

UNIVERSITY OF KWAZULU-NATAL

**Investigating the effectiveness of manufacturing clusters on economic development in
eThekweni Municipality**

By

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Declaration

I, Tafadzwa Gabriel Mukeredzi, hereby declare that this research thesis is my original work, that all reference sources have been accurately reported and acknowledged, and that this document has not previously, in its entirety or in part, been submitted to any University in order to obtain an academic qualification.



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Abstract

The existing industrial policy in South Africa centres on the economy on two levels: a sectorial and spatial level. The spatial level approaches economic development in specific geographic locations while the sectorial approach relates to the manner in which industrial programmes concentrate on specific sectors i.e. industrial clusters. This change in programmes from targeting specific industries to an emphasis on industrial clusters has complemented the change in focus to export promotion under trade policy. Industry clusters are considered as having the potential to increase manufacturing performance and can provide the basis for sustainable competitive advantage for economic regions.

This thesis investigated whether clusters have had a positive impact on investment and consequently local economic growth in Durban. International experiences of both developed and developing countries illustrate the potential of clustering as a powerful strategy in increasing manufacturing performance and competitiveness. It can be concluded that manufacturing industry clusters in Durban benefit eThekweni local government. The major benefits and successes include securing markets, increased production capacity and productivity, increased turnover levels and revenues, job creation, increased research and development, proximity to suppliers and availability of an expert labour pool. In addition, better skills have been attracted to Durban, higher productivity levels and revenues, job creation and growth of company capacities, as well as a general growth of companies in the area have been recorded. However, study findings suggest that a significant number of these companies are fairly small and mainly in the clothing, textile and leather sector. The cluster inter-linkages are based on markets, competition and proximity of raw materials. Government support is through policy advocacy.

Despite these benefits of manufacturing industry clustering, the cluster initiative experiences challenges related to cost of labour, limited innovation around research and development, increased competition and limited access to financial support. Physical infrastructure, financial support as well as partnerships and collaborations with institutions to enhance research, training and development of critical skills would enhance their productivity and profits. The study calls for strengthening of collaborative frameworks to reinforce clusters and stimulate growth of a different approach to labour regulation taking into cognisance the needs of both the small businesses and employees.

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Dedications

This work is dedicated to my late father Antony Dennis Mukeredzi. I hope I have made you proud.

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1 Chapter One – Overview of background to the study

1.1 Introduction

Manufacturing industries play a significant role not only in terms of contributing to the Gross Domestic Product (GDP) but also in providing avenues for advancement of local economic development. To this end, eThekweni has demonstrated great potential in addressing its fundamental economic goals as outlined in the Industrial Development Plan (IDP). EThekweni has emerged as a well-established industrial hub of the KwaZulu-Natal province with a remarkably diversified economy. The city of eThekweni consists of 3.4 million people of whom 1.3 million are economically active (those members of the population who are either employed or actively seeking employment). In addition, eThekweni offers the largest port in the continent, with thriving tourism, transport and manufacturing sectors and a robust physical infrastructure base (Durban at Crossroads, 2000).

In the city's quest to continuously drive local economic development, a number of initiatives have been established. These programmes aim to provide specialized economic services to priority sectors within the provincial and the local economy. One such initiative is the development of Industry Clusters driven by industry.

Industry clusters are principally concentrations of competing and related firms across a value chain (Seeley, 2010). These groupings of supporting and related industries as Seeley claims, are inter-linked through customer, supplier and other relationships that work together to support, innovate, and upgrade the quality of a given product or service. Porter (2000) points out that cluster development occurs when individual firms aggressively invest in building strong bases of suppliers and buyers and invest heavily in creating innovative strategies.

Clustering attracts the economic infrastructure of an industry such as specialised business services, human resources and education institutions (Porter, 1998a, 1998b, 2000, 2003; Ketels, 2003). Together this critical mass of competing and related firms contribute to the overall competitiveness of an industry and subsequently a region. Industry clusters work on the premise that most successful business centres are economic systems where co-operation as well as competition are evident (Ketels, 2003; Makuwaza, 2001). Thus, firms

in a cluster cooperate at industry level while competing at firm level. At the heart of a competitive cluster is an environment of inter firm close co-operation. Cluster linkages are often reinforced through technology transfer initiatives, supplier, and other relationships which support and encourage innovation and upgrading, thereby enhancing a cluster's competitiveness and inter firm co-operation (Porter 2000).

While the phenomenon of industrial clustering has recently been fore-grounded globally, regionally and locally as one of the significant and impactful key drivers of economic growth of a geographic region (Ketels, 2003; Makuwaza, 2001; Porter, 2003; Porter, 2007; Seeley, 2010; Zhiming & Ning, 2004), issues around its effectiveness in Southern Africa have not been adequately interrogated and investigated. The key question to ask is "How effective is industry clustering in bringing in or pushing away investment to a specific area?" Understanding the significance and impact of clustering is critical to identifying where a region might be able to create greater economic activity and improve competitiveness. This study sought to address a specific research question that contributes to a wider discussion around industry clustering - and in this particular situation and context, into Southern Africa in general and, South Africa's Durban metro in particular.

1.2 Focus of the Study

The fact that industry clustering improves local economies with significant benefits for organisations (Delgado, Porter & Stern 2011) has been documented mainly in international and regional contexts. The focus of this study was to establish whether or not industry clustering can effectively improve economic development within the Durban metro area.

1.3 Problem Statement

Clustering refers to geographic concentrations of three or more sector specific firms intricately involved in value adding activities such as product manufacture, services and or information flow from raw material source to the final consumer (Porter, 2007). Delgado et al. (2011) and He and Fallah (2009) add that: Clustering

- improves local economies with respect to competitiveness and profitability due to the larger multiplier effect of firms;
- encourages companies to focus on their distinct competence; and
- Fosters company networking thus taking advantage of market opportunities arising.

With these and other benefits, industry clustering has become a dominant theme in industrial sector globally (Porter, 1998a, 2007). Consequently, the phenomenon of industrial clustering has, in recent years, interested researchers giving rise to a significant body of knowledge in first world economies (Zhiming & Ning, 2004). With this understanding, it therefore becomes imperative to focus local efforts in this direction. This study sought to explore the impact of manufacturing clustering on the South African economy generally, and Durban metro specifically. Studying industry clusters, it was hoped, would illuminate their effectiveness on the investment at large, but specifically on the manufacturing value chain. Such insights would hopefully enlighten economic policy makers in the development of sound and informed industry policy.

The overarching goal of this research was to explore the effectiveness of clustering on the Durban investment. In pursuit of this goal the research sought to answer the key question ‘How effective are manufacturing clusters as an investment push/pull factor on the Durban Metro?’

1.4 Objectives

To enable achievement of the above stated goal the research was guided by the following objectives: To

- understand the nature and status of existing manufacturing clusters;
- explore the effectiveness and benefits of clustering;
- determine the needs of manufacturing clusters;
- investigate the successes of manufacturing clusters; and
- understand the challenges and failures of manufacturing clusters.

1.5 Motivation for the Study

Industry clusters are viewed as a vehicle for increasing manufacturing performance and sustainable competitive advantage for nations (Porter, 2007; Zhihua Zeng ,2007). Against this perspective, an inaugural cluster was introduced by eThekweni municipality in Durban in the year 2000 and officially launched in 2003 (Durban at Crossroads, 2003). However, questions regarding the nature and status of the existing Durban metro manufacturing industry clusters, the effectiveness and benefits of clustering, the needs of manufacturing clusters as well as their successes and challenges have not been adequately explored. Such

knowledge was deemed essential for reviewing manufacturing industry clustering efforts undertaken by the eThekweni municipality which reviews were seemingly necessary if the effectiveness of industry clustering provision was to be enhanced. This study therefore emerged against the backdrop of an apparent absence of such knowledge.

This research was motivated by the desire to address these issues as a way of establishing the impact of manufacturing clustering on investment into Durban metro. Findings from the study would enhance policy and private sector initiatives with a view, further, to broadening, strengthening and/or building manufacturing industry clustering.

1.6 Limitations of the Study

Limitations of the study discussed in this section will be brief as elaboration is provided in Chapter three. This study was limited with respect to the adequacy of the sample. This limitation consequently impacted on the generalizability of findings, wider implications, validity and reliability.

1.6.1 Adequacy of the sample

The study sample was purposively extracted from manufacturing industries that were conveniently accessible to the researcher and operating within the existing Durban cluster initiative. Consequently this involuntarily left out essentially information-rich members of the population as the sample was not representative of the entire population under scrutiny (McCall, 1990; Rosenthal & Rosnow, 1991). Further, the non-random and cross-sectional nature of the data suggests that findings may be confined to the groups examined at the time of the research. Again the size of the sample (25) was small in relation to the entire population within manufacturing industry clusters in Durban.

1.6.2 Generalizability of Results

One significant limitation of qualitative research involves the ability to generalize results to other populations. Because qualitative research is often exploratory and tailored to the needs of small specific populations (Cohen, Manion & Morrison, 2000), it is difficult to extrapolate findings to more broader populations or to draw general or far-reaching conclusions from the findings. Hence with a small sample of 25 respondents, the study findings are not generalizable.

1.6.3 Wider Implications

Qualitative research has limitations with respect to wider or broader implications. Given that this approach is specific to one setting and is not generalizable, the researcher cannot make broad, sweeping recommendations (such as recommendations for policy change) based on the outcome of the research.

1.6.4 Reliability

Similar to the challenges surrounding wider implications and generalizability of results, qualitative research presents an additional set of issues involving reliability. As qualitative research is heavily dependent on the researcher's knowledge and interpretation, replication in a different context may not achieve the same results.

1.6.5 Validity

Another limitation of qualitative research relates to audiences accustomed to reviewing quantitative inquiry who may view qualitative exploration as less than valid in its approach, methods, or conclusions (Cresswell, 2008). Qualitative research deeply hinges and relies on the specific judgment and interpretation of the researcher (Cohen et al. 2000). Although this enhances reflection, the complexity of particular contexts or the knowledge of the researcher, may give rise to bias on the researcher's subjective opinions which may influence the conclusions drawn. Consequently, findings may be more of the researcher's opinions than research findings, impinging on issues of validity.

1.7 Structure of the dissertation

The rest of the study is organized as follows:

Chapter 2 provides a detailed review of literature that sets the scene, encompassing such aspects like the concept of clustering, types of industrial clusters, key reasons for the existence of clusters, cluster formation, stakeholder readiness and capacity for clustering policy, as well as evaluation of clustering policy. The chapter concludes by looking at case studies in clustering.

Chapter 3 presents research design and methodology. It describes and justifies the qualitative framework and methodology, sampling procedure and the rationale for such sampling decisions. The data collection process and data analysis are discussed as well as

the challenges met. Chapter 4 presents and discusses the main findings. Using the key issues emerging from the literature review, findings to the key research questions posed by the study are presented and discussed. The issues emerging from the discussion of findings conclude the chapter.

Chapter 5 analyses and discusses clustering by juxtaposing research findings and the literature. The chapter also identifies and discusses the lessons learnt and implications of the findings on the effectiveness of manufacturing industry clustering as push/pull factor in South Africa in general, and the industries studied in particular

1.8 Summary

This chapter sets the scene by introducing the study and locating it in a bigger picture. Exploring the effectiveness of industry clustering sheds some light on the wider processes related to economic development. The chapter started by introducing cluster theory and providing the context in which the study was done. It then proceeded to outline the motivation for the study. A short description of the focus of the study followed, highlighting the problem statement, the objectives and research questions. Highlights of the methodological limitations of the study conclude the chapter. The next chapter provides a review of related literature.

2 Chapter Two Review of Literature

2.1 Introduction

Industry cluster policies are receiving attention owing to the fact that there is an increasing need for innovative economic development strategies in both private and public sectors. This signifies a policy shift in focus, primarily because they are departing from company focused strategies that have characterised traditional trade and industry development programmes and moving more towards a sectorial approach to economic development and enhancing of regional development (Brennar & Andreas, 2006).

This research is premised on the notion that in order to understand the effectiveness of manufacturing clusters in general, and in the area under study in particular, it is necessary to review related literature around what, why, and how clustering occurs. Firstly, the chapter examines the concept clustering, cluster theory and the types of clusters. Secondly, it examines the key reasons for the existence of clusters and some weaknesses noted. Thirdly the importance of stakeholders' readiness and capacity for clustering is discussed. Thereafter, the chapter addresses the question of which industries tend to be, and ought to be clustered. Finally, the literature review examines case studies of clustering efforts around the world.

2.2 The Concept of Clustering

The phenomenon of industrial clustering has enormous significance across different industries and economic spheres (Zhiming & Ning, 2004). Porter (1998a, pp. 178) defines clusters as "Geographic concentrations of interconnected companies, specialised suppliers, service providers, firms in related industries, and associated institutions (for example universities, standards agencies, and trade associations) in particular fields that compete but also co- operate." The Department of Trade and Industries Report on Clusters in the United Kingdom (2001) defines clusters simply as groups of inter-related industries that have two key elements. Firstly, firms in the cluster must have a strong link along the value chain. Secondly, groups of inter-linked companies locate in close proximity to one another. The growth of clusters is broadly viewed as one of the significant and impactful key drivers of economic growth of a geographic region. Seeley (2010) defines clusters as geographic concentrations of three or more companies intricately involved, in a particular

field, in the downstream and upstream value adding activities such as product manufacture, services and or information flow from raw material source to the final consumer, implying that clusters encompass the whole value chain.

