

**THE ROLE OF MARKET FAILURE IN THE UTILISATION OF
QUALITY MANAGEMENT SERVICES BY THE TOOLING
INDUSTRY**

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ABSTRACT

The primary objective of this research is to identify the determinants of market failure that affect transactions between the tool, die and mould making industry and Quality Management service providers within the Nelson Mandela Bay area. A literature review of market failure, the service economy and the evolution of donors' interventions in business service markets was conducted. It provided valuable insights into the identification of issues that could indicate whether a market was performing optimally, whether the design of the market was functional and how the characteristics of the service allowed it to be traded through market mechanisms. For the empirical study, a questionnaire was developed and administered to 71 tool, die and mould making firms and 15 Quality Management service providers in the Nelson Mandela Bay area in South Africa.

The results revealed several areas in the Quality Management service marketplace that are underperforming due to market failures. These are often the result of insufficient information flows which lead to asymmetrical information and adverse selection. There was evidence of market failures caused by the inadequate expression of costs in the prices of Quality Management services, mainly due to the high search and evaluative costs involved in finding a Quality Management service provider or in differentiating between the qualities of the service offerings. It was found that the Quality Management service marketplace was affected by several negative externalities that were often related to insufficient provision of public goods. However, there is a rich institutional landscape supporting the Quality Management marketplace that offsets many of the market failures in the area.

The competitiveness of the Quality Management service providers is influenced by several factors, which include the competitive pressure on their customers such as the tool, die and mould making firms, as well as the support and governance provided by supporting institutions. The study concludes with recommendations to the tool, die and mould making firms, Quality Management service providers and the institutions supporting the Quality Management service market place in the Nelson Mandela Bay Metropolitan area.

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ABBREVIATIONS

AIDC	Automotive Industry Development Centre
ACTS	Automotive Component Technology Station
AMTS	Advanced Manufacturing Technology Strategy (South Africa)
BDS	Business Development Services
BDS MDA	Business Development Services Market Development Approach
CDE	Centre for the Development of Enterprise
CEC	Commission of European Communities
CSIR	Council for Scientific and Industrial Research (South Africa)
DAC	Development Assistance Committee
DFID	Department for International Development (UK)
DST	Department of Science and Technology (South Africa)
DTI	Department of Trade and Industry (South Africa)
ECDC	Eastern Cape Development Corporation (South Africa)
EUREP- GAP	European Retailers Representative Groups standards on Good Agricultural Practices
FRIDGE	Fund for Research into Industrial Development Growth and Equity
GATS	General Agreement on Trade in Services
GEM	Global Entrepreneurial Monitor
GDP	Gross domestic product
GTZ	<i>Deutsche Gesellschaft für Technische Zusammenarbeit GmbH</i>
HACCP	Hazardous Analysis and Critical Control Points
IFC	International Finance Corporation (member of the World Bank)
ILO	International Labour Organisation
ISO	International Organization for Standardization
ISO/IEC	International Organization for Standardization and the International Electrotechnical Commission
IMF	International Monetary Fund
ISTMA	International Special Tooling Machining Association
LBSC	Local Business Support Centre
MAC	Manufacturing Advisory Centre
MDA	Market Development Approach
M4P	Making Markets Work for the Poor

MMMWP	Making Markets Work for the Poor
NMBMM	Nelson Mandela Bay Metropolitan Municipality
NMISA	National Metrology Institute of South Africa
NMMU	Nelson Mandela Metropolitan University
NPI	National Productivity Institute (South Africa)
NRCS	National Regulator for Compulsory Specifications (South Africa)
NTB	Non-tariff barrier
NTI	National Tooling Initiative of South Africa
ODA	Official Development Assistance
OECD	Organisation for Economic Co-operation and Development
QM	Quality management
QMS	Quality Management Services
QMS SP	Quality Management Services Service Provider
SABS	South African Bureau of Standards
SANAS	South African National Accreditation System
SAQI	South African Quality Institute
SARB	South African Reserve Bank
SEDA	Small Enterprise Development Agency (South Africa)
SIC	Standard Industrial Classification
SNA	System of National Accounts (South Africa)
TAC	Tender Advice Centre
TASA	Tooling Association of South Africa
TDM	Tool, die and mould making
TIPS	Trade and Industry Policy Strategies
TQM	Total Quality Management
USAID	United States Agency for International Development
VDA	<i>Verband der Automobilindustrie</i>
WTO	World Trade Organisation

CHAPTER 1: NATURE AND SCOPE OF THE RESEARCH

1.1 INTRODUCTION

The growth and development of the private sector in developing countries is not only the discussion topic of donors and aid agencies (World Bank, 2009; Lindahl, 2005), but is also an important topic for national governments (Mbeki, 2008:67; Centre for the Development of Enterprise (CDE), 2004) institutions such as the Organisation for Economic Co-operation and Development (OECD, 2007) and researchers (Rodrik, 2007b; McMillan & Woodruff, 2002; Audretsch & Thurik, 2001; Sen, 2000). Developing countries are increasingly under pressure to improve their competitiveness due to ongoing international market reforms and the ever-increasing reach of globalisation (Haar & Meyer-Stamer, 2008; Rodrik, 2007a; World Economic Forum, 2007; Garelli, 2006; Stiglitz, 2006; Schmitz, 2004; Stiglitz, 2002a; Porter, 1998b).

The increasing importance of competitiveness is influenced by issues such as technology, innovation, the increasing importance of the **service sector** (Kox & Rubalcaba, 2007) and **knowledge-intensive business services** (Bryson & Daniels, 2007; Garelli, 2006:607-618; Miles, Kastrinos, Bilderbeek, Den Hertog, Huntink & Bouman, 1995). Garelli (2006:607-618) explains that developing a competitive economy means that countries must address local social issues while simultaneously increasing the international competitiveness of their industries. South Africa is faced with a high unemployment rate with mainly low-skilled workers who are not being absorbed into the formal sector fast enough (Centre for the Development of Enterprise (CDE), 2006; Rodrik, 2006:3; Centre for the Development of Enterprise (CDE), 2004). At the same time the international competitiveness of the South Africa economy is slipping when compared to other countries (World Economic Forum, 2007).

In cases where markets do not organise production or goods allocation efficiently, the situation is described as a **market failure** (Oxford Reference Online, 2009a). The term "*market failure*" does not imply that a market is not working at all, but that it is not working efficiently because it is not producing the goods and services that are wanted or needed (Lines, Marcouse & Martin, 2006:167; Colin, 2003:125). Researchers are increasingly becoming aware of the effect of market failure on the growth and development of economies (Stiglitz, 1998).

Many sectors in the new economy are prone to market failures (Stenbacka, 2001). With the increasing importance of knowledge intensive business services in the new economy (Garelli, 2006:607-618), it is important to understand the effects of market failure on business services (European Commission, 2002).

This study informs strategic interventions by the Department of Trade and Industry and the Tooling Association of South Africa to improve the competitiveness of the **tool, die and mould making sector** through the increased use of quality management services. This means that interventions to improve the **functioning and performance of the quality management service marketplace** in the tool, die and mould making sector must be identified and implemented.

This study focuses on two elements in the development of the private sector, namely business services (also sometimes called business development services) and the delivery of services via the market mechanism (also sometimes called service market development). These two topics will be applied to the consumption of a specific business service, namely the use of quality management services delivered through market mechanisms.

The usage of the quality management service will be analysed from the perspective of the **tool, die and mould making sector**, which represents a small yet important component of the South African manufacturing sector. The use of market mechanisms to strengthen the performance of the private sector, especially through the use of business services, is an increasingly important topic in the development industry.

Business services, also sometimes referred to as **business development services** in the older literature, became popular in the mid-1990s as a more sustainable way to enhance the performance of the private sector (Hileman & Tanburn, 2000:1). Donors and governments evaluated their interventions in the direct development of small enterprises and found that they were often competing with commercial service providers that had a much better reach and diversity of service offerings when compared to the generic nature of state-subsidised services (Gibson, 1999). Donors and governments shifted their attention to stimulate the improvement of business service markets as a mechanism to support private sector performance, especially small enterprise performance, and guidelines were published to guide the interventions of donors and governments (Committee of Donor Agencies for Small Enterprise Development, 2001).

Over time donors realised that all small enterprises performed within a broader market framework, and a new emphasis on the performance of market systems emerged, especially as a means to include the poor in market systems (Ferrand, Gibson & Scott, 2004). Recently, "*addressing market failure*" has become the pre-condition in the design and implementation of development programmes, with several influential development organisations publishing guidelines to this effect (OECD, 2007; Department for International Development (DFID), 2005; Eiligmann, 2005; Ferrand *et al.*, 2004; Miehlbradt, 2001).

However, the exact way to determine whether a market is functioning or failing is vague in the literature used most often by donors and governments to design their development programmes (OECD, 2007:12,30-31).

In some cases this **new emphasis on market design and the functioning of markets** by governments and donors is implemented without proper research or a proper understanding of markets or market failure. The Organisation for Economic Co-operation and Development's Assistance Committee (OECD, 2007:12,30-31) warns that in some cases **market failure was replaced by government failure** due to poor design decisions by donors and governments.

These poor design decisions by donors and governments were probably caused by several factors:

- many donors depend on typical consumer research methods to identify and remedy market failure (Cunningham & Trah, 2004a; Miehlebradt, 2002a);
- poor understanding of how markets function by policy makers and development practitioners (Bear, Hitchins & Gibson, 2003);
- development practitioners not knowing how to facilitate market development programmes (Bear *et al.*, 2003:4);
- ideological concerns or preferences (Stiglitz, 2006:Chapter 2; Stiglitz, 2001:461; Rodrik, 2000:27); and
- not understanding the role of the state in market development (McMillan, 2002:14; Rogerson, 2001).

In the defence of donors and governments it must be said that markets and market failure is also under researched by researchers, with Hodgson (2008:251) and McMillan (2002:8) commenting that at least three Nobel laureates (Stigler, North and Coase) complained about the astonishing fact that the functioning of markets receive very little attention in economics. In fact, some of the leading economics textbooks, such as Samuelson and Nordhaus's *Economics* (1992) did not even mention the phrase market failure in several editions.

1.2 TERMINOLOGY

This section explains some of the key terms in the context that are used throughout this study.

Business services are services that firms require in their day-to-day operations, and include services such as accounting, legal, bookkeeping, market research, management consultancy, consulting engineering, advertising and labour services (Statistics South Africa, 2005a:62). Donors involved in small enterprise development often use the term "**business development services**" (Committee of Donor Agencies for Small Enterprise Development, 2001) to describe very similar services to those that "business services" cover. Increasingly donors and governments are

simply referring to business services. Sometimes services used by manufacturing firms, for example design services, are called **producer services**. Again, there is a convergence in terminology in order to describe certain producer services as business services. Lastly, in the knowledge based era, business is becoming more knowledge intensive, which is resulting in certain business services being labelled as **knowledge intensive business services** or KIBS (Miles, 2007:278; Toivonen, 2004; Roberts, 2003:130). Many professional services fall into this category, as well as many of the services that have emerged through advances in technology and science.

A **market** is a place where a product or a service might be sold. Originally, a market referred to a physical place, although new markets have become increasingly virtual (Mohr & Fourie, 2007:29). To capture the essence of some of the more modern markets, Mankiw (2003:66) explains that a market exists whenever there is a group of buyers and sellers of a particular good or service. Thus when the phrase "**quality management services market**" is used, it describes the virtual market where potential buyers of quality management services interact with potential suppliers of Quality Management services.

In cases where markets do not organise production or goods allocation efficiently, the situation is described as a **market failure** (Oxford Reference Online, 2009a; Colin, 2003:125; Mankiw, 2003:11). Factors that may cause market failure include the possession of market power by transactors, externalities, or information problems. The term "*market failure*" does not imply that a market is not working at all, but that it is not working efficiently because it is not producing goods and services that are wanted or needed (Lines *et al.*, 2006:167). Of the different coordination mechanisms that exist in economies, markets remain the most efficient due to their decentralised nature (Mankiw, 2003:88; Lindblom, 2001:265). This then implies that a market failure exists when decentralised decisions do not occur, or when they do not occur in an efficient way. The other two important coordination mechanisms in markets are **hierarchies** and **networks** (Powell, 1990), and when trying to optimise the performance of economies consideration must be given to the benefits and limitations of all three modes of coordination (Entwistle, Bristow, Hines, Donaldson & Martin, 2007:65).

Typically firms strive to achieve certain product, process or management system standards due to their own cost reduction or waste reduction strategies, or because of demand placed on them by laws, standards or customers. **Quality management services** describe the services that firms need to meet their quality management targets and involve the design, implementation, analysis, monitoring, and accreditation and certification activities. Many manufacturing firms use a combination of internal quality management functions combined with externally sourced quality management services. Using third party certification and accreditation is often a prerequisite to compete in local or international sectors (e.g. the automotive sector). Increasingly, certification to certain food standards, environmental standards, labour standards, agricultural practices, and more recently black economic empowerment certification are provided by specialised quality management service providers.

Tool, die and mould making firms refer to firms that design and build special tools, dies, jigs, fixtures, moulds, die-casting dies, gauges, special machines, precision machined parts and components, or they depend on these tools to manufacture their products (International Special Tooling Machining Association (ISTMA), 2009; National Tooling Initiative (NTI), 2008). This means that tool, die and mould making can be described as a **cross-cutting industry** which in turn supplies critical equipment and machine inputs to the rest of the manufacturing sector.

1.3 PROBLEM STATEMENT

Improving the quality and competitiveness of the tool, die and mould making (TDM) industry is a high priority for the South African government and the manufacturing industry, as the performance of the tool, die and mould sector has a direction impact on the competitiveness and performance of the broader manufacturing sector in South Africa (TASA, 2009; CSIR, 2008; Department of Science and Technology (DST), 2005). In 2005 an in-depth diagnosis of the South African tool, die and mould making industry was undertaken with funding from the Fund for Research into Industrial Development, Growth and Equity (FRIDGE, 2005).

The FRIDGE report (2005:92) describes much of the South African tool, die and mould making industry as being perceived as *“backward and generally weak*

regarding quality levels and competitiveness". Criticism of a lack of quality standards and metrology service usage has also surfaced, as small enterprises are described as not using adequate inspection facilities. This has resulted in their only being able to produce low-technology tools in an increasingly hi-tech industry requiring extremely precise and efficient tooling (FRIDGE, 2005:93). Thus, South Africa's ambitions to strengthen its industrial base through mechanisms such as the National Industrial Policy Framework (Department of Trade and Industry (DTI), 2007) will be hampered if the issues of quality and quality management in the tool, die and mould making sector are not addressed.

The Tooling Association of South Africa and other actors such as the Institute for Advanced Tooling need to better understand their options with regard to the improvement of quality management services used by the tool, die and mould making (TDM) industry in the Nelson Mandela Bay area.

One explanation of the poor quality standards (hence the poor quality management) in the tool, die and mould making (TDM) industry is that the market for quality management services is not functioning properly, despite a fairly large quality management service provider base in the Nelson Mandela Bay area. If the quality management service marketplace is not performing efficiently it could lead to inefficient outcomes, such as service providers only concentrating on large firms, monopolistic behaviour, crowding out of new entrants, underinvestment, or companies not investing in the development of internal quality management capacity. These inefficiencies in the way the market functions are described as market failure. The Tooling Association of South Africa, the Department of Trade and Industry and Department of Science and Technology need to better understand their options with regard to stimulating the provision of quality management services and the increased usage of these services by the tool, die and mould making sectors.

In order to improve the performance of the quality management service marketplace, especially in relation to the tool, die and mould making (TDM) industry, a thorough analysis must be conducted into the way the quality management services market functions. This study must not only focus on the obstacles to transactions and the

demands of the users, but must also look at incentives, value, transaction cost, competition in the market, property rights and the legislative framework.

Furthermore, the role of the public sector in providing supporting services, public goods and incentives to the quality management service marketplace and the tool, die and mould making industry must be analysed.

1.4 OBJECTIVES OF THE STUDY

1.4.1 Primary objective

The primary objective of this research is to identify the determinants of market failure that affect the more efficient provision and consumption of quality management-related services and the tool, die and mould making industry within the Nelson Mandela area.

The outcome of the study will be to provide recommendations on how some of the market failures can be addressed by either improving the design of the market place, or through interventions targeted to address specific causes of market failure.

1.4.2 Secondary objectives

In order to address the primary objective, the following secondary objectives were formulated:

- to gain insight into the nature of business services and their relationship with the rest of the economy by means of a literature review;
- to gain insight into how markets function and specifically how market failure affects market performance by means of a literature review;
- to examine the recent developments in developing or improving market systems undertaken by donors, governments and academia;
- to better understand the quality management service functions and their relationship with the tool, die and mould making industry by means of a literature review;

- to identify the items that could be used to determine whether a market is performing using the insights gained from the literature review;
- based on the literature review, to develop a questionnaire that will assess the performance of the quality management service marketplace from the perspective of the tool, die and mould making industry and quality management service providers;
- to analyse the results of the empirical research to determine whether the market design or functioning of quality management services can be improved in any way so as to improve the performance of the quality management services market;
- to suggest practical recommendations to the different stakeholders as to how the utilisation of the quality management services marketplace can be stimulated and supported to lead to an improvement in utilisation by tool, die and mould making firms; and
- to offer recommendations to utilise the questionnaire as a diagnostic instrument in future research.

1.5 SCOPE OF THE STUDY

In order to derive meaningful conclusions, the boundaries of the study need to be established.

