The reason being that a nation’s successful industries are usually linked through vertical (buyer-supplier) or horizontal (common customers, technology etcetera) relationships. Anderson (1994: 27) categorises these relationships as follows:

- **Buyer-supplier relationships**: This consists of companies that produce goods and services that are sold to final consumers and of companies at earlier stages in the value-adding chain that supply the input that is assembled into or used in the assembly of final goods and services. Distributors of final goods and services that are separate from producers, also form part of these clusters.

- **Competitor and collaborator relationships**: This consists of companies that produce the same or similar goods and services at a specific level in the value chain. It exists because competitors frequently share information about product and process innovations and market opportunities. This may lead to formal collaboration to develop such innovations in precompetitive or strategic alliances.
• **Shared-resource relationships:** These relationships exist when firms rely on the same sources of raw materials, technology, human resources and information. This could be the case even if the resources are used to produce goods and services for different markets.

According to Porter (1990: 151), competitive supplier industries in a country also help encourage world-class downstream industries. They provide technology, stimulate transferable factor creation and become new entrants. An internationally competitive industry can also create new related industries. This is done by providing ready access to transferable skills through related entry by established firms or by stimulating entry indirectly through spin-offs.

Once a cluster forms, the whole group of industries becomes mutually supporting. According to Waits (2000: 46), clusters provide a critical mass of customers, thereby making it easier for agencies and private consultants to justify spending the time and resources to develop special expertise and programmes tailored to fit their industries’ particular needs. Rivalry in one industry tends to spread to others in the cluster. Porter (1990: 151) goes on to say that entry from other industries within the cluster spurs upgrading by stimulating diversity in research and development (R&D) approaches and providing a means for introducing new strategies and skills. Information flows freely and innovations diffuse rapidly through suppliers or customers who have contact with multiple competitors. Interconnections within the cluster often lead to new opportunities and new ways of competing as people and ideas combine in new ways. According to Porter (1990: 151), the cluster becomes the tool for maintaining diversity and overcoming the inward focus, inertia, inflexibility and accommodation among rivals that slow down or block competitive upgrading and new entry. The presence of the cluster helps increase information flow, the likelihood of new approaches and new entry from spin-offs. The cluster plays the role of creating ‘outsiders’ from within the nation that will compete in new ways. This is beneficial to national industries, which are more able to sustain advantage instead of losing it to other countries which innovate.
According to Porter (1990: 151), the presence of an entire cluster of industries magnifies and accelerates the process of factor creation that is present where there is a group of domestic rivals. Firms from an entire group of interconnected industries all invest in specialised but related technologies, information, infrastructure and human resource, and numerous spillovers occur. The scale of the entire cluster encourages greater investment and specialisation. Joint projects by trade associations involving firms from different industries are common. Government and university attention is heightened. The pull of size and prestige in attracting talent to the cluster becomes stronger. The nation’s international reputation in the field grows.

Anderson (1994: 29) states that regional clustering will benefit industries within the cluster and new companies entering the cluster. Specialists can identify the core competencies that are critical to the cluster’s success, strengths and weaknesses. The specialists can then find strategies to strengthen the weak core competencies within the industry. These strategies will support the establishment of new companies that specialise in these areas of competence. It will also extend these core competencies into new markets through diversification of existing companies and establishing new companies. It will also support the retention of existing companies by strengthening the region.

Resources in the economy flow toward developing clusters and away from isolated industries that cannot deploy the resources as productively. Porter (1990: 152) states that the more industries exposed to international competition in the economy, the more pronounced the movement toward clustering will become. Hence, national competitive advantage resides as much in the level of the cluster as it does in individual industries, which has implications for government policy and company strategy.

2.8.1 ECONOMIC DEVELOPMENT IN CLUSTERS

According to Hood and Peters (2000: 68), the cluster approach is seen as a useful approach for developing more integrated micro-policies which enhance economic development and complement macro-policies designed to achieve greater stability in the general economic environment. Waits (2000: 44) goes on to say that the industry
cluster promotes the co-building of economic foundations which would include collective activity to build stronger educational, financial and governmental institutions that enable them to compete better.

Anderson (1994: 26) views industry clustering as a means to improve industry targeting as it captures relationships within a specific industry sector and helps define economic development strategies. Anderson (1994: 26) defines industry targeting as the identification of specific industries or types of enterprises for emphasis in economic development activities. This has become an important element in regional development strategies with the focus on increasing efficiency and leverage efforts. Industry clustering can benefit and improve targeting efforts as follows:

- Richer sources of information about regional dynamics are available as the use of clusters captures the economic relationships among specific industry sectors.
- The use of clusters provides a set of tools for analysis, policy formulation and regional organisation and implementation to increase the effectiveness of economic development strategies.

2.8.2 GEOGRAPHIC PROXIMITY

According to Porter (1990: 154), competitors in many internationally successful industries, and often entire clusters of industries, are often located in a single town or region within a country. Anderson (1994: 27) goes on to say that all the relationships benefit from geographic proximity, as relationships will be stronger if the distances separating participants in the cluster are as short as possible. This has become important in the era where physical movement of goods is important and complements just-in-time inventory management and time-to-market responsiveness. The flow of information that directs the flow of goods and services improves as distance increases. Even with the advancement of information technology, there are some activities, such as contract negotiations, that can only be accomplished by face-to-face exchanges.

According to Porter (1990: 156), the geographic concentration of firms in internationally successful industries often occurs because of the influence of the
individual determinants in the diamond, and the mutual reinforcement are heightened by close geographic proximity within a country. A concentration of rivals, customers and suppliers will promote efficiencies and specialisation.

According to Hood and Peters (2000: 74), the proximity of producers to large home-based markets that are advanced and demanding enables producers to better perceive, interpret and respond to buyer needs, and is a potentially important driver of innovation and upgrade. Geographic proximity raises visibility of the competitive behavior in the cluster. Porter (1990: 157) states that rivals located close together will tend to be jealous and emotional competitors. Universities near a group of competitors will be most likely to notice the industry and respond accordingly. In return, competitors are more likely to fund and support activities of local universities. Suppliers nearby will be best positioned for regular interchange and cooperation with industry research and development efforts. World-class customers nearby offer the best options for transmitting information, engaging in regular interchange about emerging need and technologies and demanding quality service and product performance.

According to Porter (1990: 157), the process of entry also encourages geographic concentration. Spin-offs have a tendency to locate near the original company, because entrepreneurs not only live there but also have already-established relationships. Entry from supplier, user or related industries also frequently occurs in the same location. Anderson (1994: 28) states that geographic proximity is important in economic development because physical relationships are important in the effective operation of a cluster. It leads to early exposure of imbalances, needs or constraints within the cluster, which need to be addressed.

2.8.3 ROLE OF INTERCHANGE WITHIN CLUSTERS

Underlying the operation of the national diamond and the cluster approach is the exchange of information about techniques, needs and technology among buyers, suppliers and related industries. According to Porter (1990: 152), the conditions for competitive advantage are most fertile when such interchange occurs at the same time that active rivalry is maintained in each separate industry.
Porter (1990: 152) says the mechanisms through which interchange occurs are important because effective interchange among independent firms in a country is not assured, even though it is more likely than interchange among firms with home bases in different countries. Porter (1990: 152) explains that firms in a national cluster have different and sometimes conflicting economic interests. This may bias or restrict information flow among them. Porter (1990: 152) states that a nation gains an important national advantage where national attributes are supportive of intracluster interchange. The presence of effective interchange in a particular industry or sector is an established predictor of sustained national success. Mechanisms that facilitate interchange within clusters are conditions that help information flow more easily, as well as facilitate coordination by creating trust and mitigating perceived differences in economic interest between vertically or horizontally linked firms.

Porter (1990: 153) gives some examples of mechanisms as follows:

1 Facilitators of information flow

- Personal relationships due to schooling, military service;
- Ties through the scientific community or professional associations;
- Community ties due to geographic proximity;
- Trade associations encompassing clusters;
- Norms of behaviour such as belief in continuity and long-term relationships.

2 Sources of goal congruence or compatibility within clusters

- Family or quasi-family ties between firms;
- Common ownership within an industrial group;
- Ownership within an industrial group;
- Ownership of partial equity stakes;
- Interlocking directors;
- National patriotism.
2.9 APPLICATIONS OF INDUSTRY CLUSTERING

Anderson (1994: 28) goes on to say how the application of industry clustering can affect different time horizons:

- Industry clustering is a tool for short-term industrial attraction through identification of prospective sectors and by defining specific advantages. This will pay off in one or two years.
- Industry clustering is a useful strategy to retain, establish and extend existing industry. This will pay off over a two–to–five-year period.
- Industry clustering can be used to establish new clusters and implement organisational efforts that will pay off over longer periods in order to sustain regional growth.

Birkinshaw (2000: 93) states that the level of foreign ownership of the industry affects its dynamics, its capacity for upgrading and its long-term potential. Foreign ownership in an industry cluster has different effects, depending where the industry cluster is in its life-cycle and the application of the industry cluster.

The applications of industry clustering and foreign direct investment will be looked at in more detail:

2.9.1 SHORT TERM APPLICATION

According to Anderson (1994: 28), one of the development strategies in many regions is the attraction of companies to a region, which achieves growth in employment opportunities. These attraction efforts are balanced with strategies to retain and expand existing industry and establish new enterprises and clusters.

Target groups can be identified by identifying gaps in the value-adding chain that exists in a region’s industry clusters. Companies that develop and manufacture these products
would be identified as a prime attraction target. Their advantages would be that they would find ready markets for their products in the province and the close proximity would enable them to produce products that are tailored to the specific needs of the region’s companies. The goal of retaining large companies in the cluster would be to strengthen the regional cluster with the addition of these critical supplier companies.

Reasons for companies in an existing region to consider their relocation and expansion planning in that region are focused on work force skills, types of customers, specialised research assets, focused education and training programs that are available to these companies.

Anderson (1994: 28) says that the key point in attracting new industries is to rely on the opportunities within existing clusters, and the advantages the region offers to firms similar to those in the industry clusters that already thrive in the region.

2.9.2 MEDIUM TERM APPLICATION

Anderson (1994: 29) states that existing industry clusters are also important in defining development strategies that will take longer periods to pay off. The important factor in defining these strategies is to determine which types of small businesses to target for support and which foundations to enhance in order to retain and support the growth of industry in the region. The key to these determinants lies in the existing industry clusters in the region and the emphasis should be on initiatives that improve the region’s ability to retain, establish and grow the industry.

Anderson (1994: 30) says over a longer period, a region can strengthen its economy and create new employment opportunities by helping new companies to become established. To sustain its economic base, the region can also undertake efforts to address gaps and limitations in the economic foundations that support the ability of regional industry to compete in global markets. A region can achieve leverage by defining strategies that lie within the region’s industry cluster and defining the existence of a set of core competencies that are shared throughout the cluster that are critical to the cluster’s success. Anderson (1994: 30) goes on to say that such strategies can be structured in such a way that they support the establishment of new
companies that specialise in these areas of competence, and take advantage of
opportunities to extend these core competencies into new markets through
diversification of existing companies and establishment of new companies. This will
further support the retention of existing companies by strengthening the region’s ability
to support these areas of competence.

2.9.3 LONG TERM APPLICATION

Anderson (1994: 31) argues the question of whether or not a region is forever limited
to the industry that it presently possesses by stating that a region can give rise to a
completely new set of industry clusters that can significantly change its economic base.
Long-term strategies must be defined as with sufficient time, the potential exists to
reshape a region’s economic base.

Anderson (1994: 31) says the identification of present industry clusters can also be an
important analytical and process tool in defining long-term goals and implementing
long-term development strategies. The effect of changes made will take a long period
to show, but start with the existing clusters of the region. Anderson (1994: 32)
explains the advantage of this approach being that it allows individual groups to begin
the process of identifying needs and responses on the basis of shared interests and then
only later to begin to band together across industries on those specific issues that are
important to more than one industry.

2.9.4 FOREIGN DIRECT INVESTMENT IN CLUSTERS

Birkinshaw (2000: 97) defines as a high-growth industry as “an industry where there is
a significant net level of investment being made on a worldwide basis”. This would
mean that many clusters emerge, all of which can thrive while the industry is growing.
Birkinshaw (2000: 97) says foreign direct investment is positive as jobs are created in a
high-growth sector.

Birkinshaw (2000: 97) defines mature industries as “industries that have a number of
clusters around the world, each with established players and with a relatively well-
understood set of advantages and disadvantages”. An impact on foreign investment under this condition is positive, as it is a sign that the cluster is still attractive. However, Birkinshaw (2000: 98) says, in the medium term, foreign direct investment under this set of conditions is complex. The reason is that most of the clusters are still young and based on a high level of foreign investment. As a result the firms making up the cluster are often weakly embedded in the local business environment. These firms will often have reduced value chains, poor links to local suppliers and customers and limited decision autonomy. These clusters will be an early victim if the industry enters a phase of consolidation. The implication is that the quality of the foreign investment is critical to the long-term development of clusters in high-growth industries (Birkinshaw, 2000: 98).

2.10 SUMMARY

The first sub-problem on the competitive advantage of a region has been addressed by looking at Porter’s diamond on national competitive advantage and the forces that yield competitive advantage in a region. The importance of creating and sustaining competitive advantage has also been addressed, as it is necessary in order to allow the diamond to work effectively and sustain competitive advantage. Porter’s diamond forms the basis for the benefits of clusters in a region, as it encompasses the basic factors that contribute to a firm’s competitive advantage as a result of location and geographical position. Porter (1998: 90) states that a cluster is the manifestation of the diamond at work. These factors, demand conditions, factor conditions, related and supporting industries, and the firm’s strategy, structure and rivalry, promote proximity. Proximity enhances pressures of firms to innovate and improve throughout the value chain.

The second sub-problem has been addressed – namely, whether the industry cluster contributes positively to the competitive advantage of a region. Porter (1998: 80) summarises the effects of clusters in competition as increasing productivity of firms in the area, enhancing innovation, stimulating new entry and strengthening the existing cluster. The cluster approach can be seen as an approach to economic growth. This would be reliant on the application and strategy used to form the cluster. The theory
analysed confirms that there is competitive advantage to be derived if the 
aforementioned conditions are met.

Chapter Three looks at what factors knowledgeable people feel contribute to the 
competitive advantage of the catalytic converter industry cluster in the Eastern Cape.
CHAPTER THREE

THE COMPETITIVE ADVANTAGE OF THE CATALYTIC CONVERTER
INDUSTRY CLUSTER IN THE EASTERN CAPE

3.1 INTRODUCTION

The Port Elizabeth-Uitenhage Metropole is known as the hub of the world’s catalytic converter industry. According to the Port Elizabeth Uitenhage Metropole: Review of industry, commerce and tourism 2000/2001 (2000: 25), it is widely acknowledged that there is no other city in the world which has as much action in the catalytic converter industry. The country’s rising catalytic converter industry has created increasingly more attractive spin-off opportunities for companies manufacturing silencers/exhaust systems. Some of the companies involved in the catalytic converter subsector in the Eastern Cape are ASEC Manufacturing, AP Automotive Systems (Faurecia), Autocat Manufacturers (Eberspächer), Bosal, Corning-SA, Degussa-Hüls, Engelhard, Ikhwezi Automotive, HJS Automotive Technology, Precision Exhaust Systems and Tenneco Automotive Port Elizabeth (Gillet Exhaust Technologie).

Chapter Three looks at what knowledgeable people have to say about the Eastern Cape region and the catalytic converter industry cluster in this region and how this can be linked to the theory of competitive advantage and clusters.

3.2 THE EASTERN CAPE CATALYTIC CONVERTER INDUSTRY
CLUSTER AND PORTER’S DIAMOND

The catalytic converter industry cluster in the Eastern Cape forms part of the Fish River Motor Industry Cluster (DTI, Undated: 1). In 1998 the Fish River Motor Industry Cluster was established by the major local industry participants, namely Delta Motor Corporation (General Motors associate), Mercedes Benz (now DaimlerChrysler), Volkswagen, several major component suppliers, the trade unions and regional governments. A growing need was identified for closer links between the local component suppliers and international partners, which are capable of supplying
the necessary technology and support to ensure international competitiveness. Focused project teams, led by senior industry executives supported by strategic consultants, were set up. The vision of the Fish River Motor Industry Cluster is to establish a viable local and internationally competitive industry, capable of achieving both continuous growth and sustainable job creation (DTI, Undated: 2). The emphasis was placed on four critical success factors: strategic investment, logistics, human resource development and supplier development. The primary objective of each project is to support the local industry in the Eastern Cape to create an internationally competitive capability.