Porter (1998a) adds that clusters extend laterally to include other manufacturers that produce complementary products. In other words, clusters may also include industries related by a particular specialised skill, technologies or common inputs. Hence, a complete cluster may include in its value chain: governmental institutions, universities, accreditation agencies, specialised vocational training institutions and trade associations that can provide training, education, research, information and relevant technical support (Porter, 1998b). Industrial clusters therefore may be understood as groups of companies within close geographical proximity of each other, that share ideas, resources, skills and challenges all intended to support, improve output, growth, quality and relevance in their respective institutions (Porter 1998a, 1998b, 2000, 2003). Owing to the proximity among them – both in terms of activities and location – the companies in a cluster enjoy economic benefits of several types namely: access to specialised human resources and suppliers, knowledge spill overs, pressure for higher performance in head to head competition, and learning's from the close interactions with specialised customers and suppliers (Ketels, 2003).

Clustering has in recent years interested researchers and a significant body of evidence on industrial clustering has been observed and sufficiently recorded in first world economies (Zhiming & Ning, 2004). This body of literature contains a number of conflicting slants to clusters that have been advanced both in concept and in practical application (Michèle, 2011). This is hardly unexpected given the disconnects in the categorizations of clusters. Consequently, significant discourse has emerged surrounding the actual definition and identification of clusters, as well as the factors driving their development. One of the outcomes of these scholarly debates alluded to above is the realization that one may conceive different classifications of clusters based on the emphasis or significance attached to a particular dimension of the industry cluster under investigation. In addition, specific primacies, practicalities and divergent views will influence policy makers and authors to stress certain aspects of clustering over others. This however, does not devalue the cluster concept; rather, it enhances the importance of the cluster theory for both government and business (Makuwaza, 2001).

2.3 Common Themes in Cluster Theory

There are a number of themes in the classification of an industry cluster, none of which are mutually exclusive. Firstly, there is common understanding that industry groups are dynamic in nature (Makuwaza, 2001). Ideally clusters are characterised by interaction as well as functional relationships between companies along a value chain (Porter, 2000). Both Rosenfeld (1997) and Doeringer and Terkla (1995) cited in Makuwaza (2001) refer to the role of social interaction and the development of practical, working relationships within clusters. Secondly, in the majority of industrial cluster definitions, there is consistent reference to the locational scope of the cluster, and the significance of spatial proximity (Porter, 2003). Despite the fact that geographic scope is important in defining clusters, every cluster has different geographic requirements. There is therefore no standard definition of the appropriate geographic scope of a cluster (Michèle, 2011).

A third common theme in the literature is acknowledging the wider context in which individual firms operate (Ketels, 2003). The priority should, therefore, be on looking beyond individual industries. It appears that a majority of authors (Porter 1998a, 2000, 2003, Ketels, 2003 and Seeley, 2010) are in favour of an expansive definition of clusters, defining clusters by both horizontal and vertical relationships, including both direct and indirect linkages (Michele, 2011). Many practitioners in reality, however, have merely based their definition of industry clusters on the concentration of employment in a single industry (Michele, 2011). This approach overlooks the functional relationships between industries, as well as the interdependent and dynamic relationships that make clusters so distinctive (Porter, 2003).

Lastly, another prevalent theme in the literature is that of the role of social infrastructure in defining industry clusters (Rosenfeld, 1997 & Porter 1998). Social infrastructure is essential in facilitating the exchange of information (Rosenfeld, 1997). It is insufficient to merely have evidence of a cluster (i.e. geographic proximity), since this does not necessarily imply an effective cluster (Schmitz & Nadvi, 1999). In order to develop its dynamic nature, a strong cluster should also be characterised by social interaction, trust, and a shared vision (Schmitz & Nadvi, 1999).

2.4 Types of Industrial Clusters

Clusters vary in a number of aspects namely: the type of services and manufacturing value addition that they offer, the geographic dynamics they are subject to, the stage of development and, the business environment that surrounds them, constitute some of the different elements that distinguish industrial clusters (Ketels, 2003).

2.4.1 First Level Clusters

At the first level, clusters can be categorized by the type of manufacturing product or service offered. This is evident in the diverse type of clusters that exist today across dissimilar industries – automotive, clothing, financial services, tourism etc. Research (Thompson, 2002; Ketels, 2003; Zhiming and Ning, 2004) points out how different locations play different roles. Early debate on clusters focused on clusters with global significance and foremost world market positions, such as the financial clusters in New York and London, the media cluster in Hollywood, the Information Technology (IT) cluster in Silicon Valley, the automotive clusters in Southern Germany and Detroit, the telecoms clusters in Stockholm and Finland and the textile/fashion clusters in Northern Italy (Makuwaza, 2001). Ketels and Sölvell (2006) argue that this traditional classification of clusters has discouraged many regions with no realistic chance of achieving a similar level of performance in their clusters from pursuing cluster focused economic activity.

More recent scholarly work however, contends that even within a specified field there is room for many different successful clusters, each taking a unique individual role (Van der Linde, 2001, Michele, 2011). Clusters are thus, differentiated by their specialization in a particular stage in their field value chain, by their focus on specific geographic areas, or by targeting selected customer needs or market segments (Michele, 2011).

2.4.2 Second Level Clusters

At a second tier, clusters can be categorized by the type of geographic dynamics their constituent industries are subject to (Porter, 2003). Industries differ by the extent to which they can choose locations and this is limited by two main reasons: need to be close to their customers and the need to be close to natural resources.

In addition, there are some industries that are free to choose their location according to the quality of the cluster specific business environment (Ketels, 2003). These industries serve markets in many regions and countries and concentrate across geographies. The cluster effects in these industries are strong and their presence is a key part of the attractiveness of a specific location (Ketels, 2003).

2.4.3 Third Level Clusters

At the third tier clusters can be segmented by the stage of evolution they have reached (Porter, 2003). The stage of development depends on two criteria. Firstly it depends on the quality of the external business environment the cluster operates in. Many researchers have looked at industrial agglomeration in less developed economies (Porter, 1998a, Thomas, 2002, Madsen et al, 2003 and Brennar & Andreas, 2006), as well as underdeveloped regions of advanced economies such as rural areas or inner cities (Vlodecans-Marsal & Arauzo-Carod, 2012, Reid & Smith, 2013) and the literature implies that clusters are an influence at various stages of economic development but that in less advanced economic situations clusters will tend to be weak and narrow. Furthermore, the third stage of development hinges on the progress the cluster has made in mobilizing the potential of its business environment through active cooperation and other internal activities. Porter (2000) and Ketels and Sölvell (2006) concur that cluster dynamics do not occur automatically, but that they depend on and can be reinforced by purposeful and specific initiatives.

2.4.4 Cluster Topology

He and Fallah (2011) argue that the development and expansion of clusters is a dynamic, constantly changing paradigm, impacted by a number of significant external and internal factors. These factors may include the availability of a skilled and unskilled labour pool, enabling infrastructure, the fostering and nurturing of networks and collaborations, technology transfer and intense market rivalry (Porter, 2000). Clusters are unique and it is uncommon to find identical clusters. However, Markusen (1996) argues that there is a common thread that runs through different types of clusters that allows them to be grouped into four broad categories namely: Marshallian, Hub and spoke, Satellite platforms and state anchored clusters

Figure 2.1 outlines the characteristics of these four basic categories adapted from Markusen (1996: pp 300)

Cluster Type	Characteristics of member firms	Intra-cluster independencies
Marshallian	Locally owned Small and Medium Enterprises (SME)	Substantial inter-firm trade and collaboration, strong institutional support
Hub and Spoke	One or several large firms with numerous smaller suppliers and service firms	Cooperation is dominated by the larger firms as trade is usually conducted on their terms
Satellite Platforms	Medium and Large sized plants	Medium inter-firm trade and networking
State anchored	Large public or non-profit entity and related supplying and service firms	Restricted to purchase-sale relationships between public entity and suppliers

Figure 2.1 Markusen's Typology of Industry Clusters

In summary industry clusters differ significantly as shown in Table 2.1. The differences emanate from characteristics of the dominant sectors' extent of interdependencies among clustered firms, employment creation potential and the availability of governmental and institutional support (Barkley & Henry, 2001).

The essence of industry clusters lies in the ability to develop relationships through strategic partnerships between companies, customers, suppliers, research and education institutions, and the wider business community. The overall benefits of such well-structured and focused relationships include: 'an improvement in company performance, an increase in the emergence and growth of new business; increased innovation, and an ability to attract knowledge-based inward investment' (Makuwaza, 2001). The main objective of such relationships is to improve competitiveness by combining skills and resources through collaborative arrangements. Within these clusters are groups of inter-related industries that drive wealth creation, primarily through exports of goods and services (Porter, 1998a). This set of industries is related through buyer-supplier and supplier-buyer relationships, or by common technologies, common buyers or distribution channels, or common labour

pools (Porter, 1998b). Porter develops his argument further by identifying two general types of clusters: vertical and horizontal.

2.4.5 Vertical Clusters

Vertical clusters are made up of industries linked through buyer-supplier relationships, where within these clusters there are core companies as well as companies at earlier stages in the value-adding chain (Porter 1998b). An example of a vertical cluster would be the chain of supplier-assembler-distributor-customer.

2.4.6 Horizontal Clusters

Horizontal clusters are made up of industries, which might share a common market for end products, use a common technology or labour force, or require similar natural resources. Implicitly several industries or sectors can be part of such a cluster (Porter 1998b). Consequently one observes shared-resource relationships, in which a common transportation infrastructure or workforce can be shared. Examples of such clusters include a tourism cluster or a distribution cluster composed of trucking, air transport, transport services, and wholesale trade industries (Porter, 2000).

Together with vertical and horizontal relationships Rosenfeld, (1997) uses ‘the size of the cluster, the economic or strategic importance of the cluster, the range of products produced or services used, and the use of common inputs,’ to classify clusters. He points out that many viable clusters are situated in small inter-related industries. The employment concentrations of these clusters are not particularly striking, therefore defining clusters solely by the size of the constituent industries or the scale of employment has its obvious shortcomings. Rosenfelds’ (1997) definition of an industry cluster also accommodates elements of geographic proximity of inter-related or complementary firms, which actively interact as they share a specialised infrastructure, labour markets and services. Firms in the cluster also encounter common opportunities and threats (Rosenfeld, 1997).

2.5 Porter’s “diamond” framework

Porter (1998a) provides a basis for analysing competitive advantage. This framework is his so-called "diamond" which is made up of four criteria: demand conditions; supporting and related industries; factor conditions and firm strategy, structure and rivalry (Porter, 1998a).

Individually and as a system, these determinants of competitive advantage create the context in which a regions firms are created or compete.

Demand conditions

Porter (1998a, 1998b, 2000, 2003) argues that it is the type, rather than the size of local demand, which is vital. Successful clusters need to be competitive globally. However, clusters can derive considerable advantages from ‘leading edge’ or sophisticated local customers who work with suppliers to promote innovation (Porter, 1998b). This is ideally derived from the fact that local demand should lead to world demand. The implication thereof is that an ability to meet local demand creates the ability to serve global markets. At the same time, demanding customers can include both final customers and intermediate demand (Porter 1998a, 1998b, 2000, 2003).

Supporting and related industries

These can be industries along the manufacturing value chain (i.e. customers and suppliers) or those with shared geographic requirements. Suppliers with world class manufacturing capability can provide potential advantages, such as lower prices and simpler access to raw material inputs. The locational concentration of firms that have shared requirements enables a region to accomplish a high degree of development required to support cluster-specific factor conditions such as specialist skills, training programmes, logistics and technology development centres (Porter, 1998).

Factor Conditions

These can be divided into elementary (or generalised) and advanced (or specialist) factors. The former embrace for example, ‘transportation infrastructure and secondary learning institutions/schools’ (Porter, 1998). Authors such as Botham and Downes (1999) also include, ‘climate, raw materials, a literate, numerate and increasingly IT competent labour force.’ Basic factors form the foundation for the creation of expert factors. Because of this, continued investment in these factors is vital to creating a broad regional competitive advantage. It must be noted, however, that concentrating on basic factors is insufficient to develop the basis for, and maintaining competitiveness over the medium to long term. This is primarily based on the fact that competing firms can imitate the majority of these factors. Porter (1998a) contends that advanced factors are therefore more significant. Botham and Downes (1999) argue that the most critical considerations in establishing competitiveness

are cluster-specific matters, particularly cluster-focused intellectual property. Examples of these include: cluster-focused research and development initiatives; active innovation; an appropriately skilled pool of labour; excellent and certified workmanship and quality control; cluster branding and identity; and dedicated information and know-how relating to particular markets or industries (Porter 1998a).

Firm strategy, structure and rivalry

According to Porter (2000), this element takes into account the environment in which firms are built. It also takes into account the type and intensity of local market rivalry. He further points out that firm specific strategy and the nature of the operating business environment are interdependent. An alignment between style of leadership, nature of managerial style and the structure of the organisational types will deliver positive results when it is well-suited to both the operating environment and the industries' source of competitive advantage (Porter, 2000).