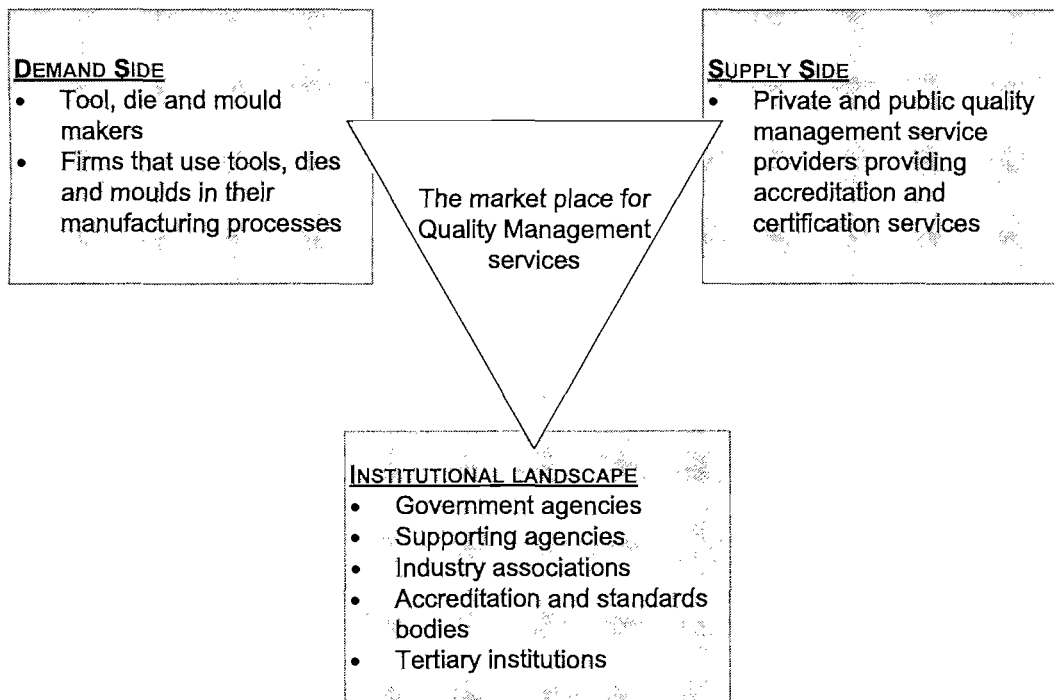
The literature study will start with an overview of the topics of services, business services and market failure. These topics will mainly be discussed from the perspectives of economics and sociology. The characteristics of services and service management and quality management topics will be studied using sources from business management.

The insights gained from the literature study will inform the design of the empirical research.

1.5.1 Field of the study

The main focus of this study is on the performance of the quality management services marketplace and how its services are used by the tool, die and mould making industry. For the quality management service market to exist there must be demand for quality management services, there must be a supply of quality management services, and there must be some kind of institutional supporting layer to stimulate, govern and support the transactions between supply and demand. This construct of the quality management service marketplace is illustrated in Figure 1.1.

Figure 1.1: The marketplace for quality management services



The demand side in this marketplace will be represented by formal manufacturing firms that either produce tools, dies and moulds or that use these in their manufacturing processes (see Figure 1.1). These firms collectively make up the cross-cutting industry called the tool, die and mould industry. The performance of the whole tool, die and mould industry is affected by low standards and poor quality, therefore both specialised tool, die and mould firms and the manufacturers that depend on the tool, die and mould industry will be included, as it is difficult to separate these two categories.

The supply side shown in Figure 1.1 will be mainly made up of public and private service providers of quality management-related services within the geographic area. This will include providers of metrology, accreditation and training services relating to quality management.

The institutional level is seen as the supporting, enabling and regulatory layer that enables this market to function. Examples are the South African Bureau of Standards (SABS), the South African National Accreditation System (SANAS), Nelson Mandela Metropolitan University and the Tooling Association of South Africa. Both national and local institutional experts were interviewed in this research, as the institutional layers functions at different levels. Due to cost considerations, international actors were not interviewed, but their views are covered in the literature study.

1.5.2 Geographical demarcation

The geographic focus of this research was the Nelson Mandela Bay Metropolitan area in the Eastern Cape Province of South Africa. The main city in the municipality, Port Elizabeth, is shown in Figure 1.2.

The Nelson Mandela Bay Metropolitan Municipality is South Africa's fifth largest city in terms of population and the second largest in terms of area, and is one of five metropolitan areas in South Africa (NMBMM, 2009a). The two main economic centres in Nelson Mandela Bay Metropolitan Municipality are the city of Port Elizabeth and the Uitenhage region.

Figure 1.2: Map showing the location of Port Elizabeth



Source: Google Maps (2009)

The Nelson Mandela Bay Metropolitan area is an important centre for the automobile industry and it is a major transport hub. There is a well-equipped airport, harbour and sea port linking Southern Africa with other national and international destinations. The Mandela Bay area is the largest employer in the Eastern Cape Province and employs 204 872 people. It contributes 2.98% (R26.5 billion) to the national gross value added of South Africa (NMBMM, 2004:9). The gross geographic product (GGP) in 2002 was estimated to be 41% of the gross geographic product (GGP) of the Eastern Cape Province and 5% of the national gross domestic product of South Africa. The population of the metropolitan area is estimated to be 1 125 536, or 16.2% of the total population of the Eastern Cape.

The most important employers in the municipal area are the manufacturing and community service sectors, and both these sectors have been showing negative employment growth over the past number of years. Despite the negative employment growth, the importance of the manufacturing sector in terms of gross value added

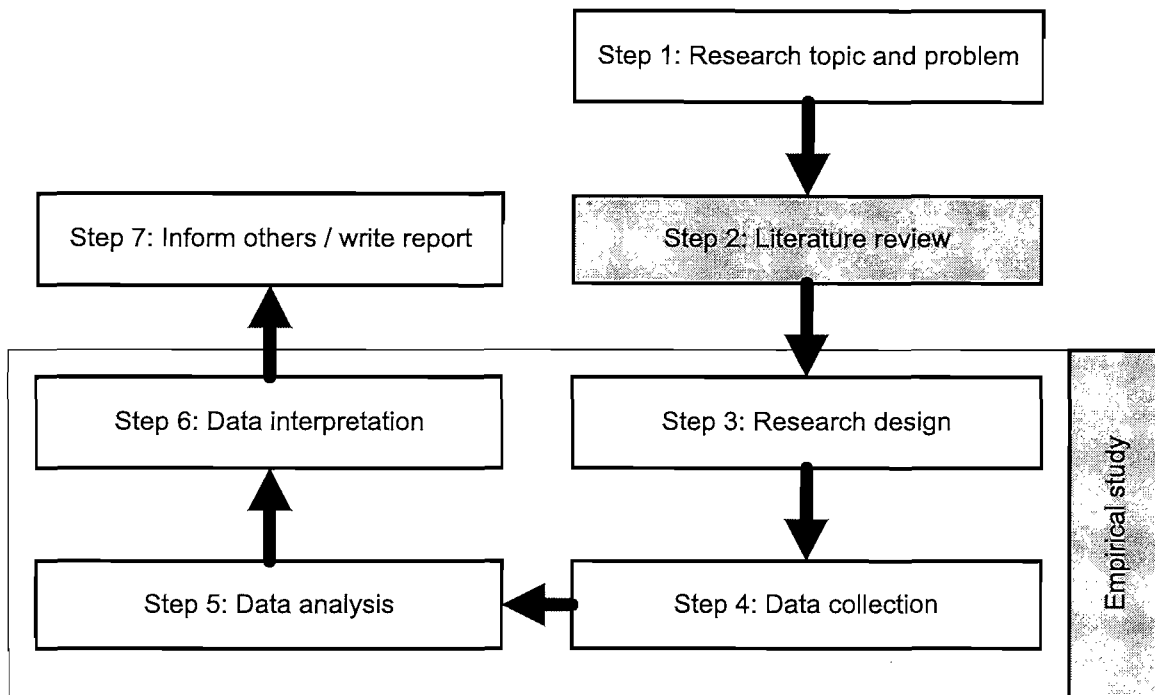
has been increasing over time. This importance of the manufacturing sector can be attributed to the local automotive industry and related industries. Other important manufacturing sub-sectors include food and beverage production, clothing, chemicals, rubber and plastics, metals and mechanical, and also the wood, paper and printing sub-sectors (NMBMM, 2009b; 2004:10).

1.6 RESEARCH METHODOLOGY

For this study, an exploratory research approach was taken in order to make forays into a topic that is still fairly new to the development field and poorly understood by development practitioners and policy makers (Oxford Reference Online, 2009c). Whereas basic research is undertaken with the primary goal of contributing to knowledge or understanding of some phenomenon or phenomena by testing explicit hypotheses, exploratory research attempts to clarify the exact nature of the problem to be solved (Oxford Reference Online, 2009c). Welman and Kruger (1999:18) explain that exploratory research is used to determine whether or not a phenomenon exists in order to gain familiarity with such a phenomenon, not to compare it with other phenomena.

Welman and Kruger (1999:18) conclude that the purpose of conducting research into theories and other research problems is to define, explain and consequently predict and even modify and control human behaviour, its organisations and or events. Neuman (1997:10-11) and Welman and Kruger (1999:33) identify several steps in the research process that are illustrated in Figure 1.3. These steps were used to design this study and will be discussed in detail in Chapter 7.

Figure 1.3: Steps in the research process



Source: Neuman (1997:11)

The study consists of two sections, the first being a literature study and the second an empirical study. To provide a brief overview of the research methodology, this section briefly summarises the literature and the empirical research that was conducted for this study.

1.6.1 Literature review

Du Plooy (1995:37) explains that the purpose of a literature study is to deepen the researcher's theoretical understanding of a topic, to become familiar with the latest theoretical developments and debates in the area of research and to become acquainted with the problems, hypotheses and results obtained by previous research. A literature review furthermore serves to sharpen the researcher's understanding of the research problem, and may identify gaps and inconsistencies that may justify further research (Welman, Kruger & Mitchell, 2005:38).

In order to understand the role of business service markets and their impact on the competitiveness of certain sectors, several interrelated theoretical topics must be

studied. A study of international and local literature resources was conducted which cover the following subjects:

- service industries and specifically business services and their relationship with the broader economy (Chapter 2);
- how markets function and what the determinants of market failure are (chapter 3);
- the past experiences of donors in the development of business service markets (Chapter 4);
- the function of quality management services in a manufacturing environment (Chapter 5); and
- the relationship between the tool, die and mould making industry and the rest of the manufacturing sector (Chapter 6).

The literature review informed the design and execution of the empirical research. International and national journals, online databases of developmental organisations, government strategy documents and text books were used to conduct the literature study. Online databases such as EBSCOhost and J-Stor were accessed via the Ferdinand Postma Library online service.

1.6.2 Empirical research

This section briefly describes the main elements of the research method which is described in detail in Chapter 7 of this study. Quantitative research uses structured methods to collect and evaluate objective data (Welman *et al.*, 2005:10). The first step in the research process was to design a questionnaire to serve as a measuring instrument.

1.6.2.1 Development of the research instrument

The literature study provided value insights into the identification of issues that could indicate whether a market was performing optimally, whether the design of the market was functional, and how the characteristics of the service allowed it to be traded through market mechanisms.

The following latent constructs were identified which are related to the performance of markets. These are:

- incomplete or asymmetrical information;
- the inadequate expression of costs or benefits of services;
- public and mixed goods;
- the use of property rights;
- sub-optimal market structures;
- externalities; and
- indivisibilities or transaction costs.

Furthermore, additional latent constructs required for markets to function were identified:

- the flow of information in the marketplace between supply, demand and the supporting institutions;
- whether people can be held responsible for their promises (trust);
- the legal options available to hold parties accountable; and
- the attitude and responses to competitive pressures by actors.

A final set of latent constructs were identified based on the characteristics of quality management services that capture:

- the awareness, attitude and knowledge of quality management services;
- the intensity of providing or consuming the service;
- the frequency and reasons of use;
- the mechanisms of providing or using the service; and
- the signals that are used in the marketplace to signal value.

A comprehensive measurement instrument to evaluate these constructs was developed in three phases. These are: formulate the items to measure each latent variable after a comprehensive review of available literature; test the measurement

instrument in at least one tool, die and mould making firm and with at least three industry experts; refine the measuring instrument.

The first step was to formulate items or statements that measured each of the latent constructs based on the results of the literature review. Neuman (1997:107) explains that researchers who focus on casual relationships begin with an effect and then search for its causes. Each statement used in the questionnaire was carefully formulated to test for a specific effect. It was necessary to ensure that the different parties (supply and demand) would be able to respond to the same items in order to measure the effects of the differences or agreements of these parties to the transactions in the quality management service market.

A variety of measuring instruments was used including: true and false statements, seven-point Likert scales and prioritised rankings. Where possible, seven-point Likert scales were used in the questionnaire. A Likert scale, also referred to as a summated scale, consists of a collection of statements about the attitudinal object (Huysamen, 1994:125). The Likert scale is at present the most popular type of scale in the social sciences (Page & Meyer, 2000:75; Huysamen, 1994:126). This popularity stems from the fact that it is easier to compile than any of the other attitudinal scales, e.g. Guttman and Thurstone scales (Welman *et al.*, 2005:156; Huysamen, 1994:126).

For each statement, subjects have to indicate the degree to which they agree or disagree with its content on a certain scale. Welman and Kruger (1999:156) explain that some statements may reflect a positive attitude while others reflect a negative attitude.

The questionnaire is divided into three sections (see Figure 7.1: Structure of the questionnaire):

- firm, industry and service performance;
- testing for different kinds of market failure; and
- the market design and functioning.

A first draft measurement instrument was developed and was tested on a few industry experts to see whether the items made sense. This provided a first opportunity to test the validity of the measurement instrument. According to Bless and Higson-Smith (1995) it is important for researchers to evaluate the measures or instruments they use. This can be done by evaluating the reliability and construct validity of measures (Page & Meyer, 2000:84). Next, the instrument was tested in a few test interviews in Gauteng. Further revisions were made and a final questionnaire was developed for the survey.

1.6.2.2 Determining the population and sample

Field (2005:3) and Welman *et al.* (2005:52-53) describe the population as the study object that consists of individuals, groups, events, or the conditions to which they are exposed.

For this research, a total sampling frame was developed that represents the populations of the marketplace analysed (Field, 2005:3). The total sampling frame was constructed from the following four populations: firms that provide quality management services to the manufacturing sector (N_{SP}); firms that manufacture or design tools, moulds or dies (N_{TDM}); firms that use tools, dies or moulds in their manufacturing processes (N_{TDM}); and institutions that support the marketplace.

In order to develop the total population of the tool, die and mould making sector (N_{TDM}), it was necessary first to determine the total manufacturing population (N_{max}) in the Nelson Mandela Bay area. The company database of the Small Enterprise Development Agency (SEDA) and Nelson Mandela Bay membership list of the Tooling Association of South Africa (TASA) were used as a starting point, but it was necessary to identify additional firms from telephone directories, yellow pages and electronic sources to develop a more complete database of tool, die and mould making firms and quality management service providers. The detailed steps in this process are described in Paragraph 7.4 of this study. A list of 514 manufacturing firms was developed (N_{max}), of which at least 253 were considered either to be manufacturers of tools, dies and moulds, or manufacturing firms that depended on tools, dies and moulds (N_{TDM}).

It was also necessary to determine the total population of service providers of quality management services (N_{SP}). The total service provider population was determined using a combination of the Small Enterprise Development Agency (SEDA) registered quality management service providers database, the yellow pages and snowball sampling. Due to problems making contact with some service providers, it was decided to include all the reachable quality management-related service providers in the service provider sample ($N_{SP} = 15$).

According to Cramer and Howitt (2004:162), in situations where a population frame is made up of different sub-groups or categories, straightforward random sampling may omit a particular class of cases. In these cases, a sampling method known as stratified sampling is applied, where the frame is organised into different strata (Welman *et al.*, 2005:62; Cramer & Howitt, 2004:162). A sample is then selected from each stratum separately. A stratified sample is produced that ensures that particular groups within a population are adequately represented in the sample, and that improves efficiency by gaining greater control of the composition of the sample (Upton & Cook, 2006; Welman *et al.*, 2005:62; Cramer & Howitt, 2004:162-163).

After applying the stratified sampling method, a total of 71 tool, die and mould making firms ($n_{TDM} = 71$), and 15 ($n_{SP} = 15$) quality management service providers were included in the sample.

1.6.2.3 Data collection

The third step in the process was to collect data through direct interviews with respondents. Although direct interviewing is a more costly approach, the benefits of controlling the interview and increasing the response rate outweigh the cost factor (Welman *et al.*, 2005:164; Neuman, 1997:251-263). Due to the small size of the sample (and the population) it was decided that the benefits of direct interviews outweighed the costs. Interviews were arranged through telephone calls and letters to the sample population.

The research instrument was administered to a total of 86 respondents and the data were captured in the SPSS software application (SPSS Inc, 2005). Of this total, 15

respondents represented quality management service providers and 71 represented tool, die and mould making firms. At the start of each interview the respondents were asked to confirm that they were senior decision-makers involved in decisions relating to quality management services. Several interviews were conducted with industry experts and government officials that were not recorded on questionnaires, but served more to interpret the findings.

1.6.2.4 Data analysis

The final step in the empirical study was to capture the findings in statistical software and to analyse the data using a combination of quantitative and qualitative analytical methods. The data collected were statistically analysed using SPSS (SPSS Inc, 2005).

Cummings and Worley (2005:126) explain that the most common quantitative tools are arithmetic means, standard deviations, frequency distributions, scatter grams, correlation coefficients and difference tests. However, a straightforward analysis of the arithmetic means and standard deviations could be misleading.

In many cases it is important to know whether a relationship between two variables is practically significant (Ellis & Steyn, 2003:53). There are several different kinds of effect sizes, but only two kinds would be useful in this study. The first kind is used to analyse the difference between means (d), while the other tests for the effect sizes in two-way (contingency) tables (w). Cohen's guidelines are used to interpret effect size when calculating the difference between means: small effect: $d = 0.2$; medium effect: $d = 0.5$; and large effect: $d \geq 0.8$ (Field, 2005:32; Ellis & Steyn, 2003:51-53; Cohen, 1992:155-159). Results with medium effects can be regarded as visible effects, while $d \geq 0.8$ is regarded as practically significant. Cohen (Field, 2005:32; Ellis & Steyn, 2003:51-53; Cohen, 1992:155-159) gives the following guidelines for the interpretation of effect sizes in contingency tables: small effect: $w = 0.1$; medium: $w = 0.3$; large: $w \geq 0.5$.

According to Du Plooy (1995:42), the interpretation of data is essential for the simple reason that the usefulness and relevance of the research findings lie in proper

interpretation. Interpretation refers to the task of drawing inferences from the collected facts and implies a search for the broader meanings of the findings.

1.7 LIMITATIONS OF THE STUDY

This study attempted to contribute to the body of knowledge of approaches used to improve the performance of markets for business services, such as Quality Management services used by the tool, die and mould making firms. The study, however, only identified and assessed some of the determinants of market failure and market functioning. More comprehensive research is still needed to clarify the underlying dimensions of, and relationships between, different kinds of market failure.

The empirical study was restricted to the Nelson Mandela Bay area in the Eastern Cape Province of South Africa. The findings of this study cannot be regarded as applicable to all tool, die and mould making firms and Quality Management service providers in South Africa.