Enoch Godongwana, Eastern Cape MEC for Economic Affairs and a member of the executive council for the cluster leadership, says: “The good fortune of having four international motor companies located in the Eastern Cape with the ideal supporting infrastructure of seaports, airports, rail and road links, provides a unique opportunity for investment” (DTI, Undated: 3).

According to DTI (Undated: 3), cluster chairman and also managing director of Delta Motor Corporation, Willie van Wyk says:

The template which is being developed by the Fish River Motor Industry Cluster will create an internationally competitive platform for the industry. This will create unique opportunities for the motor industry to position itself as a serious player within the international scenario. This can be achieved through strong partnerships being developed between local manufacturers and international partners to ensure the appropriate investment and support for the long-term growth of the industry.

The development of the Fish River Motor Industry Cluster has assisted the auto-component manufacturing industry as the structure of the automotive industry is becoming more compact and focused as well as more integrated into the global market. According to the Port Elizabeth Uitenhage Metropole: Review of industry, commerce and tourism 2000/2001 (2000: 23), 68% of all automotive components
bought in South Africa (based on value) are sourced from the Port Elizabeth-Uitenhage Metropole.

As already mentioned by Porter (1990: 148), one competitive industry promotes creation of another in a mutually reinforcing process. This stimulation of new business strengthens the cluster itself. The existence of the Fish River Motor Industry Cluster in the Eastern Cape, as a competitive industry, has promoted the development of the catalytic converter industry cluster in the Eastern Cape.

As mentioned in Chapter Two Porter (1990: 148) states that the nature of the diamond promotes the clustering of a nation’s competitive industries. The factors in the diamond, namely, factor conditions, demand conditions, related and supporting industries and the firm’s strategy, structure and rivalry, will be looked at pertaining to the catalytic converter industry cluster in the Eastern Cape.

3.2.1 FACTOR CONDITIONS

3.2.1.1 Location

Location has proved one of the Eastern Cape’s most important advantages. Les Hollbrook, chief executive officer of the Border-Kei Chamber of Business says (Eastern Cape Gateway 2000 Plus, 2000a: 6) that the Eastern Cape has some of the finest, undisturbed coastline on the subcontinent and extensive areas ready to be developed. According to the Eastern Cape Gateway 2000 Plus (2000j: 19), the port of Port Elizabeth is the gateway for many expanding markets of southern Africa. It is equidistant from all the world’s major markets of Europe, the East and the Americas. The province is also the gateway to the developing sub-Saharan economies (Eastern Cape Gateway 2000 Plus, 2000g: II). There is a ready availability of prime industrial land and property. Ready-made factories in existing industrial parks are available for less than a dollar a square metre. The industrial parks are situated within easy commuting distance of the province’s main townships. This gives investors cost-effective access to a skilled and stable workforce, which is achieving world-class quality and productivity standards in a number of industries. With its proximity to
heavily industrialised and intensively farmed areas in the Eastern Cape, it provides the lifeblood for the region’s economy.

East London also possesses South Africa’s only river port. The port is efficient and possesses spare capacity. An industrial development zone (IDZ) is clustered in close proximity to the East London harbour (Eastern Cape Gateway 2000 Plus, 2000a: 7). In addition, the newly upgraded airport of East London is only ten kilometres from the city centre (Eastern Cape Gateway 2000 Plus, 2000a: 7).

According to the Eastern Cape Gateway 2000 Plus (2000m: 13), Uitenhage is presently home to Africa’s largest motor vehicle manufacturer, Volkswagen South Africa (VWSA), as well as Goodyear Tyre. The Port Elizabeth harbour and airport are 35 kilometres away, and the town is just 20 kilometres from the site of the proposed world-class deepwater harbour and industrial development zone at Coega. The town’s industrial area is ideal for manufacturing in the motor and motor component industries.

3.2.1.2 Coega development project

According to the Eastern Cape Gateway 2000 Plus (2000o: 37), Coega is a world-class duty-free industrial zone, which will be served by a purpose-built deep-water harbour that is being developed in parallel with the needs of the investors in the zone, and to keep transport costs to a minimum. Coega is well situated to serve all the world markets, being equidistant from the East, Europe and the Americas. It also lies on the main east-west shipping routes. The advantage of this is that manufacturers based in the zone will be able to take advantage of market movements anywhere in the world. The new zone will also have the most modern telecommunications infrastructure to allow investors to slot directly into the global market place. Some of the clusters planned for the zone are automotive and plastics (Eastern Cape Gateway 2000 Plus, 2000o: 38). As an Eastern Cape development, preference will be given to employing people of the province, which has one of South Africa’s highest unemployment rates. The Coega Development Corporation believes that the competitive advantage of the zone will attract investors to the region.
3.2.1.3 Physical Resources

According to the SAB Institute for Coastal Resource Management (1999: 8), the climate of the Eastern Cape is considered to be ‘warm temperate’. The average daily maximum and minimum temperatures in mid-summer (January) are 26°C and 15°C, while in July they are 19°C and 7°C. The average rainfall is approximately 600mm and frost and snow are virtually unknown. The climate is therefore advantageous to both new and current investors in the region. According to the Port Elizabeth Uitenhage Metropole: Review of industry, commerce and tourism (2000: inside cover), the Eastern Cape has the lowest electricity costs in the world – US 1.5c/kWh. According to Hosking (1999: 66), most of the Eastern Cape’s water is drawn from the Krom, Kouga, Swartkops and Orange rivers. A small quantity is also obtained from the Uitenhage spring and Port Elizabeth Municipality’s older dams. Water costs are low. Consumers of water within the Port Elizabeth Municipality pay a flat rate of R2.40 plus VAT per kilolitre and an availability charge (Hosking, 1999: 67).

3.2.1.4 Human resources

A further incentive is the local labour force. The Coega Development Corporation (Eastern Cape Gateway 2000 Plus, 2000o: 37) says South Africa’s skilled labour rates are already among the most competitive in the world, and the Eastern Cape’s motor industry is proving that the province’s workers can match – and often beat – the world’s best quality standards. The city has a trained labour force, many of whom have internationally acceptable skills through the numerous global companies that have brought a wide variety of technologies and skills to the region (Business Guide 200-2001, 2001: 10). The combination of sea, wildlife, good schools, sociable entertainment and sporting attractions, friendly people and easy access to the rest of South Africa, helps attract top-quality managers.

3.2.1.5 Infrastructure

According to the Eastern Cape Gateway 2000 Plus (2000l: 33-34), having competitive air freight tariffs and services out of Port Elizabeth is one of the cornerstones for an
automotive cluster development. Hosking and Lloyd (1999: 28) state that the transportation and communication infrastructures and services are well developed in the Port Elizabeth-Uitenhage Metropole. The main components of Transnet operative in the metropole are Autonet, South African Airways, PX container transport, Portnet, Spoornet and Metrorail. According to the Eastern Cape Gateway 2000 Plus (2000l: 33), Port Elizabeth’s airport is one of just ten in the country to be granted international status.

According to Bernstein and Irvine (1999: 70), the Port Elizabeth-Uitenhage Metropole offers viable media and communications. Examples of media and communications available are newspapers, magazines, radio, television, advertising companies, telephone service (Telkom South Africa Limited), cellular phone networks (Mobile Telephone Networks and Vodacom) and the Internet.

Don Lane, financial director of Algorax, compliments Port Elizabeth by saying that Port Elizabeth has a company infrastructure which has good technology and added to this the region has a large source of labour (Infocom, 2000b: 14).

Port Elizabeth Manufacturing Advisory Centre (PERMAC) believes that one of the major strengths of the Eastern Cape is its strong small business culture (Eastern Cape Gateway 2000 Plus, 2000e: 97). Stewart Jennings, President of Port Elizabeth Regional Chamber of Commerce and Industry (PERCCI) says the Port Elizabeth-Uitenhage Metropole is fortunate in that it has a small but effective and influential international business community (Eastern Cape Gateway 2000 Plus, 2000f: 11).

Managing director of Calsonic, Ron Girling, states that the fact that Port Elizabeth is not a big city and yet does not have a small town mentality allows people to gain the best of both worlds (Business Guide 2000-2001, 2001: 27). Les Hollbrook, CEO of Border-Kei Chamber, compliments East London on it’s exceptional market potential and the excellent quality of life enjoyed by its people (Eastern Cape Gateway 2000 Plus, 2000a: 6).


3.2.1.6 Capital Resources

The success of the catalytic converter industry in the Eastern Cape is due to a large amount of foreign investment from foreign subsidiaries worldwide. According to CIMEC (2000: 16), an example of the type of capital investment in the catalytic converter industry can be depicted in some of the recent developments: Degussa-Hüls invested R40-million in its Port Elizabeth catalyst plant; the US Corning company built a R200-million plant to manufacture ceramic cores for catalytic converters; and ASEC Manufacturing and Sales (a subsidiary of Detroit-based Delphi Automotive Systems) invested R30-million in a Port Elizabeth catalyst plant. Webb (2000a: 4) quotes Henry Heur, general manager of the newly opened AP Automotive Systems, in conjunction with Faurecia, in Port Elizabeth, as saying that the combination of AP Automotive systems and Faurecia creates one of the largest catalytic converter manufacturers in the world.

3.2.1.7 Knowledge Resources

The Eastern Cape has five universities, four technikons and 26 technical colleges to cater for organisational needs (Port Elizabeth Uitenhage Metropole: Review of industry, commerce and tourism, 2000: inside cover). These institutions cater for full-time and part-time students and cater for degrees, diplomas and training in specific trades and company needs.

Port Elizabeth Manufacturing Advisory Centre’s (PERMAC) goal is to provide advisory services to small, medium and micro-enterprises with under 200 employees in all industrial areas, and to improve their competitiveness and growth in local, national and international markets (Eastern Cape Gateway 2000 Plus, 2000e: 98). PERMAC analyses and determines areas of weakness and opportunities within a company. With the help of the industrial advisor, the company decides what needs to be done to improve business. PERMAC and its clients have taken the world-class supplier accreditation campaign into a new phase by applying to the Sector Partnership Fund to assist with the implementation of management systems which will include QS9000, ISO 14001 and VDA 6.
The Centre for Investment and Marketing in the Eastern Cape (CIMEC) was created by the government of the Eastern Cape Province as the official investment promotion agency. The instruments used to ensure the environment is conducive to investment are spatial development initiatives, industrial development zones and industrial cluster programmes (Eastern Cape Gateway 2000 Plus, 2000g: II). CIMEC is playing an active role in the cluster process. The initiative has encouraged a number of component manufacturers to set up operations in the province. Other key sectors, like tourism and agriculture, are expected to benefit from the cluster initiative.

According to DTI (2000: 19), the amount invested in training in both the vehicle assembly and component sectors is clearly export driven and is an indication that the domestic industry is participating in the global market. Global developments are also impacting on the domestic component industry, as it increasingly has to meet global standards. Activities such as seeking contact with potential partners for market access, technology links, financing, process know-how, developing employee skills, growing exports and other aspects are therefore imperative in this sector.

3.2.2 DEMAND CONDITIONS

The international demand for catalytic converters from South Africa is from the United States, Europe, India and China, whose governments have stipulated stringent emission-control measures. Hence, direct demand is international and all catalytic converters manufactured in South Africa are for the export market only. In the catalytic converter industry cluster, the canners are first-tier suppliers to the original-equipment manufacturers (OEMs). This creates local demand downwards throughout the local value chain. The pressure to meet global standards is enforced throughout the value chain, as one customer puts pressure on his supplier, who in turn puts pressure on his supplier to conform to international standards and implement quality programmes.

The close proximity of sophisticated and demanding buyers in the catalytic converter industry cluster in the Eastern Cape has pressurised local firms to meet high standards
in terms of product quality, features, service and cost-effective ways of doing business, like lean manufacturing, etcetera. Quality-system implementation and environmental demands have become known as meeting the customer’s expectations, not exceeding it – it has become a necessity.

Compared to the rest of South Africa, the demand for catalytic converters manufactured in the Eastern Cape, is by far the greatest. This has allowed the industry to pay great attention to development, product design, manufacturing and marketing resources. Also, it has assisted new firms in decision making for investment opportunities. The canners and coaters in the catalytic converter industry show the presence of a number of independent buyers, which stimulates innovation throughout the cluster as well as new entry and investment into the industry. Buyers in the catalytic converter industry are multinational, which has increased the overseas presence of firms.

The rate of growth of home demand is high and the market is not saturated. The size of home demand is large. The growth and size of home demand is supported by the amount of investment poured into the industry in the past five years and the high growth projections still to come, as mentioned in Chapter One.

3.2.3 RELATED AND SUPPORTING INDUSTRIES

3.2.3.1 Related/Supporting industries

According to the Eastern Cape Gateway 2000 Plus (2000f: 10), Port Elizabeth is ‘the industrial engine of the province’ and in order to facilitate economic development in the city and the province, the Port Elizabeth Regional Chamber of Commerce and Industry (PERCCI) intends to pursue the initiative of promotion of export-led industrial growth for the region. According to DTI (2000: 13), the major component exporters at present are the firms linked to OEMs, foreign-owned firms and larger domestically owned groups. Alfred da Costa, chief executive officer of PERCCI, says the global trend, which is also happening in the Port Elizabeth region, is for large companies to engage in ‘rightsizing’, mergers and rationalisation of the giant
corporates (Eastern Cape Gateway 2000 Plus, 2000f: 10). The domestic industry is already involved in several international sourcing agreements as far as components are concerned.

All three motor manufacturers based in the province and which form part of the Fish River Motor Industry Cluster – DaimlerChrysler, Volkswagen and Delta (manufacturer of Opel and Isuzu vehicles) – are successfully exporting vehicles and components to the world’s most competitive markets. The direct link to the OEMs forces the catalytic converter industry to adopt world-class standards and OEM techniques such as Just-In-Time Manufacturing and formalised product realisation and approval procedures.

The related and supporting industries of the catalytic converter industry cluster in the Eastern Cape have had a significant impact on the Port Elizabeth-based companies when looking at new export contracts in the year 2001. According to the Eastern Cape Development Corporation (2001: 3), Volkswagen SA has announced a R2,16-billion contract with Faurecia Exhaust Systems. These catalytic converters will be fitted to the Volkswagen Polo that is made in Europe. Volkswagen SA also announced a second R1,7-billion contract to supply catalytic converters to Europe and China. Renault has signed a R2-billion export contract with Eberspächer and Faurecia Exhaust Systems. These catalytic converters will be exported to Europe and also involve Engelhard and Corning in the Eastern Cape as component suppliers. Eberspächer has also secured a R80-million contract to manufacturer Audi catalytic converters to be exported to Europe (Eastern Cape Development Corporation, 2001: 3).

3.2.3.2 Supplier Industries

The demand conditions of the industry cluster have clarified the advantages created downstream with internationally competitive suppliers. The close proximity of supplier industries in the catalytic converter cluster also encourages joint problem solving and more efficient communication. The environment is more conducive for transmitting information and innovations. The catalytic converter industry cluster has had positive effects on supplier development, logistics (to help reduce transport costs to and from the rest of the world), training and strategic investment. Mr Van Wyk, Delta managing
director, comments on the accelerated export growth of the motor industry by saying: “The most noteworthy example in the Eastern Cape has been the growth of the catalytic converter industry. Almost overnight, South Africa has become one of the biggest suppliers in the world – with its high-level use of South African raw materials, plus foreign technological expertise and compactness for packing” (Eastern Cape Gateway 2000 Plus, 2000d: 51).