2.6 Difference between Industrial Clusters and Industrial Districts

Although industrial clusters and industrial districts are expressions that can be used interchangeably and given the broad literature on industrial districts, the difference between regional clusters and industrial districts is worth highlighting. Industrial districts, such as the Italian textiles/fashion districts are geographic concentrations of firms involved in interdependent production processes (McDonald, 2001). These companies which are frequently in the same industry or industry segment are entrenched in the local community. While industrial districts are premised on a solitary industry or even a single industry segment, regional clusters normally involve an array of related industries. It is critical to appreciate that an industry cluster is different from the typical classification of industry sectors. This is because it embodies the entire value-chain of a broadly defined industry from suppliers to end products, including supporting services and specialised infrastructure (McDonald, 2001).

2.7 Key reasons for the existence of Clusters

Organisations can benefit significantly from clustering. Porter (2000) argues that clusters develop a firm's profitability mainly if the business operates in an environment that is characterised by a concentration of competing and or cooperating firms, high quality and

dedicated inputs, ancillary industries and institutions as well as forward-thinking and challenging customers.

Clustering advances local economies and this can have substantial benefits for businesses. To begin with, the existence of superior specialised ability and the accessibility of support services drawn from a big pool of qualified personnel inside the cluster can result in cost savings (Delgado et al., 2011).

Strong public infrastructure and investment in infrastructure that is directed at specific value chains, coupled with financial establishments' knowledge of specific industries offers a facilitating environment for firms to develop and flourish, subsequently, this generates and enhances the potential for inter-firm technology and information transfer (Barkley & Henry, 2001).

Clustering enables an improved orientation and focus of resources (Porter, 1998a). This is due to the fact that clusters are broader than basic industry classifications and this creates an ability to capture salient inter-linkages between firms. This alignment of resources within the clusters according to Barkley and Henry (2001) allows the development of cluster programs with an intensified focus on creating a sustainable value chain. Thus, businesses within a cluster have a heightened impact on the local economy given that they have a larger multiplier effect (Barkley & Henry, 2001).

Globalisation has spawned an increased level of competition (Shields et al., 2004). This increased competitiveness has quickened the pace of innovation giving rise to more efficient manufacturing methodologies such as 'Just In Time' and 'Lean Manufacturing' leading to a transition from mass production to more specialised manufacturing by firms (Porter, 1998b). Thus clustering allows firms to focus more on areas of the value chain that they have a distinct competence above other firms' competence because complimentary and supplementary products and services are readily available within the cluster. It is also evident from literature that clustering encourages companies to network and take advantage of the overlap in services that they can provide and these organisations within a cluster can take advantage of opportunities that arise in the market (Porter, 1998; Porter, 1998a; Porter, 1998b; Porter, 2000; Barkley & Henry, 2001; Delgado et al., 2011; He & Fallah, 2011).

In a United States of America (USA) based research, cluster grounded companies stated increased competitiveness and profitability owing to their presence within a cluster (Barkley & Henry, 2001). Clusters in the style of Silicon Valley in the USA have been responsible for some of the paramount technological shifts that business has seen (Delgado et al., 2011). Such a grouping drops the barriers to entry in so doing allowing easier commercialisation of inventions than otherwise would be possible in old-fashioned narrow industries (Porter, 2003). Thus the survival ratio of firms in a cluster tends to be greater than average for newly formed firms within a cluster.

2.8 Cluster Formation

While successful clusters frequently advance naturally (e.g. The Fashion District of Northern Italy, the technology intensive Silicon Valley and the Wine Lands in the Western Cape), key policy makers in commerce or economic region can stimulate and impact on the development of a prosperous and competitive cluster (Porter, 2003). This requires a considerable process of collaboration between and among the stakeholders. Within this environment, an industry can formulate a cluster initiative, in which case industry stakeholders can syndicate efforts to exploit mutual projects to the benefit of the group as a whole, and therefore enhance the regions competitiveness (Porter, 2003). The principal logic is that stakeholders should determine areas where they can collaborate to make the industry sustainable, while at the same time still competing as discrete firms. The forte of the cluster, as opposed to specific incentives, in essence influences capital outlay decisions by downstream organisations (Delgado et al., 2010). Correspondingly, the competitive capability of these firms, which are usually small to medium sized, is, at the same time, governed by the robustness of the cluster. Minor companies generally lack the ability to appropriate and access a great number of the associated business activities, hence the need to leverage of the connections and relationships, which a viable cluster can develop (Barkley & Henry 2011). It is imperative to comprehend that the cluster initiative process is industry and not government driven. At the same time, such an initiative should not replace individual decisions by firms or governments (Barkley & Henry, 2011).

It is commonly acknowledged that the dominant factor for participating in a cluster lies in the pursuit to achieve company and industry competitiveness (Seeley, 2010). More specifically, participants in a cluster initiative can access significant value from having a

platform which assists in overpowering challenges facing the industry as a whole i.e. new market development, training and skills development, policy advocacy and better supply chain and logistics management. The capacity to recognize and systematically address problems or challenges in the industry is also greatly enhanced. For example, the common issues in skills, training and development, research and development (R&D) and infrastructure related limitations can be mutually dealt with (Barkley & Henry 2011). Additionally, being involved in a cluster process facilitates opportunities to institute relationships with other players in the industry in order to align strategic sourcing of raw material inputs and obtain favourable prices or price discounts, launch joint marketing initiatives and even to tender for large projects (Kostovoski, nd). Due to the fact that information regarding the industry or the economy at large is better accessed under the initiative, an understanding of the structure of the industry can be boosted through collective research and broad interaction (Kostovoski, nd). Finally, cluster initiatives not only improve admission to government initiatives and supply side interventions to an industry, they also offer a forum to contribute to government policy advocacy and formulation, especially policy directly impacting on the industry value chain such as tariff restructuring, trade dialogues, and supply side measures (Porter, 2007, Narayana, 2007).

2.9 Weaknesses of Clustering

Notwithstanding the apparent benefits of clusters and the significant positive benefits that accumulate to cluster based firms, a few flaws have been acknowledged. There is a discussion with respect to the boundaries and real description of a cluster (Michele, 2011). The current conceptual contexts and frameworks are expansive in nature, suggesting little harmony regarding the physical borders of clusters (Barkley & Henry, 2001). In addition to the commonly held broad classifications of clusters, there is little or no evidence to imply that research provides guidelines that define the power of linkages that should exist between firms to classify a set of relationships in a cluster – this, according to some experts, has apparently diluted the relevance and significance of clusters (Andersen & Bøllingtoft, 2011).

Laggards into a cluster may not achieve the same level of competitiveness as the inaugural cluster members (Barkley & Henry, 2001). The effect of this is to stifle growth of new

companies, and to a certain extent innovation and creativity within an economic region (Porter, 2003).

In addition to the indistinct boundaries of clusters, regions may run into difficulties in matching a geographical location with the nature of industry that is most appropriate to it (Porter, 1998a). While comprehensive economic analysis of a precise geographic region may disclose the competitive advantage of the region, the formation of clusters and the success thereof are shaped by other critical aspects that are difficult to quantify such as future market forces (Barkley & Henry, 2001, Andersen & Bøllingtoft, 2011).

2.10 Stakeholders' Readiness and Capacity for Clustering Policy

With regard to stakeholders' readiness and capability for supporting cluster initiatives, Barkley and Henry (2001) underscore that establishment of viable clusters is fashioned by the availability and accessibility of critical skills especially in the public office to recognize competitive advantages of regions and then choose a good fit of industries to create a sustainable cluster. Moreover, stakeholders ought to be prepared to address the competitive advantages of geographical regions as they may alter over time in response to external factors such as new tastes from emerging markets, progress of new institutions and the development of technology (Andersen & Bøllingtoft, 2011). In other words, local area officials must be conscious and appreciate the full spectrum of intricacies required and craft suitable strategies for the development of clusters. Further, readiness of stakeholders as it relates to creation of an enabling environment for a cluster to prosper needs to be addressed given the simple point that institutions that may be required to render some form of support to the cluster may not be prepared to do so or may not have the capacity to render such support (Porter, 2000).

Porter (2003) also recommends that institutions must embrace suitable measures to encourage the widespread success of clusters given the overall understanding that cooperation may be limited due to imperfect information, opportunistic conduct and firms having dedicated their resources and intellectual property elsewhere (Andersen & Bøllingtoft, 2011). Porter (2003) and Andersen and Bøllingtoft (2011) are in agreement that economic development through clusters may be fostered only if large total gains from the policy to support clusters are anticipated, that there is an equitable distribution of benefits across the entire value chain or companies within the cluster and that the required

costs are quite clear (Andersen & Bøllingtoft, 2011, Barkley & Henry, 2001). Porter (2000, 2003) further alludes to the fact that community participation and concurrence is a key element in the success of clusters (Schmitz & Nadvi, 1999). Against the backdrop, industrial/manufacturing clusters as a capacity building strategy and, a tool for successful investment in the entire industry value chain, can be an instrument for championing economic growth.

2.11 The role of government and cluster upgrading

Traditional government programmes place emphasis either on precise industries or broad industry sectors. The attention on the industry level suggests that some industries are better than others in which case rivalry can be distorted or limited (Porter, 2007). Conversely, an emphasis on sectors is too broad to be of any significance for competitiveness (Delgado et al., 2011). Porter (2007) also contends that distinctions such as production versus services, low tech against high tech no longer hold significant value in the modern economic environment

The old-fashioned role of national or local government (i.e. maintaining macroeconomic and political stability, improving microeconomic capacity through quality general-purpose inputs, and determining overall microeconomic rules and incentives governing competition) though applicable to the growth and development of sustainable clusters, are inadequate (Porter, 1998a, 1998b, 2000, 2003). A progressively relevant role of government is that of facilitating cluster development and upgrading of existing clusters and infrastructure (Porter, 2000). One of the central features of clustering is the potential capacity to allow an economy to move beyond factor cost competition, a process which necessitates appropriate, cluster-focused government strategies (Porter, 2003).

Instead of being overly preoccupied with the operating business environment, cluster-specific policies are required from policy makers (Porter, 2003). These policies should in turn challenge clusters and cluster participants to innovate, upgrade and continuously seek industry and regional competitiveness, although these policies should not merely consist of reactions to the short-term demands of clusters (Porter, 2003). Government, local and national, involvement in cluster initiatives is an essential component to address the issues of spill overs and externalities that accompany cluster initiatives (Barkley & Henry, 2011)

While government needs to continuously encourage the formation of micro-regional cluster development through policy formulation and facilitation, it is critical that the businesses intimately involved with the cluster initiative drive the overall process (Porter, 2000, Porter, 2007). Government can play a vital role in clusters by modifying its policies and practices, as well as inspiring, facilitating and availing incentives for collective action by the private sector. Porter (2000) argues that in its upgrading actions, the public sector needs to recognise that in as much as every cluster can make a positive contribution and impact broad national productivity, it also impacts the productivity of other clusters within the local and national economy. He made this observation with precise reference to old-fashioned clusters such as agriculture, which in his opinion should not be ignored in the upgrading process. Despite the fact that the upgrading of clusters should be a sequential process, the ultimate objective should be to eventually include all clusters in order to ensure maximum positive impact on competitiveness (Makuwaza, 2001).

It is important for government to be cognisant of the impact of cluster upgrading. In the quest for competitiveness, it needs to be understood that job losses might be inevitable as firms endeavour to be more productive. In the event of such job losses, it is essential that markets and not government determine the clusters that will fail or succeed so as to minimise unnecessary waste of scarce resources as governments try to support an unsustainable cluster. (Porter, 2000).

A number of academics (Porter, 2000; Singh, 2003; Shields et al., 2004; Taticchi et al., 2012) argue that clusters must not be established or created from ‘scratch’ within the context of deteriorating markets and industries. This is one of the foremost hazards of cluster-based industrial policy. Rather, the priority should be on reinforcing and building on established and emerging clusters, not forming completely new ones. As Porter clearly explains, ‘there should be some seeds of a cluster that have passed a market test before cluster development efforts are justified’ (Porter, 2000). In any case, most clusters usually form autonomously of government and sometimes in spite of it. In the long run, the process of cluster upgrading involves the recognition that a cluster exists or has potential to, in which case government needs to remove any impediments, relax restrictions and eliminate inefficiencies which hamper productivity and frustrate innovation and creativity in the cluster (Porter, 2000).

Nonetheless, while some limitations can be resolved by the private sector, others (government regulations, basic infrastructure, education, training policies) are a result of public policy and therefore require its intervention (Porter, 1998a, 1998b, 2000). This clearly highlights the need for government focus to go beyond improvements in the general business environment.

2.12 Cluster-based Policy

It is generally accepted that clustering and interacting is essentially a ‘bottom-up, market induced, and market-led process’ (Delgado et al., 2010). The traditional opinion of the principle role of government has been to boost and facilitate vibrant markets whilst ensuring that collaboration does not result in “collusive behaviour” which restricts competition. As alluded to earlier, cluster studies have recognized the need to review and redefine government’s role as a ‘facilitator of networking, catalyst of dynamic comparative advantage and institution builder’ (Porter, 2003). This is a part that requires the creation of well-organized incentive structures intended to eliminate inefficiencies in systems of innovation and creativity through policy.

Industrial policy is directed at refining the operations of the systems of innovation (Barkley & Henry 2001). This explains the tendency to aim and support, those industries identified as being necessary in obtaining positive competitive outcomes for a nation (Porter 2000). Under industrial programmes, cumulative returns to scale are exceedingly significant in shaping competitive advantage (Porter, 2000). With such a concentration on scale, government leans towards subsidising and protecting “infant” industries from imports and foreign investment.