The study is focused on the tool, die and mould making firms and Quality Management service providers. Due to the narrow focus on these two sectors, the results cannot be generalised to other sectors or markets within the target area or elsewhere.

This is an exploratory study, and owing to the relatively low-level statistical analysis that was performed on the data, it is recommended that more advanced statistical procedures for scale validation, such as exploratory factor analysis and structural equation modelling, be utilised in future studies.

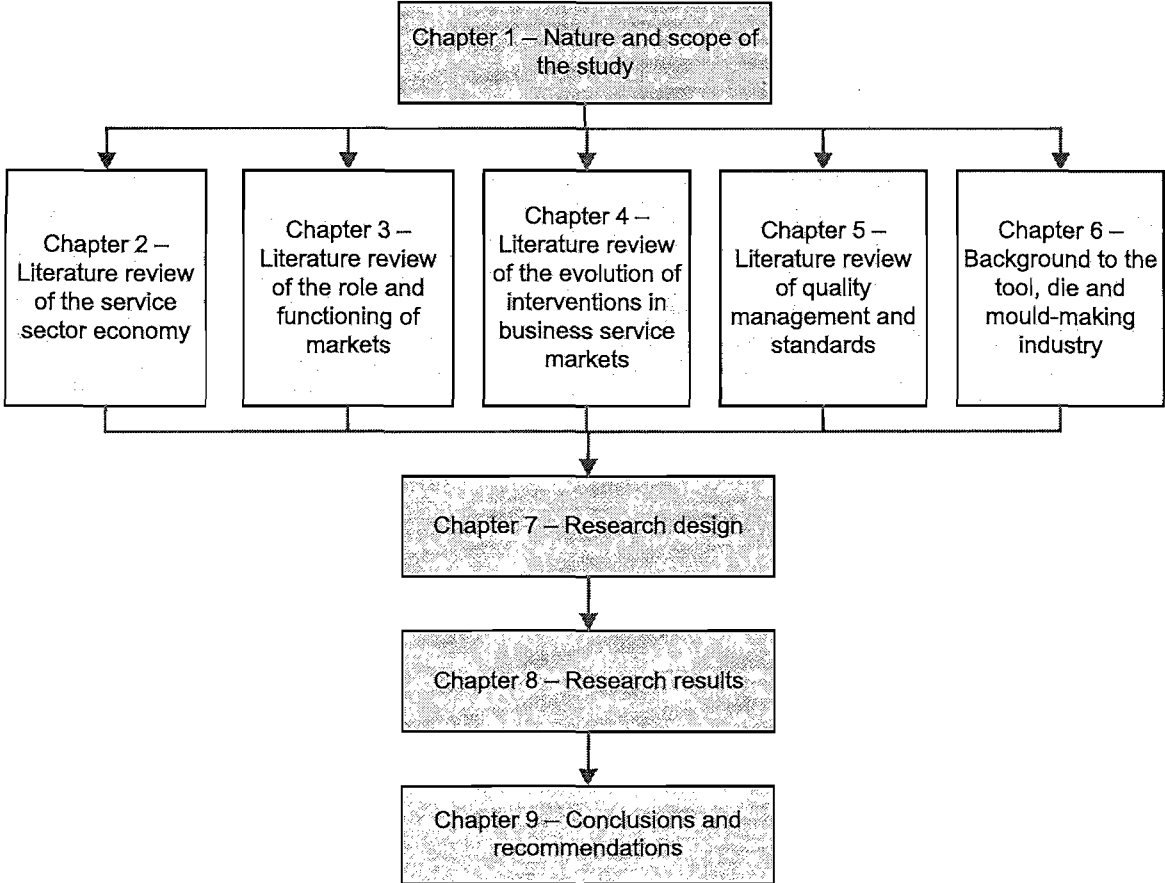
Furthermore, the research findings indicate practically significant bivariate correlation between several items. Care should, however, be taken when interpreting correlation coefficients because the direction of the causality could not be determined. The influence of a third variable on a specific bivariate correlation should also be taken into account in the interpretation of these results (Field, 2005:128). More comprehensive research on covariance is recommended to gain more insight into the causes of the variations.

Care should therefore be exercised in the interpretation and utilisation of the results, and it should also be borne in mind that the findings of the study cannot be generalised. In other words, the typical tool, die and mould making firm could be underrepresented in the sample.

1.8 LAYOUT OF THE STUDY

The layout of the different chapters is shown in Figure 1.4. The chapters shown in green-coloured refer to the literature study, and Chapters 7 to 8 contain the empirical research and findings.

Figure 1.4: Layout of the study



In Chapter 2, the service economy, and specifically the business service sector, is discussed. The evolution of the service economy is presented, from the original description by classical authors to the more recent perspectives on the role of

specialised services in economic growth. The characteristics of services are investigated, and the relationship between the service sector and the rest of the economy is considered.

Chapter 3 provides a literature study of the role and functioning of markets. Different kinds of markets are described, and the requirements for markets to function are explored. The embeddedness of markets in social systems, as well as alternative co-ordination mechanisms other than markets, is discussed. Thereafter the topic of market failure is introduced, and the different kinds of market failure covered in the economics literature are described. Different arguments on how to address market failure are examined, and the role of different actors in addressing market failure is assessed. The chapter closes with a discussion of the relationship between market failure and government failure.

In Chapter 4 the recent experiences of donors and governments of intervening in business service markets are presented. The interest by donors, governments and industry in the performance of business services is described. The evolution of business services as a means to achieve small enterprise development is presented, ending in a description of the most recent phase that concentrates on the market development approach to business services. The instruments used by donors and governments are presented, and some of the shortcomings are highlighted.

Quality management service is described in Chapter 5. Over the last three decades the role of quality management in business has changed, and these changes in emphasis and importance are discussed in this chapter. Furthermore, the relationship between standards and quality management is clarified, and the different kinds of quality management systems are described.

In Chapter 6 the tool, die and mould making industry is introduced. The strategic nature of the tool, die and mould making industry and its relationship to the broader manufacturing sector is presented. Furthermore, an overview of the tool, die and mould making industry in South Africa is provided, and the interventions by different industry and government programmes are explained. This chapter serves as a

connector between the literature study and the empirical research, which starts in the following chapter.

The research methodology used in this study is explained in Chapter 7, and this chapter marks the start of the empirical research. The questionnaire design, identification of the population, sampling methodology and data collection methods are described in detail.

Chapter 8 presents the results of the research. The statistical analysis of the data is presented with a limited discussion of the findings only in cases where correlations between items are made. The conclusions are only discussed in the following chapter.

Chapter 9 provides conclusions based on the research and offers recommendations to the different actors involved in the promotion of the tool, die and mould making industry as well as the quality management services industry. The achievement of the research objectives is considered and recommendations for future studies are made.

CHAPTER 2: LITERATURE REVIEW OF THE SERVICE SECTOR ECONOMY

2.1 INTRODUCTION

The Organisation for Economic Co-operation and Development (OECD, 2005b:3) claims that the service sector is increasingly recognised for the role it plays in the performance of economies. Yet classical authors such as Adam Smith and John Stuart Mill did not recognise the service sector as being productive (Mill, 1848, reprinted 1965; Smith, 1776, reprinted 1937). The influential arguments of these classical authors dominated thinking about the economy and specifically the function of services for more than a century. Only during the middle to the late twentieth century did a body of literature evolve which covers the topic of service markets, service marketing, and the role of services in economic performance.

This chapter starts by discussing the recognition and characterisation of the service sector from the classical and more recent economic perspectives. Next, the challenges of defining and classifying services are analysed. Several different typologies exist, and the most frequently cited characteristics of services are explained. The distinction between service marketing and service markets is also explained.

The trends in the international service economy are compared with the trends in the South African service economy. While it is difficult to make direct comparisons due to a lack of data, some of the key trends can be identified. Of these, the increasing numbers of people employed in the service sector, and the increasing contribution of the service sector to gross domestic product (GDP), are probably the most significant. The service sector is also becoming a significant employer of both high-wage and low-wage workers.

Three kinds of services can be identified, namely producer, community and consumer services. While community and consumer services are important for the wellbeing and comfort of a society, producer services are directly related to the

performance and functioning of industry. Not only is the input of producer services into manufacturing increasing, but the interdependency between services and production seem to be increasing over time. For the purpose of this study the producer services will receive more attention as they directly relate to the subject of this research.

2.2 THE EVOLUTION OF THE SERVICE ECONOMY IN LITERATURE

This section examines at the progression in the discussion of the service sector from the late eighteenth century to date. It starts by looking at the descriptions by some of the classical authors. The increasing attention that the service sector has received since the middle of the twentieth century is then discussed.

2.2.1 Services described by classical authors

The early theorists of economics, such as Adam Smith in 1776 (Smith, 1776, reprinted 1937) and John Stuart Mill (1848, reprinted 1965), did not consider the service sector as an important contributor to the production and wealth of nations. Smith claimed that respectable professions such as clergymen, lawyers and physicians are “*unproductive of any value*” (Smith, 1776, reprinted 1937). John Stuart Mill in 1848 wrote in his classical work *Principles of Political Economy* that the economic process was aimed exclusively at producing “*utilities*” fixed and embodied in outward “*objects*” (1848, reprinted 1965: Paragraph 4). While Mill and Smith attached little importance to service functions, the services are hardly mentioned again in academic literature until the work of Fisher (1939, 1935) and Clark (1940) in the 1930s. Mill (1848, reprinted 1965) argued that although many services added wealth to the provider of the service, it simply re-allocated wealth from others, thus not increasing the wealth of the society.

Most of the early discussions about the economy were focused mainly on the primary and secondary industries. Primary industries generally involve the conversion process of natural resources into primary products (Rosenberg, 2007). According to Riddle (1986:3), the popularisation of the term “*primary*” is credited to Fisher (1939, 1935). Most outputs of the primary industries are considered to be raw materials (or

inputs) for other industries. Primary industries include agriculture, agribusiness, farming, fishing, forestry and all mining and quarrying industries. The manufacturing industries that aggregate, pack, package, purify or process the raw materials close to the primary producers are normally considered part of this sector, especially if the raw material is unsuitable for sale or difficult to transport long distances (Statistics South Africa, 2002b:35-36).

The secondary sector of the economy manufactures finished goods. All manufacturing, processing and construction is done by the secondary sector (Rosenberg, 2007). Activities associated with the secondary sector include metal working and smelting, automobile production, textile production, chemical and engineering activities, aerospace manufacturing, energy utilities, breweries and bottlers, construction and shipbuilding (Statistics South Africa, 2005b).

The tertiary sector, or service sector as it is sometimes called, is discussed in detail under the next Paragraph (2.2.2).

In recent years a further distinction has evolved with the appearance of the quaternary sector (intellectual activities that includes government, culture, libraries, scientific research, education and information technology) and the quinary sector (a branch of the quaternary sector that includes the highest levels of decision making in a society or economy) (Rosenberg, 2007). Clark (1940) and Foote and Hatt (1953:365) first discussed these sectors, but attached different meanings to the terms. Foote and Hatt (1953:365) described the quaternary sector as including transport, commerce, communication, finance and administration, with the commonality being that they all facilitate or effectuate the division of labour. The quinary sector was described by Foote and Hatt (1953:365) as medical care, education, research and recreation, with the commonality being that they all have to do with the refinement and extension of human capacities. Since then the terms do not appear frequently in economic literature, with most researchers only referring to the primary, secondary and tertiary sectors in their work. The quaternary and quinary sectors are not recorded separately in the National Accounts of most economies, and most of their content is recorded under tertiary economic activities.

2.2.2 The third sector comes to the fore

Over the last three centuries there has been a gradual increase in literature on the role of the service sector in the economy. Before looking back at three centuries of debate it is important first to understand how the tertiary or service sector is described in more recent literature.

Most of the often-cited definitions and descriptions of the tertiary sector describe it as an expression that includes all economic activities other than those explicitly described by primary and secondary sectors. It was described by Landes (1969, reprinted 1993:9) as the *“third sector”* or *“service”* industry. Williamson and Lindert (1980:172) described it as a sector that provides services to the general population and to businesses other than agricultural and industrial production. Activities associated with this sector include retail and wholesale sales, transportation and distribution, entertainment (e.g. movies, television, radio, music and theatre), restaurants, clerical services, media, tourism, insurance, banking, healthcare and law (Statistics South Africa, 2005b).

For the purpose of this study the role of the service sector in the economy is discussed along three time periods that can be distinguished in the academic literature:

- the first wave of 1770 to 1980;
- the second wave from 1980 to 1999; and
- the third wave from 1999 to the present.

Most of the citations for these three time periods are from work published during those periods, or from publications providing insight into the different periods. Therefore some of the citations may appear to be dated, but they are the most frequently cited articles of the time periods.

2.2.2.1 The first wave of discussion: 1770 to 1980

Most of the publications dealing with the service sector or tertiary sector in this first period debated the merits of recognising the service (or tertiary) sector.

Between 1775 and 1935, few publications can be identified that focus on the service sector or discuss it in much detail. In 1935 Fisher (1935) coined the term “*tertiary*” to describe a wide range of services activities that were neither primary nor secondary sector activities. Riddle (1986:3) complains that Fisher’s use of the term “*tertiary*” made the service sector sound less important than the primary and secondary sectors. A few years after his 1935 publication, Fisher (1939) explained that his intention was not to downplay the role of the services sector, but to illustrate that there was indeed a third set of economic activities other than the traditionally referred to primary and secondary sectors.

In 1939, Fisher (1939:37) acknowledged that almost 50% of employment in New Zealand and some other countries could already be attributed to the service sector, making it more important than the label “*tertiary*” might indicate. A year later, Clark (1940:375) described the service industries as “*residual*”, further contributing to the perception that the service sector is not important. Riddle (1986:5) claims that although Clark was probably trying to highlight the fact that there were sectors other than the traditionally acknowledged primary and secondary sectors, his use of the term “*residual*” was problematic. The term “*residual*” could be interpreted as the little bit that is left over, and hence the term is misleading. This is especially misleading if the employment statistics discussed by Fisher (1939:37) at the time are considered.

Publications that focused on the service economy were low key until the mid to late 1960s. In 1965 Fuchs first described the economy of the United States of America as a service economy where 50% of the employment and gross national product was created in the service sector (Fuchs, 1965:344). This was followed by his frequently cited publication, *The Service Economy*, Fuchs (1968) described how the service sector plays an important role in more advanced manufacturing. The work of Fuchs (1968; Fuchs, 1965) was followed by two often-cited publications by Bell entitled *The*

Coming of Post-Industrial Society: A Venture in Social Forecasting (1973) and *Welcome to the Post-Industrial Society*" (Bell, 1976). Bell (1976:46) introduced the terms "service sector" and "post-industrial society" where the service sector played a dominant role. Bell's argument was that societies transform from agrarian to manufacturing and thereafter to services. Riddle (1986:5-6) argues that Bell's thinking was wrong because it assumed that the service sector did not develop until after industrialisation and was based on changes in sectoral employment as a production input rather than on sectoral gross domestic product (a production output). Giarini (1987:vi) and Hodge (1997:5) agree with Riddle's view on Bell's work and explain that it is preferable to speak of the "service economy" rather than a "post-industrial" or "super industrial" economy. This is due to the fact that in modern manufacturing and agriculture, more than 50% of all jobs are of a service nature.

2.2.2.2 The second wave of discussion: 1980 to 1999

During this period two kinds of publications emerged almost simultaneously:

- publications concentrating on the economics of services; and
- publications looking at the service management and business perspective of services.

Before the 1980s there were few publications on the service topic, with several years or even decades between major publications. Then within a few years numerous publications that are still often cited today were published by Stanback (1979), Berry (1980), Riddle (1986), Akehurst and Gadry (1987), Giarini (1987) and Nusbaumer (1987a). This trend of an increasing number of publications on the economics of services seems to coincide with the establishment of the Services World Forum in Geneva in 1986 in which Giarini (as President), Nusbaumer, Riddle and Gadry were all involved as founders or as topical leaders.

The Services World Forum was established specifically to address the absence of a relevant body of theory, store of information, or independent forum for the exchange of ideas on the issue of the increasingly important service sector (Services World Forum, 1995). Giarini (1987) edited a book entitled *The Emerging Service Economy*

on behalf of the Services World Forum which put the topic squarely into the economic discussion. This was followed by another influential book by Bressand and Nicolaidis (1989). The work of these early authors laid a strong foundation for the emerging discussion on the economics of services and is often still cited today in policy discussions (Drake & Nicolaidis, 1992).

A recurring theme in the publications of the authors cited above is that they all complained of a lack of data that could be used to properly analyse the trends in the service sector, or how little attention the sector received from economists and policy makers. For example, Tordoir (1987:82) summarised the state of research into the service economy in the 1980s by identifying three groups of economists:

- “those who do not (yet) recognise the services as an important field for research and theory development;
- those who have worked on the subject and are able to encapsulate it within a pre-existing theoretical framework without changing the latter; and finally
- those who adapt theory and concepts, confronting new information on services and the need for new methods of investigation and interpretation of services dynamics”.

Tordoir (1987:82) argued that the service economy was considered important by some, while other economists were still not completely convinced that it deserved all the attention it was suddenly receiving. This problem was partly caused by a lack of data that were needed to analyse the trends and importance of the service economy. Unfortunately, the lack of data is still cited today by many authors and studies as an obstacle to a deeper understanding of the trends and performance of the service economy.

In 1987 Nusbaumer (1987a:69) reasoned that *“the essence of all value-added is knowledge, and such knowledge is contained in a great number of services considered as unproductive by the classics, including artistic work”*. This means that policy makers should not try to slow down the expansion of services, but on the contrary should orient services towards where they can perform their function most effectively. Nusbaumer (1987a:69) was also trying to make the point that services

were not as unproductive as the classical authors such as Adam Smith had originally argued.

Towards the late 1980s the importance of the service sector became more accepted by international researchers and the attention shifted to several focused debates, such as:

- the role of services in international trade;
- the role of services in small enterprise development;
- the role of services in the development of regional economies; and
- the differences between the marketing of goods and the marketing of services (strategic services marketing).

The ongoing debate on the role of the service sector in international trade has its roots in a discussion that started in the 1990s by many of the authors who played a pioneering role in the promotion of the service sector. These include, amongst others, Nusbaumer (1987b), Vandermerwe and Chadwick (1989), Drake and Nicolaidis (1992), Porter (1998a; 1998b) and Riddle (2000; 1998). The much publicised international debates on the service sector in international trade is part of the ongoing negotiations under the General Agreement on Trade in Services (World Trade Organisation, 2009).