3.2.4 FIRM STRATEGY, STRUCTURE AND RIVALRY

3.2.4.1 Firm strategy and structure

The catalytic converter firms in the Eastern Cape are linked to OEMs and are either foreign-owned firms or larger domestically-owned groups. This has had a direct effect on the way these firms perform and are managed. Core competencies and management styles vary according to competitive strategy. This is also affected by the management styles of foreign-owned firms in the industry cluster.

3.2.4.2 Domestic Rivalry

Improvement and innovation are recognised as essential ingredients in competitive advantage in the catalytic converter industry. The firms in the industry cluster compete globally and domestically, hence pressure to improve and innovate locally, as well as globally.

3.3 THE COMPETITIVE ENVIRONMENT

The five forces that determine industry competition – namely, the threat of new entrants, the bargaining power of buyers and suppliers, the threat of substitute products or services and competitive rivalry will now be looked at pertaining to the catalytic converter industry cluster in the Eastern Cape.
3.3.1 THREAT OF NEW ENTRANTS

According to the Eastern Cape Gateway 2000 Plus (2000g: III), the Eastern Cape welcomes local and foreign investment, and virtually all business sectors are open to investors. No government approval is required to invest, and there are almost no restrictions on the form or extent of foreign investment.

The national government has indicated that foreign investment should be encouraged, both to stimulate the economy and to reduce unemployment. Various financial incentives are on offer to promote this. One of the most important is the Motor Industry Development Programme (MIDP). The government also has a support programme for industrial innovation, which makes provision for the financial support of research and development of new products in all branches of industry. The incentive is based on one-third of the specified costs, up to a maximum of R1-million per project (Eastern Cape Gateway 2000 Plus, 2000g: IV). These government incentives have contributed to the investments made in the catalytic converter industry cluster.

According to the Eastern Cape Gateway 2000 Plus (2000g: IV), the government is promoting exports through rebates offered via the MIDP. In terms of the MIDP, South African motor manufacturers can claim a US$1 import credit for every US$1 exported. This export credit is only calculated on the local content value of exported components that qualify. This has made it possible for component manufacturers and vehicle assemblers in the Eastern Cape to slot into global supply chains.

3.3.2 BARGAINING POWER OF BUYERS AND SUPPLIERS

Forward linkages to sophisticated buyers and backward linkages to key specialist suppliers are critical linkages to the operation performance within the catalytic converter industry value chain. Supplier selection with critical components is often dictated throughout the value chain by the OEMs. This creates advantages and disadvantages to the buyer on each level of the value chain. The buyer firm loses bargaining power and may be dissatisfied with a supplier’s quality or service. The supplier firm has the confidence that it will not be easily replaced, as switching costs
are high. An example of this type of effect can be shown with Engelhard South Africa. According to Marx (2000b: 3), Ford Motor Company SA announced that Engelhard South Africa would be the sole worldwide supplier of catalytic converters for the high-tech 1.3-litre RoCam engine. The effect of this is that Engelhard South Africa invested up to R225-million in a new plant and additional coating capacity in Port Elizabeth. As more component industries localise to the Eastern Cape, the OEMs are switching to the local manufacturers. This has an impact on local firms within the industry cluster and affects price, quality and process-related issues, as the OEMs request suppliers throughout the catalytic converter value chain, to revalidate their products and processes, which is costly and time-consuming.

For other components, buyers will have large buying power with a number of suppliers to choose from.

3.3.3 THREAT OF SUBSTITUTE PRODUCTS OR SERVICES

The threat of substitution could be defined as ‘product-for-product’ substitution. Technological advances affecting the catalytic converter occur constantly, as new and current engine platforms require new and better coating technologies and exhaust-manifold designs. The catalytic converter industry conveys the flexibility to innovate and change technologies of exhaust manifolds.

3.3.4 COMPETITIVE RIVALRY

The catalytic converter industry finds itself in a very competitive environment, as improvement and innovation are important in the technological advances of the industry in order to create and sustain competitive advantage. OEMs are situated world-wide and are global customers. This intensifies competition as suppliers in the catalytic converter industry try to win business on a global scale. Continuous improvement throughout the value chain is necessary for firms to create and sustain competitive advantage. This has motivated companies to localise within the industry and invest large amounts of capital on state-of-the-art equipment. According to Marx (2000b: 3), Edmund Stanczak, vice-president and general manager of Engelhard’s
Environmental Technologies group, said that the recent investment made in the new Engelhard plant in Port Elizabeth is a high-tech investment. The machines are the same as those installed in other Engelhard plants world-wide. Stanczak stated that this places the Eastern Cape right at the leading edge of technology. An example of localisation would be the relocation of SMI, a supplier of knitted-wire catalytic converter components, which recently relocated its factory to Port Elizabeth (Van Huyssteen, 2000: 22).

Entry into the market is low from a government perspective, hence substitutes are likely, and intensifies the competitive environment.

3.4 CHALLENGES FOR THE CATALYTIC CONVERTER INDUSTRY CLUSTER

Future challenges for the catalytic converter industry in the Eastern Cape will be discussed in more detail:

3.4.1 GOVERNMENT

Stewart Jennings, president of PERCCI, says the challenge for the business sector is to co-ordinate its activities in an improved manner (Eastern Cape Gateway 2000 Plus, 2000f: 11). Local and national government play a crucial role in economic development and creating conditions to nurture business. In respect of labour legislation, it is not only small businesses that are being restricted by the legislation, but large business has similar challenges to labour flexibility. PERCCI and the Chamber movement need to ensure that their approach to government is successful. This is supported by the Port Elizabeth Business Confidence Index (Marx, 2000a: 19-20) which feels the serious concerns affecting the economy in the post-Zimbabwe period are the rate at which oil, fuel and inflation are increasing and the decline of the value of the rand against the dollar. The only advantage of this is that the scenario adds competitive strength to the price of exports from South Africa. The challenge for the region is to attract as much of the foreign capital that is finding its way into South Africa as possible. Port Elizabeth business people and policy makers need to carefully
consider and manage both the national and international perceptions of the region. The region needs clear direction, investor-friendly policies and initiatives, and competent and fair administration.

3.4.2 CRIME PREVENTION

According to the Eastern Cape Gateway 2000 Plus (2000k: 14), business, being the economic engine of society, is both directly and indirectly affected by crime. According to the IDPR/UPE (1999: 64), crime statistics for the Port Elizabeth-Uitenhage Metropole show the area is plagued with high rates of crime. However, business-related crimes occur less frequently than in most of the other metropolitan areas in South Africa. Business Against Crime (BAC) believes that a joint effort towards reducing high levels of crime in South Africa is essential, as lower crime will attract more foreign investors and tourists.

3.4.3 INFRASTRUCTURE

According to Eastern Cape Gateway 2000 Plus (2000b: 60), Hans-Christian Maergner, managing director of Volkswagen SA, says: “South Africa is not a logical manufacturing base. The logistical cost of shipping material to this country can and must be reduced by introducing local content as soon as possible.”

Connie Müller, airports manager, sees Port Elizabeth airport playing a key role in the development of the Eastern Cape’s economy (Eastern Cape Gateway 2000 Plus, 2000l: 36). To make airfreight handling compliant with civil aviation regulations, the airport has embarked on the development of the Aero Industrial Park. According to the Eastern Cape Gateway 2000 Plus (2000l: 35), it is one of the only industrial parks in the country to have ready access to harbour, railway connections and airport. The fact that the Airports Company South Africa (ACSA) is investing money in the region is confirmation that the company is confident that there will be sustained economic growth, and that this growth will come from both the manufacturing and tourism sectors.
Eastern Cape Gateway 2000 Plus (2000h: 18) says Portnet (which manages seven commercial ports in South Africa, including Port Elizabeth and East London) is actively adapting to changes in international markets to survive. Expected national and international trade growth is setting the standard for Portnet’s service and infrastructure. Transformation at Portnet is also the response to a government challenge (sole shareholder) to restructure Transnet into a series of stand-alone businesses, each capable of growth and sustained profitability.

According to the Eastern Cape Gateway 2000 Plus (2000n: 44), the CSIR’s Roads and Transport Technology (Transportek) is forming partnerships with key Eastern Cape stakeholders to identify projects which would allow the province to maximize its industrial and economic potential.

3.4.4 IMPROVEMENT IN ORGANISATIONAL STRUCTURE

Eastern Cape Gateway 2000 Plus (2000d: 51) quotes Willie van Wyk, managing director of Delta as saying:

The motor industry in this country is at the beginning of fundamental restructuring that may well be painful as a process but is nevertheless essential for the industry’s long-term health. In fact, it is something that has from the outset been the goal of the architects of the MIDP, and has been the platform of our forward planning. Using the opening of the economy, government is intent on leveraging a much higher level of competitiveness in the motor industry and eliminating the inefficiencies that had grown in the isolationist economy over a period of many years.

The early focus of Delta was turning the company around from a domestic-protected player to a truly global competitor. The focus has now turned to improving systems and processes within the company – this would include total re-engineering of the organisational structures, the way business is performed, and the improvement of technology.
3.4.5 RELATED AND SUPPORTING INDUSTRIES

According to the Eastern Cape Gateway 2000 Plus (2000d: 52), Delta is also a leading participant in an automotive cluster initiative designed to improve the competitiveness of the whole automotive industry in the province. The flexibility and economics of all aspects of supply – both components coming into its plants from all sources and completed vehicles going out of its plants – are also being given intensive focus. Delta managing director, Willie van Wyk, says some success has already been achieved and this gives confirmation and encouragement that this aspect contains unlocked potential to achieve dramatic and radical improvements in the service Delta provides to dealers and to their customers (Eastern Cape Gateway 2000 Plus, 2000d: 52).

3.4.6 PROMOTION OF EXPORTS

The biggest challenge facing the entire industry as relative newcomers to the global business scene, is the development of viable export markets. According to Eastern Cape Gateway 2000 Plus (2000b: 61), Hans-Christian Maergner, managing director of Volkswagen SA, says that economies of scale have to be achieved in South Africa to ensure a motor industry that is viable in the long term. This can only be achieved when substantial volumes for domestic and export markets are available. VWSA is encouraging its suppliers to enter into joint ventures with international companies or to obtain licensing agreements. This is creating opportunities for both local manufacturers and global companies wanting to enter the African and South African markets.

Jack Tarr, an industrelek advisor in the Eastern Cape, says the province has the resources and the people to make it a sought-after location for investment (Infocom, 2000a: 18). However, Mari Burger, business promotion manager for Eskom, states that the Eastern Cape needs to become more vocal about promoting its competitive advantages and drawing the attention of foreign investors (Infocom, 2000a: 18).
3.4.7 SOCIAL UPLIFTMENT

According to Eastern Cape Gateway 2000 Plus (2000c: 74), business can only thrive and grow if it based in a stable society. Recognising this, companies in South Africa are pouring millions into social upliftment projects.

3.4.8 HUMAN RESOURCES

According to Infocom (2000b: 14), Don Lane, financial director of Algorax, says that the challenges for the catalytic converter industry are cost, quality control and skills development.

Another implication and challenge to the industry is that an estimated 20% of South Africa’s economically active population is HIV-positive (Webb, 2000b: 20). This is likely to have large implications on the South African economy. The disease depletes the labour force, and if the skilled labour force is affected, it could mean a decrease in economic growth of up to two percent per annum. Webb (2000b: 20) states that it is essential that business throughout South Africa proactively looks into the problem and addresses this issue through policies and programmes.

3.5 SUMMARY

Chapter Three has assisted in addressing the third sub-problem on what knowledgeable people feel contribute to the competitive advantage of the catalytic converter industry cluster in the Eastern Cape. The information gathered for this chapter has been from knowledgeable people in the automotive industry and the catalytic converter industry cluster itself. The information gathered has been structured and related to the theory of Porter’s diamond and Porter’s competitive environment. Also, challenges for the Eastern Cape have been addressed.

Chapter Four will be an empirical study focused on the catalytic converter industry cluster in the Eastern Cape. The empirical study will continue to focus and relate the
findings to the theory of Porter’s diamond and Porter’s competitive environment, as well as the theory of industry clusters.
CHAPTER FOUR

THE EMPIRICAL STUDY, METHODS USED AND ANALYSIS OF DATA

4.1 INTRODUCTION

Chapter Two of the literature study analysed competitive advantage of a nation and the forces that yield competitive advantage. The cluster approach was analysed to show how this approach could contribute to competitive advantage in an industry. The information gained from these chapters helped answer the first two sub-problems:

- What does a literature study reveal about the competitive advantages of a region?
- What does a literature study reveal about the contribution of an industry cluster to the competitive advantage of a region?

Chapter Three analysed the catalytic converter industry cluster in the Eastern Cape and the challenges the cluster faces in order to remain globally competitive. Chapter Three has assisted in resolving sub-problem three, namely – “What factors do knowledgeable people feel contribute to the competitive advantage of the catalytic converter industry cluster in the Eastern Cape?”

Information gathered from the empirical study will ascertain what factors are the most important for competitive advantage of the catalytic converter industry in the Eastern Cape. The information from the empirical study will highlight challenges and issues the cluster may need to address in the future. This information, together with the information gained in the literature study, will help formulate a strategy the catalytic converter industry cluster in the Eastern Cape needs to adopt to sustain competitive advantage. The method and design of the empirical study will be addressed in this chapter.
4.2 THE EMPIRICAL STUDY

Data obtained from the empirical study will help resolve sub-problem three and four, namely:

- What factors do knowledgeable people feel contribute to the competitive advantage of the catalytic converter industry cluster in the Eastern Cape?
- What strategy does the catalytic converter industry cluster in the Eastern Cape need to adopt to sustain competitive advantage?

The empirical study used a questionnaire developed from the theoretical analysis in Chapter Two. The process for the empirical study was as follows:

4.2.1 THE QUESTIONNAIRE

The questionnaire was developed from the theoretical analysis derived from the literature study, as well as ensuring that the responses answered the sub-problems, and subsequently helped formulate a strategy to answer the main problem (See Annexure 4.1). Leedy (1997: 191) states that a commonplace instrument for observing data beyond the physical reach of the observer is the questionnaire. Leedy (1997: 191) also says the questionnaire is a tool which is needed to probe the minds or the attitudes, feelings or reactions of men and women.

The questionnaire was divided into nine sections. Section one comprises biographical data. Section two to nine comprises quantitative data. These sections will be discussed in more detail:

4.2.1.1 Biographical data: Section one

Section one was made up of questions of a biographical nature that offered choices for the respondent to tick. Questions in this section surveyed the number of employees, geographical location, and activities of the organisation in the catalytic converter
industry and the position of the respondent. Section one asked the respondent for general information regarding themselves and the organisations in which they were employed. This information is classed as independent variables and is used to facilitate comparisons with the dependent variables from section two to section nine.

4.2.1.2 Quantitative analysis: Section two to nine

The questions in section two to nine were designed to measure the concurrence of managers in the delimited area with Porter’s diamond and Porter’s competitive environment. Some questions have been asked to measure the concurrence of managers in the delimited area, to the industry cluster theory.

Section two was made up of questions on the geographic location of the facility in relation to the industry cluster. These questions offered choices for the respondent to tick. The respondent was asked to substantiate certain answers.

Section three required the respondent to choose two of the most important basic factors and advanced factors promoting competitive advantage for their organisations from a variety of factors.

Section four required respondents to record the degree to which they concurred with certain statements on their organisation and home demand on a three-point Likert-type scale.

Section five required respondents to record the degree to which they concurred with certain statements on their organisation and related and supporting industries on a three-point Likert-type scale.
Section six was divided into four subsections:

- **Section 6.1** required respondents to record the degree to which they concurred with certain statements on their organisation and firm strategy and structure and competitive advantage on a three-point Likert-type scale.
- **Section 6.2** was made up of questions on firm strategy and structure. These questions offered choices for the respondent to tick. The respondent was asked to substantiate certain answers.
- **Section 6.3** required respondents to record the degree to which they concurred with certain statements on their organisation and domestic rivalry and competitive advantage on a three-point Likert-type scale.
- **Section 6.4** required respondents to choose two of the most important core competences of their organisation from a variety of choices.

Section seven was made up of questions on the organisation’s competitive environment. These questions offered choices for the respondent to tick. The respondent was asked to substantiate certain answers.