Industrial policy is inclined to use central intervention at the national level (Porter 2000). Cluster policy, however, is built on a more expansive and fluid view of competition based on the growth of productivity gains (Makuwaza, 2001). Critical in cluster policy is productivity and capacity growth, as opposed to the size of separate firms as predicted under industrial policy (Makuwaza, 2001). Due to the fact that all clusters are important to an economy owing to their impact on prosperity and job creation, cluster policy accentuates the importance of how nations or regions contest rather than what they compete in (Porter, 2003). Consequently, cluster policy advocates against focusing on

specific industries since all current and evolving clusters arguably are eligible for attention (Porter, 2003)

A large number of economic policy experts agree that the determination to recognise industries, which are considered to be potential failures from those which are likely to succeed, is generally a mistake (Schmitz and Nadvi, 1999; Thompson, 2002). More often than not such efforts typically turn out wrong and governments regularly incorrectly sponsor industries that they assume to be winners (Thompson, 2002). However, identifying industry clusters is dissimilar - it is a method to evaluate the exposed choices of business communities and linkages among associated industries (Doeringer and Terkla, 1995). It is also beneficial in emphasising areas for improvement in infrastructure and additional resources required by leading industry clusters. It may, however, be suitable to subsidize natural or formed assets to foster cluster creation in the case of regions or economies seeking to catch up with their recognised external rivals (Boja, 2011). For example, some temporary cost-reducing or tax inducements can be presented to organisations, conditional, for example, on their locating their activities in certain regions, or on their attaining a defined level of performance (Boja, 2011).

Due to the enhancement in externalities and efficiency, as well as influence on local employment and investment that foreign firms confer on the local business environment, clustering policy encourages the purchase of overseas creative assets via foreign direct investment (FDI) and strategic partnerships which are sensitive to the needs of the cluster (Barry et al., 2003). Ring fencing the local environment from imports is detrimental as far as cluster policy is concerned. Imports are a critical element in improving competition and rivalry, efficiency, providing raw material and semi-finished inputs and enhancing local demand conditions (Porter, 2000). In contrast to industrial policy, which, as indicated earlier, tends to centralise intervention, cluster policy advocates the importance of initiatives at state/regional and local levels. Such a process should encourage the diverse levels of government to incorporate competitive approaches into their programmes (Porter, 2007).

Finally, different from one of industrial policy's goal of altering competition in favour of a certain position, the emphasis of cluster policy is on the extermination of obstacles, restrictions and inefficiencies in productivity and productivity growth (Porter, 2000).

Ultimately, cluster focused programmes' underlying principle of rivalry is that, an upsurge in throughput, productivity and trade should inflate the market, in which case many locations have the potential to become sustainable if they achieve higher productivity and innovation (Makuwaza, 2001).

Though cluster-based policy has immeasurable advantages, if not appropriately employed it can have a disadvantageous consequence on the economy. Marsal (2012), summarises some of the significant contemplations in the implementation of cluster-based industry policy:

- it must not be a government-led initiative but must be the result of a market induced and market led initiative;
- the public sector must not have a strong orientation to subsidise industry value chains and businesses or to restraining rivalry in markets;
- government policy should swing from direct intervention to secondary stimulus i.e. public market intervention can only be vindicated if there is a clear market or systemic failure;
- government should not try to take a direct role or possession in a cluster initiative, its role must be confined to that of a facilitator and catalyst and bring stakeholders together;
- cluster policy cannot disregard small and emerging groups, nor should it focus on 'classic' and existing clusters. It should strive to achieve a sustainable balance between the two divergent positions; and
- clusters should not be formed from 'scratch'.

The following section will highlight how clusters inform the development of economic programmes.

2.13 Industry Clustering for Economic Development

Clusters can serve a twin purpose. They can be used to advance the performance of companies. Furthermore, they can also be used as an instrument to increase the level of understanding of the economy (Makuwaza, 2001). This double purpose permits clusters to assume an agency role to drive the economic performance of a region and thus enhance economic development (Porter, 2000). This is due to the fact that the use of clusters offer a

commanding set of instruments for analysis, programme formulation, and regional organisation and implementation to escalate the value of economic development programmes (Le Veen, 1998). For example, clustering firms within an industry can develop short-term industry attraction initiatives through identification of potential sectors and clearly defining the sector specific advantages. In addition, the formation of an industry cluster is expedient in defining medium term policies for the establishment, growth and retention of regional industries and in developing long-term strategies to sustain regional growth (Makuwaza, 2001).

In comparatively short time frames, the attraction of firms to a particular geographic location is the only method by which a district can achieve substantial growth in job opportunities (Porter 1998). However, there is a necessity to offset this approach with policies to retain and enlarge current industries and strengthening policies and strategies to establish new enterprises and clusters (Barkley & Henry, 1997). Attraction initiatives are most effective when they hinge on the opportunities intrinsic within existing clusters coupled with the advantages the region offers to enterprises similar to those in the cluster based firms that may already thrive in the region. For example, sturdy clusters are likely to entice higher quality inward investment (Botham & Downes, 1999). They are more likely to yield lasting results than are attraction efforts directed at those enterprises that lie outside the region's existing cluster initiatives. Similarly, attraction efforts that rely on broad features and advantages such as tax windows and incentives and training and skills development subsidies are less effective (Makuwaza, 2001).

Porter (2007) contends that a significant number of new businesses are formed in existing initiatives as opposed to remote locations. One of the critical considerations for this is that within a group of firms in a cluster there is superior information about prospects for new businesses. These opportunities are more easily identified in clusters, for example, new gaps in products, services or suppliers. At the same time, obstacles to entry are typically lower in clusters than they are somewhere else (Porter, 2007). For example, the mandatory assets, critical skills, necessary inputs and an established labour pool are readily available at the location, or are more easily accessed from the confines of the cluster. Moreover, local institutions that provide financial may call for lower risk premiums on capital based on their understanding of the industry or familiarity with the operations of the firms within the cluster (Porter, 2007). Concurrently, conventional clusters can also reduce the

perceived risks of entry, especially if there are foreign-based cluster participants (Porter, 2007).

In the intermediate term, current clusters initiatives are important in formulating development programmes that require extended phases to pay off. Bank (2009), foregrounds the dynamics of economic development, stressing the importance of helping small and medium sized enterprises to become prominent and recognised in a region. Nevertheless, initiatives to establish new businesses and solidify economic foundations require two to five years to begin producing tangible results (Porter, 2003). The important factor in defining these policies is to identify which types of small businesses to target for support and which foundations to improve in order to sustain and support the growth of specific industries in the region. In this case the analysis used in establishing attraction targets and central to attraction programmes is also relevant, though the applications are different (Makuwaza, 2001). Here, the plans will be more indirect. In order to realise longer-term economic goals, the focus should be on initiatives that improve the economic districts ability to maintain, strengthen and develop industry (Porter, 2007).

By assisting start-up firms to establish themselves either to fill gaps in existing industry groupings or to spread the present clusters into new markets, in the long term, a region can reinforce its economy and generate new employment (Porter, 2007). The region can also commence efforts to address fissures and restrictions in the economic foundations that support the ability of a regional industry value chain to compete in global markets (Anderson, 1994). Such efforts will be directed towards sustaining the economic base of the region.

An economic region can attain substantial influence in its efforts to accomplish its goals by defining policies that speak to a variety of objectives within integrated initiatives such as cluster initiatives (Porter, 2003). Again, central to these strategies are the existing industry clusters.

Integral to the concept of industry clustering that has been postulated by Porter (1998) is the presence of a set of core proficiencies that are spread out throughout the cluster. Once a region has acknowledged a noteworthy regional cluster, it can then develop a methodology utilising industry experts to establish the core competencies that are critical to the cluster's success (Porter 1998a). Identifying those critical core competencies that are not as resilient

as industry executives would wish, it can then formulate programmes and policies to strengthen them (Porter, 1998a). Such policies can be developed in a way that enables the establishment of new enterprises that specialise in these areas of competence. Concomitantly, the strategies can take advantage of opportunities to extend these core competencies into new markets through diversification of existing companies and establishment of new companies. They can also support the retention of existing companies by strengthening the region's ability to support these areas of competence (Anderson, 1994).

2.14 Evaluation and Critique of Industry Cluster Policies

A criticism directed towards cluster-based policy for economic development, is the concern that they encourage over-specialisation in the economy (Botham & Downes, 1999). On the contrary, a cluster approach is actually beneficial in diversifying the economy. It does this in two ways: firstly, such an approach is likely to target (for inward investment) a range of industries in the cluster. These would include critical gaps such as supply industries or customers. Ultimately, because of its focus on innovation and upgrading, a cluster helps generate new industries. Secondly, a cluster approach offers the opportunity to diversify away from assembly and manufacturing into a wider range of functions such as R&D.

Another criticism questions the reality of industry clusters being more applicable to small, specialised firms. It is argued that this is questionable, particularly due the level of trust and co-operation required for a successful cluster (Le Veen, 1998). For example, in a core-ring network strategy, large firms at the core benefit from flexible production systems, while making use of a dependent exterior ring of smaller firms employing low-wage workers. The fact that large multinational companies dominate the current economy undermines the trust that is required for a cluster to be effective. There are enough examples, however, from Latin America and Asia, to suggest that clustering is of growing significance to the industrial organisation of small scale manufacturing (Schmitz & Nadvi, 1999). For example, clusters in intermediate cities, have managed to achieve great depths in terms of the concentration of industry-specific skills, coupled with specialised ancillary and support structures.

A final criticism of cluster policies is that it seems to imply the exclusion of rural areas, focussing only on urban settings. This seems to marginalize rural contexts because they lack the necessary scale of a cluster (Rosenfeld et al., 2000; Schmitz & Nadvi, 1999) agree that clustering is predominantly an urban feature. However, they give examples of how clustering can be a feature in rural industrialisation such as in Indonesia, where one can find specialisation of entire villages.

There is also little mention in the literature on the effectiveness of industry cluster policy in generating economic development in economic regions (Le Veen, 1998). The number of new jobs created and tax revenue generated are the traditional measures of economic development. There is however limited literature available that uses this criteria to assess the effectiveness of cluster policies. Rosenfeld (1997), as cited in Le Veen (1998) provides a number of measures that could be used for evaluating the overall efficiency on industry clusters. These include: successful spin-off businesses or innovations that firms in the cluster have commercialised out of their research and development activities, the rate of development of new technology, the up-skilling of the labour force and the strength of firm networks created.

2.15 Case Studies in Clustering

Porter (2000) argues that economic development seeks to accomplish sustained improvement in a nations' standard of living over the long term. In this regard not only can clusters benefit cluster based firms, but they also make an effective tool for gaining an in depth understanding of the interconnections within an economy and thus drive significant economic policy (Makuwaza, 2001). Le Veen (1998) established that clusters play an important role in providing tools for economic analysis, formulation of regional and national policy, regional industrial reorganisation and the development of implementation plans to ensure economic development. Porter (2007, 2011) further confirms that clusters can be used to enhance the competitiveness of firms. Porter (2007, 2011) in his studies on the United States of America established that the Federal government has also created a policy framework that enhances cluster sustainability. Such clusters in the USA include money management in Boston; the Witcha area that specialises in building light aircraft, Hollywood in Los Angeles for entertainment and information and innovation in Silicon Valley (Porter, 2007). The clusters mentioned are extremely well

developed. However, developing countries have lacked well developed clusters. Traditionally such countries have competed on a world stage due to two factors: namely abundance of natural resources and cheap labour (Porter, 2003). This has contributed greatly to Africa falling behind in the global economic race (Zhihua Zeng, 2007). However it is not all doom and gloom as there are pockets of vitality that can be demonstrated in the form of cluster based firms.

Despite the challenges that affect clusters in Africa which include but are not limited to resource depletion and poor environmental regulation; low barriers to entry leading to over congestion of micro enterprises; lack of financing; weak firm capacity; weak infrastructure; lack of technological support and weak institutional ability in research and development; clusters in Kenya (Fish production and processing), Ghana (Manufacture and vehicle repairs), Nigeria (Computer hardware and auto parts), literature shows that it is possible to generate economic gains based on clustering in a developing economy (Makuwaza, 2001, Porter, 2007, Zhihua Zeng, 2007). Zhihua Zeng (2007) further contends that these clusters have enabled organisations to overcome structural deficiencies and incapacity in the rest of the economy in such areas as skills, technology, market access, access to finance and innovation. They have managed to leverage the region's competitive advantage to the benefit of cluster based firms and have provided employment for men and women in the surrounding communities enabling them to send their children to school (Zhihua Zeng, 2007). However, while Makuwaza (2001) generally believes that clusters can generate economic benefits, she advises that cluster policies should be in place to enhance effectiveness in generating economic development in regions. The suggestion is based on the fact that while new jobs created and tax revenue generated are the traditional measures of economic development, there is little evidence to suggest that these measures are applied to measuring the effectiveness of clusters. Makuwaza (2001) goes on to further suggest that in order to measure the success of clusters; the number of spin off businesses created, development of new technology, increased research and development capacity and up skilling of the labour force should be included in the measurement matrix.

In addition, it is not evident from research whether particular industries such as the automotive industry 'cluster' better than others. Whereas in the United States the more successful clusters are in relatively more advanced industries it is evident that clusters have been successful in primary industries such as wine farming other agriculture based

groupings. Zhihua Zeng (2007) profiled eleven (11) clusters in Africa and they covered a broad spectrum of industries from Fisheries to computer hardware.