The role of the service sector in small enterprise development became an important topic in the mid-1990s (Riddle & Entrepreneur Media, 2001) and became an important theme in discussions by donors promoting the growth and development of small enterprises (Committee of Donor Agencies for Small Enterprise Development, 2001). The evolution of the discussion on the role of business service in small enterprise growth will be discussed in more detail in Chapter 4. This is still a current topic in the development field today.

The role of services in the development of regional economies was analysed by Illeris and Philippe (1993) who looked at the effect of different kinds of services (basic producer services, consumer services and intermediary producer services) on regional economic development. At the same time the fast growth of the information

technology sector led to information technology receiving more attention than other topics in services, in many instances overshadowing the developments in the rest of the service sector.

While the previous discussions focused on the economic aspects of services, the management fields also experienced an increased interest in the topics of marketing and management of services since the early 1980s. Authors like Shostack (1982, 1977), Berry (Berry, 1986; Berry & Clark, 1986; 1980), Lovelock (1984a, 1984b) and Zeithaml *et al.* (1985) initially focused on the differences in the characteristics of services and goods, and promoted methods and concepts on how to exploit the uniqueness of services.

Apart from the publications of Berry already cited, Berry and co-authors (Berry, Zeithaml & Parasuraman, 1996; Berry & Parasuraman, 1991; Berry, Zeithaml & Parasuraman, 1990, 1988; Berry & Clark, 1986) published a series of publications dealing with the quality aspects of services that laid an important foundation for the emerging services management and marketing body of literature that was emerging at the time. Most of the authors mentioned in this section were more concerned with how to manage and market service operations from a business management perspective rather than how the service sector grows and its role in the economy.

In the early 1990s the topics in the management field shifted from attempts to differentiate between services and products towards a field that is known today as service management. In 1993, the American Marketing Association (AMA) founded the Services Special Interests Group "SERVSIG" of academics who promoted research into services management and marketing (SERVSIG, 2009).

The International Journal of Service Industry Management (currently published as the *Journal of Service Management*) was first published in 1990 (Emerald, 2009) and *Managing Service Quality* was first published in 1991. These two journals and several others emerged in the 1990s and created an important space for researchers to publish work related directly to service management.

Increasingly new topics were being discussed under the heading of service management, for example:

- the globalisation of services (Vandermerwe, 1997; Lovelock & Yip, 1996; Aharoni, 1993; Vandermerwe & Chadwick, 1989);
- developing internal markets for services (Berry & Parasuraman, 1992; Vandermerwe & Gilbert, 1989);
- development and competing through service strategies including customer service and service value added (Bitner, 1997; Lapierre, 1997; Yavas & Shemwell, 1997; Heskett, Jones, Loveman, Sasser & Schlessinger, 1994, reprinted 2008; Vandermerwe, 1994; Berry & Parasuraman, 1991); and
- business tourism (Riddle, 1999).
- Other emerging topics focused on knowledge-intensive business services (Hauknes, 1999; Miles *et al.*, 1995), and there were an increasing number of articles on professional business services (Whittaker, Ledden & Kalafatis, 2007; Lapierre, 1997).

At the end of the 1990s the first text books on service marketing started to be produced. Zeithamel and Bitner (1996), Lovelock and Wright (1999) and Lovelock *et al.* (Lovelock, Lewis & Vandermerwe, 1999) authored some of the early textbooks on the principles and management of service marketing. Lovelock and Wright (1999:ix) credit several European business schools and universities with the increase in innovation and creativity in the service sector.

The literature search for publications during this period under review increased significantly compared to the earlier period under review.

2.2.2.3 The third wave of discussion: 1999 to the present

A literature search on the subject of the service economy reveals that since 1999 there has been an increase in international publications following a decrease in the number of publications in the 1990s. In business management literature, the discussion around services and their role in strengthening the competitiveness of companies has also continued, with frequent mention of the service management

field. The number of publications with “*service marketing*”, “*strategic services*”, “*service quality*” and “*service management*” in the titles have visibly increased since 1998, indicating that services are firmly entrenched in management literature. Many of the authors discussed under the previous heading, such as Berry *et al.* (Berry, Seiders & Grewal, 2002), Bitner *et al.* (Bitner & Brown, 2008; Bitner, Ostrom & Morgan, 2008; Bitner, Ostrom & Meuter, 2002), Lovelock and Wright (Lovelock & Wright, 2002), Parasuraman *et al.* (Parasuraman & Zinkhan, 2002; Parasuraman & Grewal, 2000), and Zeithaml *et al.* (Zeithaml, Bitner & Gremler, 2008) continue to publish on the topic of service management, service marketing and service quality. A list of syllabi focusing on service management and marketing can be found on the Services Special Interest Group website of the American Marketing Association (SERVSIG, 2009).

Emerging topics in the service management literature in the last ten years include:

- the role of business service provision as a business model (Toivonen, 2004; Czarnitzki & Spielkamp, 2003; Riddle & Entrepreneur Media, 2001; Miles *et al.*, 1995);
- strategies and methods to deliver service delivery using technology (Bitner *et al.*, 2002; Parasuraman & Zinkhan, 2002; Parasuraman & Grewal, 2000); and
- service innovation (Bitner & Brown, 2008; Bitner *et al.*, 2008; Tamura, Sheehan, Martinez & Kergroach, 2005; Bryson & Monnoyer, 2004).

A noticeable trend in the last ten years is the number of publications that are based on empirical research well funded by international organisations such as the European Commission (Kox & Rubalcaba, 2007; 2002, 1999) and the OECD (Pilat, 2006; OECD, 2005a, 2005b; Wöfl, 2003; OECD, 2002b; Wöfl, 2000). Almost all of the abovementioned publications discuss the importance of the services sector in economic performance and as a policy lever in the economic growth and stability of regions. Furthermore, a search of journals with service in the title shows that the service sector is receiving increased attention as a field of research. This may be seen as evidence that the discussion on the service economy has moved from a mainly academic topic that it was in the 1980s, to a policy and development instrument adopted in the late 1990s.

The work of Pilat and Wölfl (2005) and Kox and Rubalcaba (2007) show that data collection on the service sector (in some countries) has improved to a point where the interaction between manufacturing and the service sector can be better measured and analysed than in the 1980s. Their work shows a close relationship between the manufacturing sector and the service sector, especially since the knowledge content and service content of manufacturing has increased. This phenomenon is discussed in more detail in Paragraph 2.7.

Some of the emerging themes that have received increased attention recently are:

- The importance of the development of business and knowledge-intensive business services in the performance of economies (Kox & Rubalcaba, 2007; Miles, 2007; Centre for the Development of Enterprise (CDE), 2004; Murphy & Vickery, 1999).
- This issue was important enough for the European Commission to publish a common policy framework for the promotion of business services in the European Union as a means to achieve better economic performance (1999).
- The importance of the service sector in innovation, technology transfer and knowledge diffusion in an economy (Bryson & Daniels, 2007; Howells, 2007; OECD, 2006; Tamura *et al.*, 2005). In these publications specific attention is given to professional, knowledge-intensive and strategic business services.
- Rubalcaba (2007), Anderson *et al.* (2000), Powell and Snellman (2004:199-200) and Miles (2007) describe the new economy as a “*knowledge economy*” where the intensity of new knowledge is leading to the creation of new production and service industries.
- Beyers (2007), Stare (2007), Jansson (2006) and Kox and Rubalcaba (2007) have investigated the role of services in a regional development context. Jansson (2006) describes a positive role of services in regional financial systems and a redistributive effect of services on the balance of payments to rural areas in Canada. Kox and Rubalcaba (2007) analysed the role of business services in Europe and found that the sector contributed directly and indirectly to aggregate economic growth in Europe. They found that business services directly generated more than half of the net employment since the second half of the 1990s.

The themes covered above can all be related to competitiveness and the growth of the economy. The discussion of services and their influence on society is not only focused directly on competitiveness, but also reaches towards issues of poverty, unemployment and inequality. Development organisations such as the Organisation for Economic Co-operation and Development (OECD), the World Bank, the United Kingdom's Department for International Development (DFID) and the German Technical Co-operation (GTZ) have identified the potential of the service sector as a means to address poverty and to stimulate economic growth through employment promotion (OECD, 2007; Eilgmann, 2005; World Bank, 2003; Committee of Donor Agencies for Small Enterprise Development, 2001).

In a report on pro-poor growth, the Organisation for Economic Co-operation and Development explains that business services can play an important role in supporting the informal or weaker economic sector to grow and become more mainstream (OECD, 2007:29,47-48). The report explains that while private sector development usually starts with the formal sector, there are now opportunities to start with the informal sector through service provision. This can be achieved through basic services and business support services targeted at the poor that improve access to opportunities from which the poor are typically excluded (OECD, 2007:58).

In the preceding paragraphs the evolution of the discussion of the role of the service sector in the economy was described. Especially in the last ten years the international discussion has covered a range of topics from innovation and enhanced economic performance to improving access to basic and business services as a means to reduce exclusion and poverty.

2.2.3 The service sector in South African policy

A literature search of South African publications on the subject of the service economy or its role in economic development reveals that South Africa is lagging behind the international community with the number of publications and the depth of discussion. The poor data parameters in the current national datasets do not contain the kind of data that the European Commission or the OECD is using for their analysis and policy formation. In recent years an initiative was undertaken by the

Human Sciences Research Council (Altman, 2003; Altman, Mayer & Tregenna, 2003) on behalf of the Socio Economic Cluster of Government which raised some new insights into the importance of the service sector to the South African economy, but unfortunately these papers were never completed nor published. From a closer inspection of the recently published National Industrial Policy Framework (NIPF), it appears that many of the recommendations discussed in unpublished HSRC papers on how to stimulate the growth and performance of the service sector were in fact considered in the policy framework (Department of Trade and Industry (DTI), 2007), albeit in a vague and generic way. The NIPF further acknowledged the close interaction between the service sector and the manufacturing sector, as well as the importance of tradable services (Department of Trade and Industry (DTI), 2007:16).

In the last eight years a few key publications in South Africa emanated from non-governmental organisations such as the Centre for the Development of Enterprise (CDE), Trade and Industry Policy Strategies (TIPS) and ComMark Trust. These research papers mainly focus on a specific issue or topic. For example, the CDE looked at the role of business services as a means to accelerate small enterprise growth (Centre for the Development of Enterprise (CDE), 2004) and the role of private schooling provided by service businesses as a means to improve quality of education for the poor (Centre for the Development of Enterprise (CDE), 2005). ComMark and Trade and Industry Policy Strategies (TIPS) published research on the role of private sector service sectors such as transport services (Venter & Goode, 2005), communications and information technology (McKinsey & Company, 2005; Nordås, 2001). ComMark commissioned several research projects in the area of tourism in economic development that included several policy and strategy recommendations (ComMark, 2008).

Going further back, in the late 1990s there were papers by Hodge (1999, 1997) that focused on the regulation and trade in services from a South African perspective. The publications by Hodge were followed in 2000 by a TIPS-funded research paper that looked at the importance of the dynamics in the service sector and service regulation (Preissl, 2000). Even though the research topic was on South Africa, Preissl and the resources he used were from the German Institute for Economic Research, and thus his research was informed largely by the European discussion

on the importance of the service sector and was not truly representative of the South African debate on the service sector.

The literature search could not find any recent publications from a South African institution on the role of the service sector in the growth of the economy that are comparable to the research undertaken by the European Commission (Commission of European Communities (CEC), 1998) or the OECD (OECD, 2006, 2005b, 2005a). In fact, most publications in South Africa seem to focus on services from the perspective of retail and consumer services, and not from the relationship between services and the primary and secondary sectors. The only real exception is the financial sector where regulations on the activities of financial service providers (Financial Services Board, 2009) and the reach and cost of financial services into underserved markets have received a lot of attention in recent years (The Banking Association of South Africa, 2009).

2.3 DEFINING SERVICES

Following the discussion on the topic of services, this section examines the various definitions for services that have been offered by different authors. Many of the often-cited definitions were formulated in the 1980s, and many of the more recent publications still refer back to the original arguments.

Riddle (1986:7) asserts that one of the simplest ways to define services is through exclusion, for example, activities that are not manufacturing, mining or agricultural in nature. Gadrey (2000:371) refers to this kind of definition of services as a negative definition. He comments that many definitions of services are negative, and that while a negative definition clarifies what a service is not, it does not accurately describe what a service is. Riddle makes the point that this negative definition is ambiguous as it does not explain the function of the service (Riddle, 1986:7).

The classical definition by the American Marketing Association clarifies the object-activity distinction: *"Services are activities, benefits, and satisfactions which are offered for sale or are provided in connection with the sale of goods"* (Committee on Definitions of the American Marketing Association, 1960:21). According to this

definition services are still attached to the delivery of goods. In another frequently cited definition, Zeithaml and Bitner (1996:5) propose that service are *“deeds, processes and performances”* that are not necessarily related to goods. A more recent definition is: *“Any activity or benefit that one party can offer to another that is intangible and does not result in the transfer of ownership of any physical object”* (Oxford Reference Online, 2009a). Both these definitions emphasise the intangible nature of services.

Hill (1977:318) provides the following definition which elaborates on the unique nature of the service output: *“A service may be defined as a change in the condition of a person, or of a good belonging to some economic unit, which is brought about as the good result of the activity of some other economic unit, with the prior agreement of the former person or economic unit”*. Riddle (1986:11) simplifies Hill’s definition by concluding that services are activities that produce changes in persons or the goods they possess, much as goods-producing activities bring about change in raw materials. Kox and Rubalcaba (2007:3) and Gadrey (2000:375) claim that Hill’s definition is one of the most often-cited positive definitions since it was first published in 1977.

Gadrey (2000:375) suggests that Hill’s original definition can be operationalised by putting forward the following definition: *“a service activity is an operation intended to bring about a change of state in a reality C that is owned or used by consumer B, the change being effected by service A at the request of B, and in many cases in collaboration with him or her, but without leading to the production of a good that can circulate in the economy independently of medium C”*.

To summarise the different definitions described in this section it can be concluded that different definitions of services emphasise different aspects of services. While the simplest definitions are often negative, others emphasise the intangibility characteristic of a service, such as the Oxford definition (2009a). The definitions provided by Hill (1977:318), Riddle (1986:11), Zeithaml and Bitner (1996:5) and Gadrey (2000:375) emphasise the change process, the service performance or the function of the service and will be used as a working definition for the rest of this study.

2.4 THE CHARACTERISTICS OF SERVICES

Before discussing the different characteristics of services, it is important to comment that not all authors agree that a discussion of the characteristics of services (and how they differ from goods) merits much attention any more. Thus this section will look at some of the debates that have taken place in the last thirty years and will then summarise the more recent positions on the debate.

One of the first authors to criticise the desire of other academics to make a distinction between services was Theodore Levitt (1973:2) with his famous quote, “*everyone is in service*”, regardless of the industry that they work in. Levitt goes on to explain why emphasising the difference between services and goods may actually hamper the progress of academic discussion on the service sector.

Akehurst and Gadrey (1987:2) support Levitt's (1973:2) argument and explain that sometimes all the characteristics of services should be present when distinguishing services from goods, while at other times only some of the characteristics will be present. Akehurst and Gadrey (1987:2) maintain that not all services have the same characteristics in all circumstances, and that these characteristics are not necessarily the sole preserve of services. An example of this is that a good (like a car) is purchased by some people for its experiential value as well as its transport function. This idea is frequently credited to Kotler (1988), but is also raised by Berry and Parasuraman (1991) and Bitner (1997).

More recently, Vargo and Lusch (2004a; 2004b) argued that the distinction between services and goods should simply be abandoned, and that all goods should be treated as services. Stauss (2005:219-221) contends that Vargo and Lusch take their argument too far despite identifying several weaknesses in the characterisation of services.

From this discussion it can be seen that the lines between products and services are not so clear anymore; many products are purchased for their experiential value, and sometimes goods are “*wrapped*” in services. This increasingly close relationship between services and production will be discussed further in Paragraph 2.7.

Gadrey (2000:370) explains that there are three phases in the economics literature dealing with the characteristics or definitions of services:

- the first phase, which started with the views of Adam Smith (1776, reprinted 1937) and Say (1855), describes the immaterial and perishable nature of services;
- a second more recent phase which focuses on co-production was popularised by authors like Bell (1976; 1973), De Bandt (1996) and others; and
- the third and most recent phase is the notion that services cannot be held in stock or transported.

The definitions proposed in phases 1 and 3 above are similar in that they are negative definitions as defined by Gadrey (2000:371), whereas phase 2 is positive.

One of the earlier descriptions of services which is still cited today was offered by Zeithaml *et al.* (1985:33), who maintained that the earlier research into services mainly differentiates services from goods, focusing primarily on four generic differences:

- intangibility;
- perishability of output;
- heterogeneity; and
- simultaneity of production and consumption.

The four differences described by Zeithaml *et al.* (1985:33) are used in discussion that follows. Most of the debate on the different characteristics of services took place during the 1980s, with most of the recent publications still summarising or referring to the debates that took place in this earlier era.

2.4.1 Intangibility

According to Zeithaml *et al.* (1985:33), the intangibility of services is cited universally by authors to differentiate services from goods. Gadrey (2000:370) asserts that this is probably because Jean-Baptiste Say (1855:Book I.XII.4, Book I.XIII) described

services as *“immaterial”*. Even though many authors still emphasise intangibility, not all the earlier authors agreed with this characteristic. For example, Shostack (1977:73) argued that it was wrong to imply that services are just like products except for intangibility. Shostack claimed that although services may have tangible elements, no amount of money can buy intangible elements such as *“experience”* (e.g. movies), *“time”* (e.g. consultants) or *“process”* (e.g. dry cleaning). Thus Shostack argued that the intangibility of service also creates a different kind of value, although Levitt (1981:96) and Hill (1999:426) counter that even goods could have intangible elements. In one of the works that is still often cited by authors, Berry (1980) clarifies the distinction between goods and services by describing a good as *“an object, a device, a thing,”* in contrast to a service, which is *“a deed, a performance, an effort”*. Zeithaml and Bitner also emphasise the deed and performance of services (1996:5).

Hill (1999:426) contends that the distinction between goods and services has erroneously and unnecessarily confused the debate about the distinction between tangible and intangible products. Hill argues that there is an extremely important class of intangible products in the form of entities that are recorded and stored on physical media (e.g. on paper), and that treating these intangible products as services would be a mistake.