Section eight required respondents to indicate the two most important government incentive schemes available when investing in the industry.

Section nine was divided into three subsections:

- **Section 9.1** required respondents to choose two of the most important advantages of the catalytic converter industry cluster for their organisation from a variety of choices.
- **Section 9.2** was made up of questions on the organisation’s opinion about foreign direct investment in the catalytic converter industry cluster. These questions offered choices for the respondent to tick. The respondent was asked to substantiate certain answers.
- **Section 9.3** required respondents to choose two of the most important challenges for the catalytic converter industry cluster.
4.2.1.3 Quantitative analysis: The Likert scale

Allison, O’ Sullivan, Owen, Rice, Rothwell and Saunders (1996:83) state that the Likert scale is the most used form of scaled items where the respondent chooses a point on a scale that best represent his/her view. The scoring for the scale used in the questionnaire is as follows; 1 indicates agreement, 2 indicates uncertainty and 3 indicates disagreement.

In order to determine the degree of support, the distribution of the data has been calculated using a statistical measure of the degree to which the distribution of the data is “skewed”. This will be discussed in more detail in order to understand the statistical concept better.

According to Keller and Warrack (1997: 105), in computing numerical descriptive measures of data, one of the most important measures is a measure of the central, or average, value of the data. The three measurements of central location to be considered are the mean, the median and the mode.

Keller and Warrack (1997: 106) define the mean as “the sum of measurements divided by the number of measurements”. The median is defined as “the value in a set of measurements that falls in the middle when the measurements are arranged in order of magnitude” (Keller & Warrack, 1997: 106). If there is an even number of measurements the median will be calculated from the mean of the two middle values. Keller and Warrack (1997: 110) define the mode of a set of measurements as “the value that occurs most frequently”.

For descriptive purposes, it is usually better to report the values of all three measures, because each conveys different information. The relative position of the mean and the median provide some information as to the shape of the distribution of measurements. The relationship of the mean, median and mode can be observed from frequency histograms.
Keller and Warrack (1997: 116) summarise the relationship as follows:

- If the distribution of measurements is symmetrical and unimodal, the three measures coincide.
- If the distribution is not symmetrical, it is said to be “skewed”. A histogram that is skewed to the right is positively skewed, indicating the presence of a small proportion of relatively large extreme values. A positively skewed histogram can be viewed as having a long tail extending to the right and a short tail extending to the left. A mean value that is greater than the median therefore provides some evidence of positive skewness.
- A histogram that is skewed to the left is negatively skewed. The extreme values affect the mean, more than they do the median, and the mean value is pulled more noticeably in the direction of the skewness. A negatively skewed histogram can be viewed as having a long tail extending to the left and a short tail extending to the right. A mean value less than the median is an indication of negative skewness.

For the sake of the study, a positive skewness would indicate acceptance of the statement, while a negative skewness would indicate non-acceptance. Results in the questionnaire that show no value for skewness have unanimous acceptance of the statement, hence no skewness is reflected.

The method used to calculate the statistics was a computer spreadsheet application called Excel 97, running on the Windows 95 suite of computer packages.

4.2.2 ADMINISTERING THE QUESTIONNAIRE

The author decided that the chosen suppliers must also be manufacturers, to give a more accurate and relevant response to the survey. Supplier information was obtained from lists and literature supplied by the Centre for Investment and Marketing in the Eastern Cape (CIMEC), the Department of Trade and Industry (DTI), and the author’s own knowledge of the catalytic converter industry. Twenty (20) surveys were sent out.
The author contacted each respondent telephonically to request the respondent to complete the questionnaire, before sending the questionnaire. E-mail and faxes were used to send the questionnaire, with a covering letter (see Annexure 4.2) to the respondent. The covering letter was to provide the respondent with the aim of the research, the time it would take to complete the questionnaire and the response cut-off date. The advantages of utilising e-mail and faxes is the low cost, the respondent anonymity, and the fact that the respondent may complete the survey at their leisure.

The questionnaire and covering letter were sent out on October 29, 2001, and respondents were asked to return the questionnaire by November 9, 2001.

4.2.3 THE RESEARCH RESPONSE

Of the 20 surveys originally sent, 16 surveys were returned by November 9, and all 16 were used for the purpose of the empirical study. This represents an 80% response rate. Emory and Cooper (1991: 333) state that 30% is an acceptable response rate for postal surveys.

After research into supplier information, it was found that the magisterial district of East London/Bisho played an important role in the Fish River Motor Industry Cluster and the exhaust manifold assembly industry (Eberspächer – Butterworth), but the district did not play a direct role in the catalytic converter industry cluster. The response to the survey came solely from the magisterial district of the Nelson Mandela Metropole.

4.3 RESULTS OF SECTION ONE OF THE QUESTIONNAIRE

The results for section one of the questionnaire are indicated in Tables 4.1 to 4.4. A brief discussion of the data is provided following each table.
Table 4.1: Organisation’s activity in the catalytic converter industry

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Canning</td>
<td>5</td>
<td>31,25</td>
</tr>
<tr>
<td>Coating</td>
<td>3</td>
<td>18,75</td>
</tr>
<tr>
<td>Component supplier to canners</td>
<td>7</td>
<td>43,75</td>
</tr>
<tr>
<td>Component supplier to coaters</td>
<td>1</td>
<td>6,25</td>
</tr>
<tr>
<td>TOTAL</td>
<td>16</td>
<td>100,00</td>
</tr>
</tbody>
</table>

Source: Results of analysis of organisation’s activity in the catalytic converter industry

Table 4.1 shows that most organisations that responded (43,75%) to the questionnaire fall into the category of component suppliers to the canners. Canners comprised 31,25% of the respondents. Only one canner in the Eastern Cape did not respond to the questionnaire. Coaters consisted of 18,75% of the respondents. All coaters in the Eastern Cape responded to the questionnaire. The one and only component supplier to the coaters responded (6,25%).
Table 4.2: Ownership of the organisation

<table>
<thead>
<tr>
<th>Ownership Type</th>
<th>Respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wholly owned subsidiary</td>
<td>8</td>
<td>50.00</td>
</tr>
<tr>
<td>International joint venture</td>
<td>3</td>
<td>18.75</td>
</tr>
<tr>
<td>Locally owned</td>
<td>5</td>
<td>31.25</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>16</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

Source: Results obtained from the analysis of ownership of organisation

Table 4.2 shows that most of the organisations that responded (50%) to the questionnaire are wholly owned subsidiaries. Organisations that are locally owned constituted 31.25% of the response rate, the rest of the respondents being from international joint ventures, constituting 18.75% of the response rate.
Table 4.3 shows that most of the organisations that responded (31.25%) fall into the group of 51 to 100 employees. The group with zero to 50 employees and the group with 101 to 300 employees both represented 25% each. Only 18.75% of respondents represented the organisations in the group with more than 300 employees. No organisations that responded fell into any of the groups with more than 500 employees.

<table>
<thead>
<tr>
<th>Number of Employees</th>
<th>Number of Organisations</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 50 employees</td>
<td>4</td>
<td>25.00</td>
</tr>
<tr>
<td>51 to 100 employees</td>
<td>5</td>
<td>31.25</td>
</tr>
<tr>
<td>101 to 300 employees</td>
<td>4</td>
<td>25.00</td>
</tr>
<tr>
<td>301 to 500 employees</td>
<td>3</td>
<td>18.75</td>
</tr>
<tr>
<td>501 to 1000 employees</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>&gt;1000 employees</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>16</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Source: Results obtained from the analysis of the size of the organisation
Table 4.4: Job position of the respondent

<table>
<thead>
<tr>
<th>Position of respondent</th>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Managing Director</td>
<td>5</td>
<td>31.25</td>
</tr>
<tr>
<td>Human Resources Manager</td>
<td>1</td>
<td>6.25</td>
</tr>
<tr>
<td>Quality Manager</td>
<td>7</td>
<td>43.75</td>
</tr>
<tr>
<td>Finance Manager</td>
<td>1</td>
<td>6.25</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>12.50</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>16</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

Source: Results obtained from analysis of the job position of respondent

Table 4.4 shows that most of the respondents (43.75%) were quality managers. Managing directors accounted for 31.25%, other 12.5%, human resource managers 6.25% and finance manager 6.25%. The author feels that the job positions of the respondents are acceptable for the survey.

4.4 RESULTS OF SECTION TWO OF THE QUESTIONNAIRE

The results for section two of the questionnaire are indicated in Tables 4.5 to 4.11. A brief discussion of the data is provided following each table.

Table 4.5: Proximity of customers to manufacturing facility

<table>
<thead>
<tr>
<th>Distance</th>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 – 5 km</td>
<td>1</td>
<td>6.25</td>
</tr>
<tr>
<td>6 - 10 km</td>
<td>2</td>
<td>12.0</td>
</tr>
<tr>
<td>11 – 50 km</td>
<td>11</td>
<td>68.75</td>
</tr>
<tr>
<td>51 – 300 km</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>&gt; 300 km</td>
<td>2</td>
<td>12.50</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>16</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

Source: Results obtained from analysis of proximity of customers to manufacturing facility
Table 4.5 shows that most of the companies that responded (68.75%) fall into the group of 11 to 50 kilometres. The group with between six and 10 kilometres represented 12.50%, the group of greater than 300 kilometres represented 12.5%, while the group of zero to five kilometres represented 6.25%. In addition to this, nine respondents showed that their organisations also exported to overseas customers. The respondents that represent the group of greater than 300 kilometres, only export to overseas customers.

Table 4.6: The organisation’s opinion as to whether the proximity of customers and suppliers was considered when positioning their manufacturing facility

<table>
<thead>
<tr>
<th>Answer</th>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>8</td>
<td>50,00</td>
</tr>
<tr>
<td>No</td>
<td>8</td>
<td>50,00</td>
</tr>
<tr>
<td>TOTAL</td>
<td>16</td>
<td>100,00</td>
</tr>
</tbody>
</table>

Source: Results obtained from analysis of organisation’s considerations in positioning of facility to proximity of customers and suppliers

Table 4.6 shows that half the respondents (50%) answered ‘yes’ to the question and half the respondents (50%) answered ‘no’. The organisations that answered ‘no’ were asked to substantiate their answer. For earlier established organisations, positioning was central to the related and supporting motor industry cluster in the Eastern Cape. Some of the organisations felt factors such as infrastructure more important than positioning. Some organisations closer to the end of the catalytic converter supplier chain did not find proximity to the customer central to positioning as most of their product was directly exported to the customer world-wide. One organisation positioned the facility in the Eastern Cape solely for governmental incentives.
Table 4.7: Transport modes for the export market

<table>
<thead>
<tr>
<th>Modes</th>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Sea</td>
<td>11</td>
<td>100,00</td>
</tr>
<tr>
<td>Road</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Rail</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>11</td>
<td>100,00</td>
</tr>
</tbody>
</table>

Source: Results obtained from analysis of transport modes of the organisation for the export market

Only 11 of the 16 organisations export their product. Table 4.7 shows that all respondents (100%) export using sea as their transport mode. In addition to this, three of the organisations use air as their export mode under time constraints.

Table 4.8: Distance from facility to point of departure for exported goods

<table>
<thead>
<tr>
<th>Distance</th>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 – 5 km</td>
<td>2</td>
<td>18,18</td>
</tr>
<tr>
<td>6 – 50 km</td>
<td>9</td>
<td>81,82</td>
</tr>
<tr>
<td>51 – 300 km</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>&gt; 300 km</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>11</td>
<td>100,00</td>
</tr>
</tbody>
</table>

Source: Results obtained from analysis of distance from facility to point of departure for exported goods

Table 4.8 shows that most of the organisations that responded (81,82%) fall into the category of six to 50 kilometres, while 18,18% of the respondents represented the group of zero to five kilometres.
Table 4.9: Consideration of point of departure for exported goods central to the positioning of the facility

<table>
<thead>
<tr>
<th>Answer</th>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>7</td>
<td>63.64</td>
</tr>
<tr>
<td>No</td>
<td>4</td>
<td>36.36</td>
</tr>
<tr>
<td>TOTAL</td>
<td>11</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Source: Results obtained from analysis of organisation’s consideration of point of departure for exported goods to the positioning of the facility

Table 4.9 shows that most of the organisations that responded (63.64%) answered ‘yes’ to the question and 36.36% answered ‘no’. The organisations that answered ‘no’ were asked to substantiate this answer. Some of the organisations’ position of facility was purely due to the related and supporting industry of the motor industry cluster, which happens to be close to a port. Other organisations said that no constraints were anticipated with point of departure, as road freight was cheap in the Eastern Cape.

Table 4.10: Existence of an established industry cluster in the role of location decisions

<table>
<thead>
<tr>
<th>Answer</th>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>10</td>
<td>62.50</td>
</tr>
<tr>
<td>No</td>
<td>6</td>
<td>37.50</td>
</tr>
<tr>
<td>TOTAL</td>
<td>16</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Source: Results obtained from analysis of existence of an established industry cluster in the role of location decisions of organisation

Table 4.10 shows that most organisations that responded (62.5%) answered ‘yes’ to the question and 37.5% answered ‘no’. The organisations that answered ‘no’ were asked to substantiate this answer. These organisations were established in the initial stages of the catalytic converter industry, or were an existing operation/industry in the Eastern Cape.
Table 4.11: The organisation’s opinion as to location giving the organisation a competitive advantage

<table>
<thead>
<tr>
<th>Answer</th>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>15</td>
<td>93,75</td>
</tr>
<tr>
<td>No</td>
<td>1</td>
<td>6,25</td>
</tr>
<tr>
<td>TOTAL</td>
<td>16</td>
<td>100,00</td>
</tr>
</tbody>
</table>

Source: Results obtained from analysis of the opinion of organisations that location gives it a competitive advantage

Table 4.11 shows that most of the organisations (93,75%) answered ‘yes’ to the question and 6,25%, relating to one organisation only, answered ‘no’. The organisation that answered ‘no’ was asked to substantiate this answer. This organisation was of the opinion that competitive advantage is not related to the location, but to technology and market share.

4.5 RESULTS OF SECTION THREE OF THE QUESTIONNAIRE

The results for section three of the questionnaire are indicated in Tables 4.12 and 4.13. A brief discussion of the data is provided following each table.

Table 4.12: The organisation’s two most important basic factors promoting competitive advantage

<table>
<thead>
<tr>
<th>Basic factors</th>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labour</td>
<td>5</td>
<td>15,625</td>
</tr>
<tr>
<td>Physical infrastructure</td>
<td>1</td>
<td>3,125</td>
</tr>
<tr>
<td>Cost of utilities</td>
<td>4</td>
<td>12,50</td>
</tr>
<tr>
<td>Physical resources</td>
<td>6</td>
<td>18,75</td>
</tr>
<tr>
<td>Availability of capital</td>
<td>1</td>
<td>3,125</td>
</tr>
<tr>
<td>Governmental incentives</td>
<td>12</td>
<td>37,50</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>9,375</td>
</tr>
<tr>
<td>TOTAL</td>
<td>32</td>
<td>100,00</td>
</tr>
</tbody>
</table>

Source: Results obtained from analysis of the organisation’s most important two basic factors promoting competitive advantage
Table 4.12 shows that the two most important responses gaining the highest number of votes are governmental incentives (37.5%) and physical resources (18.75%).

Table 4.13: The organisation’s two most important advanced factors promoting competitive advantage

<table>
<thead>
<tr>
<th>Advanced factors</th>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skill level of labour</td>
<td>3</td>
<td>9.375</td>
</tr>
<tr>
<td>Knowledge resource</td>
<td>8</td>
<td>25.00</td>
</tr>
<tr>
<td>Technological know-how of industry</td>
<td>13</td>
<td>40.625</td>
</tr>
<tr>
<td>Communications infrastructure</td>
<td>1</td>
<td>3.125</td>
</tr>
<tr>
<td>Organisational structure</td>
<td>6</td>
<td>18.75</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>3.125</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>32</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

Source: Results obtained from analysis of the organisation’s two most important advanced factors promoting competitive advantage

Table 4.13 shows that the two responses gaining the highest number of votes are technological know-how (40.63%) and knowledge resources (25%).