2.16 Conclusion

This chapter has outlined definitions of clusters and the types of clusters that exist Markusen (1996), a summary of Porter's (1998, 2000 and 2007) contribution and a discussion of key elements often cited as being central to the theory of clusters. The general implication is that clusters can be a powerful tool to drive economic development, what remains is to establish whether this can pull investment into Durban.

A key thread running through this study has been the qualitative nature of the quantification of the benefits of clustering. A significant theme that is also evident in literature is the dynamic nature of clusters (Porter, 2000). They are not static due to a high level of collaboration among cluster members and other stakeholders while the quick pace of technology change ensures that clusters will also be evolving (Barkley & Henry, 2011).

It is also clear authors like Porter (1998a, 1998b, 2000, 2007) and Zhihua Zeng (2007) acknowledge that emerging economies can utilize clustering to enhance competitive advantage of their economies by ensuring that the individuals that are responsible for cluster policy development have the correct skills. Governments have quickly accepted clustering theory as a means of fast-tracking local, regional and national competitiveness, technology transfer and economic expansion (Cassidy E et al., 2005)

Cluster theory has offered a calm answer to the challenges presented by globalisation and the impact of rapid technology change (Porter, 1998a). However as Cassidy E et al. (2005) note that 'the cluster concept is becoming a focus of sober second thought'. These authors further explain that the model is now drawing doubt, spawned in part by the lack of uniformity in appraisal procedures and a failure for academics to agree on whether cluster theory has impacted on society.

3 Chapter Three – Research Methodology

3.1 Introduction

This chapter describes and explains the research design and methodology adopted, broadly positioning the study in the qualitative framework. It begins by outlining the aim and objectives of the study. The chapter then discusses the location of the study and study participants including a definition of the unit of analysis. The type of study is elaborated, followed by an outline of the research design and approach. The research methodology covering population and sampling in relation to the need to sample, non-probability sampling and sampling design adopted, sampling frame, sample size and, the sampling procedures followed are then discussed. This is followed by a brief discussion on data generation, which encompasses the strategy employed i.e. the interview and procedures and techniques adopted during the interview process, as well as the strengths and weaknesses of the interview approach and the attempts made to minimize their effects, followed by steps followed in unpacking and analysing the data. A short analysis of the aspects of ethical issues and gaining access to respondents conclude the chapter.

3.2 Aim and Objectives of the Study

The goal of the study was to investigate whether industry manufacturing clustering can have a positive or negative impact on investment into the Durban metro and thereby impacting on economic development.

To enable deep exploration of this aim, the study attempts to address the following objectives: To

1. understand the nature and status of existing manufacturing clusters;
2. explore the effectiveness and benefits of clustering;
3. determine the needs of manufacturing clustering;
4. investigate the successes of manufacturing clusters; and
5. understand the challenges and failures of manufacturing clusters.

3.3 Location of the Study and Participants

This study was conducted in the Durban metro. Participants were drawn from within the Clothing, Textiles and Leather industry and the eThekweni Waste Materials Recovery Industry Development Cluster, Trade and Investment KwaZulu-Natal, Durban Chamber of Commerce and Industry, Tourism Enterprise Partnership.

3.4 Unit of Analysis

One of the most noteworthy ideas in a research venture is the unit of analysis which, as Valadkhani, Arjomandi and O'Brien (2013) suggest, is the major entity that is being examined in an exploration as it is the 'what' or 'whom' that is being studied. Units of analysis are principally the things we interrogate in order to create summary profiles of them and describe dissimilarities among them. They enable finding the correct responses to the research questions asked or the objectives and also help to establish the sample size. As this study explored industry manufacturing clustering, the units of analysis were the Business Development Managers/Operations Managers of the organisations that were part of the cluster value chain.

3.5 Type of Study

This was an exploratory study. In essence exploratory studies are undertaken to better grasp the nature of the occurrence since a limited number of studies might have been undertaken in that domain for developing a plausible hypothetical framework (Kakitahi, Landin, & Alinaitwe, 2013). In other words, this methodological approach is primarily concerned with the discovery of insights and identifying key issues and key variables for generating or building a theory. While in a pure sense, all research is exploratory, research is wedded to the notion of exploration and the researcher as explorer (Henning, 2004: 18-22). In this context, investigation might be thought of as a perspective, 'a state of mind, a special personal orientation' toward undertaking social inquiry (Stebbins, 2001). In the setting of this study, while significant academic work in the broad area of clustering has been done, there is little evidence of literature on the effectiveness of manufacturing clustering in an African context. Hence, the study attempts to understand whether or not the presence of manufacturing clustering has any impact on the flow or flight of investment within a defined economic region, in this case into the Durban metro.

3.6 Research Design and Approach

Parahoo (1997:143) described research design as “a plan that describes, how, when, why and where data are collected and analysed.” Polit et al. (2001: 167) defined research design as “the researcher’s overall approach for answering the research question or testing the research hypothesis.” Bhengu (2005) further views research design as some configuration or strategy embraced by the investigator to gain evidence that answers research questions. Taking it further, Creswell (2008) calls it a methodology to undertake research, which involves the coming together of philosophy, strategies of inquiry and specific methods. The nature of this study which aimed at exploring the manufacturing clustering, located it in the qualitative research design (Creswell, 2008) where interviews were employed as the data generation strategy. This section highlights and describes the procedures undertaken in the conduct of the research answering such questions as: What was done? How was it done? Why was it done? When was it done? And where was it done?

The research was qualitative given that the investigator wanted to understand the situation from the perspective of the organisations. The approach enabled participants to describe the phenomena or practices as they were, at the same time enabling the researcher to maintain an active involvement in the research process (Cohen et al. 2000). Qualitative research involves analysing artefacts in their natural environment, trying to establish the meaning of, or to deduce, phenomena in terms of the meanings people bring to them (Denzin, 1994). The method is deeply interpretive. The researcher makes an interpretation of the raw data and statistics, developing profiles of settings, assessing data for themes and categories and finally building an explanation or arriving at conclusions about its meaning personally and theoretically, stating lessons learnt and offering further questions to be asked (Creswell, 2004). In fact, the qualitative researcher tries to approach reality without preconceived ideas and pre-constructed models and patterns which gives rise to new and realistic important information. Through the naturalistic approach to its subject matter, priority is given to what the data contributes to important research questions or existing information. Again, qualitative research takes place in the natural setting. Thus the researcher goes to the site of the participants to conduct research. This enables the researcher to develop a level of detail about the place and be highly involved in actual experiences of participants (Creswell, 2004). In this study, the researcher had to visit the respondents for the face-to-face interviews.

3.7 Methodology

Methodology draws reference to the theory of knowledge, how we come to know in a practical and real sense as opposed to epistemology, which addresses how we come to know in a philosophical sense. Epistemology and methodology are interdependent, as Henning (2005:3) puts it, “intimately related” one relating to the philosophy, the other to the practice. Thus, epistemology is the theory of knowing while methodology is the practice. Methodology in this setting refers to specific methods and techniques i.e. interviews, employed for generating data to enable understanding the phenomenon in question: namely manufacturing industry clustering.

3.7.1 Description of the Population

According to Polit and Beck (2006; 258), a population is the “total number of people or elements that fit the set specifications of the study”. In other words this is normally a large assortment of beings or organisations that are the primary focus of a scientific enquiry. It is also known as a well-defined collection of individuals or organisations that have similar characteristics (Creswell, 2004). In this study the description of the population and the common binding characteristic of the respondents is that they are in industries that are members of a cluster. Thus, the target population in this study was those organisations that were involved in clustering activities within the Ethekewini Municipality. This encompassed companies drawn primarily from the clothing industry which has one of the oldest clusters and the EThekewini Waste Materials Recovery Industry Development Cluster, which is still finding its feet in terms of setting up a viable cluster initiative. In addition to this, respondents were also drawn from organisations that work along the cluster value chain such as Trade and Investment KwaZulu-Natal, Durban Chamber of Commerce and Industry, Tourism Enterprise Partnership. In total there were 25 respondents.

3.7.2 Sampling

Sampling is a process of selecting a portion of a very large group to represent the total population (Henning, 2005: 70-71). Findings from the sample may represent the larger population. The sample drawn should, therefore have similar characteristics to the larger group under scrutiny to allow generalizability of the findings to represent the population (Burns & Grove, 2001:374-375, Polit & Beck 2006; 260-265).

3.7.3 Need to Sample

Research is generally done for the benefit of a population (Creswell, 2003). However, due to the bulky size of populations, investigators often do not test every individual in the population due to the nature and design of the study as well as the costs involved thereby necessitating the need for researchers to utilize sampling techniques. Given that a sample is a fraction of a population bearing similar characteristics as the larger grouping, a sensible sample selection can offer data that is typical and representative of the larger group from which the sample is drawn (Polit et al., 2001). Again given the limited time within which to carry out this study and the financial implications involved, it was not possible to research all industry manufacturing clusters in Durban, hence the need to sample. In the study, non-probability sampling was thus used to draw out the clusters.

3.7.4 Non-probability Sampling

Non-probability sampling is a method of selecting individual elements into the research that reflect that the odds of each person to be chosen in the sample is unknown but the features of the sample population are used as the main criteria for selection (Burns & Grove 2001: 301-302). Sample designs such as convenience sampling and purposive sampling fall into the category of non-probability sampling (Henning, 2005:71-72). In this study, non-probability sampling which employed convenience and purposive sampling techniques were adopted as these designs were found to be well suited to small scale and in-depth studies (Creswell, 2004).

3.7.5 Convenience Sampling

Purposive sampling was the over-arching sampling design complemented by convenience sampling. This approach falls within the non-probability sampling designs where participants are chosen because of their expedient accessibility and closeness and, are available to the researcher in some happen stance mode (Cohen, Manion & Morrison, 2000). This design was employed to select the clusters and the convenience aspect under consideration was proximity to the researcher, the time available to conduct the research and cost effectiveness (Henning, 2005: 70-71).

3.7.6 Purposive Sampling

Purposive sampling enables targeting those participants that are likely to yield the richest data for the topic (Henning 2005: 70-71). Drawing on Bhengu (2005: 58), "...the researcher must ensure that informants are information rich." Thus, the investigator selected potential participants from a database supplied by the eThekweni Municipality. Purposive sampling enables extraction of groups, settings or individuals where the processes under exploration are likely to occur (Henning 2005: 70-71).

The selected participants for this study were people in positions of significant influence in the companies that operated within the clusters such Business Development Managers. These individuals were believed to be information-rich and would be able to add relevance to the study.

3.7.7 Sampling Frame

A database of seven clusters was obtained from EThekweni Municipality. The sample frame was in the form of an Excel spread sheet with the following fields: Cluster name, company name, contact person and email address.

3.7.8 Sample Size

Polit and Beck (2006; 267-268) point out that quantitative research design warrants large samples to enhance representativeness and minimise sampling error. On the other hand, Holloway and Wheeler (2002: 128) argue that the number of participants in a selected sample has no direct impact on the implications or excellence of a particular research. They further acknowledge that there are no precise rules in determining the number of participants for qualitative research. In this regard, Cresswell (2004) points out that exploratory qualitative studies need to make use of fairly small samples to enable in-depth understanding of the phenomenon. Cohen et al, (2000) further advise that when sampling for qualitative research, the sample needs to be characteristically small to enable deeper exploration of the phenomenon under scrutiny. Hence, due to the qualitative nature of this study, its limited scope and the data gathering techniques employed (interviews), a sample of 25 respondents selected through convenience and purposive sampling was deemed appropriate.

Sampling of the participants was done as follows:

- The researcher sought the assistance of eThekweni Municipality to identify potential participants.
- The research project was explained to the prospective participants who were on the shortlist and they were asked personally if they were willing to take part in the research.
- In the event of a problem with identifying participants who met the criteria for selection, each eligible participant was requested to identify colleagues with similar experience and knowledge.

3.8 Data Collection

Face to face interviews were used for data generation in this study.

3.8.1 Data Collection Strategies

Data collection is a methodical and systematic practice through which the researcher gathers pertinent data to accomplish the research purpose and objectives (Creswell, 2004: 45-46). The mechanism used to accumulate the data is contingent on the research designs (Burns & Grove 2001: 460-461). In this study, data were collected through in-depth face-to-face interviews. The researcher used mainly this primary data obtained to enhance originality and minimize bias.

3.9 The Instrument

To explore and obtain answers to the key question, “how effective are manufacturing clusters an investment push/pull factor on the Durban Metro?”, in-depth semi structured interviews were used.

3.9.1 The interview

A research interview is “a method in which information is collected through personal interaction with the respondents to give their views” (Brink 1996: 153, 158). In this study, interviews were conducted following a semi-structured interview guide (Appendix 2). The same questions were posed to all participants following a similar sequence. The participants were middle to senior managers selected on the basis that those were the levels that would be adequately informed about some of the questions that the researcher planned

to pose. Each interview lasted approximately 45-60 minutes and all were audio recorded. Throughout the interview process, the researcher adopted the following techniques:

- Maintained eye contact with respondents during the interview
- Used grand as well as mini tour questions to elicit information from participants. Grand tour questions asked to introduce the topic such as “what is your opinion of” The mini tour questions were specific such as “what services are available for.....”
- Once a natural flow of the conversation had been established the researcher used facilitative communication techniques: probing and exploring, paraphrasing, minimal verbal response and summarising to promote continuous talking. The researcher also used phrases such as could you elaborate more on that point?”
- While the researcher used a semi-structured interview guide, the line of questioning and responses from participants maintained flexibility and consistency.
- The interviews were conducted in the privacy of private (separate from the interviews own office) where disturbances were minimised and there was sufficient privacy to enable the interviews to progress uninterrupted.
- To conclude each interview, the researcher asked each participant to make any additional comments or ask questions related to the topic under scrutiny. This assisted in the closure of the interview. The researcher summarised the interview proceedings by restating in his own words the ideas and opinions of the participants in relation to each main question and thanked them for their time and cooperation.