Based on the arguments of Levitt (Hill, 1999; 1981:96), it can be concluded that intangibility is not a unique characteristic of a service, as goods could also have intangible aspects (Hill, 1999:445). This means that intangibility is not a precise characterisation of a service, but that a service is a deed, performance or an effort (Berry, 1980).

2.4.2 Simultaneity of production and consumption

Performing a service often involves assembling or delivering the output of a mix of physical facilities and mental and physical labour (Lovelock & Wright, 1999:18; Nusbaumer, 1987a:25; 1987b:86). Whereas manufactured goods require physical distribution channels, service products are delivered through various means such as electronic channels or offerings that combine retail outlet, *point of consumption* or

service factory into one. Hill explains that traditionally economists have separated the production and consumption of goods into separate activities, while in services, production and consumption occur simultaneously (Hill, 1999:445).

Nusbaumer (1987a:25) explains that the service act requires a close working relationship between the customer, service agents and equipment, which implies that the individual contributes far more to the collective effort in which he/she participates. Lovelock and Wright (1999:18) and Bitner *et al.* (1997:193) take this argument further and contend that there may be people other than service personnel who contribute or shape a person's service experience. An example of this would be fellow tourists on a tour bus who make a tour more memorable. Lovelock and Wright (1999:19) conclude that this means that service firms have to manage the consumption behaviour of their own customers to ensure that the operation runs smoothly and that one consumer's behaviour does not irritate another consumer who is present at the same time.

Elsewhere, Nusbaumer (1987b:69-70) asserts that the onset of new technologies has changed the way many services are delivered and how much interaction is needed between the service producer and consumers. Due to new technology, the producer and consumers need no longer be in the same location for the service to be produced, as Carmen and Langeard (1980:8) originally argued. Examples are online shopping, electronic brokerage and banking services. Thus technology is changing the way many services are delivered or consumed.

As with the previous characteristics, Gadrey (2000:373) argues that even the simultaneity of production and consumption is not a valid characteristic as it focuses on the process of production rather than on the output.

2.4.3 Perishability

Because services are often deeds or performance rather than something the customer keeps, they are perishable. Adam Smith (1776, reprinted 1937:439) already identified the services of servants as being perishable because services "*perish in the very instant of their performance*" and the service act had to be

repeated to deliver the same experience. Say (1855:Book I, Chapter XIII, note 13) explained that the term perishability could be confused with goods as well, and proposed that the term immaterial be used instead. Gadrey (2000:371) disagrees with Smith's argument, explaining that even the work of a servant (using Smith's example) does not perish immediately and may in some cases have lasting consequences.

While Smith explained the perishability of services in a negative way, Lovelock and Wright (1999:19) maintain that customers often derive benefit from services without needing to obtain permanent ownership of any tangible elements - car rental is a modern example. For this kind of service model to work (e.g. car rental services), the service provider must have the necessary physical items, equipment, facilities and labour in readiness to create the service (Gadrey, 2000:385; Lovelock & Wright, 1999:19). This readiness does not yet represent the service, but only the productive capacity to deliver the service when a customer needs it.

2.4.4 Heterogeneity

All three the previous characteristics together contribute to the last characteristic. Lovelock and Wright (1999:19) explain that the downside of simultaneous production and consumption is that it is very difficult for proper quality control to take place. This is because final assembly must take place under real-time conditions involving people as customers and service personnel who are often an integral part of the experience. Zeithaml *et al.* (1985:33) explain that whereas the quality of a physical good can be controlled on a production line, the consumption or use of service depends on many difficult-to-control factors (i.e. other customers, the availability of resources). This may cause a high variability in quality and performance, especially in labour-intensive service (Zeithaml *et al.*, 1985:34).

Furthermore, while physical goods have attributes that can be used by customers to search for a product of their choice, Lovelock and Wright (1999:18-19) caution that services can often only be discerned during or after the purchase as they are experienced. There are even instances where the service is hard to evaluate even after the experience because of the difficulty of comparing one experience with

another. Heart surgery and other professional services such as accounting are good examples.

2.5 UNDERSTANDING THE SERVICE SECTOR

In the preceding section services were described at a transaction or micro level. This section is more abstract and examines the service sector at a national and an international level.

When the service sector is analysed, two important frameworks come to the fore. The first is the national accounts of an economy, and the second is the most widely used classification scheme known as the Standard Industrial Classification (SIC).

2.5.1 The service sector in the national accounts

South Africa converted to the national accounts framework SNA93 of the United Nations (1993) in 1998. In the 1998 Budget Review the National Treasury (1998:Annexure 2) described the revised System of National Accounts (SNA) as a coherent, consistent and integrated set of macroeconomic accounts, balance sheets and tables based on a set of internationally agreed concepts, definitions, classifications and accounting rules. The South African SNA provides a comprehensive accounting framework within which economic data can be compiled and presented in a format that is designed for purposes of economic analysis, decision-taking and policy-making.

The work of Clark (1940), Fisher (1939, 1935) and later Fuchs (1968) played an important role in systematically developing the description of the service sector that is now used in the national accounts of many countries. Although these authors all distinguished the service sector as being unique from the primary and secondary sectors, Stigler (1956:49) and Gadrey (2000:371) identified some differences in the details of the earlier interpretations of the boundaries and classifications of services. It would appear that some of the uncertainties about how to describe or define services have made their way from the transaction level to the more abstract tertiary sector level. Gadrey (2000:371) attributes the differences between the classifications

to the trend of classifying services using a negative definition or an exclusion approach.

According to Statistics South Africa (2002b:37), in South Africa the tertiary or service sector includes:

- wholesale and retail trade and motor trade;
- catering and accommodation;
- transport and communication;
- finance, real estate and business services;
- community, social and personal services;
- general government services; and
- other producers.

The secondary sector includes:

- manufacturing;
- electricity;
- gas;
- water; and
- construction industries.

According to Statistics South Africa (Statistics South Africa, 2002b:35-36), the primary sector includes:

- agriculture;
- forestry and fishing; and
- the mining and quarrying industries.

Table 2.1 lists the main categories of the National Accounts of South Africa. The major Standard Industrial Classification (SIC) division 9 was divided into two in the South African National Account System in order to distinguish between personal services and government services.

Table 2.1: The main categories in the South African National Accounts

Title in the National Accounts Table	Major SIC division
Agriculture, Forestry and Fishing	1
Mining and Quarrying	2
Manufacturing	3
Electricity, Gas and Water	4
Construction	5
Wholesale, Retail, Motor Trade, Catering and Accommodation	6
Transport, Storage and Communication	7
Finance, Real Estate and Business Services	8
Personal Services	9
General Government Services	91

Source: Adapted from Statistics South Africa (2007a:31)

In Table 2.1 the major Standard Industrial Classification (SIC) divisions are listed, with the grey area highlighting SIC divisions 6, 7, 8, 9 and 10. Of specific interest to this study is the business services sector which is part of Standard Industrial Classification (SIC) divisions 7 and 8.

2.5.2 The service sector in the Standard Industrial Classification system

The Standard Industrial Classification (SIC) of South Africa is published officially by Statistics South Africa (Statistics South Africa, 2005b) and is based on the International Standard Industrial Classification (ISO/IEC, 2009).

Most services can be divided into one of the following three categories (Statistics South Africa, 2005b; Gadrey, 2000:371; Hodge, 1997:4):

- consumer services;
- producer services; and
- community and social services.

These three kinds of services span four Standard Industrial Classification (SIC) categories that are often used to classify services and goods, especially in the context of international trade and standards (see Table 2.2).

Table 2.2: Standard Industrial Classification (SIC) and broad descriptions

	Consumer services	Producer services	Community / Social services
Description	Final demand services which include personal services, entertainment & leisure services	Intermediate input services which include distribution, financial, communication and business services	Public-orientated services which are usually, but not necessarily, provided by
Examples	Range from hairdressers & domestic services to leisure and entertainment	Marketing, design, legal and accounting services	Public administration, health, educational services, sanitation
Skill requirements, labour productivity	Often labour-intensive with low skill requirements and low labour productivity. Income is inelastic but also include income-elastic services like leisure and entertainment	Tend to have high skill requirements, high labour productivity and high capital intensity Income elastic	Tend to have high skill requirements, high labour productivity and high capital intensity. High income elasticity
SA SIC source	(Statistics South Africa, 2005b: SIC Category 6 and parts of 9)	(Statistics South Africa, 2005b: SIC Categories 7 and 8)	(Statistics South Africa, 2005b: SIC Category 9)

Source: Adapted from Hodge (1997) and Statistics SA SIC (2005b)

Table 2.2 summarises the service sector and the three main sub-categories that make up the sector. The table is adapted from Hodge (1997:4-5) and provides

examples of the different kinds of services under each category, and a description of the labour intensity. In the last row of Table 2.2 the relevant sections in the SA SIC table references are cited (Statistics South Africa, 2005b).

Consumer services are similar to the agricultural and construction sectors in that they all absorb large amounts of low-skill labour (Statistics South Africa, 2002a; Hodge, 1997:5). A large part of consumer services is made up of retailing and personal services (e.g. domestic workers) where the skill content of the work is relatively low and the capital requirements to start a business are minimal. Hodge (1997:5) states that this is one of the few options that is open to the unemployed when the manufacturing sector is unable to absorb the growing urban population. This is visible in the fast-growing informal trade sector in South Africa. At the other end of the spectrum in this category lies the travel and entertainment service category which requires slightly higher skills and pays slightly better. Developing nations often focus on developing international tourism due to the low skills and capital requirements to entry by the unemployed, combined with the high labour absorption rate (Riddle, 1999; Hodge, 1997:5).

According to the Standard Industrial Classification (SIC) tables (Statistics South Africa, 2005b), producer services are made up of government services, transportation, storage, communication, finance and business services. In producer services, the service is often an input into the manufacturing process that becomes part of the final good that is produced. Some of these services are also known as knowledge-intensive business services or intermediary services (OECD, 2006; Powell & Snellman, 2004; Drake & Nicolaidis, 1992).

Hodge (1997:4) explains that producer services often make up the fastest-growing sector in most economies. Drake and Nicolaidis (1992) attribute this growth to the changing nature of manufacturing and also in part to an independent growth path of the services sector. As societies grow wealthier they tend to consume more producer services, thus they become more "*income elastic*" (Gershuny & Miles, 1983:26).

Community and social services are most often provided by government, and according to Hodge (1997:5), in response to the priorities of voters. The Centre for

the Development of Enterprise (Centre for the Development of Enterprise (CDE), 2006) has published research that shows that communities and private enterprises are increasingly offering these services in South Africa, often due to a failure of government to respond to the needs of communities. An example is the increasing trend in private sector schooling reported on by the CDE (2005). This sector is characterised by low productivity of both labour and capital.

2.5.3 The challenge of classifying services into SIC categories

There are several challenges that come to the fore when classifying services into SIC categories and into the national accounts. This is not simply an academic discussion about definitions, but has practical consequences as uncertainties in the size of the economic sector make economic planning and development, skills development and trade negotiations very difficult.

The following three challenges are briefly discussed:

- service functions are recorded under the sector in which the function takes place;
- internal transactions of companies are not registered in national accounts systems; and
- there are often inconsistencies when classifying certain services such as electricity, construction and retail.

Many service functions are recorded as a contribution to the sector in which the service function takes place. The problem with how a service is recorded is described by authors such as Nusbaumer (1987b:88) and Riddle (1986:17) who question the way in which services are recorded in the national accounts using classifications such as the Standard Industrial Classification (SIC). The result of this method of recording is that the accounting service in a mining company is recorded as part of the mining activity (or mining sector), and not as an accounting service. Nusbaumer (1987b:88) explains that this is due to the fact that there are non-marketable or internal services that are internal to enterprises, and external or marketable services that are traded in the marketplace. The fact that services are recorded under the

sector that the function takes place in, makes analysis of trends and employment in the tertiary sector difficult and probably less accurate (Nusbaumer, 1987b:88; Gershuny & Miles, 1983:27).

The way that Statistics South Africa describes and analyses the business service sector confirms that the service statistics in the national accounts are only those provided directly by legal enterprises (Statistics South Africa, 2005a:5-7) and excludes services provided in-house by large companies.

Furthermore, Nusbaumer (1987a:70) cautions that many international service transactions take place via branches or subsidiaries and also do not even show up in normal trade figures¹. This feature makes it difficult to record or analyse international trade in certain services.

Riddle (1986:17-18) and Nusbaumer (1987b:70) argue that alternatives such as classifying according to function, production or consumption would better clarify the service classifications. Elsewhere Nusbaumer (1987b:80) suggests that services should even be classified according to how they are traded, as this is important from the perspective of the international economy, or according to the knowledge content of the service.

Gershuny and Miles (1983) find it useful to discuss the service industry (suppliers of final intangible products), service products (e.g. maintenance services combined with sale of a manufactured product), service occupations (non-production employees in all industries) and service functions (including services produced in the informal, non-money sector of the economy) to highlight the inherent conceptual problems associated with defining and classifying services.

Whereas authors such as Hodge and Gadrey still refer to the problems with classification, the debate around this is not so prominent in the more recent literature (Gadrey, 2000; Hodge, 1997). Kox and Rubalcaba (2007:31) explain that some of the

¹ Firms often shift capital, profits or losses between countries for strategic purposes. In Chapter 3 market failures in developing countries will be discussed as a reason why firms behave this way.

challenges of data shortages on the different sub-sectors in services could be attributed to the fact that many important service sectors did not even exist 20 years ago.

However serious these challenges described under this paragraph may appear, changes to the way international trade and national accounts are recorded are not likely to take place without a lot of resistance. Understanding these challenges assists when trade and employment data on the various economic sectors are analysed, especially in the South African context where the national and broad data of the service sector are the least detailed.

2.6 ANALYSIS OF SERVICE SECTOR TRENDS

In the mid-1980s authors such as Riddle (1986:1) expressed frustration with the lack of empirical data that could be used to analyse the dynamics and performance of the tertiary sector mainly due to a lack of understanding of the importance of this sector to national economies. At an international level this has changed with increasingly thorough data collection and analysis taking place in the industrial world, with organisations such as the OECD publishing detailed statistics on services (OECD, 2005b; OECD & Statistical Office of the European Communities, 2004, 2000). This section briefly examines the trends at an international and a South African level.

2.6.1 International service sector trends

Increasingly the tertiary sector is becoming larger than the other sectors in the developing world. Research by the Organisation for Economic Co-operation and Development (OECD) found that the service sector has become the quantitatively most important sector in all OECD countries (OECD, 2005b:7). This research shows that in many countries the service sector is much larger than the manufacturing sector, and that the value-added of the service sector into manufactured goods has also increased significantly from an average of 55% to more than 70% of GDP in OECD countries (OECD, 2005b:8).

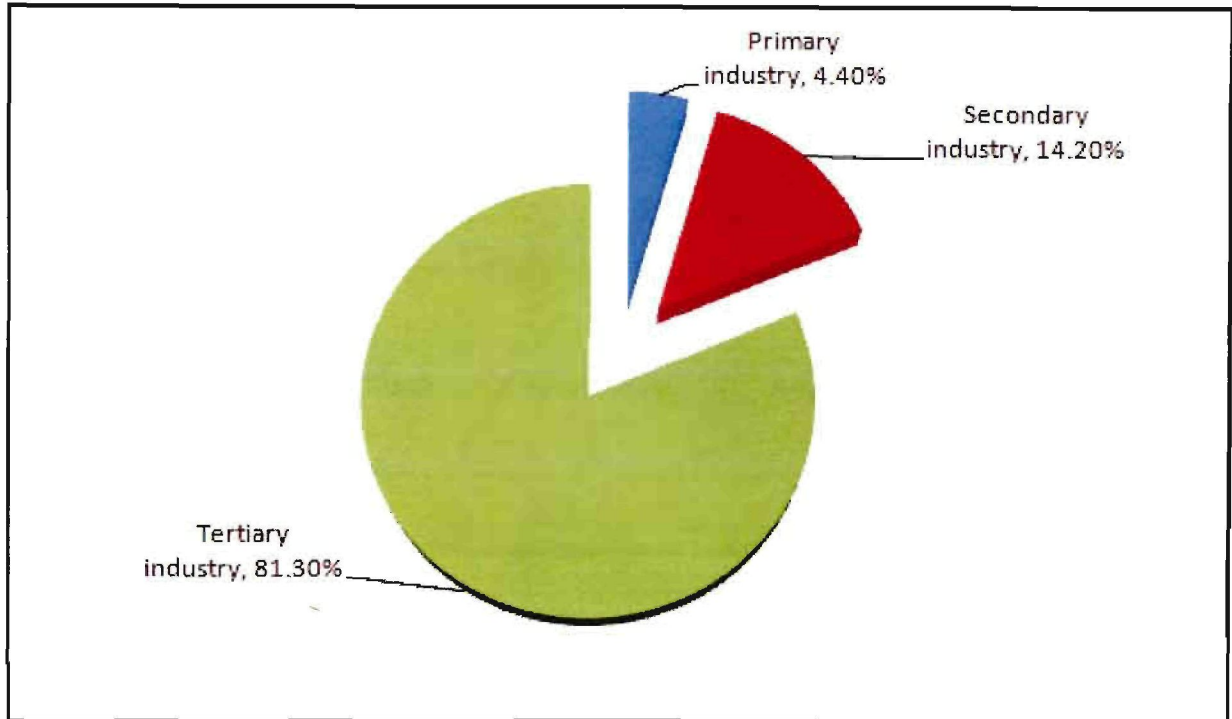
Wölfl (2005b:10) and Jansson (2006:17) explain that while a broad pattern of the increasing share of services in the economies of the OECD countries can be observed, considerable differences in the composition of the service sector exist across (and even within) countries. Wölfl (2005b:10) proposed that these national differences appear even at similar levels of income and reflect a variety of factors, such as differences in female participation, the size of the welfare state, regulatory policy and trade specialisation patterns. Jansson (2006:17) illustrates the differences in the growth of the service sectors in different countries by comparing Sweden and the United States. In Sweden the growth of the health and education sectors was stimulated through tax structures by the Swedish welfare state, while in the United States, the rapid growth in these sectors was mainly user-funded or driven by entrepreneurs.

2.6.2 South African service sector trends

In South Africa, as in the rest of the world, there has been a steady increase in the performance of the service industries over the past 30 years. The DTI acknowledges that recent data show that the service sector employs more than 60% of the workforce, and creates more than 60% of the GDP (Department of Trade and Industry (DTI), 2007).