4.6 RESULTS OF SECTION FOUR OF THE QUESTIONNAIRE

The results of section four of the questionnaire are indicated in Table 4.15. A brief discussion of the data is provided following the table.
Table 4.14: Descriptive statistics for: Demand conditions and competitive advantage

<table>
<thead>
<tr>
<th>Statement</th>
<th>N</th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
<th>Skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>16</td>
<td>1,6875</td>
<td>1,0000</td>
<td>1,0000</td>
<td>0,71072</td>
</tr>
<tr>
<td>2</td>
<td>16</td>
<td>2,0625</td>
<td>2,0000</td>
<td>3,0000</td>
<td>-0,13599</td>
</tr>
<tr>
<td>3</td>
<td>16</td>
<td>1,1875</td>
<td>1,0000</td>
<td>1,0000</td>
<td>3,02973</td>
</tr>
<tr>
<td>4</td>
<td>16</td>
<td>1,4375</td>
<td>1,0000</td>
<td>1,0000</td>
<td>1,18312</td>
</tr>
<tr>
<td>5</td>
<td>16</td>
<td>1,6250</td>
<td>1,0000</td>
<td>1,0000</td>
<td>0,88603</td>
</tr>
<tr>
<td>6</td>
<td>16</td>
<td>1,8750</td>
<td>2,0000</td>
<td>1,0000</td>
<td>0,26787</td>
</tr>
</tbody>
</table>

Source: Results of section four, statements relating to demand conditions and competitive advantage, of empirical study

Refer to Annexure 4.3 for statements and results as percentage of the total respondents. Table 4.14 shows that for statements one, three, four, five and six, each statement has a positive co-efficient of skewness. This means that in addition to the respondents who agreed with the statements, the statements had a degree of acceptance. Statement two – “Competitive advantage is gained where firms are situated in a segment structure where home demand is large or highly visible”– showed a negative co-efficient of skewness. This conveys that the statement was not accepted by a large number of the respondents. The author feels that the catalytic converter industry demand is complex, as it is solely for export, and therefore could substantiate this to be the cause for the negative response to this statement.

4.7 RESULTS OF SECTION FIVE OF THE QUESTIONNAIRE

The results of section five of the questionnaire are indicated in Table 4.15. A brief discussion of the data is provided following the table.
Table 4.15: Descriptive statistics for: Related and supporting industries and competitive advantage

<table>
<thead>
<tr>
<th>Statement</th>
<th>N</th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
<th>Skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>16</td>
<td>1,31250</td>
<td>1,00000</td>
<td>1,00000</td>
<td>0,89526</td>
</tr>
<tr>
<td>2</td>
<td>16</td>
<td>1,12500</td>
<td>1,00000</td>
<td>1,00000</td>
<td>2,50946</td>
</tr>
<tr>
<td>3</td>
<td>16</td>
<td>1,00000</td>
<td>1,00000</td>
<td>1,00000</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>16</td>
<td>1,31250</td>
<td>1,00000</td>
<td>1,00000</td>
<td>2,08163</td>
</tr>
<tr>
<td>5</td>
<td>16</td>
<td>1,06250</td>
<td>1,00000</td>
<td>1,00000</td>
<td>4,00000</td>
</tr>
<tr>
<td>6</td>
<td>16</td>
<td>1,18750</td>
<td>1,00000</td>
<td>1,00000</td>
<td>3,02973</td>
</tr>
</tbody>
</table>

Source: Results of section five, statements relating to related and supporting industries and competitive advantage

Refer to Annexure 4.3 for statements and results as percentage of the total respondents. Table 4.15 shows that a unanimous agreement was obtained for statement three – “Competitive advantage in innovation and upgrading emerges from close working relationships between world-class suppliers and the industry”. Table 4.15 shows that all the other statements have a positive co-efficient of skewness. This means that in addition to the respondents who agreed with the statements, the statements had a degree of acceptance.

4.8 RESULTS OF SECTION SIX OF THE QUESTIONNAIRE

The results of section six of the questionnaire are indicated in Tables 4.16 to 4.21. A brief discussion of the data is provided following the table.

Table 4.16: Descriptive statistics for: Firm strategy and structure

<table>
<thead>
<tr>
<th>Statement</th>
<th>N</th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
<th>Skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>16</td>
<td>1,37500</td>
<td>1,00000</td>
<td>1,00000</td>
<td>1,77192</td>
</tr>
<tr>
<td>2</td>
<td>16</td>
<td>1,18750</td>
<td>1,00000</td>
<td>1,00000</td>
<td>1,77192</td>
</tr>
<tr>
<td>3</td>
<td>16</td>
<td>1,00000</td>
<td>1,00000</td>
<td>1,00000</td>
<td></td>
</tr>
</tbody>
</table>
Source: Results obtained from analysis of the interpretation of the organisation pertaining to firm strategy and structure and competitive advantage

Refer to Annexure 4.3 for statements and results as percentage of the total respondents. Table 4.16 shows that a unanimous agreement was obtained for statement three —“Creating and sustaining competitive advantage requires ongoing investments to upgrade skills, better understanding of the industry and exchanging ideas across functions”. Table 4.16 shows that all the other statements have a positive co-efficient of skewness. This means that in addition to the respondents that agreed with the statements, the statements had a degree of acceptance.

Table 4.17: Competitive strategy used by the organisation to obtain a competitive advantage

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-price</td>
<td>0</td>
<td>0,00</td>
</tr>
<tr>
<td>Differentiation</td>
<td>0</td>
<td>0,00</td>
</tr>
<tr>
<td>Combination of price and differentiation</td>
<td>12</td>
<td>80,00</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>20,00</td>
</tr>
<tr>
<td>TOTAL</td>
<td>15</td>
<td>100,00</td>
</tr>
</tbody>
</table>

Source: Results obtained from analysis of the competitive strategy used by the organisation to obtain a competitive advantage

One organisation chose not to participate in this question. Table 4.17 shows that most of the organisations that responded (80%) use the combination of price and differentiation strategy, while 20% responded with other strategies. The author felt it important to mention the other strategies which were a combination of price, quality and technology.
Table 4.18: Management practices of parent companies imposed on the organisation

<table>
<thead>
<tr>
<th>Answer</th>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>13</td>
<td>81,25</td>
</tr>
<tr>
<td>No</td>
<td>3</td>
<td>18,75</td>
</tr>
<tr>
<td>TOTAL</td>
<td>16</td>
<td>100,00</td>
</tr>
</tbody>
</table>

Source: Results obtained from opinion of organisations on the use of management practices from parent companies

Table 4.18 shows that most of the organisations that responded (81,25%) answered ‘yes’ to the question and 18,75% answered ‘no’. The organisations that answered ‘no’ were asked to substantiate this answer. No organisations chose to participate in substantiating their answers.

Table 4.19: The organisation’s opinion as to whether management practices world-wide have affected the firm’s core competences in a positive way

<table>
<thead>
<tr>
<th>Answer</th>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>13</td>
<td>81,25</td>
</tr>
<tr>
<td>No</td>
<td>3</td>
<td>18,75</td>
</tr>
<tr>
<td>TOTAL</td>
<td>16</td>
<td>100,00</td>
</tr>
</tbody>
</table>

Source: Results obtained from opinion of organisations as to whether the use of management practices world-wide has affected the firm’s core competences positively.

Table 4.19 shows that most of the organisations that responded (81,25%) answered ‘yes’ to the question and 18,75% answered ‘no’. The organisations that answered ‘no’ were asked to substantiate this answer. No organisations chose to participate in substantiating their answers.
Table 4.20: Descriptive statistics for: Domestic rivalry and competitive advantage

<table>
<thead>
<tr>
<th>Statement</th>
<th>N</th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
<th>Skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>16</td>
<td>1,6250</td>
<td>1,0000</td>
<td>1,0000</td>
<td>0,89526</td>
</tr>
<tr>
<td>2</td>
<td>16</td>
<td>1,9375</td>
<td>1,5000</td>
<td>1,0000</td>
<td>0,13836</td>
</tr>
<tr>
<td>3</td>
<td>16</td>
<td>1,3125</td>
<td>1,0000</td>
<td>1,0000</td>
<td>1,89000</td>
</tr>
</tbody>
</table>

Source: Results obtained from analysis of the interpretation of the organisation pertaining to domestic rivalry and competitive advantage

Refer to Annexure 4.3 for statements and results as percentage of the total respondents. Table 4.20 shows that all the statements have a positive co-efficient of skewness. This means that in addition to the respondents who agreed with the statements, the statements had a degree of acceptance. The author still feels that it should be noted that statement two – “Geographic concentration of rivals in a region increases the benefits of domestic rivalry” – received a 43,75% response from respondents who disagreed with this statement. The author feels the response is substantiated because of the complex demand situation of the catalytic converter industry. Business and contracts are won on a global basis.

Table 4.21: The organisation’s two most important factors promoting the organisation’s core competences in remaining a global competitor

<table>
<thead>
<tr>
<th>Basic factors</th>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Product innovation</td>
<td>8</td>
<td>25,00</td>
</tr>
<tr>
<td>2 Process technology innovation</td>
<td>7</td>
<td>21,875</td>
</tr>
<tr>
<td>3 Technological know-how of skilled labour</td>
<td>1</td>
<td>3,125</td>
</tr>
<tr>
<td>4 Quality systems management and cost of quality</td>
<td>8</td>
<td>25,00</td>
</tr>
<tr>
<td>5 Continuous improvement</td>
<td>7</td>
<td>21,875</td>
</tr>
<tr>
<td>6 Environmental and health and safety systems</td>
<td>1</td>
<td>3,125</td>
</tr>
</tbody>
</table>
Source: Results obtained from analysis of the organisation’s two most important factors promoting the organisation’s core competences in remaining a global competitor.

Table 4.21 shows that the two most important factors gaining the highest number of responses are product innovation (25%) and quality systems management and cost of quality (25%). Process technology innovation and continuous improvement both received a high response of 21.88% each.

4.9 RESULTS OF SECTION SEVEN OF THE QUESTIONNAIRE

The results for section seven of the questionnaire are indicated in Tables 4.22 to 4.29. A brief discussion of the data is provided following each table.

Table 4.22: The organisation’s opinion as to whether the entry barriers of the organisation’s manufactured component is low

<table>
<thead>
<tr>
<th>Answer</th>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>8</td>
<td>53,33</td>
</tr>
<tr>
<td>No</td>
<td>7</td>
<td>46,67</td>
</tr>
<tr>
<td>TOTAL</td>
<td>15</td>
<td>100,00</td>
</tr>
</tbody>
</table>

Source: Results obtained from opinion of organisations as to whether the entry barriers of the organisation’s manufactured component is low.

One organisation chose not to participate in this question. Table 4.22 shows that most of the organisations that responded (53.33%) answered ‘yes’ to the question and 46.67% answered ‘no’. Organisations that answered ‘no’ to the question were asked to substantiate their answer. Most of the organisations said that cumulative costs to enter the business are relatively high compared with other industries, as significant working capital is required. Some of the organisations specified that technological know-how is also a barrier to the industry. Some organisations specified that entry into
the industry was difficult, as customers needed to be persuaded to switch from existing suppliers.

Table 4.23: The organisation’s opinion on the investment costs in the industry being high

<table>
<thead>
<tr>
<th>Answer</th>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>13</td>
<td>81,25</td>
</tr>
<tr>
<td>No</td>
<td>3</td>
<td>18,75</td>
</tr>
<tr>
<td>TOTAL</td>
<td>16</td>
<td>100,00</td>
</tr>
</tbody>
</table>

Source: Results obtained from opinion of organisations on the investment costs in the catalytic converter industry as being high.

Table 4.23 shows that most of the organisations that responded (81,25%) answered ‘yes’ to the question and 18,75% answered ‘no’. The organisations that answered ‘no’ to the questions were asked to substantiate their answer. Some of the organisations specified that their operations involved relatively low investment because equipment is modular and interchangeable. Return on investment is high.

Table 4.24: The organisation’s opinion about the organisation’s bargaining power

<table>
<thead>
<tr>
<th>Answer</th>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>8</td>
<td>50,00</td>
</tr>
<tr>
<td>Low</td>
<td>8</td>
<td>50,00</td>
</tr>
<tr>
<td>TOTAL</td>
<td>16</td>
<td>100,00</td>
</tr>
</tbody>
</table>

Source: Results obtained from opinion of organisations about the organisation’s bargaining power

Table 4.24 shows that 50% of the organisations that responded answered ‘high’ to the question and 50% answered ‘low’. The organisations that answered ‘low’ to the question were asked to substantiate their answer. Some organisations share market share with other competitors. Price wars force some organisations to eliminate price negotiations and absorb increases in costs in order to keep business. Technical and licence agreements with OEMs overseas determine the securing of contracts locally.
Table 4.25: The organisation’s opinion about their suppliers’ bargaining power

<table>
<thead>
<tr>
<th>Answer</th>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>8</td>
<td>50,00</td>
</tr>
<tr>
<td>Low</td>
<td>8</td>
<td>50,00</td>
</tr>
<tr>
<td>TOTAL</td>
<td>16</td>
<td>100,00</td>
</tr>
</tbody>
</table>

Source: Results obtained from opinion of organisations about their suppliers’ bargaining power

Table 4.25 shows that 50% of the organisations that responded answered ‘high’ to the question and 50% answered ‘low’. The organisations that answered ‘high’ to the question were asked to substantiate their answer. Price wars force some organisations to eliminate price negotiations and absorb increases in costs in order to keep business. One organisation specified that if there was a second accessible supplier, switching costs would not be very high.

Table 4.26: The organisation’s opinion about the organisation’s involvement with directive buying from the OEM

<table>
<thead>
<tr>
<th>Answer</th>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>10</td>
<td>62,50</td>
</tr>
<tr>
<td>No</td>
<td>6</td>
<td>37,50</td>
</tr>
<tr>
<td>TOTAL</td>
<td>16</td>
<td>100,00</td>
</tr>
</tbody>
</table>

Source: Results obtained from opinion of organisations about directive buying from the OEM

Table 4.26 shows that most organisations that responded (62,5%) answered ‘yes’ to the question and 37,5% answered ‘no’. Only ten of the organisations are involved with directive buying from the OEM.
Organisations involved in directive buying only:

Table 4.27: The organisation’s opinion as to whether involvement in directive buying has had a positive effect on the organisation’s competitive position

<table>
<thead>
<tr>
<th>Answer</th>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>9</td>
<td>90,00</td>
</tr>
<tr>
<td>No</td>
<td>1</td>
<td>10,00</td>
</tr>
<tr>
<td>TOTAL</td>
<td>10</td>
<td>100,00</td>
</tr>
</tbody>
</table>

Source: Results obtained from opinion of organisations as to whether directive buying has had a positive effect on the organisation’s competitive position

Table 4.27 shows that most of the organisations that responded (90%) answered ‘yes’ to the question and 10% answered ‘no’. Organisations that answered ‘no’ to the question were asked to substantiate their answer. One organisation said that this was immaterial from a cost point of view, but was significant from a quality and logistics point of view.

Table 4.28: The organisation’s opinion as to whether the organisation is continually involved with new product development

<table>
<thead>
<tr>
<th>Answer</th>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>13</td>
<td>81,25</td>
</tr>
</tbody>
</table>
Table 4.28 shows that most organisations that responded (81.25%) answered ‘yes’ to the question and 18.75% answered ‘no’.

Table 4.29: The organisation’s opinion as to whether new technologies and products are being replaced on a continual basis

<table>
<thead>
<tr>
<th>Answer</th>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>16</td>
<td>100,00</td>
</tr>
<tr>
<td>No</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>16</td>
<td>100,00</td>
</tr>
</tbody>
</table>

Source: Results obtained from opinion of organisations as to whether new technologies and products are being replaced on a continual basis

Table 4.29 shows that all companies responded (100%) by answering ‘yes’ to the question.

4.10 RESULTS OF SECTION EIGHT OF THE QUESTIONNAIRE

The results of section eight of the questionnaire are indicated in Table 4.30. A brief discussion of the data is provided following the table.