After the interviews, data were transcribed by the researcher to ensure an accurate reflection of participants’ views. Personally engaging in this activity not only provided a worthwhile experience, but also familiarised the researcher with the data sooner to understand emerging themes. These thoughts/opinions were then cross verified with data from different interviews and across different participants. Interview data was further verified by checking field notes made after each interview.

3.10 Strengths and Weaknesses of interviews

The decision to use interviews as a data gathering instrument was influenced by the following strengths:

- Interviews are more practical for the majority of people and the interviewer can ensure that all questions are attempted.
- The response percentage is typically high as participants are less likely to decline to be interviewed if they are available.
- Face-to-face interviews yield data through subjective observation of the researcher on the respondent's verbal and non-verbal communication.
- The researcher can offer clarity on questions and at the same time examine and probe further on key issues for more information.
- The researcher controls and directs the interview process (Burns & Grove 2001: 420, 422; Polit & Beck 2006; 291, 296)

Interviews, however, have the following weaknesses:

- They are time consuming and costly. The researcher tried to mitigate this by arranging a number of interviews in the same area on the same day.
- The structured interview schedule with predetermined responses could make the respondents give the information than the researcher anticipated, that the respondents give responses as specified by the researcher not their own ideas. This constraint was addressed by asking respondents to justify and explain all their responses and requesting them to give additional information under the open-ended questions section. Further, to conclude the interview, the researcher summarised in own words all the responses and asked participants to confirm. These interviews were carried out without any pre-conceived ideas and, throughout the process, I tried to maintain an open mind, without inserting my own opinions but using probes to get more data and to clarify questions when members seem blank or not responding.

3.11 Time Frames

Data collection was conducted over a period of five weeks. The prolonged fieldwork while conducting interviews also provided the researcher with an in-depth understanding of the phenomenon under exploration and conveyed detail on the site and the people to enhance credibility of the information provided which enhances validity and reliability which in qualitative research are referred to as credibility, trustworthiness and transferability (Guba & Lincoln, 1985).

3.12 Piloting

Piloting generally refers to guiding along strange parts and dangerous places (Gomm, 2004). While the process of data generation may not be strange and risky, the unanticipated intricacies, twists and turns deserve exploration before plunging headlong into the thick of the enquiry (Seidman, 1998). Pilot testing of the interview schedule was conducted with three participants. This was aimed at determining clarity of questions and, whether the instrument elicited the desired information (Henning, 2004). This also helped to determine the appropriateness of the research structure as envisioned and to get to grips with some practical aspects of interviewing. Further, evaluating single interview duration and obtaining insights into the technical elements that did not speak to the key question could only be achieved through piloting (Seidman, 1998). Subsequently, this enabled stepping back and reflecting, discussing with the research supervisor and peers, requesting for cross-checking to get the critical friend perspective before the instrument finally got to the field. In addition, the process enabled revision, adjustments and refinement of the research instrument and approach to data collection, thereby enhancing credibility, trustworthiness and transferability (Guba & Lincoln, 1985).

3.13 Analysis of the Data

Interview data was pooled together and analysed using the content analysis approach which entailed:

1. Transcribing and reading through the transcripts - making brief notes in the margin when interesting or relevant information was found;
2. Going through the notes made in the margins and listing the different types of information found;
3. Reading through the listing and categorizing each item in a way that offered a description of what it was about;
4. Identifying whether or not the categories could be linked any way and listing them as major categories (or themes) and / or minor categories (or themes);
5. Comparing and contrasting the various major and minor categories;
6. These first five steps were repeated for all the 25 transcripts;

7. After doing the above with all the transcripts, the data was further analyzed, collated into the major themes and categories and examined in further detail to establish whether themes fitted into the research and assessing the relevance;
8. Once all the transcript data was categorized into minor and major categories/themes, it was then reviewed in order to ensure that the information was classified as it should be; and
9. All classifications were then reviewed to ascertain whether some categories could be merged or needed to be sub-categorized.

A final check was conducted on the original transcripts to ensure that all the data and information from the original transcripts had been captured.

3.14 Ethical Issues and gaining access

Ethics is a branch of philosophy and theology that deals with the question of ‘what ought to be done’ and which poses questions concerning moral and responsible research (Singleton & Straits, 1999). Hence to be ethical in research is to conform to accepted professional research practice. Ethical clearance for this study was sought through the school. The researcher then obtained voluntary and informed consent from all participants. This involved making the intended participants fully aware of the purpose of the study and what they will be expected to do, a promise of confidentiality, reassurance that there was no right/wrong answer and, requesting participants for authority to record interviews. Participants were made aware of the credentials of all the individuals involved with the research before they made a commitment to participate. The consent letters offered participants an opportunity to opt out if they so wished, but fortunately none of them chose to withdraw from the study. Not only did the researcher explain their right regarding withdrawal, but also their right to review the material. Further, the formal consent requests were only signed after all clarifications and discussion about the nature and purpose of the study, and this enhanced their confidence. Participants were met for face-to-face interviews at their companies.

3.15 Conclusion

Chapter 3 outlines the population and samples taken. It also states and defines who was interviewed and the settings that provided a background to the interviews. The chapter also attempts to unpack a number of issues pertinent to research. Having provided an account of the research design and methodology explaining the what, how, why, when and where during the research journey, the next chapter presents the data analysis and findings.

4 Chapter Four – Data Analysis and Presentation of Results

4.1 Introduction

The methodology described in Chapter 3 provided a baseline for data gathering while the interview schedule has provided a frame for the data analysis and presentation of results in the present chapter. According to De Vos (1998:203-204), data analysis entails that the analyst breaks down the data into constituent parts to obtain answers to research questions or address research objectives.

In analysing and presenting the findings, this chapter begins by describing the research setting. Such a description is an essential component of the study to ensure a clearer understanding of the context from where the data was generated. This is followed by background information of the companies involving: type of industry sector, manufacturing category and, size of labour force and turn over. It then presents findings related to the impact and benefits of clustering and, the successes and challenges. The next section presents findings from the companies that do not belong to clusters which covers why they are not part of clustering, whether they see any advantages in clustering and what would motivate them to join clusters. The last section presents findings from public sector manufacturing companies encompassing: type of support offered, impact of clustering, strategies to further promote clustering and, whether or not clustering has benefitted the local government.

4.1.1 Research Setting

In total, 25 companies were explored in this study. Of these 18 were privately owned manufacturing organisations. Out of the 18 private companies, 14 firms belonged to clusters. This profile fits the description presented by Markusen (1996) where private sector manufacturing companies were defined as locally owned Small and Medium Enterprises (SME) with substantial inter-firm trade and collaboration and strong institutional support. The remaining seven were public sector non-profit making companies under the eThekweni local government. These local government companies promote and facilitate cluster formation. Thus respondents were sought from organisations such as: Trade and Investment KwaZulu-Natal, Tourism Enterprise Partnership and the Durban Chamber of Commerce and Industry. Markusen, (1996) Barkley and Henry,

(2001) acknowledged that clusters may be state anchored by a large public non-profit entity and related supplying and service firms.

4.1.2 Type of Industry Sector

In terms of the industry sector, six sector types were considered: automotive manufacturing, textiles, clothing and leather, wood timber and furniture, agriculture and agro-processing, building and construction and services (Information Technology, Marketing, General Consulting and Human Resources etc.). The majority (18) were in the textiles industry. Less than half (five) were in the automotive industry and only two were service providers. One could say that the majority of the private sector companies in this study were mainly in the textiles, clothing and leather industry. Thompson (2002), Ketels (2003) and Zhiming and Ning (2004) talked about diversity in the type of clusters that exist today across the dissimilar industries – automotive, clothing, leather, financial services, tourism etc.

4.1.3 Manufacturing Category, Size of Labour force and Turnover

In terms of the manufacturing category value chain, the question wanted to establish the manufacturing stage the different companies would be classified as; for instance final product, first stage, second stage, aftermarket producer or services. Data shows that more than half (12) were in final product manufacture. A smaller number (3) were aftermarket producers. Of the remaining three companies, two were in services and one was a first tier manufacturing company. Therefore, in terms of category of manufacturing, the majority of these cluster companies were manufacturing final products. McDonald (2001) points out that an industry cluster may not necessarily embody the entire value-chain of a defined industry from suppliers to end products, including supporting services and specialised infrastructure but may focus on one or a few aspects of the value chain.

Question four tried to establish the size of the labour force of these companies in the cluster. Generally these manufacturing companies operated with a small labour force, for example most of the companies (13) operated with a labour force of between 51 and 100 employees. Four of the companies were reasonably small, operating with less than 50 staff. Only one of these companies had more than 100 employees. Thompson (2002) indicates that what is important in cluster policy is productivity and capacity growth, rather than the size of the labour force of individual firms as envisaged under industrial policy.

As such it is apparent that all firms regardless of size can benefit from clustering. This is because all clusters impact on an economy due to their contribution to prosperity and job creation.

With regard to turnover in the immediate past financial year, it appeared as if the managers interviewed were reluctant to indicate their turnover along a continuum of R5 million on the one end, to R200 million on the other. However most of them (14) suggested a turnover of between six and 50 million rand in the past financial year. Three revealed that they were in the 51 and 100 rand million range and one was within the five million range. While these managers were initially reluctant to say specifically in which range their turnover fell, it appears as if it was the fairly small companies (51-100 employees) that had a higher turnover in the past year. However, in a United States based study, large cluster based firms reported increased competitiveness and profits due to their presence within a cluster (Barkley & Henry, 2001).

4.1.4 Competitors, markets and raw materials

One of the objectives of the study was to establish the nature and status of the clusters with regard to competitors, markets and raw materials. The majority of the respondents acknowledged the presence of their main competitors within the cluster. Two each stated that their competitors were in other parts of the country in addition to Durban metro as well as in the region and outside Africa. With regard to main markets the majority of the respondents identified their major markets as being within the cluster (nine). A small number had markets within and in other parts of Africa (three). An even smaller number identified their markets as being in other parts of the country and outside Africa (one company each). Porter (1998a) and Porter (2003) suggests that cluster industries have a potential to serve local as well as markets in many regions and countries and concentrate across geographies. This is often due to the fact that local demand leads to world demand, which implies that an ability to meet local demand creates the ability to serve global markets

With respect to raw materials a significant proportion identified their main sources of raw material as being outside Africa (six). A smaller number sourced their raw material inputs from within the cluster (three). For the remaining three respondents, one sourced their materials outside the cluster but within the province and two each from other parts of the country as well as other parts of Africa.

4.1.5 Impact and Benefits of Clustering

Asked to give their assessment of whether or not clustering had increased/influenced investment in Durban metro, half (seven) the participants strongly agreed that the cluster initiative had increased investment and, another three also confirmed/agreed. In total 10 out of the 14 respondents believed that clusters had positively impacted on the Durban metro economy. Two participants were neutral and for the remaining two, one disagreed and the other strongly disagreed. From this data, one can conclude that the cluster initiative has led to an increase in the investment levels of the Durban metro. While Makuwaza (2001) provides a number of benefits including attracting inward investment, the strength of cluster relationships as opposed to specific incentives is that they essentially influence investment of downstream firms (Delgado et al., 2010).

In terms of benefits accrued by being a member of a cluster, the 14 cluster companies highlighted different benefits. Half of these companies emphasised securing a market by selling their products within the cluster. Four out of the 14 cluster companies mentioned increased revenues, while two talked of proximity to suppliers. Only one company mentioned closeness to the labour pool. Hence securing markets was seen as a major benefit of cluster membership. Concomitant to this, Kostovoski (not dated) noted that being part of a cluster provides opportunities to establish connections with other cluster players, launch joint marketing initiatives and even tendering for large projects and, at the same time, align sourcing of inputs and obtain favourable prices within clusters.

4.1.6 Successes and Challenges

Companies were asked to highlight some of the successes attributable to cluster membership. Five companies highlighted increased productivity and turnover levels. Two of the companies mentioned a rise in job creation and, one company talked about increased research and development activity and, increased production capacity. In other words, findings from this study suggest that cluster membership positively shape company productivity and turnover levels. The said successes are similar to findings by Barkley and Henry (2001) from studying some clusters in the mould of Silicon Valley in the United States of America (USA) where some of the greatest technological advances ever to be witnessed in business occurred. These Silicon Valley cluster based firms reported increased competitiveness, productivity and profitability due to their presence within a cluster.

Asked to comment on the challenges and failures, data suggests diverse challenges faced by the different companies. The largest number (six) lamented the high cost of labour, four were not happy with the level of innovation in terms of research and development. Two each expressed challenges related to limited access to financing and increased competition. While literature consulted tended to focus on issues related to boundaries, late comers into the cluster, issues of geography and lack of support from institutions as major challenges faced by clusters (Barkley & Henry, 2001; Andersen & Bøllingtoft, 2011) companies explored in this study viewed labour costs as the most significant challenge to the cluster companies.