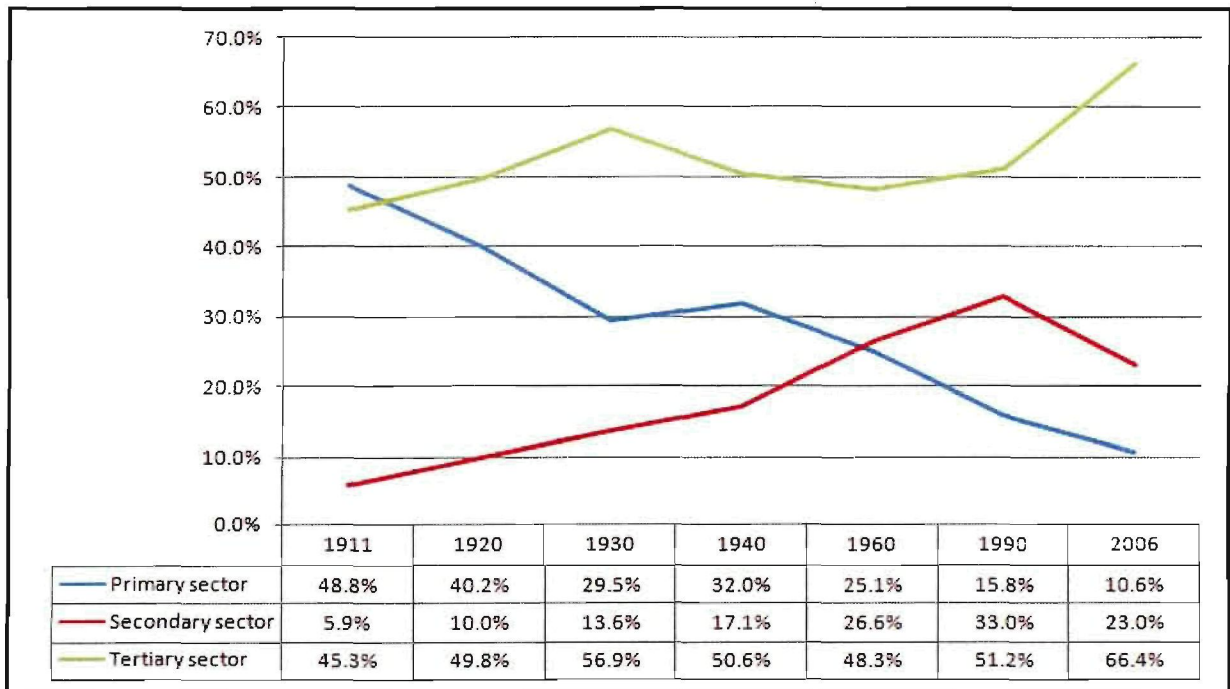
Statistics South Africa (2002b:2) claims that 68.2% of the total salaries and wages of South Africa was earned in the tertiary industries, compared to 23.2% in the secondary industries and 8.6% in the primary industries. This figure still excludes the services recorded as part of the secondary and primary industries. According to the Labour Force Survey (Statistics South Africa, 2002b:26), 81.3% or approximately 1 524 900 workers of the South African labour force with a diploma, degree or post-graduate degree were employed in the tertiary industry (see Figure 2.1).

Figure 2.1: The South African labour force qualifications by industry, 2002



Source: Statistics South Africa (2002b:26)

Figure 2.2: Share of GDP per sector



Source: South African Reserve Bank (2008)

Closer analysis of the data provided by the South African Reserve Bank and Statistics South Africa shows that South Africa has a long history of a strong service sector (Figure 2.2).

In Figure 2.2 show that the tertiary sector (green line) is growing while the GDP contribution of the secondary (maroon line) and primary (blue line) sectors are in decline. A more detailed breakdown of the data is shown in Table 2.3.

Table 2.3: GDP contribution per sector

Percentage contribution to GDP							
Kind of economic activity	1911	1920	1930	1940	1960	1990	2006
Agriculture	21.5%	22.7%	14.3%	12.6%	12.4%	5.2%	2.7%
Mining	27.3%	17.5%	15.2%	19.4%	12.7%	10.6%	7.9%
Manufacturing	4.2%	7.4%	7.4%	12.8%	21.0%	25.4%	18.2%
Trade	12.8%	15.6%	15.6%	13.9%	14.2%	13.4%	13.9%
Financial services	2.8%	2.6%	2.6%	2.8%	10.8%	14.5%	22.0%
General government	5.5%	7.1%	7.1%	10.5%	8.6%	14.0%	14.8%
Other	25.9%	27.1%	27.1%	28.0%	20.3%	16.9%	20.5%
Sector	1911	1920	1930	1940	1960	1990	2006
Primary sector	48.8%	40.2%	29.5%	32.0%	25.1%	15.8%	10.6%
Secondary sector	5.9%	10.0%	13.6%	17.1%	26.6%	33.0%	23.0%
Tertiary sector	45.3%	49.8%	56.9%	50.6%	48.3%	51.2%	66.4%

Source: South African Reserve Bank (2008)

A close examination of Table 2.3 shows that financial services increased to 22% of the gross domestic product (GPD) in 2006. General government services, trade and others have also increased strongly. The recent decline in manufacturing, mining and agriculture is also clearly visible in the data.

In 2005, Statistics South Africa (2005a:2) reported that the total income for the “*real estate and business services*” industry was R234 431 million during 2003. The largest contributor to the total income was *other business activities* (R162 057 million or 69.1%), followed by real estate (R41 143 million or 17.6%), computer and related activities (R15 908 million or 6.8%), renting of machinery and equipment (R11 235 million or 4.8%), and research and development (R4 088 million or 1.7%). Table 2.4

shows that medium, small and micro enterprises employ a disproportionate number of employees compared to the large enterprise sector.

Table 2.4: Total employment in real estate and business services sector, 2003

Enterprise size	Real estate	Renting of Machinery and equipment	Computer and related activities	Research and development	Other business services	Total
Large	8 518	7 225	19 806	8 661	306 668	35 087
Medium	9 509	331	884	1 653	109 838	122 215
Small	13 543	13 413	2 576	1 728	153 088	184 348
Micro	43 944	3 877	-	1 852	240 451	290 124
Total	75 514	24 846	23 266	13 894	810 045	947 565

Source: Statistics South Africa (2005a)

Table 2.4 shows that the category *other business services* employs the highest number of people. According to the South African National Accounts (Statistics South Africa, 2005a), "*other business activities*" include:

- legal, accounting, bookkeeping and auditing activities;
- tax consultancy; market research and public opinion research; business and management consultancy;
- architectural, engineering activities and other technical activities;
- advertising;
- labour recruitment and provision of staff;
- investigation and security activities; and
- other services not elsewhere categorised.

Most of the services recorded under *computer and related activities* are also considered to be business services, while the content of *research and development* may in some cases be described as knowledge-intensive business services.

Services such as product design and testing, metrology, industrial advice and quality management are typically recorded within the sector where the value is added and hence are not reflected in the services statistics.

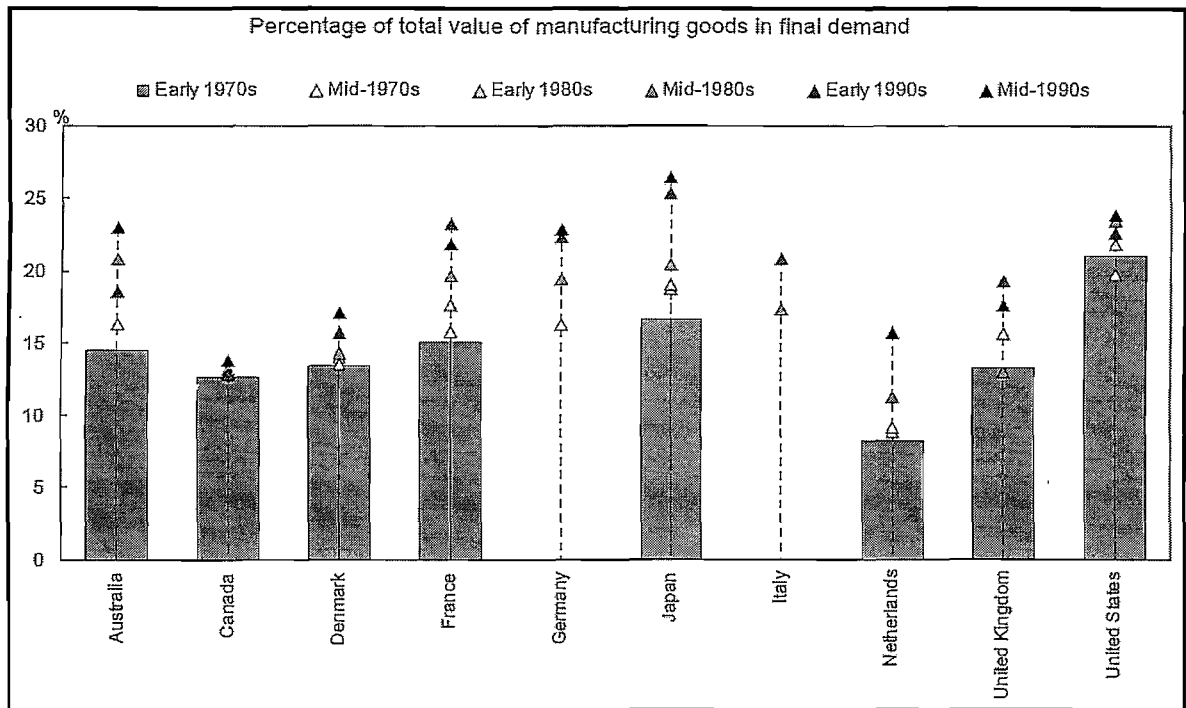
2.7 THE RELATIONSHIP BETWEEN SERVICES AND PRODUCTION IN THE ECONOMY

Producer services are important inputs into the manufacturing process of goods and other services. Porter (1998b:252) explains that these inputs could either be in the form of intermediate inputs, or as enablers of transactions. Earlier, Gershuny and Miles (1983:29) claimed that intermediate demand for producer services was a consequence of the developing division of labour within industries for tertiary sector employment. Service firms are increasingly recognised as not only users of innovation, but also as carriers and sources of knowledge between firms (Miles *et al.*, 1995). Kox and Rubalcaba (2007:16) assert that this is part of the ongoing specialisation of labour and production. Services are also important in the marketing, distribution and maintenance of produced goods.

Increasingly, the lines between products and services are becoming blurred, as manufactured goods are increasingly dependent on services (Petit, 2007:77). In Paragraph 2.4 of this study the blurring of the lines between services and goods is discussed in detail, along with the arguments for (Vargo & Lusch, 2004b) and against (Stauss, 2005:219-221) the further relaxation of the distinction between goods and services.

The increased value of service input into manufacturing over the past 30 years is evident in an OECD study (2005b:22) of OECD economies. This finding is illustrated in Figure 2.3.

Figure 2.3: OECD services sector value added embodied in manufacturing goods



Source: OECD (2005b:22)

Figure 2.3 illustrates the increases of services as inputs into manufacturing across selected OECD countries over time (OECD, 2005b:22). It is necessary to point out that the lead of the United States has decreased and that other countries such as Japan are rapidly increasing the total inputs of services into manufacturing. Unfortunately this kind of data is not available for South Africa and many other developing countries.

2.7.1 The interdependency between services and production

Porter (1998b:252) and Wölfl (2005b:22) ascribe the strong interdependency between the service sector and the manufacturing sector on the increased service content into production. Porter (1998b:252) claims that although service firms often supply services to each other, many service industries still depend on the manufacturing sector for their survival.

Porter (1998b:252) describes three kinds of relationship between the services and manufacturing sectors:

- buyer–seller relationships;
- services tied to the sale of manufactured goods; and
- manufactured goods tied to the sale of services.

However, Wölfl and Pilat (2005:36) contend that the service sector is less dependent on inputs from other sectors, because many inputs into services come from other service firms. Already in the 1980s Gershuny and Miles (1983:27) recognised that the growing sophistication of the service economy was also demanding the growth and establishment of new service sectors. Nusbaumer (1987a:68) in 1987 claimed that technology and communication had revolutionised the relationship between services, manufacturing and consumption through faster design, planning, engineering, managing, innovating, surveillance and monitoring tasks. Porter (1998b:243) takes these argument further and explains that the need for services is driven by increasing sophistication, internationalisation and complexity of management, and that technological and regulatory changes are also fuelling demand for new service sectors such as waste disposal or non-destructive testing.

Kox and Rubalcaba (2007:16) and Schettkat and Yocarini (2006) explain that the development of the business service industry is partially driven by an advancement of the labour specialisation process, thus activities that were previously rendered in-house are increasingly shifting to specialised providers. This new topic of the specialisation of labour into expert services is increasingly receiving attention under the heading of knowledge-intensive business services (Kox & Rubalcaba, 2007:1-4; Miles, 2007; Audretsch & Link, 2006; OECD, 2006; Powell & Snellman, 2004; Thurik & Wennekers, 2004; Toivonen, 2004; Adler, 2001; Hauknes, 1999). Although this topic may appear to be emerging only now, it builds on the early ideas of Machlup (1963) and Bell (1976).

There is a widely-held belief in industry that service firms grow the same way as manufacturing firms. Audretsch *et al.* (Audretsch, Klomp & Thurik, 1999a) caution that several earlier studies looking at the dynamics of the *organisation of industry*

might have been biased towards an analysis of the manufacturing sector. Audretsch *et al.* (1999a:18) find that although service firms perform in a similar way to manufacturing firms in terms of growth, age and size, there are other important differences. For example, the authors found that in their data set service firms' economies of scale were often negligible compared to manufacturing firms. This results in different post-entry performance between service and manufacturing firms.

2.7.2 Employment and productivity in the service sector

Over the past fifty years there were several claims that service occupations have become the most dominant positions in industrialised countries (Aarnio, 1999; Gershuny & Miles, 1983; Bell, 1976). Many of the striking developments in the service economy take place within manufacturing due to technological developments and increased labour specialisation (Kox & Rubalcaba, 2007:16). This is partially due to the trend of outsourcing our de-integrating services to firms that focus on and specialise in certain services (Porter, 1998b; MacPherson, 1997; Fuchs, 1968:243-250). The previous section covered this phenomenon in more detail.

According to the OECD (2005b:10), employment in the service sector of OECD countries reached 70% of employment in 2002, with most of the increases in employment attributed to the growth in business, financial and insurance services. Recent research also suggests that the service sector is creating a disproportionate number of both good-quality and well-paying jobs in South Africa (Statistics South Africa, 2002b; Aarnio, 1999). Petit (2007) argues that it is necessary to change our political debates on the service sector, as technological diffusion and new growth patterns in the service sector will have an influence on national economies that are more than two-thirds dominated by services.

The service sector also tends to be more stable in economic cycles, and tends not to lay off as many employees in down cycles as manufacturing firms do (Statistics South Africa, 2007b; Nusbaumer, 1987a:66). Nusbaumer continues that service firms also tend to use higher numbers of casual or part-time labour. Fuchs (1968) comments that service sectors are also usually less unionised than traditional manufacturing sectors. This phenomenon seems to be valid today, but is probably

caused more by the fact that many service industries are paying wages that lead to fewer employees needing to be unionised.

Some earlier authors such as Kindleberger (1958) and Bell (1976) argued that the productivity of the tertiary sector was lower than that of the secondary and primary sectors, and thus confirmed Adam Smith's views (Smith, 1776, reprinted 1937). Kindleberger (1958) compared the productivity of various economic activities between 1800 and 1900 and concluded that the tertiary sector had not actually increased its productivity much when compared to the other sectors. Nusbaumer (1987a:65) confirmed that statistics show that average productivity in services is lower than in agriculture or manufacturing, and because of the increasing share of services in total output this will lead to a decrease in productivity. Nusbaumer (1987a:84-85) goes on to state that the lower productivity of services can be attributed to the evolution of growing economies. Initially, a small group of service providers can service the market, but as the market grows and expands in complexity, increased labour is needed.

More recent research by the OECD (Wölfl, 2003) shows that services have shown productivity gains that were not necessarily correlated with either human or physical capital, leading to the conclusion that productivity in services may be measured incorrectly. Petit (2007:80) confirms Wölfl's views, and posits that the productivity between services and manufacturing may be interdependent. An example is where the improvement in transport services contributes to the logistics base of companies, thus enhancing their productivity.

Elsewhere Nusbaumer (1987a:68) comments that while new technology and sophisticated equipment may displace labour, the design and development of new technologies stimulate investments and absorb the displaced labour. This is due to communication and technology often being carriers of advanced industrial technology.

Not everybody agrees with the argument that services are lower in productivity. Ferleger and Mandle (1994:59) explain that countries such as the United States tend to employ more low-wage workers in the service sector than other countries. They

suggest that governments should take action to promote the upgrade of wages and productivity in this increasingly important sector. The Social Accounting Matrix of Statistics South Africa (2002b:2) indicates that 68.2% of the total salaries and wages earned in 2002 were in the service sector. Interestingly, both the lowest qualified and the highest qualified people earned more than two-thirds of their income in the service sector. The lowest qualified people earned less than 10% of their income from the primary sector.

2.7.3 The service sector and international trade

Before 1995 no multilateral agreement existed for trade in services. This was largely due to a lack of knowledge about the relationship between trade and services (Riddle, 2000:25; Hodge, 1997; Drake & Nicolaidis, 1992). Since then the service sector has featured strongly in international trade discussions, especially from the perspective of developing nations.

Analysis of services in international trade is complex and the real performance is difficult to measure (Riddle 2000b:25). In many cases, the supplier and the customer are in the same location, while in other cases they could be based on different continents. Aharoni (1993:5) contends that for a long time it was believed that professional services could only be provided when the service provider and the recipient were in close proximity, hence only a few services (such as tourism and investment banking) are included in the balance of payments statistics. Aharoni contends that the changes in technology and the way that information can be shared has changed the characteristics of services, but that the national accounts of many countries still do not reflect these changes. Furthermore, the internal services used by multinational companies are often not captured in international trade data, and may be very sensitive to policy decisions in the host countries (Nusbaumer, 1987a:70). In Table 2.5 the various modes of supply are listed and explained as they are listed in the General Agreement of Trade in Services (GATS).