Table 4.30: The organisation’s two most important government incentive schemes when investing in the industry at the time of investment

<table>
<thead>
<tr>
<th>Answer</th>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIDP</td>
<td>16</td>
<td>59.26</td>
</tr>
<tr>
<td>Tax holiday</td>
<td>3</td>
<td>11.11</td>
</tr>
<tr>
<td>DTI capital investment rebates</td>
<td>2</td>
<td>7.41</td>
</tr>
<tr>
<td>Tax incentives</td>
<td>3</td>
<td>11.11</td>
</tr>
</tbody>
</table>
Two organisations did not participate in this question. One organisation gave only one government incentive. Table 4.30 shows the most important responses gaining the highest amount of responses as the MIDP incentive (59.26%) and the tax holiday, with 11.11% and tax incentives with 11.11%.

4.11 RESULTS OF SECTION NINE OF THE QUESTIONNAIRE

The results of section nine of the questionnaire are indicated in Tables 4.31 to 4.35. A brief discussion of the data is provided following each table.

Table 4.31: The organisation’s opinion about the two most important advantages of the catalytic converter industry cluster in the Eastern Cape

<table>
<thead>
<tr>
<th>Basic factors</th>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Close proximity to suppliers and customers</td>
<td>11</td>
<td>36.67</td>
</tr>
<tr>
<td>2 Effective buyer-supplier relationships</td>
<td>3</td>
<td>10.00</td>
</tr>
<tr>
<td>3 Advanced factor creation and innovation throughout the industry</td>
<td>4</td>
<td>13.33</td>
</tr>
<tr>
<td>4 Promotion of new entry and investment into the industry</td>
<td>9</td>
<td>30.00</td>
</tr>
<tr>
<td>5 Other</td>
<td>3</td>
<td>10.00</td>
</tr>
<tr>
<td>TOTAL</td>
<td>30</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Source: Results obtained from analysis of the organisation’s opinion about the two most important advantages of the catalytic converter industry cluster in the Eastern Cape.
One organisation did not participate in this question. Table 4.31 shows the most important responses gaining the highest number of votes as the close proximity to suppliers and customers (36.67%) and promotion of new entry and investment into the industry (30%). The author felt it important to note that the other advantages given were related and supporting industries.

Table 4.32 The organisation’s opinion as to whether foreign direct investment has had a positive effect on the catalytic converter industry in the short term

<table>
<thead>
<tr>
<th>Answer</th>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>16</td>
<td>100,00</td>
</tr>
<tr>
<td>No</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>16</td>
<td>100,00</td>
</tr>
</tbody>
</table>

Source: Results obtained from the organisation as to whether foreign direct investment has had a positive effect on the catalytic converter industry cluster in the short term

Table 4.32 shows that all organisations that responded (100%) agreed with the question.

Table 4.33 The organisation’s opinion as to whether foreign direct investment has had a positive effect on the catalytic converter industry in the long term

<table>
<thead>
<tr>
<th>Answer</th>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>16</td>
<td>100,00</td>
</tr>
<tr>
<td>No</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>16</td>
<td>100,00</td>
</tr>
</tbody>
</table>

Source: Results obtained from the organisation as to whether foreign direct investment has had a positive effect on the catalytic converter industry cluster in the long term

Table 4.33 shows that all organisations that responded (100%) agreed to the question.

Table 4.34 The organisation’s opinion as to whether an industry cluster should have member organisations that are located within a 300km radius
Table 4.34 shows that most of the organisations that responded (62.5%) answered ‘no’ to the question and 37.5% answered ‘yes’. Organisations that answered ‘no’ were asked to substantiate their answer. One organisation said it would be preferable but was not essential. One can still be competitive as efficient organisations can be effectively utilised even when abroad. Transportation is also quick and at low cost. Some organisations said that economy of scale was more important.

Table 4.35 The organisation’s two most important challenges facing the catalytic converter industry cluster in the Eastern Cape

<table>
<thead>
<tr>
<th>Basic factors</th>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Improving buyer-supplier relationships</td>
<td>3</td>
<td>9,375</td>
</tr>
<tr>
<td>2 Improving health and safety awareness</td>
<td>1</td>
<td>3,125</td>
</tr>
<tr>
<td>3 Improving organisation structure</td>
<td>4</td>
<td>12,50</td>
</tr>
<tr>
<td>4 Promotion of new entry and investment into the industry</td>
<td>10</td>
<td>31,25</td>
</tr>
<tr>
<td>5 Skills development of labour force</td>
<td>11</td>
<td>34,375</td>
</tr>
<tr>
<td>6 Other</td>
<td>3</td>
<td>9,75</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>32</strong></td>
<td><strong>100,00</strong></td>
</tr>
</tbody>
</table>

Source: Results obtained from analysis of the organisation’s two most important challenges facing the catalytic converter industry cluster in the Eastern Cape.

Table 4.35 shows the highest number of responses favoured skills development of labour force (34.38%) and promotion of new entry and investment into the industry (31.25%). The author felt it important to note that the other challenges given were
promotion and extension of the MIDP incentive and eliminating strikes by the labour force.

4.12 SUMMARY

The aim of this chapter was to set out the planning, the execution and results of the empirical component of the study. The empirical study was designed in an attempt to persuade respondents to supply information that would assist the author in answering the last two sub-problems and to compile a strategy to answer the main problem. The questionnaire was based on the models mentioned in the literature study in Chapter Two and sent to the research population defined. A covering letter accompanied the questionnaire when faxed or e-mailed to the respondents. In the discussion, reference is made to the fact that a satisfactory response rate was gained from respondents, of which a reference is provided, and to the satisfaction of the author with the job position of the respondents in the organisations.

Results and interpretations for each question were tabled and statements analysed by means of a skewness test. It can be stated that the information provided to a large degree supports that of the literature study, although there are a few disparities, which is to be expected. All statements analysed on the three-point Likert-type scale, but one, had either unanimous agreement or a positive coefficient of skewness. As a result, the empirical study, with the literature study will form the basis of the following chapter, which integrates the two studies and suggests a strategy for the catalytic converter industry cluster in the Eastern Cape to sustain competitive advantage.
CHAPTER FIVE

AN INTEGRATION OF THE FINDINGS OF THE EMPIRICAL SURVEY
WITH THE THEORETICAL SURVEY DEVELOPED FOR THE STUDY,
RECOMMENDATIONS AND CONCLUSIONS

5.1 INTRODUCTION

The aim of this chapter is to integrate the findings of the literature study with those of
the empirical survey to uncover similarities and differences between the two, in an
effort to resolve the fourth sub-problem which is:

What strategy does the catalytic converter industry cluster in the Eastern Cape need to
adopt to sustain competitive advantage?

The above sub-problem will be answered in the content section of this chapter under
the sub-heading: The development of a strategy for the catalytic converter industry
cluster to sustain competitive advantage in the Eastern Cape.

Once the findings of the literature study and empirical study are integrated and a
strategy is developed, recommendations as to other areas of research and potential
problems encountered in this study will follow. A conclusion will close the chapter
with comments on the overall position of the catalytic converter industry cluster,
compared with the theoretical models as described in the literature study.

5.2 AN INTEGRATION OF THE FINDINGS OF THE EMPIRICAL
SURVEY WITH THE THEORETICAL SURVEY DEVELOPED FOR
THE STUDY

A theoretical model of national competitive advantage and the competitive
environment was discussed in Chapter Two. This resolved the first sub-problem of the
study – “What does a literature study reveal about the competitive advantages of a
region?” The competitive advantage of cities and regions and the cluster approach in
competitive industries and the application thereof was also discussed in Chapter Two. This resolved the second sub-problem – “What does a literature study reveal about the contribution of an industry cluster to the competitive advantage of a region?” Based on and related to the theory in Chapter Two, the competitive advantage of the catalytic converter industry cluster in the Eastern Cape was discussed in Chapter Three. Sources of information for Chapter Three were obtained from knowledgeable people in the automotive industry. This assisted in resolving sub-problem three – “What factors do knowledgeable people feel contribute to the competitive advantage of the catalytic converter industry cluster in the Eastern Cape?” Based on the information obtained from Chapter Two and Chapter Three, a questionnaire was developed using the model of competitive advantage, namely – Porter’s diamond, the competitive environment and the theory of industry clusters as the basis for the questionnaire. The questionnaire was sent to knowledgeable people in the catalytic converter industry in the Eastern Cape and was designed to bring closure to sub-problem three and assist in resolving sub-problem four.

5.2.1 A REVIEW OF THE QUANTITATIVE ANALYSIS OF RESULTS WITH A VIEW TO THE CONSIDERATION OF THE ELIMINATION OF FACTORS WITH WEAK SUPPORT

This section will be divided into sub sections, which will be addressed as follows:

- National competitive advantage
- The competitive environment
- The industry cluster and competitive advantage
5.2.1.1 National competitive advantage: Porter’s diamond

All five attributes of Porter’s diamond will be discussed in more detail:

a) Factor conditions

Porter’s theory on basic and advanced factors shows that for basic factors in the catalytic converter industry in the Eastern Cape, the two most important factors are governmental incentives and physical resources (see Table 4.12). These findings are in agreement with Chapter Three, which mentions the low cost and abundance of physical resources in the Eastern Cape and the importance of the local and national governments’ influence throughout the motor industry. For advanced factors in the catalytic converter industry cluster in the Eastern Cape, the two most important factors are the technological know-how of the industry and knowledge resources (see Table 4.13). These findings are in agreement with Chapter Three, which mentions the importance of technology, technological know-how and innovation. It is also one of the main causes of creating advantage, as mentioned by Porter in Chapter Two.

(b) Demand conditions

For statements relating to Porter’s diamond on demand conditions, the quantitative results obtained from the empirical study showed that not all statements were supported (see Annexure 4.3 for statements and results as a percentage of the total respondents). Table 4.14 shows that statement two – “Competitive advantage is gained where firms are situated in a segment structure where home demand is large or highly visible” – showed a negative coefficient of skewness. This means that a large number of respondents did not agree with this statement. The rest of the statements show a positive coefficient of skewness. This means that the statements had a degree of acceptance. The author feels that Porter’s statements on demand conditions related to the catalytic converter industry cluster in the Eastern Cape, had a fair degree of uncertainty by respondents. The reason being that the demand for the catalytic converter industry cluster is not local. All demand is for the export market. Even though this demand has created home demand down the external value chain, many of
the respondents do not perceive this as such. Table 4.14 shows that statement three – “Proximity, both physical and cultural, to sophisticated and demanding buyers helps a country’s firms perceive new need and stimulates competitive pressure” – was well supported, with 87.5% of the respondents agreeing with this (see Annexure 4.3). This supports Porter’s theory on clusters.

(c) Related and supporting industries

The results obtained from the empirical study showed that all quantitative results (see Table 4.15) showed that each statement relating to Porter’s diamond on related and supporting industries was well supported. Annexure 4.3 shows a positive coefficient of skewness for all these statements in the questionnaire. Literature obtained in Chapter Three also shows the benefits of the Fish River Motor Industry Cluster on the catalytic converter industry.

(d) Firm strategy, structure and rivalry

The results obtained from the empirical study showed that all quantitative results (see Table 4.16) showed that each statement relating to Porter’s diamond on firm strategy and structure was well supported. Annexure 4.3 shows a positive coefficient of skewness for all these statements in the questionnaire. Table 4.17 shows that most of the respondents (80%) use a strategy which is a combination of price and differentiation. As per Table 2.1, combining the two strategies would require complex core competences and management styles by organisations that fall into this category, more so than organisations adopting either of the strategies. In Table 4.19, most of the respondents (81.25%) agreed that the use of management practice world-wide has benefited the organisation in achieving its core competences. In Table 4.21, it can be stated that the three major factors that relate to the catalytic converter industry in remaining competitive are quality systems management and cost of quality, continuous improvement and process technology innovation. These findings are in agreement with Porter’s theory on creating and sustaining competitive advantage mentioned in Chapter Two.
The results obtained from the empirical study showed that all quantitative results (see Table 4.20) showed that each statement relating to Porter’s diamond on domestic rivalry shows a positive coefficient of skewness. For statement two – “Geographic concentration of rivals in a region increases the benefits of domestic rivalry” – only 50% of the respondents agreed with this statement, 6.25% of the respondents were uncertain and 43.75% disagreed (see Annexure 4.3). The author feels this section overall showed a degree of uncertainty by respondents. The reason is that the demand for the catalytic converter industry cluster is not local, hence respondents may not perceive rivalry to be domestic, but international.

5.2.1.2 The competitive environment

Porter’s competitive forces that yield competitive advantage will be discussed in more detail:

(a) Threat of new entrants

The results obtained from the empirical study on the threat of entry show that 53.33% (see Table 4.22) of respondents indicated that entry barriers into the catalytic converter industry are low. Chapter Three mentions that entry barriers from a government point of view are low, but 46.67% (see Table 4.22) of the respondents indicated otherwise, as capital investment costs of the industry are relatively high. This is confirmed in Table 4.23, where 81.25% of the respondents say that the investment costs are high.

The three most important government incentives, which have lowered barriers of entry, have been indicated in Table 4.30 as being the MIDP, tax holiday incentive and tax incentives for the automotive industry.

(b) The bargaining power of buyers and suppliers

The results obtained from the empirical study on the bargaining power of buyers and suppliers show that 50% (see Table 4.24) of the organisations have a high bargaining power and 50% (see Table 4.25) of the organisations’ suppliers have a low bargaining
power. Technical and licence agreements with OEMs overseas have played a role in the organisations securing contracts locally and will affect buyer or supplier bargaining power. Table 4.26 shows that 62.5% of the respondents are involved in directive buying from the OEMs. Table 4.27 shows that most of the respondents (90%) feel that directive buying has had a positive effect on the organisation’s competitive position.

(c) Threat of substitute products or services

The results obtained from the empirical study on the threat of substitutes show that unanimous agreement is found (see Table 4.29) that substitution for new technologies and products is occurring on a continual basis in the catalytic converter industry. Table 4.28 shows that most of the respondents (81.35%) concurred that their organisations are involved in new product development. The findings in the empirical study are in concurrence with product substitution mentioned in Chapter Three.

(d) Competitive rivalry

As mentioned in section 5.2.1.1 (d) the results obtained from the empirical study showed that all quantitative results (see Table 4.20) showed that each statement relating to Porter’s diamond on domestic rivalry shows a positive coefficient of skewness. The author feels this section overall revealed a degree of uncertainty by respondents. The reason is that the demand for the catalytic converter industry cluster is not local, hence respondents may not perceive competitive rivalry to be domestic, but international. The author did not find it necessary to investigate this section further.

5.2.1.3 The industry cluster and competitive advantage

Porter’s theory on industry clusters will be discussed in further detail:
(a) Location advantages

The results obtained from the empirical study (see Table 4.5) show that most of organisations that responded (68.75%) are within 11 to 50 km of their customers. Table 4.6 shows that 50% of the respondents considered the proximity to their customers when positioning their facility. Table 4.10 shows that most respondents (62.5%) included the existence of an established industry cluster in the role of location decisions. Most of the respondents (93.75%) are of the opinion that location has given their organisation a competitive advantage (see Table 4.11). These findings agree with Porter’s theory on competitive advantage of regions and clustering, mentioned in Chapter Two.

Respondents were asked whether the proximity of export facilities was a consideration in the choice of locale for their plant. Table 4.9 shows that 63.64% of the respondents answered that this was a consideration. For the organisations that export, Table 4.7 shows that all the organisations export by sea. Most of the organisations (81.82%) responded that the distance between their plant and the export harbour was between six and 50 km. The findings agree with the literature obtained on the location of the Eastern Cape and the importance of Port Elizabeth’s port in Chapter Three.