4.1.7 Companies that are not cluster members

This section discusses data provided by the four respondents that did not belong to any cluster. Asked to give reasons why they did not belong to any cluster, three of the companies mentioned that there was no compelling case for cluster membership. One company explained that the cost of relocation outweighed the benefits. This is so because clusters are located in certain geographic areas (Barkley & Henry, 2001), thus for this company to be part of a cluster, it would need to relocate to an area within close proximity to a relevant cluster. Hence these companies generally saw cluster membership as an issue that they were not compelled to engage in.

Participants were further requested to comment on whether or not being part of a cluster would improve their businesses, two companies were moderately neutral and the other two completely disagreed. Explaining what would motivate them to join a cluster, two of the companies expressed that they needed to be provided with access to markets, while the other two highlighted issues related to improvement in physical infrastructure. It would appear as if issues of market accessibility and physical infrastructures are key motivators to cluster memberships. This finding supports conclusions made by (Barkley & Henry, 2001; Delgado et al. 2011) that robust public infrastructure and infrastructure investment coupled with financial institutions' familiarity with specific industries provides an enabling environment for organisations to grow and prosper within clusters.

4.1.8 Public sector companies

This section generally targeted the seven public sector organisations. These were the non-profit making organisations which were intended to facilitate and promote formation of

clusters. Discussing the forms of support that they offer clusters and cluster members, three of the companies spoke highly about policy advocacy. Two explained that they offered market access and development and one mentioned access to finance and, training and development. What seems to emerge is that the major form of support offered was through policy. These sentiments seem to concur somewhat with ideas tabled by Porter (2000) and Porter (2007) that government should encourage the formation of micro-regional cluster development by modifying its policies (related to basic infrastructure, education and, training) and practices, as well as motivating, facilitating and providing incentives for collective action by the private sector.

Asked to rank in order of the highest impact, the benefits that emerged from clustering, the majority (four) of the respondents highlighted job creation as the highest benefit from clustering. A small number (two) identified regional competitiveness from heightened company performance while one respondent linked clustering to market development as an impactful benefit that has been accrued from clustering. These findings are in tandem with claims put forward by Makuwaza (2001) that the overall benefits of cluster linkages and relationships encompass: an improvement in organisation performance, an increase in the emergence and growth of new businesses, thus new jobs; increased innovation due to diverse skills and expertise, and an ability to attract knowledge-based inward investment.

With respect to outstanding support needed to foster cluster initiatives, two companies again made reference to improvements in physical infrastructure, an aspect alluded to earlier on. Two highlighted provision of financial incentives for heightened productivity and, yet another two companies indicated development of collaborative frameworks with institutions for research and development. Concomitantly, one company mentioned fostering critical skills through training and development. Generally issues of physical infrastructure, improved productivity, training, research and productivity are key issues for enhancing cluster initiatives.

Again, giving their own assessment of whether or not clusters have benefitted the Ethekwini local government, participants were almost unanimous that clusters had benefitted the local authority. Some of the reasons given were that: better skills were attracted to Durban, which improved the profile of Durban; higher job creation capacity as companies increased and expanded their business dimensions; better productivity levels and a 'global' growth of the companies within the area. However, only one participant

gave a negative response although he did not elaborate. Porter (1998) and Ketels (2003) concur that effective and complete clusters are composed of governmental institutions, universities, accreditation agencies, specialised vocational training institutions and trade associations that can provide training, education, research, information and relevant technical support. With such diversity, companies share ideas, material and psychological resources, challenges and skills. Consequently all this supports and promotes infrastructure, company outputs, growth and capability, quality and relevance.

4.2 Summary

Of the twenty five companies investigated, eighteen were privately owned and seven were from the public sector. The majority of the private sector companies in this study were mainly in the textiles, clothing and leather industry and were generally involved in the manufacture of final products. On the overall, these companies operated with a relatively small labour force (51-100) and accrued gross annual turnovers ranging from R6 million to R50 million in the immediate past financial year. The companies emphasised security of a guaranteed market offered by selling their products directly to other cluster members, increased productivity levels and productivity enhancing initiatives, improved turn over levels and revenues, increased investment levels and job creation as some of the major benefits of cluster memberships.

In terms of challenges, a large proportion of the respondents cited the high cost of labour. There were also some respondents who felt that cluster membership was not something that they felt compelled to do. These non-cluster member companies were equally divided regarding whether or not clustering would improve their business as two were neutral and two actually disagreed. However these respondents felt that enhancing market and financial accessibility and improving existing physical infrastructure were critical elements in encouraging their companies to join the clusters.

It appears that the major support offered by public sector companies related to policy advocacy. However, there were some who felt that more needed to be done to improve the state of the physical infrastructure. Provision of more financial incentive was also cited by a number of companies as an area that needed enhancing while a few of the companies indicated a need for collaborative frameworks to enhance research and development.

Overall, the sentiments appear to indicate a positive influence of clusters on the Ethekwini local government economic development.

The next and final chapter in this thesis, Chapter 5, attempts to explain the effectiveness of manufacturing industry clustering by juxtaposing the findings against literature, drawing conclusions and synthesising the study.

5 Chapter 5 – Conclusions and Recommendations

5.1 Introduction

Recent discourse on enhancing the economy has raised interest in industry clustering among other strategies (Makuwaza, 2001). This study attempted to understand the effectiveness of manufacturing clusters as investment push/pull factor into Durban Metro by studying 25 manufacturing companies. The key question to be answered was; ‘is manufacturing industry clustering an investment push/pull factor into Durban metro’? To answer this key question, it was necessary to unpack it into the following five objectives which needed addressing:

- Understand the nature and status of existing manufacturing clusters
- Understand the effectiveness and benefits of clustering
- Determine the needs of manufacturing clusters
- Investigate the successes of manufacturing clusters
- Explore the challenges and failures of manufacturing clusters.

Addressing these objectives would enable the study to explain the impact of manufacturing clusters on economic development in eThekweni Municipality. The preceding chapter presented the findings addressing these objectives. This chapter discusses and synthesizes the findings as presented in Chapter 4. This chapter explains manufacturing clustering in that light and extracts some lessons for enhancing manufacturing clustering in general and the companies studied in particular.

5.2 Nature and Status of existing manufacturing clusters

With regard to existing manufacturing clusters in this study, the majority of the manufacturing companies were privately owned profit-making organisations and mainly in the clothing, textiles and leather industry. Porter, (1998) and Ketels (2003) concur define the composition of a cluster made up of a diverse mix of companies inclusive of government organisations, universities, accreditation agencies, vocational centres and trade enterprises for the provision of training, research and development as well as relevant technical support. On the contrary, this study highlights that in the case of Durban metro; most of the cluster companies were private and operating within the textiles, clothing and

leather industry and other established clusters with limited evidence of entities such as institutions of higher learning etc.

The findings indicate that the cluster under consideration was composed of fairly small companies (51-100 employees) which accrued the highest turnover in the immediate past year. However, Porter (2003), Zhimang and Ning (2004) and Thompson, (2002) focused on clusters with a global significance such as the Media clusters in Hollywood, the Information Technology cluster in Silicon Valley, the Automotive clusters in Southern Germany and Detroit, the Telecoms clusters in Stockholm and Finland and the Textile/fashion clusters in Northern Italy implying that successful clusters were made up of companies with a global outlook and larger turnovers. Ketels and Sorvell (2002) argue that this traditional view of clusters is now inaccurate. More recent scholarly work indicates that successful clusters may not necessarily bear global significance (Van Der Linde, 2006), as was the case in this study where small companies registered the highest turnover and were likely to have a significant impact. Delgado et al. (2010) contends that the ability of small firms is also enhanced by the strength of the cluster. Thus while small firms may lack the capacity to appropriate many of the supporting activities, they depend on the linkages and relationships which a viable cluster can offer. This is likely to have been the case in the context of this study.

The study reveals that inter-linkages in the clusters are based on markets, competition and proximity to raw materials. This phenomenon is supported in literature where authors such as Porter (2003) argue that second tier clusters can be categorized by the type of geographic dynamics their constituent industries are subject to. Industries differ by the extent to which they can choose locations and this is limited by two main reasons: the need to be close to their customers; and the need to be close to natural resources. The fact that competitors end up in the same proximity is a natural consequence. In addition, there are some industries that are free to choose their location according to the quality of the cluster specific business environment. These industries serve markets in many regions and countries and concentrate across geographies. The cluster effects in these industries are strong and their presence is a key part of the attractiveness of a specific location (Ketels, 2003).

5.3 Benefits of clustering

In terms of benefits accrued by being a member of a cluster, the findings show diverse benefits accrued by the 14 companies related to securing a captive market for selling their products within the cluster, increased productivity and revenues, proximity to suppliers, and availability of the skilled labour pool. This supports literature consulted where Porter (2000) noted some of the benefits of clustering as related to enhancement of the firm's productivity, high quality and specialised inputs, supporting industries and institutions as well as advanced and demanding customers. The presence of greater specialised skills and the availability of support from a large pool of experts within the cluster can result in cost savings (Delgado et al., 2011). Makuwaza (2001) further highlights an improvement in company performance with regard to productivity and revenue, increase in the emergence and growth of the new business; increased innovation, and an ability to attract knowledge-based inward investment. Again, as Seeley (2010) points out, the generic skills, training and development, research and development and infrastructure related constraints can be collectively dealt with within a cluster. These findings also indicated research and development as an area that still needs to be addressed.

5.4 Successes of manufacturing clusters

From the findings, increased productivity and turnover levels emerged as the major successes in cluster companies. Other successes recorded related to a rise in job creation and, increased research and development activity and, heightened production capacity. Shields et al., (2004) point out that clustering enables firms to focus on value chain areas that they have a distinct competence above other firms. This focus enables them to increase their productivity, revenue and services. Again, a United States based study, cluster based firms reported successes related to increased competitiveness and profitability because of cluster memberships (Barkley & Henry, 2001).

5.5 Challenges and failures of manufacturing clusters

With regard to challenges, data seems to show diverse challenges faced by the different companies. The largest number (six) lamented high labour costs, four were not happy with the level of innovation in terms of research and development. Others mentioned challenges

related to limited access to financing and increased competition. It appears as if labour costs were a significant challenge to the cluster companies. This is at variance with literature where research and development are key elements of clusters attractiveness. Botham and Downes (1999) contend that the most critical factors in determining competitiveness are cluster-specific issues, notably cluster-specific intellectual property. Examples of these include: cluster-specific research and development programmes; effective innovation; a highly skilled labour pool; high and guaranteed workmanship and quality control; cluster identity (brand); and specialist information and know-how relating to particular markets or industries. This as it may, is indicative that of limited collaborative frameworks and partnerships with institutions that could provide research and development expertise to enhance industry technical skills. This finding supports Islam's (2010) findings where he noted an absence of institution-community partnerships to enhance community development in KwaZulu-Natal.

5.6 The needs of manufacturing clusters

With respect to outstanding support needed to foster cluster initiatives, reference was made to improvements in physical infrastructure. Provision of financial incentives for heightened productivity and, development of collaborative frameworks and partnerships for research and development to foster development of critical skills through training were highlighted. What stands out as key are issues of physical infrastructure, improved productivity, training, research and productivity for enhancing cluster initiatives. This sentiment is echoed in the literature where Porter (2000) argues that while some constraints can be resolved by the private sector, others (government regulations, basic infrastructure, education, training policies) are a result of government policy and therefore require government intervention. Essentially, any government policy that results in increased costs with no potential for long-term competitiveness or social benefits needs revision. This clearly highlights the need for government focus to go beyond improvements in the general business environment.

5.7 Lessons and Implications

The overriding aim of this study was to explore the impact of clustering on the economic activity of eThekweni. This study revealed that while the majority of respondents felt that

cluster policies have had a positive impact on the economic development of the region, there are a number of aspects that will need a critical effort to improve.

The traditional roles of government (i.e. maintaining macroeconomic and political stability, improving microeconomic capacity through quality general-purpose inputs, and determining overall microeconomic rules and incentives governing competition) though pertinent to the development of viable industry clusters, are insufficient. An increasingly relevant role of government is that of facilitating cluster development, broadening and upgrading clusters (Porter, 2000). One of the core elements of clustering is the potential to allow an economy to move beyond factor cost competition, a process which requires relevant, cluster-specific government policies. Rather than being concerned with the business environment, cluster-specific policies are required from government. Its fundamental role should be to challenge clusters to innovate and upgrade, although this should not merely consist of responses to the short-term demands of clusters. For example, due to spill over and externalities in clusters that encompass public entities, government involvement is essential.

Another major weakness cited by a number of respondents was the relatively low level of research and development. While facilities and capacities of individual companies may be a point of weaknesses for such undertakings it is important to note that there was little evidence of collaborative work done with institutions of higher learning such as the University Of KwaZulu-Natal or Durban University of Technology. These are institutions that have available at their disposal some of the best commercial brains in not only the country but in Africa and this collateral could be tapped to benefit clusters. Such collaboration could extend to the provision of training and the development of critical skills within the wider business context.

Additionally, as a key learning point for the development of other cluster initiatives, it is important to note that policy makers act as facilitators rather than key participants within the clusters. This will ensure that the cluster is an industry driven initiative.

One other area that needs to be critically examined is the highly regulated labour environment. A model needs to be developed that allows smaller companies to be able to access scarce and critical skills at an affordable cost in order to remain competitive and relevant within the context of the cluster initiatives and economic development.