Table 2.5: GATS different modes service supply

Mode 1: Cross border	Mode 3: Commercial presence
<p>The service crosses the border, independent of the supplier or the consumer.</p> <p>Examples are market research reports or distance training.</p>	<p>The service provider is a locally established affiliate, subsidiary or representative office of non-resident service providers, which may employ local personnel and/or be incorporated under local laws.</p> <p>While the actual service provision is by a "resident", the investor is of foreign origin.</p> <p>Examples are offices of multinational firms such as PricewaterhouseCoopers (PWC).</p>
Mode 2: Consumption abroad	Mode 4: Movement of natural persons
<p>The consumer crosses the border and is a non-resident in the country where the service is consumed.</p> <p>Examples are hotels, training for foreign students or development projects.</p>	<p>The service supplier is in the country on a temporary basis and so remains a non-resident.</p> <p>Examples are independent service suppliers such as consultants and health workers.</p>

Source: Riddle (2000)

The relevance of Table 2.5 to this research is that local service providers will compete against these various delivery modes, even if they are in remote areas. This could be detrimental to uncompetitive firms as they have to contend with international competitors introducing new services into previously closed markets. Again, new technologies often facilitate the expansion of producer services along with the distribution of goods, and many service providers follow their customers to new markets all over the world (Vandermerwe & Chadwick, 1989:79). Hodge (1997:21) concludes that imports of services from developed countries into South Africa are probably lower due to the distance from traditional service markets. Hodge goes on to say that the proximity of the South African economy to Africa explains why service exports from South Africa are highest to other African countries.

Aharoni (1993:5) explains that one way of exporting services is in what is called the collapsing of time and space, where services are produced in one place and consumed in another. This description matches the mode 2 delivery described in Table 2.5 above, and often depends on new technologies. Florida (2002a:1; 2002b) argues that the ability of certain locations to attract talented and creative people allows exports of creative services all over the world from a single location, and will become a defining factor in the competitiveness of regions and cities. Solimano (2006) confirms this view through the analysis of the main types of talented people who are increasingly mobile, their specific traits and characteristics and the implications of their mobility for source and destination countries and for global development.

According to Porter (1998b:254), the growth of trade in services is driven by several factors:

- the similarity of service needs around the world;
- more mobile and more informed buyers of services;
- rising economies of scale and geographic scope;
- greater mobility of service personnel (Solimano, 2006);
- greater ability to interact with remote buyers; and
- continued wide disparities among nations in the cost, quality and range of services available from local firms.

The growth in the trade in services also comes with some drawbacks, of which the sale or transfer of intellectual property rights across borders, taxation (and tax evasion), and the transfer of personal information of individuals are some of the issues raised by Aharoni (1993:5). An example is the difficulty in curbing online music piracy, or the difficulty in controlling pornography or mass e-mail spread via national and international communications service providers.

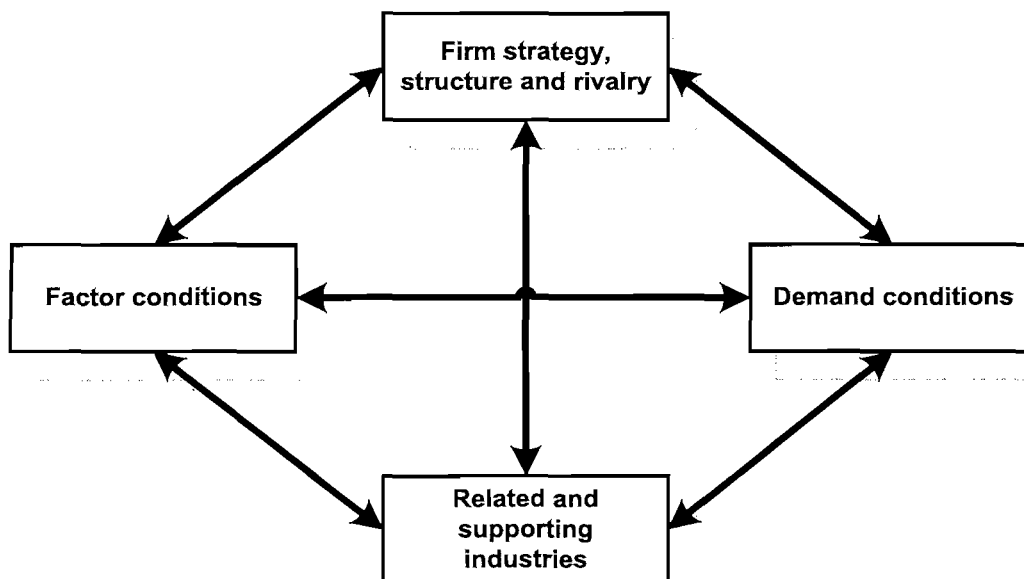
2.7.4 The service sector and competitiveness

Porter (1998b:267) claims that it is difficult for countries to be globally competitive when they do not have a competitive services sector, due to the importance of the service sector to all other sectors. Porter (1998b:267) and the OECD argue (2002b)

that countries should open up their service sectors to national and global competition in order to foster economic development. This is because international expansion of firm activities is often accompanied by firm or industry-specific services, and if these services are not available locally, then investments are also hampered.

Michael Porter's "Diamond" of competitiveness attempts to isolate the factors that influence the competitiveness of industries and nations (1998b:71) and is illustrated in Figure 2.4. The Diamond is frequently used in country and industry-specific competitiveness assessments and benchmarks.

Figure 2.4: Porter's Diamond of Competitive Advantage



Source: Porter (1998b:72)

The four broad attributes that shape the environment in which local firms compete, promote or impede the creation of competitive advantage are illustrated in Figure 2.4. The four dimensions depicted in Figure 2.4 all exert a force on each other, with different contexts and countries' Diamonds exerting different kinds of forces on each other. Table 2.6 describes the different factors of production as originally described by Porter (1998b:77).

Table 2.6: Different factors of production

Factor type	Description
Factor conditions	Cover natural resources, climate, location, unskilled and semi-skilled labour, and debt capital
Advanced factors	Include modern communications infrastructure, highly educated personnel such as graduate engineers and computer scientists, and university research institutes in sophisticated disciplines
Generalised factors	Include the transport system, debt capital and well motivated and qualified employees who can be employed in a wide range of industries
Specialised factors	Involve narrowly skilled personnel, infrastructure with specific properties, knowledge bases in particular fields, and other factors with relevance to a limited range or even just to a single industry

Source: Adapted from Porter (1998b:77)

Porter (1998b:77) explains that for each economic activity, goods are produced with a combination of factors that reflect the factor endowments of the entity in question. Thus, goods that can be produced with a relatively high proportion of labour to capital tend to be manufactured in countries where labour is relatively abundant. Arrow (1999:17) adds that knowledge is increasingly becoming an important factor of production that affecting the ability of firms to remain competitive. While capital and labour are considered private goods, growth is achieved through increases in knowledge.

Nusbaumer (1987a:71) explains that services are quite different from goods, in that the essence of a service is the quality of the service act. This quality of output is dependent on skill, experience and knowledge (Kox & Rubalcaba, 2007; Porter, 1998b:256; Nusbaumer, 1987a:71). This means that the firm that expands abroad must either import the productive factors that it requires, or must develop the local factor conditions in order to render a quality service. According to Porter (1998b:256),

the result is that less-skilled labour is usually unimportant as it rarely creates or influences competitive advantage in services, whereas skilled, specialised and technical personnel are frequently vital in international service competition.

Porter (1998b:256) and Kox and Rubalcaba (2007:16-17) assert that business services in particular demand highly trained personnel in management, engineering and scientific fields. Thus countries with higher skills levels tend to have a comparative advantage over countries with lower skills (Solimano, 2006). The same phenomenon can be found in countries where cities or specific regions attract higher qualified people, leading to one area being more competitive than other areas (Beyers, 2007; Miles, 2007; Petit, 2007).

Another body of literature discusses the determinants of regional growth on the topic of national and regional innovation systems and their relationship with the competitiveness of firms and regions (Fagerberg & Verspagen, 2007; Cooke & Memedovic, 2006; Lundvall, 2005; Doloreux & Parto, 2004; Cooke & Memedovic, 2003; OECD, 2002a; Cooke, 2001; OECD, 1997). The common theme in this literature is that the interaction between firms and their supporting and technological institutions is very important for the competitiveness of firms, and that this interaction mainly takes place through the exchange of knowledge and ideas between actors spurred on by competitive behaviour. Furthermore, there is a regional dynamic in these innovation systems that affects the competitive advantage of whole industries as the supporting technological and institutional infrastructure develop around an industry (Cooke & Memedovic, 2006; Audretsch & Feldman, 1996).

The importance of the ongoing evolution that takes place during the economic growth process is also found in evolutionary economics. Nelson (1995) describes the important interplay between firms, educational institutions and technological institutions that has become known as the Triple Helix of economic growth.

Meyer-Stamer (Meyer-Stamer, 2005) and Esser *et al.* (Meyer-Stamer, 2005; Esser, Hillebrand, Messner & Meyer-Stamer, 1995) propose that a framework known as Systemic Competitiveness allows for the analysis of the relationship between meta (cultural), macro (broad economic policies), meso (industry or issue-specific policies

and programmes) and micro (network, hierarchy and market level performance) levels in an industrial system. This framework not only connects the micro behaviour of markets, firms (hierarchies) and networks to each other, but also explains the relationships between government policy, institutional performance and even cultural and socioeconomic views in a society.

Other less discussed issues such as language, familiarity with different cultures, geographic location and technology also influence the competitiveness of service industries and hence the local factor conditions (Porter, 1998b:256). Other meta-level issues identified by Esser *et al.* (Esser *et al.*, 1995:29) are identified as:

- sociocultural factors and shared values (including orientation to entrepreneurship;
- the basic pattern of politico-economic organisation; and
- the strategy and policy competence of the social actors.

Some nations or localities are more fertile incubators of internationally or regionally transferable services than others due to the nature of the home demand (Porter, 1998b:260). Porter (1998b:260) repeatedly emphasises that sophisticated home demand stimulates the innovative response of firms. Where a nation has internationally competitive manufacturing and services sectors, it frequently enjoys the most sophisticated demand for associated business services. Nations vary in the intensity of demand for services due to many factors, including culture, household income, the demand for convenience, and the propensity of firms to de-integrate services (Porter, 1998b:261). Porter continues by saying that social and cultural norms and differences in the local mix of industries also influence the size of demand for services.

The presence of a competitive advantage in related and supporting industries spawns other service industries, just as it does in manufacturing industries (Porter, 1998b:263). Certain industries, such as information technology, play an important supporting role in many other sectors (Beyers, 2007; Kox & Rubalcaba, 2007:17; Di Cagno & Meliciana, 2005). Thus there is a close relationship between the

competitiveness of a service sector (e.g. information technology sector) and the other competitive industries it supports.

Porter (1998b:265) describes a triple-barrelled benefit for national advantage in related service industries when internationally competitive industries exist in a country:

- sophisticated buyers are provided at home;
- a base for demand abroad is created; and
- linked and related services are pulled through or advanced.

According to Porter (1998b:264), different nations have some characteristic differences in organisational practices. Porter cites the example of the Swiss who fare better in services where trust, discretion, personalised attention or complex negotiations among parties are needed, for example in banking or international trade. Americans fare better in industries that require systematic analytical techniques to be developed (e.g. consulting) or where rapid problem solving is necessary, for example in advertising.

2.8 SERVICES IN NATIONAL ECONOMIC DEVELOPMENT

The producer services sector was often neglected by developing countries because it was felt that producer services were the result of development rather than a means to development (Stare, 2007:168; Hodge, 1997:5; Giarini & Services World Forum Association, 1987:xi; Riddle, 1986:5-6; Bell, 1976). Hodge (1997:5) calls it the Post-Industrial Society Syndrome.

Coffey and McRae (1989:126) and Porter (1998b:252-254) claim that any strategy aimed at improving the manufacturing sector must take the development of the producer services sector seriously, because a low-equilibrium relationship between the producer service sector and the manufacturing sector exists. This is an especially complicated problem to overcome, as services and manufactured goods are increasingly being mixed into new market offerings (Bryson & Daniels, 2007:7; Illeris,

2007:27). Thus the borders between services and goods are increasingly being blurred.

Coffey and McRae (1989:126) caution that from a regional development perspective, regional policies often tend to favour urban areas simply because of the low equilibrium that exists in rural and marginalised areas. Sassen (2007:186) argues that urban concentrations often provide the necessary interplay between producer services and manufacturing sectors, especially in global cities. Global cities must provide global firms with specialised corporate services as more globalised operations require more specialised services (Sassen, 2007:187). Florida (2002a) claims that urban concentrations can more easily attract creative talent and highly qualified people that are required in many service industries, especially the kind of graduates who join firms that offer knowledge-intensive business services (Miles, 2007:280).

Coffey and McRae (1989:126) and Wood (2005:441) argue that for regional policy to be successful, the relationship between goods and services must be understood. Wood (2005:3) proposes that a service-based approach to regional economic development should consider whether services are leading or following significant economic change. Wood (2005:3) also maintains that strategies to develop the relationship with other sectors should not look only at export-based strategies for services, but at the importance of knowledge-intensive business services as a means to support regional adaptability, including technological innovation.

Petit (2007:88) and MacPherson (1997:53) contend that the business services market sphere is growing rapidly in urban and concentrated areas, which allows mainly for the externalisation of peripheral tasks of firms. The growing market sphere for business services is furthermore assisting producers to reach global markets and to access new means of production. MacPherson finds that service providers providing technical services to a concentrated (urban) manufacturing sector plays an important role in spreading innovation, technology and ideas between firms (MacPherson, 1997), and that the accessibility of these services is important for regional patterns of service consumption.

Porter (1998b:267) asserts that nations with a widespread lack of competitive advantage in their service industries will face serious consequences in national productivity, productivity growth and high-income employment. Low productivity in services, over-regulation of service industries, muted rivalry, government ownership and many other factors will constrain per capita income of a nation. This will further have an impact on the abilities of countries to attract foreign direct investment, as many industries depend on a range of local service industries such as transport, legal, marketing or business services. National governments are not interested solely in foreign direct investment (FDI) for the sake of international funds, but because FDI is often accompanied by skills and technology transfer to the developing countries, they are also interested in access to international markets (Department of Trade and Industry (DTI), 2007:14-16).

2.8.1 Supply and demand considerations

From a supply side perspective, the development of regional human capacities and skills could be a stimulus to regional development (Illeris & Philippe, 1993; Coffey & McRae, 1989:127). Bell (1976:46) and Nusbaumer (1987a:69) state that investment on a large scale in education, training, research and communication is indispensable. Kox and Rubalcaba (2007:20) and Miles (2007:278) explain that professional specialisation is playing an important role in the development of business services, and hence high-skill inputs are becoming increasingly important. This is especially true for knowledge-intensive business services (KIBS) that seem to attract disproportionately higher numbers of graduates than other industries (Miles, 2007:278; Tether & Swann, 2003; Statistics South Africa, 2002b:2,26).

Very often service industries and firms tend to grow from small, innovative, entrepreneurial start-ups rather than large-scale entities, or from large numbers of small firms (Porter, 1998b:265; Coffey & McRae, 1989:130). Audretsch *et al.* (1999a:17) find that an important difference between manufacturing and service firms is the apparent absence of scale economies for new service firm entrants. The authors argue that the role of size of the selection (successful entry) of new entrants into the service market diminishes quickly and disappears once the minimal size of

about five employees is reached, while the mean start-up size of manufacturing firms is considerably larger than five employees.

Professional or specialised services are also important sectors for self-employment (Kox & Rubalcaba, 2007:21). Access to finance for new innovations and business models are critical for the service sector to grow, thus nations easily gain a competitive advantage where business start-ups are easy and accepted.

Porter (1998b:265) warns that the service sector, with its dependence on smaller firms and its fragmented industry structures, is particularly prone to government interference. Porter (1998b:265) also asserts that if government interference retards the introduction of technology and the creation of new services and service industries, and prevents the consolidation of local service sectors into national ones or inhibits foreign competition, it would be virtually impossible for the nation to gain international competitive advantage.

Porter cites Italy as an example of a country where government interference due to overregulation of work hours, new workplaces and other inflexible rules have retarded international investment in the local services industry. The same effect occurs when the government is a fierce competitor in a specific service industry and basically crowds out competitors in industries such as business services, agricultural extension services and others (Bear *et al.*, 2003; Porter, 1998b:265).

From a demand perspective it should be understood that service firms often cluster in locations because their customers benefit from their geographic concentration, and because of the benefit from other cluster effects such as knowledge generation, access to important infrastructure and access to expertise (Daniels & Bryson, 2002; Keeble & Nachum, 2002; MacPherson, 1997). Services are integral to the clustering process of industries which is essential for the formation of international competitive advantage as firms benefit from close proximity and social networks (Department of Trade and Industry (DTI), 2007:27; Jansson, 2006:117-118; Keeble & Nachum, 2002; Porter, 1998b:267).

A policy debate took place in 1985 in Western Canada on how the service sector could be used to accelerate growth in the region. During this debate on the role of the service sector, Mansell (1985) cautioned that initiatives to improve the performance of service industries (in Canada) that are tied to certain regions first had to understand the ties between the service industry and the geographic region. Another contribution was made by McRae (1985) who suggested that it may take a while for enough agglomeration to accumulate to transform the growth dynamics in the region. In passing, McRae (1985) raised several important reasons why the service sector seems to employ so many people rapidly (lower salaries, more employment flexibility, a less unionised labour force, increased use of outsourcing). McRae (1985:352) concluded that the “apparent” growth in the service sector may actually be a statistical artefact due to shifts from in-house production in large firms towards small specialised firms.

2.8.2 Advanced factors of production

Increasingly, non-traditional local factor conditions such as knowledge, relationships and motivation are making some areas become more competitive than others (Keeble & Nachum, 2002; Zack, 1999; Porter, 1998b:78). Traditionally, clustering took place around comparative advantages such as a harbour or another natural asset. A new trend is that competitive advantage is increasingly becoming dependent on soft factors, namely the so-called “*advanced*” factors of production of knowledge and technology (Department of Trade and Industry (DTI), 2007:27; Di Cagno & Meliciana, 2005; Powell & Snellman, 2004; Daniels & Bryson, 2002; Florida, 2002a). Nusbaumer (1987a:69) explains that this “*software*” becomes more important than “*hardware*” as a factor in the expansion of industry and advanced services. Many countries make the mistake of trying to preserve their traditional industrial base along the lines of outdated concepts of industrial economics (Stare, 2007:171; Nusbaumer, 1987a:69).