Table 4.34 shows that when respondents were asked whether an industry cluster should have member organisations that are located within a 300 km radius, most of the respondents (62.5%) answered ‘no’. The author feels this section overall showed a degree of uncertainty by respondents. The reason is that the demand for the catalytic converter industry cluster is not local, hence respondents may not perceive the industry to be only local, and may have biased opinions. Some of the organisations that answered ‘no’ to the question said it would be preferable, but it was not essential.
(b) **Advantages of the cluster**

Table 4.31 shows that the two most important advantages of the catalytic converter industry cluster in the Eastern Cape are the close proximity to suppliers and customers and the promotion of new entry and investment into the industry. These findings are in agreement with Porter’s theory of clusters mentioned in Chapter Two and Chapter Three, which quotes examples of new entry into and investment in the region. Table 4.32 and Table 4.33 show that respondents were in unanimous agreement that foreign direct investment had a positive effect on the catalytic converter industry cluster of the Eastern Cape in the short and long term respectively.

When addressing future challenges for the catalytic converter industry cluster, Table 4.35 shows that the two most important challenges are skills development of the labour force and promotion of new entry into and investment in the industry.

5.3 **THE DEVELOPMENT OF A STRATEGY FOR THE CATALYTIC CONVERTER INDUSTRY CLUSTER TO SUSTAIN COMPETITIVE ADVANTAGE IN THE EASTERN CAPE**

The strategy developed to sustain competitive advantage in the catalytic converter industry cluster in the Eastern Cape will be discussed under the following objectives:

5.3.1 **ACTIVE ROLE IN PROMOTION OF NEW ENTRY AND INVESTMENT**

The results of the literature study and the empirical survey both show the importance of local and national government as a key economic player in the development of the catalytic converter industry cluster in the Eastern Cape. It has been stated that government incentives, like the MIDP, have been effective tools in promoting new entry and investment and are one of the more important advanced factors in competitive advantage of the region. One of the challenges highlighted in Chapter Three and Chapter Four is that it is imperative that the region continues to attract as
much foreign capital into the industry as possible. Also, the promotion of new entry goes hand–in–hand. For this to happen, organisations need to get involved with this objective by actively participating with promotion institutions and co-operating with regional government. Organisations within the catalytic converter industry cluster need to work together and work with the government to meet their needs and promote their interests. These results will be mutually beneficial for the entire cluster and each organisation affected. Organisations need to identify core competences that are critical to the cluster’s successes, strengths and weaknesses. As a medium term application, initiatives need to be established to improve the Eastern Cape region’s ability to retain, establish and grow the industry. Organisations need to support the establishment of new companies, extend core competencies into new markets through diversification of existing companies and support the retention of existing companies, as well. These initiatives lead up to the long-term application of the industry cluster, which may give rise to new clusters within the region.

The author notes that the following organisations have an active role in promotion of new entry and investment into the region:

- Port Elizabeth Regional Chamber of Commerce and Industry (PERCCI)
- The Department of Trade and Industry (DTI)
- The Coega Development Corporation (CDC)
- The Centre for Investment and Marketing in the Eastern Cape (CIMEC)
- The Eastern Cape Development Corporation (ECDC)
- The Afrikaanse Handelsinstituut (AHI)
- The Eastern Cape African Chamber of Commerce (ECACOC)
- The Eastern Cape Socio-Economic Council (ECSECC)
- The East London Industrial Development Zone (ELIDZ)
- The Industrial Corporation (IDC)
- The Eastern Cape Tourism Board (ECTB)
The objective of promoting investment and new entry would be a long-term goal towards economies of scale, for both the domestic and export markets. Contact phone numbers of the above mentioned organisations can be found in the local telephone directory. Some of these organisations have affiliated members from automotive companies, who participate in forums discussing issues involving the promotion of investment and new entry. Such members come from senior management in organisations. The Fish River Motor Industry Cluster has been mentioned in Chapter Three as playing an effective role in strategic development by supporting the Eastern Cape to create an internationally competitive capability. Membership of the Fish River Motor Industry Cluster already boasts major local industry participants, several major component suppliers, the trade unions and regional and local governments.

Organisations in the catalytic converter industry also have the opportunity to advertise their competitive products to overseas companies, as the demand is international. This would be done through a strategy of differentiation and product quality with excellent service throughout the internal and external value chain. This is another way of promoting investment in the region.

5.3.2 TECHNOLOGY ADVANCEMENT AND INNOVATION

Technology advancement and innovation in the catalytic converter industry cluster in the Eastern Cape has become a necessity in creating and sustaining competitive advantage. Chapter Three mentions that innovation and continuous improvement in technology has become a necessity in order for organisations in the catalytic converter industry to remain globally competitive. The demand is international, and this has meant that local companies have invested large amounts in capital on state-of-the-art equipment to remain competitive, not with local competitors, but with other suppliers on a global basis. The empirical study (see Table 4.29) shows that all respondents
agreed that new technology and products were replacing older technologies and products on a continual basis. Also, in Table 4.21, respondents showed that product innovation (25%), process technology innovation (21.88%) and continuous improvement (21.88%) all received high responses as core competences of these organisations in remaining globally competitive. Through technology and innovation, organisations can differentiate their products and services. The objective here is to exceed customer expectations and capture new customers. Although technology tends to have high capital expenditure, the results can have a high return on investment. Innovation in processes improves output and reduces variation and costs. This would allow organisations to increase profit margins or lower selling prices to the customer, obtaining more price advantage than their competitors. This is in line with the competitive strategy used by many of the organisations in the catalytic converter industry: Table 4.17 shows that most of the organisations (80%) used a competitive strategy combining price and differentiation.

Technological advances and innovation can include improvement of an organisation’s information system. By improving information systems through the use of technology, accurate and rapid information can be obtained, which can be crucial to an organisation’s environment. The information received can also interpret which areas of the business need improvement – for example, data received in the production process can interpret areas where process improvement and innovation is needed and show which areas of improvement and innovation are of higher priority.

Organisations can define the short, medium and long-term goals of where they want to be in terms of technological advances. Often these goals will be aligned with the goals of parent companies and the business objectives of the organisation. The managers involved will be top, middle and line managers from all departments throughout the internal value chain. Because of the advantage of close proximity, the catalytic converter industry cluster in the Eastern Cape has the opportunity to actively participate with customers, suppliers and related and supporting industries to combine new innovative ideas. The objective of using the external value chain will be to ensure that the organisation understands what the customer wants and innovates activities throughout the value chain, which will be mutually beneficial to all the organisations
involved. The core competences needed by the organisation would be the short delivery time from product realisation to bringing the product to the market, the ability of the organisation to respond to market demands, and an effective R&D department.

Information obtained from data, internal and external non-conformities can be analysed. In order to prioritise and solve problematic areas, organisations could use the teamwork concept. This would be done through accomplishing tasks through small groups of people who are collectively responsible and whose work is interdependent. It is important that when using this concept a supportive team environment is created and that team dynamics is managed properly. The team must be given the necessary internal and external resources in order to accomplish its goals. It is imperative that goals and objectives be evaluated on a periodic basis, as technology itself changes constantly.

5.3.3 QUALITY AND CONTINUOUS IMPROVEMENT PROGRAMMES

It is to the credit of the leading suppliers that many have attained international quality certifications, such as ISO9000, ISO14000 and QS 9000. However, since these certifications have become a requirement by the OEMs in participating in the catalytic converter industry, they no longer give an organisation a competitive edge as they do not create a competitive advantage. In the empirical study, Table 4.21 shows that respondents indicate that quality systems management and cost of quality (25%) and continuous improvement (21.88%) are important core competences in remaining a global competitor. This falls in line with the competitive strategy adopted by most of the organisations in Table 4.17: Most of the respondents (80%) indicated the combination of price and differentiation strategy, while other respondents (20%) indicated a combination of price, quality and technology.

Quality impacts every aspect of an organisation’s competitive position, whether it be specialisation, technological leadership or cost leadership. Quality is a unique factor among the broad factors that affect competitive position. Quality cannot be copied. What any company does to create quality will differ from what any other company may do to create quality. Any other competitive action which a company may introduce can
be duplicated, at least in form. Quality improvement is a critical, ongoing process. In order for the organisation to continuously improve and differentiate at the lowest cost possible, the concept of Total Quality Management (TQM) is an effective philosophy that can be implemented.

Hugo, van Rooyen and Badenhorst (1997:104) define TQM as “the philosophy that every employee must be imbued with an attitude directed towards a continuous striving for improvement”. TQM may be defined as business excellence. This tool can be used throughout the internal value chain and encompasses all activities of a business. The goal of TQM implementation is that an organisation working towards customer satisfaction should endeavour to provide fault-free products and services. The focus of TQM is on internal and external customers. Internal customers within the organisation demand timely processing of the demand signal, on-time delivery and excellent quality of services and products provided by external suppliers. External customers demand reliable suppliers in order to ensure product quality, availability and quick response to time demands. Customers can often provide guidance, suggestions, technical assistance and support in developing and delivering products.

Organisations in the catalytic converter industry need to define short, medium and long-term goals for what they want to achieve from implementing continuous improvement programmes. It is imperative that commitment to quality be visible and be effectively communicated throughout the organisation. TQM opens doors to free movement of information and strives to ensure that everyone in the organisation knows that their opinions and ideas are valued. Middle management needs to drive the implementation of TQM programmes.

Harris and Schuler (1992:49) define a typical quality improvement project as follows:

- Identify and document current systems. An effective tool to use is the use of flow diagrams of the activity or process performed.
- Isolate potential projects for improvement and choose a project among them based on situation-specific criteria. An effective method of choosing potential
projects is to calculate the costs of poor quality in order to rank projects in priority of importance.

- Select and develop the team. The team approach has already been identified as an effective approach in Section 5.3.2. The team should have an appointed TQM facilitator, who will act as coach and mentor to the team. The rest of the team will consist of a team leader and the members of the team, which should cover staff from all departments.

- Assess the capability of the current process. The current quality standards used by the automotive industry already require the organisation to monitor process control through the use of control charts and capability indices. These methods can be used here.

- Diagnose the problem by identifying potential sources of trouble. The automotive quality standards already require organisations to use effective problem-solving techniques. An example of one of the techniques required by General Motors, Ford and DaimlerChrysler is a problem-solving tool called Failure Mode and Effects Analysis (FMEA). An FMEA can be used for design, process and procedure activities. FMEAs identify possible failure modes, identify the effects and causes of the failure modes, and identify what controls the activity has in place to prevent the failure mode from occurring. Each cause of the failure mode is ranked according to severity, detection and occurrence. High-risk priority numbers will obtain top priority in implementing preventive action programmes. The progress is monitored and updated on the FMEA, and the cause is again ranked to ensure that the risk priority number is low and that no further action is needed. Techniques such as the FMEA are available for application through quality training done by external quality consultants in the Eastern Cape.

- Experiment in the workplace to verify causes and solutions that have been identified. These solutions will be documented through techniques such as the FMEA.

- Solidify the project gains and document its results.

- Publicise the project’s successes and expand the quality-improvement effort.
It has to be stressed that an integral part of achieving quality standards and TQM improvement programmes is based on employee skills and development levels, as is stated in the literature study. The empirical study also shows that many of the respondents (34.38%) see skills development of the labour force as an important challenge for the catalytic converter industry cluster in the Eastern Cape (See Table 4.35). A good TQM programme for the organisations in the catalytic converter industry cluster would be to analyses potential areas in the process and system where labour lacks the required skills to perform activities effectively, or areas where development of technological know-how is needed. In Chapter Three we have established that the Eastern Cape has a choice of universities, technikons and technical colleges that could provide the appropriate training. Also, knowledge resources are available to develop specific training programmes tailored to the industry.

5.4 RECOMMENDATIONS

No potential problems were encountered in this study. The author feels the following recommendations need to be stated:

5.4.1 TYPES OF QUESTIONS USED

The author felt that the questionnaire could have been structured more effectively by organising the types of questions used in a more logical sequence. This would have made the questionnaire easier to analyse.

5.4.2 THE APPLICATION OF THE STUDY

It can be recommended that the strategy for the catalytic converter industry cluster in the Eastern Cape to sustain competitive advantage, be used for other automotive component industry clusters in the Eastern Cape. Other regions within South Africa will also benefit from the strategy, depending on how the region relates to Porter’s diamond and competitive forces. It is important that the strategists note the complex working of Porter’s diamond and take heed of the different factors within that specific industry cluster.
5.5 CONCLUSION

The infrastructure of the catalytic converter industry cluster is well developed as a global player. With this introduction into global markets, the South African Government and local authorities have seen the economic benefits of providing governmental incentives to promote investment in and entry into the region. Also the location of the Eastern Cape and its physical resources and infrastructure have been advantageous to the catalytic converter industry cluster. The increasing confidence of established companies and new investors has resulted in a large amount of technological investment and foreign capital investment establishing new companies in the cluster. The author has highlighted the involvement of the Fish River Motor Industry Cluster and other institutions in assisting development of the cluster and related and supporting industries.

From the above it is evident that there was acceptance for Porter’s model of competitive advantage and the cluster theory. Chapter Three and Four have highlighted challenges that organisations need to be aware of and that need to be addressed in the cluster. A strategy has been defined in order to ensure that the catalytic converter cluster sustains competitive advantage in the Eastern Cape. The three main objectives of the strategy are organisations having an active role in the promotion of new entry and investment, technology advancement and innovation, and implementation of quality and continuous improvement programmes.

The catalytic converter industry cluster in the Eastern Cape has evidence of its advantages as an industry cluster, as mentioned in Chapter Two. This has been mutually beneficial to all the organisations within the cluster, and resulted in a most successful and competitive industry in the Eastern Cape.
REFERENCES


Eastern Cape Development Corporation. Undated. About the Eastern Cape Province.


Eastern Cape Gateway 2000 plus. 2000o. World-class port, industrial site, to be developed at Coega. Pp. 37 to 40. Port Elizabeth: Great Advertising Sales Performers


ANNEXURE 4.1

QUESTIONNAIRE ON THE COMPETITIVE
ADVANTAGE OF THE CATALYTIC CONVERTER
INDUSTRY CLUSTER IN THE EASTERN CAPE
SECTION ONE: DEMOGRAPHICS

Please tick the appropriate block

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 In which region does the organisation in which you are employed operate?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nelson Mandela Metropole</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.2 Which of the following activities does the organisation perform in the catalytic converter industry:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canning</td>
<td>Coating</td>
<td>Component supplier to canners</td>
<td>Component supplier to coaters</td>
</tr>
<tr>
<td>1.3 Ownership of the organisation is:</td>
<td>Wholly owned subsidiary</td>
<td>International joint venture</td>
<td>Locally owned</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>-------------------------</td>
<td>----------------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>If answer is other, please specify</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.4 The number of employees in the organisation is:</td>
<td>1 - 50</td>
<td>51 - 100</td>
<td>101 – 300</td>
</tr>
<tr>
<td>If answer is other, please specify</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.5 Your area of responsibility in the organisation is:</td>
<td>Managing Director</td>
<td>Human Resources Manager</td>
<td>Quality Manager</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Finance Manager</td>
<td>Operations Manager</td>
</tr>
</tbody>
</table>
### SECTION TWO: GEOGRAPHIC LOCATION OF FACILITY

**Please tick the appropriate block**

<table>
<thead>
<tr>
<th>Question</th>
<th>0 –5 km</th>
<th>6 – 10 km</th>
<th>11 – 50 km</th>
<th>51 – 300 km</th>
<th>&gt;300 km</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 Are your major South African customers situated within the following distances from your manufacturing facility?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.2 Was the proximity to customer or supplier central to the positioning of the facility?</td>
<td>Yes</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>If the answer is no, please specify</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.3 If goods are supplied to the export market which of the following modes of transport are used?</td>
<td>Air</td>
<td>Sea</td>
<td>Road</td>
<td>Rail</td>
<td></td>
</tr>
<tr>
<td>2.4 In the case of export goods, what is the distance to the point of departure chosen in 2.3 above?</td>
<td>0 –5 km</td>
<td>6 – 50 km</td>
<td>51 – 300 km</td>
<td>&gt; 300 km</td>
<td></td>
</tr>
<tr>
<td>2.5 Was proximity to point of departure central when positioning the facility?</td>
<td>Yes</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>If the answer is no, please specify</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.6 Did the existence of an established industry cluster play a role in location decisions?</td>
<td>Yes</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>If the answer is no, please specify</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.7 Is it the opinion of the organisation that location gives it a competitive advantage?</td>
<td>Yes</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>If the answer is no, please specify</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### SECTION THREE: FACTORS PROMOTING COMPETITIVE ADVANTAGE