5.8 Limitations of the Study

Limitations of this study relate to adequacy of the sample, generalizability of findings and wider implications, validity and reliability,

5.8.1 Adequacy of the sample

Chapter 3 defined the sample used in the study and specified that this was a purposive sample extracted from industries that were conveniently accessible to the researcher. Consequently this involuntarily left out essentially information-rich members of the population hence the sample was not representative of the entire population under scrutiny (McCall, 1990; Rosenthal & Rosnow, 1991). Further, the non-random and cross-sectional nature of the data suggests that findings may be confined to the groups examined at the time of this research.

Sample composition, which is one of the most frequently cited threats to external validity, is considered a limitation in this study. The data collection was confined to only two clusters and the public sector since it was anticipated that constraints would be faced in the data collection. The replication of the study across a larger sample of clusters in Durban would enhance the findings of the study.

5.8.2 Generalizability of Results

One significant limitation of qualitative research involves the ability to generalize results to other populations. Because qualitative research is often exploratory and tailored to the needs of a specific population (Cohen, Manion & Morrison, 2000), I would not attempt to prove reliability or generalizability of my findings or to extrapolate the findings to more broad populations. Given the sample size of 25 respondents in manufacturing industry clustering and sampling design adopted for the study, it would be unrealistic to claim that if this study were to be carried out with similar participants in similar contexts however defined, similar results would be found or that the conclusions arrived at would be generalizable to other contexts. This was a very small proportion of the entire population within manufacturing industry clusters in Durban. Hence this study does not lend itself to generalization of findings. However, applicability to similar settings and situations is possible given that the circumstances are provided with sufficiently descriptive data.

5.8.3 Wider Implications

Qualitative research has limitations with respect to wider or broader implications. Given that qualitative research is specific to one setting and is not generalizable, the researcher cannot make broad recommendations to effect any change in policy based on the outcome of the research. As qualitative research provides in-depth answers about one, very specifically defined context, individual or group, it does not provide assurance that findings can transfer across contexts, individuals or groups.

5.8.4 Reliability

Reliability is the degree of regularity with which the data-collection instrument delivers similar outcomes every time it is executed in the same circumstances or used by different researchers (Henning, 2005: 146, 150). Similar to the challenges surrounding wider implications and generalizability of results, qualitative research presents an additional set of issues involving reliability. As qualitative research is heavily dependent on subjective data and the researcher's knowledge and interpretation, replicating a qualitative study becomes an issue as another researcher, may not achieve the same results. However this concern is mitigated by piloting the survey as well as incorporating the thoughts and feedback from critical friends.

5.8.5 Validity

Validity is critical to effective research as it relates to ‘worthwhileness’, the quality of the research and the degree to which the research can justifiably claim to be accurate in representing the phenomenon under exploration. Its absence may render research efforts futile (Cohen, Manion et al., 2000). In qualitative research discourse, within which the study was framed, one refers to the notion of credibility, trustworthiness and transferability as opposed to validity. Issues of honesty, depth, richness, scope of data, nature of participants, triangulation and researcher interest have all been central to addressing transferability and trustworthiness in qualitative research (Delamont, 1992; Guba & Lincoln, 1985). This thesis provides an indicator of transferability and reasonably rich data for research consumers to determine the degree of transferability. The clear, detailed and thick in-depth data descriptions provided, enable readers to “... address twin issues of, trustworthiness, comparability and translatability” (Cohen & Manion, 2000:108) and decide whether findings could be credible and transferrable. Drawing on this view, a

detailed description of the setting was provided to make results more realistic and richer thereby adding to the validity of findings.

Another limitation of qualitative research relates to audiences accustomed to reviewing quantitative inquiry who may view qualitative exploration as less than valid in its approach, methods, or conclusions. Qualitative research deeply hinges and relies on the specific judgment and interpretation of the researcher. Although this allows for reflection, the complexity of particular situations or the knowledge of the researcher, can give rise to bias on researcher's subjective opinions which may influence the conclusions drawn. Consequently, findings may become more of the researcher's opinions than research findings, impinging on issues of validity.

Validity is the degree of precision of a tool to quantify the construct it is meant to measure in the framework of the concepts/variables being investigated (Brink 1996; Polit & Beck 2006: 329-330). The data gathering tool must be precise and constant to mirror the scores of characteristics under investigation and reduce error (Creswell, 2003: 190-193). In this study, the researcher collected raw data utilizing the exact same interview schedule and following the identical order of questions for all the respondents interviewed. The researcher was conversant with the operating environment and was able to use common sense to check the validity of data being given.

Further, while complete unobtrusiveness during interviews may be difficult to achieve (Cohen, Manion et al., 2000) not interrupting the participant as they speak fosters unobtrusiveness in data gathering (Seidman, 1998). Drawing on this view, the researcher adopted a good listener stance, neither interrupting nor redirecting the thinking of the respondents while they developed their thoughts, so that the thoughts and words remained truly theirs. This was meant to enhance validity and reliability or credibility and trustworthiness. Further, by doing a literature review the researcher was able to validate data against prior research.

5.9 Future research

The present study is a small piece of research that explored a small industry manufacturing cluster in Durban. But, given the importance of industry clustering in enhancing the economy, more comprehensive work is required. While the key research question was answered this study raises many questions for future research. Possible questions for

further research could include: How do companies view their responsibility to clustering? How the responsible/local authority views their responsibility to industry clustering? How the companies experience and conceive clustering? Perspectives from such studies may assist in re-conceptualising and strengthening industry clustering.

5.10 Conclusions

It can be concluded that manufacturing industry clusters in Durban benefit eThekweni local government. The major benefits and successes accrued from cluster memberships include securing markets, increased production capacity and productivity, increased turnover levels and revenues, job creation, increased research and development, proximity to suppliers and, availability of an expert labour pool. In addition, better skills have been attracted to Durban, higher productivity levels and revenues, job creation and growth of company capacities, as well as a general growth of companies in the area have been recorded. The inter-linkages within the cluster at large are based on markets, competition and proximity of raw materials. This clustering initiative enjoys government support through policy advocacy. However, study findings suggest that a significant number of these cluster companies are fairly small and mainly in the clothing, textile and leather sector.

Some of the major challenges and failures experienced within the cluster initiative relate to the high cost of labour, limited innovation around research and development, increased competition and limited access to financial support. Cluster companies need further support in terms of physical infrastructure, financial support as well as partnerships and collaborations with institutions to enhance research, training and development of critical skills. It is evident from the study that research and development levels need to improve, and more collaborative frameworks need to be in place in order to strengthen the clusters. It also became clear that in order to further enhance the clusters and stimulate growth, a different approach to labour regulation is required taking cognisance of the needs of both the businesses and employees. In addition, more needs to be done to improve the firms' ability to access necessary financial support.

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Appendix A - Interview Questions

Interview Questions for Research

1) Do you work for the private or the public sector?

- a) Private sector
- b) Public sector

If the answer is a please proceed to next question, if the answer is b then proceed to question 16

2) What industry sector is your company involved in?

- a) Automotive manufacturing
- b) Textiles, clothing and leather
- c) Wood timber and furniture
- d) Agriculture and agri-processing
- e) Services (IT Marketing General Consulting, HR)
- f) Building and construction

3) In what category of the manufacturing value chain would your operation be classified

- a) Final product manufacture
- b) First stage/tier component manufacture
- c) Second stage/tier component manufacture
- d) After market producer
- e) Services

4) What is the size of your labour force?

- a) < 50
- b) 51-100
- c) 101 - 150
- d) 151-200
- e) 201 <

5) What is the turnover of your company for the past financial year?

- a. < R5 million
- b. R5-R50 million

- c. R51 – R100 million
- d. R101-R200 million
- e. R201 million <

6) Is your firm part of a cluster

- a) Yes
- b) No

If your answer to seven above was yes please proceed to question 7, otherwise jump to question 12.

7) Please indicate with a tick from the list below some of the benefits of cluster membership.

a) Secure markets
b) Increased revenues
c) Closer to labour pool
d) Better research and development capabilities
e) Closer to suppliers

8) What are some of the most significant challenges that you have faced as part of the cluster?

a)	Limited access to financing	
b)	Increased competition	
c)	Limited research and development (Innovation)	
d)	Limited revenue growth	
e)	High cost of labour	

9) Please indicate with a tick from the list below what have been some of the successes that you have recorded as part of the cluster?

a)	Increased job creation
b)	Increased productivity levels
c)	Increased turnover
d)	Increased research and development activity
e)	Increased production capacity

10) Please answer the following with a tick in the appropriate box. Where are the following located?

	Within the cluster	Outside the cluster but within the province	In other parts of the country	In other parts of Africa	Outside Africa
Main competitors					
Main markets					
Main raw material suppliers					

11) The cluster initiative has led to an increase in investment in Durban

- a. Strongly Agree
- b. Agree
- c. Neutral
- d. Disagree
- e. Strongly Disagree

Section B

12) Please select the most appropriate reason for not being in a cluster

- a) There is no cluster in our industry
- b) The cost of relocation outweighs the benefits
- c) Our client base is better served by being outside the cluster
- d) There is no compelling case for cluster membership
- e) Other

13) Being part of a cluster would improve our business

- a) Strongly Agree
- b) Agree
- c) Neutral
- d) Disagree
- e) Strongly Disagree

14) What could be done to encourage your business to join a cluster

a)	Provide tax incentives	
b)	Relax labour regulations	
c)	Provide access to markets	
d)	Improve physical infrastructure	
e)	Improve research and development capability through greater collaboration with institutions of higher learning	

Section C

16) Indicate the forms of support your organisation offers clusters and cluster members

a) Policy advocacy
b) Market access/ development
c) Access to finance
d) Information dissemination
e) Training and development
f) Infrastructure development

17) Please rank in order of highest impact what benefits have come from cluster initiatives (1 most important, 5 least important)

a) Job creation
b) Organisational growth
c) Market development
d) Research and development
e) Regional competitiveness

18) What more needs to be done through policy to enhance cluster initiatives?

- a) Improve physical infrastructure
- b) Provide financial incentives for improved productivity
- c) Develop collaborative framework for research and development
- d) Enhance training and development of critical skills
- e) Provide market access initiatives

19) Do you believe that clusters have benefited eThekweni municipality?

- a) yes
- b) no

Please explain your response to the previous question

Appendix B - Ethical Clearance



15 November 2013

Mr Tafadzwa G Mukeredzi (211555123)
Graduate School of Business & Leadership
Westville Campus

Protocol reference number: HSS/1177/013M

Project title: Investigating the impact of manufacturing clusters on economic development in eThekweni Municipality

Dear Mr Mukeredzi,

Expedited Approval

In response to your application, the Humanities & Social Sciences Research Ethics Committee has considered the abovementioned application and the protocol have been granted **FULL APPROVAL**.

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment/modification prior to its implementation. In case you have further queries, please quote the above reference number. Please note: Research data should be securely stored in the discipline/department for a period of 5 years.

I take this opportunity of wishing you everything of the best with your study.

Yours faithfully

Dr Shamila Naidoo (Deputy Chair)

/ms

cc Supervisor: Professor Anesh M Singh
cc Academic Leader Research: Dr E Munazo
cc School Administrator: Ms Wendy Clarke

Humanities & Social Sciences Research Ethics Committee

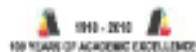
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Appendix C - Informed Consent

Informed Consent Letter 3C

**UNIVERSITY OF KWAZULU-NATAL
GRADUATE SCHOOL OF BUSINESS AND LEADERSHIP**

Dear Respondent,

MBA Research Project

Researcher: Tafadzwa Gabriel Mukeredzi (0745871520)

Supervisor: Anesh Maniraj Singh (+27 31 260 7061)

Research Office: Ms P Ximba 031-2603587

I, **Tafadzwa Gabriel Mukeredzi** an MBA student, at the Graduate School of Business and Leadership, of the University of KwaZulu Natal. You are invited to participate in a research project entitled 'Investigating the impact of manufacturing clusters on economic development in eThekweni Municipality'. The aim of this study is to understand how effective manufacturing clusters are as a lever for economic development on the Durban area.

Through your participation I hope to understand the impact that manufacturing clusters have had on Durban. The results of the study are intended to contribute to the body of evidence on local economic clustering and inform policy development and policy implementation.

Your participation in this project is voluntary. You may refuse to participate or withdraw from the project at any time with no negative consequence. There will be no monetary gain from participating in this survey/focus group. Confidentiality and anonymity of records identifying you as a participant will be maintained by the Graduate School of Business and Leadership, UKZN.

If you have any questions or concerns about participating in this study, you may contact me or my supervisor at the numbers listed above.

The interview should take you approximately **30** minutes. I hope you will take the time to participate in this survey.

Sincerely

Investigator's signature _____ Date _____

This page is to be retained by participant

**UNIVERSITY OF KWAZULU-NATAL
GRADUATE SCHOOL OF BUSINESS AND LEADERSHIP**

MBA Research Project
Researcher: Name (Telephone number)
Supervisor: Name (Office Telephone number)
Research Office: Ms P Ximba 031-2603587

CONSENT

I.....(full names of participant) hereby confirm that I understand the contents of this document and the nature of the research project, and I consent to participating in the research project.

I understand that I am at liberty to withdraw from the project at any time, should I so desire.

I **consent/do not consent** to having this interview recorded (delete inapplicable)

SIGNATURE OF PARTICIPANT

DATE

.....

This page is to be retained by researcher