#### 3.1 Please tick the two most important basic factors that promote competitive advantage

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1.1 Labour: Quantity of labour available and cost of all levels of personnel, taking into account standard working hours</td>
<td></td>
</tr>
<tr>
<td>3.1.2 Physical infrastructure ie. transport systems, communications, health care, housing etc.</td>
<td></td>
</tr>
<tr>
<td>3.1.3 Cost of utilities ie. power, water, waste removal etc.</td>
<td></td>
</tr>
<tr>
<td>3.1.4 Physical resources ie. location, climate, time zone, location, geographic size, availability of raw materials</td>
<td></td>
</tr>
<tr>
<td>3.1.5 Availability of capital ie. the amount of capital investment available to finance industry</td>
<td></td>
</tr>
<tr>
<td>3.1.6 Governmental incentives eg. tax incentives, rebates on levies and charges etc.</td>
<td></td>
</tr>
</tbody>
</table>

Other, please specify
3.2 Please tick the two most important advanced factors that promote competitive advantage

<table>
<thead>
<tr>
<th>Factor</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3.2.1 Skill level of labour: The quantity of skilled labour available</td>
<td></td>
</tr>
<tr>
<td>3.2.2 Knowledge resource ie. scientific, technical and market knowledge and the capacity for research residing in universities and research facilities</td>
<td></td>
</tr>
<tr>
<td>3.2.3 Technological know-how of the industry</td>
<td></td>
</tr>
<tr>
<td><strong>3.2.4 Communications infrastructure</strong></td>
<td></td>
</tr>
<tr>
<td>3.2.5 Organisational structure with core competences focused on innovation</td>
<td></td>
</tr>
<tr>
<td>3.2.6 Other, please specify</td>
<td></td>
</tr>
</tbody>
</table>
SECTION FOUR: DEMAND CONDITIONS AND COMPETITIVE ADVANTAGE

Set out below are a number of statements pertaining to demand conditions and competitive advantage. Please indicate the agreement or disagreement with each statement by ticking the appropriate box.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Agree</th>
<th>Uncertain</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1 Countries gain a competitive advantage if home buyers pressure local firms to innovate faster and achieve a more sophisticated competitive advantage over foreign competitors.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4.2 Competitive advantage is gained where firms are situated in a segment structure where home demand is large or highly visible.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4.3 Proximity, both physical and cultural, to sophisticated and demanding buyers helps a country’s firms perceive new needs and stimulates competitive pressure.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4.4 Large home market size, where there are economies of learning, encourage firms to invest in facilities, technological development and productivity improvements.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4.5 Local firms enjoy serving the home market because of proximity, language, regulation and cultural affinities.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4.6 Multinational buyers prefer to deal with suppliers of products and services based in their home country.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
SECTION FIVE: RELATED AND SUPPORTING INDUSTRIES AND COMPETITIVE ADVANTAGE

Set out below are a number of statements pertaining to related and supporting industries and competitive advantage. Please indicate agreement or disagreement with each statement by ticking the appropriate box.

<table>
<thead>
<tr>
<th></th>
<th>Agree</th>
<th>Uncertain</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1 Supplier industries produce inputs that are widely used and important to innovation and internationalisation.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>5.2 An advantage of home-based suppliers is the ongoing coordination of linkages throughout the value chain.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>5.3 Competitive advantage in innovation and upgrading emerges from close working relationships between world-class suppliers and the industry.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>5.4 Competitive advantage in an industry is likely if a nation has competitive advantage in a number of related industries.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Internationally-successful related industry provides opportunities for information flow and technical interchange.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>5.6 The presence of a related industry provides a source of new entrants which bring a new approach to competing.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
SECTION SIX: FIRM STRATEGY, STRUCTURE AND RIVALRY AND COMPETITIVE ADVANTAGE

6.1 Set out below are a number of statements pertaining to firm strategy and structure and competitive advantage. Please indicate agreement or disagreement with each statement by ticking the appropriate box.

<table>
<thead>
<tr>
<th></th>
<th>Agree</th>
<th>Uncertain</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1.1 Labour management relationships are directly linked to the ability of the firm to improve and innovate.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>6.1.2 Industries succeed where organisational and individual goals are aligned with the sources of competitive advantage.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>6.1.3 Creating and sustaining competitive advantage requires ongoing investments to upgrade skills, better understanding of the industry and exchanging ideas across functions.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
6.2 Please tick the appropriate block

<table>
<thead>
<tr>
<th>6.2.1 Which competitive strategy does your firm use to obtain a competitive advantage?</th>
<th>Low price</th>
<th>Differentiation</th>
<th>Combination of price and differentiation</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>If the answer is other, please specify</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| 6.2.2 Have management practices of parent companies been imposed on your organisation? | Yes | No |
|---|---|
| If the answer is other, please specify | | |

| 6.2.3 Has the use of management practices world-wide affected the firm’s core competences in a positive way? | Yes | No |
|---|---|
| If the answer is other, please specify | | |

6.3 Set out below are a number of statements pertaining to domestic rivalry and competitive advantage. Please indicate agreement or disagreement with each statement by ticking the appropriate box.

<table>
<thead>
<tr>
<th>Agree</th>
<th>Uncertain</th>
<th>Disagree</th>
</tr>
</thead>
</table>

6.3.1 Vigorous domestic rivalry has induced your firm to improve efficiency, innovate and become better international competitors. | 1 | 2 | 3 |

6.3.2 Geographic concentration of rivals in a region increases the benefits of domestic rivalry | 1 | 2 | 3 |

6.3.3 Domestic rivalry creates advantages for the entire national industry that are external to any particular firm. | 1 | 2 | 3 |
6.4 Please tick the two most important factors that would best describe your firm’s core competences in remaining a global competitor

<table>
<thead>
<tr>
<th>6.4.1 Product innovation</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>6.4.2 Process technology innovation</td>
<td></td>
</tr>
<tr>
<td>6.4.3 Technological know-how of skilled labour</td>
<td></td>
</tr>
<tr>
<td>6.4.4 Quality systems management and cost of quality</td>
<td></td>
</tr>
<tr>
<td>6.4.5 Continuous improvement</td>
<td></td>
</tr>
<tr>
<td>6.4.6 Environmental and health and safety systems</td>
<td></td>
</tr>
</tbody>
</table>
## SECTION SEVEN: COMPETITIVE ENVIRONMENT

Please tick the appropriate block

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.1 Entry barriers of your component manufactured in the catalytic converter industry is low</td>
<td></td>
<td></td>
</tr>
<tr>
<td>If the answer is no, please specify</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.2 Investment costs in the catalytic converter industry are relatively high</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>If the answer is no, please specify</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.3 Your firm’s bargaining power is (eg. There are alternative sources of supply and switching costs of suppliers are low)</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>If the answer is low, please specify</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.4 Your supplier’s bargaining power is (eg. Switching costs of suppliers are high)</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>If the answer is high, please specify</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.5 Is your firm involved with directive buying from the OEM?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.6 If the answer is yes, has this had a positive effect on your competitive position?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>If the answer is no, please specify</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.6 Is your firm involved with new product development on a continual basis?</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>
7.7 Would you agree that new technologies and products are substituting older technologies and products on a continual basis? 

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If the answer is no, please specify

SECTION EIGHT: GOVERNMENT

Please indicate in the blocks below the two most important government incentive schemes when investing in the industry at the time of investment.

8.1

8.2

SECTION NINE: CATALYTIC CONVERTER INDUSTRY CLUSTER

9.1 Please tick the two most important advantages of the catalytic converter industry cluster in the Eastern Cape

<table>
<thead>
<tr>
<th>9.1.1 Close proximity to suppliers and customers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>9.1.2 Effective buyer-supplier relationships</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>9.1.3 Advanced factor creation and innovation throughout the industry</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>9.1.4 Promotion of new entry and investment into the industry</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>9.1.5 Other, please specify</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>
### 9.2 Please tick the appropriate answer

<table>
<thead>
<tr>
<th>9.2.1 Foreign direct investment has had a positive effect on the catalytic converter industry cluster in the short term.</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>If the answer is no, please specify</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.2.2 Foreign direct investment has had a positive effect on the catalytic converter industry cluster in the long term.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>If the answer is no, please specify</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.2.3 An industry cluster should only have member organisations that are located within a 300km radius</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>If the answer is low, please specify</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 9.3 Please tick the two most important challenges for the catalytic converter industry cluster in the Eastern Cape

| 9.3.1 Improving buyer-supplier relationships |  |
| 9.3.2 Improving health and safety awareness |  |
| 9.3.3 Improving organisational structure |  |
| 9.3.4 Promotion of new entry and investment into the industry |  |
| 9.3.5 Skills development of labour force |  |
| 9.3.6 Other, please specify |  |
Annexure 4.2

29 October 2001

For attention:

Dear Sir or Madam

RESEARCH INTO THE COMPETITIVE ADVANTAGE OF THE CATALYTIC CONVERTER INDUSTRY CLUSTER IN THE EASTERN CAPE

I am currently conducting research in pursuance of a Masters degree through the Port Elizabeth Technikon. The title of the research project is “The identification of factors that contribute to the competitive advantage of the catalytic converter industry cluster in the Eastern Cape”.

Since 1990, numerous coaters, canners and other suppliers to the catalytic converter industry have established themselves in the Eastern Cape. These companies have all contributed to the catalytic converter industry cluster in the Eastern Cape. I feel that the growth of this industry in such a short period and its major success in global competition are a great motivation for my research. The purpose of this study is to identify the competitive advantages of the catalytic converter cluster in the Eastern Cape and what future challenges the industry may still face in order to remain globally competitive.

The attached questionnaire is divided into nine sections that address issues relating to competitive advantage and industry clustering. It should take no more than 20 minutes to complete and will be an extremely useful tool in formulating an appropriate strategy for sustaining competitive advantage in the catalytic converter industry cluster.

Please return the completed questionnaire before November 9, 2001.

Thank you for your assistance.

T Manlee

Contact details:
Telephone: 041 4017404
Facsimile: 041 4521667
E-mail: tammym@asecsa.co.za
FREQUENCY TABLES OF THE RESULTS OF THE QUESTIONNAIRE

1. SECTION FOUR: DEMAND CONDITIONS AND COMPETITIVE ADVANTAGE

<table>
<thead>
<tr>
<th></th>
<th>Agree</th>
<th>Uncertain</th>
<th>Disagree</th>
<th>Skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Countries gain a competitive advantage if home buyers pressure local firms to innovate faster and achieve a more sophisticated competitive advantage over foreign competitors.</td>
<td>9</td>
<td>3</td>
<td>4</td>
<td>0.71072</td>
</tr>
<tr>
<td>2 Competitive advantage is gained where firms are situated in a segment structure where home demand is large or highly visible.</td>
<td>6</td>
<td>3</td>
<td>7</td>
<td>-0.13599</td>
</tr>
<tr>
<td>3 Proximity, both physical and cultural, to sophisticated and demanding buyers helps a country's firms perceive new needs and stimulates competitive pressure.</td>
<td>14</td>
<td>1</td>
<td>1</td>
<td>3.02973</td>
</tr>
<tr>
<td>4 Large home market size, where there are economies of learning, encourage firms to invest in facilities,</td>
<td>10</td>
<td>5</td>
<td>1</td>
<td>1.18312</td>
</tr>
</tbody>
</table>
technological development and productivity improvements.

5 Local firms enjoy serving the home market because of proximity, language, regulation and cultural affinities.

<table>
<thead>
<tr>
<th></th>
<th>Agree</th>
<th>Uncertain</th>
<th>Disagree</th>
<th>Skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10</td>
<td>2</td>
<td>4</td>
<td>0.88603</td>
</tr>
<tr>
<td></td>
<td>62.5%</td>
<td>12.50%</td>
<td>25.00%</td>
<td></td>
</tr>
</tbody>
</table>

6 Multinational buyers prefer to deal with suppliers of products and services based in their home country.

<table>
<thead>
<tr>
<th></th>
<th>Agree</th>
<th>Uncertain</th>
<th>Disagree</th>
<th>Skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>7</td>
<td>4</td>
<td>5</td>
<td>0.26787</td>
</tr>
<tr>
<td></td>
<td>43.75%</td>
<td>25.00%</td>
<td>31.25%</td>
<td></td>
</tr>
</tbody>
</table>

2. SECTION FIVE: RELATED AND SUPPORTING INDUSTRIES AND COMPETITIVE ADVANTAGE

1 Supplier industries produce inputs that are widely used and important to innovation and internationalisation.

<table>
<thead>
<tr>
<th></th>
<th>Agree</th>
<th>Uncertain</th>
<th>Disagree</th>
<th>Skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>11</td>
<td>5</td>
<td>0</td>
<td>0.89526</td>
</tr>
<tr>
<td></td>
<td>68.75%</td>
<td>31.25%</td>
<td>0%</td>
<td></td>
</tr>
</tbody>
</table>

2 An advantage of home-based suppliers is the ongoing coordination of linkages throughout the value chain.

<table>
<thead>
<tr>
<th></th>
<th>Agree</th>
<th>Uncertain</th>
<th>Disagree</th>
<th>Skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>14</td>
<td>2</td>
<td>0</td>
<td>2.50946</td>
</tr>
<tr>
<td></td>
<td>87.50%</td>
<td>12.50%</td>
<td>0%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Agree</th>
<th>Uncertain</th>
<th>Disagree</th>
<th>Skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>16</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Competitive advantage in innovation and upgrading emerges from close working relationships between world-class suppliers and the industry.</td>
<td>100.0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>4</td>
<td>Competitive advantage in an industry is likely if a nation has competitive advantage in a number of related industries.</td>
<td>13</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>81.25%</td>
<td>6.25%</td>
<td>12.50%</td>
<td>2,08163</td>
</tr>
<tr>
<td>5</td>
<td>An internationally-successful related industry provides opportunities for information flow and technical interchange.</td>
<td>15</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>93.75%</td>
<td>6.25%</td>
<td>0%</td>
<td>4,00000</td>
</tr>
<tr>
<td>6</td>
<td>The presence of a related industry provides a source of new entrants which bring a new approach to competing.</td>
<td>14</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>87.50%</td>
<td>6.25%</td>
<td>6.25%</td>
<td>3,02973</td>
</tr>
</tbody>
</table>
3. SECTION SIX: FIRM STRATEGY AND STRUCTURE AND COMPETITIVE ADVANTAGE

<table>
<thead>
<tr>
<th></th>
<th>Agree</th>
<th>Uncertain</th>
<th>Disagree</th>
<th>Skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Labour management relationships are directly linked to the ability of the firm to improve and innovate.</td>
<td>13</td>
<td>0</td>
<td>3</td>
<td>1,77192</td>
</tr>
<tr>
<td>2 Industries succeed where organisational and individual goals are aligned with the sources of competitive advantage.</td>
<td>13</td>
<td>3</td>
<td>0</td>
<td>1,77192</td>
</tr>
<tr>
<td>3 Creating and sustaining competitive advantage requires ongoing investments to upgrade skills, better understanding of the industry and exchanging ideas across functions.</td>
<td>16</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
4. SECTION SIX: DOMESTIC RIVALRY AND COMPETITIVE ADVANTAGE

<table>
<thead>
<tr>
<th></th>
<th>Agree</th>
<th>Uncertain</th>
<th>Disagree</th>
<th>Skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Vigorous domestic rivalry has induced your firm to improve efficiency, innovate and become better international competitors.</td>
<td>11</td>
<td>0</td>
<td>5</td>
<td>0,89526</td>
</tr>
<tr>
<td>2 Geographic concentration of rivals in a region increases the benefits of domestic rivalry.</td>
<td>8</td>
<td>1</td>
<td>7</td>
<td>0,13836</td>
</tr>
<tr>
<td>3 Domestic rivalry creates advantages for the entire national industry that are external to any particular firm.</td>
<td>12</td>
<td>3</td>
<td>1</td>
<td>1,89000</td>
</tr>
</tbody>
</table>