Visionaries such as Machlup (1963) and Porat (1977) described the arrival of the knowledge or information economy and its importance to the future in terms of economic and social development more than thirty years ago. Bell in 1976 (1976:48) described the advances of the communications industry as the “*last revolution*” of the

twentieth century. This was long before advances in information technology and electronics. Jansson (2006:24) states that the advance in information technology has had such a profound an effect on the economy that it can be seen as a turning point in history on a par with the invention of printing, the steam engine and television.

Furthermore, many kinds of services offer prospects for high levels of productivity and rapid production growth (Di Cagno & Melicana, 2005:150; Porter, 1998b:266). Arora and Athreye (2002) provide a detailed analysis of the role of the software industry in India's economic development, and how the competitiveness of this industry is now affecting other industries in India. International service industries employ highly skilled workers and managers at home and abroad in fields often tied to modern technology (Porter, 1998b:267).

Kox and Rubalcaba (2007:31-34) explain that business services also play an important role in national innovation systems by performing the following functions:

- they develop technological advances through engineering and other fields;
- they develop non-technological innovations in areas such as accounting, organisational development and consultancy;
- they diffuse knowledge between firms by spreading "best practice" information; and
- they play an important role in surpassing human capital indivisibilities. This is especially important for small and medium sized enterprises that could previously (due to internal economies of scale) not afford access to certain professional services.

Many of the services mentioned in this section operate at the frontiers of new technologies and are essential for the success of other high-technology industries (Di Cagno & Melicana, 2005).

2.9 SUMMARY

Initially the service sector did not receive much attention from the classical theorists, and it only really came to the fore in the twentieth century. The service sector is becoming increasingly important in the economies of developed and developing countries. While some countries have recognised the importance of strategies to further stimulate the productivity and growth of the service sector, other countries have not yet recognised that the service sector is constrained by a variety of challenges that are unique to this sector. This sector is already a large contributor to jobs and Gross Domestic Product worldwide.

Services are different from goods and require different strategies for development than the primary and secondary sectors which have been traditionally given attention. Although not everybody agrees on how to classify services, it is generally agreed that services are becoming very important in economic development. While many service activities are recorded as part of the tertiary sector, many of them do not show up separately in the statistics because they are deemed to be part of another production process. This means that the role of the service sector could be much bigger than the formal statistics suggest.

The service sector, especially knowledge-intensive and business services, is being increasingly recognised as important levers for growth and development of the economy. This sector is also becoming more important in manufacturing, international trade and technology transfer.

Developing countries face the challenge that the producer service sector tends to favour countries with higher skill levels or human capital, and shuns countries with large pools of unskilled labour. Due to the close relationship between the service sector and the manufacturing sector, low sophistication of the service sector will also restrain the growth and development of the manufacturing sector. Services often accompany goods in global trade, and service firms are affected by this wherever they are. Thus both the service sector and the manufacturing sector must be upgraded at the same time to overcome the low equilibrium that exists.

CHAPTER 3: LITERATURE REVIEW OF THE ROLE AND FUNCTIONING OF MARKETS

3.1 INTRODUCTION

The focus of this chapter is on the functioning of markets. In the first section the broader market system and its supporting institutions are discussed. From an economic sociological perspective, authors such as Granovetter and Swedberg (2001), White (2002) and Fligstein (2001) have put forward strong arguments that markets are actually entrenched or, as Rodrik (2000:5) phrase it, “*embedded*” in social networks.

Mankiw (2003:88), McMillan (2002:6) and Lindblom (2001:265-266) argue that markets remain the most efficient way to co-ordinate transactions simply because of their decentralised nature, and the self interest of the actors involved. While markets are efficient in their role as decentralised co-ordinating mechanisms, it is not the only way societies co-ordinate resource allocation. In 1937 Coase (1937) introduced hierarchies, and recently Powell (1990) highlighted the importance of networks as alternatives to markets in resource allocation. Entwistle *et al.* (2007:65-66) provide a summary of the dysfunctions of all three modes, and recommend that the strengths and weaknesses of each co-ordinating mechanism be assessed. Coase (1991) emphasises that the transaction costs and control implications of the different mechanisms should be considered.

The second part of this chapter focuses on the topic of market failure and its consequences. In cases where markets do not organise production or goods allocation efficiently, the situation is described as a market failure (Oxford Reference Online, 2009a; Colin, 2003:125; Mankiw, 2003:11). The term “market failure” does not imply that a market is not working at all, but that it is not working efficiently because it is not producing goods that are wanted (Lines *et al.*, 2006:167). Academic literature identifies a small group of common recurring market failures ranging from asymmetrical information, externalities and public goods failure to adverse selection, and each is described in detail in this section.

The final part of the chapter examines how market failure can be addressed. This section looks at the suitability of different stakeholders to take the lead, the design of new markets, internationally promoted market reforms, bottom-up market evolution, the role of technology in market development, and finally the role of signalling and improved information flows.

The chapter on market failure would not be complete if the closely related failure of government were not also described briefly, as failures by government often interact with failures in markets. As in market failure, a government failure does not describe a total failure of government, but more specifically the case when a government intervention does not provide socially optimal outputs (Shaw, 2002). Strong markets require strong governments, and where markets are weak, governments are often weak as well (McMillan, 2002; Fligstein, 2001:5; Messner & Meyer-Stamer, 1992). Very often they are both faced by the same issues of scarce skills, incomplete information and economies of scale.

This chapter provides valuable insights into the design of the research instrument that is discussed in Chapter 7 and contributes to the achievement of several secondary objectives formulated in Paragraph 1.4.2.

3.2 DIFFERENT KINDS OF MARKETS

Recently, authors such as Harford (2006) and Levitt and Dubner (2005) have contributed to raising the awareness of economics and particularly the role of markets in the everyday lives of people through the publication of popular books. Even everyday activities such as drinking coffee, purchasing fuel or making choices about careers are influenced by interconnected markets and are highlighted in the recent wave of popular books dealing with economics.

The Oxford Reference Online describes a market as a public place where people meet to buy or sell goods or assets – it is a meeting of people for the purpose of trade by private purchase and sale (Oxford Reference Online, 2009b). Mankiw (2003:66) is less specific in his definition, and describes a market as a group of buyers and sellers of a particular good or service.

Originally markets mainly referred to physical places where goods were traded (Oxford Reference Online, 2009a; Mohr & Fourie, 2007:29). Even today, a bazaar where buyers and sellers meet in order to transact is still seen as a good example of a market (Mankiw, 2003:66; Fligstein, 2001:11; White, 1981). Bardhan and Udry (1999:218), North (1990) and Greif (1994) reason that very often these traditional markets depend on local relationships, social pressure and self-enforcement as mechanisms to ensure that promises are kept and that all actors behave in an honest way.

Greif *et al.* (1994) describe the emergence of merchants guilds in medieval Europe as an evolution of face-to-face community transactions and as an important enabler facilitating inter-regional trade. Authors such as North (North, 1990; North & Thomas, 1976) and Greif (Greif, 1994; Greif *et al.*, 1994) have documented several examples of how many physical markets evolved into virtual forms over time, requiring new forms of institutional arrangements and technology to facilitate transactions. Bardhan and Udry (1999:218) argue that the increasing importance of technology in this newer kind of market is often to reduce transaction and search costs. In these virtual markets institutions often play the role of reducing opportunism in transactions among people largely unknown to each other and providing multilateral reputation mechanisms supported by frameworks of credible commitment, enforcement and coordination (Bardhan & Udry, 1999:218; North, 1993; North, 1990).

The Dictionary of Economics (Oxford Reference Online, 2009a) describes an even more abstract kind of market such as the markets for goods, services or assets for future delivery such as trade in forward or futures contracts and for derivatives, for example options or market indices.

Although the previous descriptions implied that markets are always formal, either in physical or virtual form, McMillan (2002:5) argues that a market for something exists when there are people who want to buy an item and people who want to sell an item. Thus McMillan argues that markets are everywhere, even in rural areas and developing countries, contrary to the views that markets do not function in developing countries. To drive this point home, McMillan (2002:16) claims that markets even exist in unexpected places such as refugee camps or prisons, where people trade

excess items (such as food) for desired items (such as blankets). McMillan makes the point that there are also illegal markets for drugs, weapons and stolen goods that are often known as grey or black markets. Mohr and Fourie (2007:29) describe a market as any contact or communication between potential buyers and potential sellers of a good or service. They then add that any institution or mechanism which brings potential buyers and prospective sellers of particular goods and services into contact with each other is regarded as a market.

According to Kotler (1994:11), marketers have a much narrower perspective on markets, and typically describe supply as industry, and the different buyers as markets.

For the purpose of this study a market is regarded as a physical or virtual space where transactions between demand and supply take place, and where an institutional environment allows and supports these exchanges.

3.3 MARKETS DESCRIBED FROM AN ECONOMICS PERSPECTIVE

In the previous sections different kinds of markets are described. Although the physical form and the complexity of the different markets vary, economists have identified a certain set of principles that explain how markets function.

The topic of markets is most often dealt with in the academic field of economics. Robbins (1935:16) provides a commonly used definition of economics: "*Economics is the science which studies human behaviour as a relationship between ends and scarce means which have alternative uses*". This definition emphasises that societies have limited resources with which to try and meet alternative choices, in other words, scarcity exists and choices must be made about how to apply resources. Mankiw (2003:4) explains that one of the principles of economics is about the trade-offs that people face when they choose between different options. This is because a society's resources are scarce, and decisions must be made between different goals.

This leads to a second principle in economics, which Mankiw (2003:5) describes as: "*the cost of something is what you give up to get it.*" This simplified statement means

that because people face trade-offs (caused by scarcity), they have to make decisions which require comparing the costs and benefits of alternative courses of action (Mohr & Fourie, 2007:6). The Dictionary of Economics (Oxford Reference Online, 2009a) explains that the price mechanism refers to the role of prices in organising the production and distribution of goods and services in an economy. The prices people are willing to pay convey information about the value they put on different goods and services, and the prices charged by suppliers convey information on how they value the effort and inputs needed for production.

The subject of economics can be divided into several different fields with macroeconomics and microeconomics being the most prominent. There are also several other lesser-known specialised fields (e.g. new institutional economics or total cost economics). According to Snowdon and Vane (2005:1), macroeconomics is concerned with the structure, performance and behaviour of the economy as a whole. Macroeconomists attempt to understand the underlying determinants of the main aggregate trends in the economy with respect to the total output of goods and services (GDP), unemployment, inflation and international transactions. Akerlof (2001:388) describes an emerging trend in the field as behavioural macroeconomics, which gives more attention to issues such as reciprocity, fairness, identity, money illusion, loss aversion, herding and procrastination. This departs from the standard macroeconomics based on the competitive, general-equilibrium model.

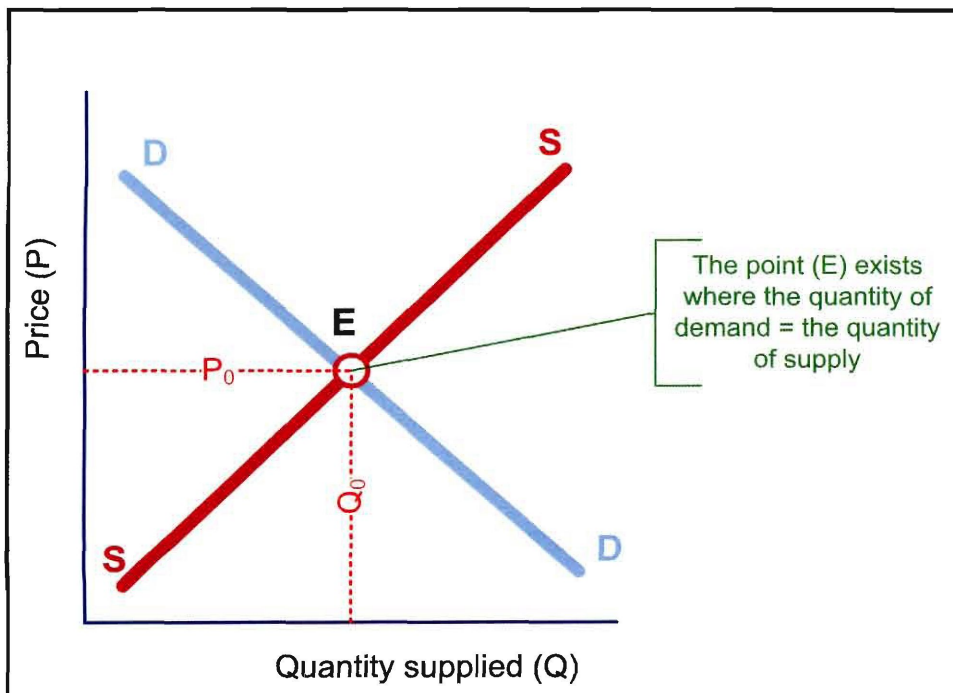
According to Mankiw (2003:27), microeconomics focuses on the behaviour of individual people and firms and how they interact in markets. Microeconomics studies what motivates people and firms and how they act to achieve their goals given the constraints that they face. Firm outputs, buyer and seller interactions, markets and market behaviour, supply and demand, competition and monopolies are all topics that are dealt with in this field. The main concepts in microeconomics are those used to summarise demand, supply and equilibrium.

Demand is described by Mankiw as the way individuals or households form their demands based on prices, income, prices of related goods, tastes and expectations of different goods and services (Mankiw, 2003:67).

Supply is described by Mankiw as the way firms decide which (based on prices, input prices, technology and expectations) and how many goods or services they will supply, and what combination of factors of production they should employ in the course of production (Mankiw, 2003:75).

Equilibrium is described by Mohr and Fourie (2007:96) as a situation where the forces in a market are in balance, thus no market participants have any incentive to change their behaviour. The concept of equilibrium is important in economics, as it describes the way that markets enable supplies and demands to interact (Mankiw, 2003:80). Figure 3.1 gives an illustration of a market that is in equilibrium.

Figure 3.1: Illustration of a market in equilibrium



Under normal assumptions the demand curve in a competitive market slopes downwards, and the supply curve slopes upwards. Equilibrium (E) exists where the supply (S) and demand (D) curves cross, as illustrated in Figure 3.1. According to Mankiw (2003:81), at the equilibrium price the quantity of the good that buyers are willing and able to buy exactly balances the quantity that sellers are willing and able to sell. The equilibrium price is sometimes also referred to as the market clearing price.

Hodgson (2008:251) and McMillan (2002:8) comment that at least three Nobel laureates (Stigler, North and Coase) complained about the astonishing fact that the functioning of markets receive so little attention in economics. McMillan (2002:8) maintains that most economics textbooks cover markets and transactions in a very abstract way, leaving many issues untouched. These issues relate to how buyers and sellers meet, how they evaluate each other's offers, and how agreements are enforced. The literature search found that some of the leading economics textbooks, such as Samuelson and Nordhause's *Economics* (1992) did not even mention the phrase market failure in several earlier editions. Akerlof (2001:388) describes how the competitive, general-equilibrium model still dominates the field of economics, but how a trend is emerging where soft factors such as reciprocity, fairness, identity, money illusion, loss aversion, herding and procrastination are coming to the fore. Akerlof (2001:388) claims that this trend of considering psychological propensities and irrationalities already started with Keynes (1936, reprinted 2006), but that economists such as Hicks (1937) and Patinkin (1956) tamed Keynesian economics.

3.4 ALTERNATIVES TO MARKET TRANSACTIONS

Not all economic transactions are organised via markets. There are at least two other known forms of organisation commonly described as hierarchies and networks. According to Thompson (2003), all three types, namely networks, hierarchies and firms, promise perfect co-ordination of the activities of autonomous agents or agencies (at least in their ideal forms).

In 1937 Coase (1937) introduced the term "*hierarchy*" to describe the way firms are organised to co-ordinate production. Coase (1937:5) argued that firms exist because there is a minimum cost of producing a good that cannot be overcome by an individual, therefore firms are formed with hierarchical structures to co-ordinate production. Coase predicts that if the market inefficiency (or friction) is too high, firms will produce required goods or inputs internally. This view is supported by Stiglitz (1998:202) who explains that when market conditions are not optimal, firms use their internal structures in order to lower transaction costs. An example is where a foreign subsidiary uses its own internal communications, logistics, legal, transport and security services to overcome structural weaknesses in a developing country.

Conversely Coase (1937:8) argues that where the costs of the hierarchy or organisation are too high, the goods or inputs are purchased through the market mechanism. Although Coase had companies in mind when he used the term "*hierarchy*", it is commonplace to describe other organisations and governments as hierarchies (Coase, 1960:17).

Networks were conceptually introduced as a third mode of organisation by Powell (1990). Powell claims that networks are not something in between market and hierarchy, but are rather a distinctive mode of organisation. A network refers to formal constellations, from strategic alliances to business associations, as well as informal constellations, for instance the dense communication networks inside industrial clusters. Adler (2001:225), Powell (1990) and Thompson (2003:40-47) explain that these network modes depend on high trust levels between different organisations, and are often focused on knowledge-intensive tasks and industries. Thompson (2003:47) adds that networks often co-ordinate through solidarity, altruism, loyalty and reciprocity.

More recently another kind of co-ordination has emerged, labelled Bazaar Governance by authors such as Demil and Lecocq (2006:3) and Von Hippel (2005, 2001). This kind of governance appears most frequently in knowledge-intensive sectors such as the software sector, with an example being the open source movement around the Linux operating system. Whether this is definitely a third kind of co-ordination or an extension or a deepening of networks is not certain at this moment, especially in view of the description of a network by Thompson (2003:47) as that which is driven by solidarity, altruism, loyalty and reciprocity and trust.

Just like markets, hierarchies and networks can also fail. Entwistle *et al.* (2007:65-66) provide a summary of the dysfunctions of all three modes. Very often transactions are organised through a combination of markets, hierarchies and networks in what Adler (2001:225) describes as hybrids. Powell (1990) and Demil and Lecocq (2006:20) explain that when one mode of allocation (hierarchy, market or network) fails, combining elements from the other modes or completely switching to another mode could offer a solution. Stiglitz (1998:202) describes how large multi-national companies often overcome weaknesses in developing countries by by-passing local

markets through internal hierarchies or through networks. Entwistle *et al.* (2007:65) state that there is still no agreement on the label of networks, communities or egalitarianism. Entwistle *et al.* (2007:65) continue to use the term “network” throughout the rest of their discussion as do other authors such as Thompson (2003:47).

Mankiw (2003:88) and Lindblom (2001:265-266; 1995:685) argue that markets remain the most efficient way to co-ordinate transactions simply because of their decentralised nature, and the self-interest of the actors involved. Lindblom (2001:265-266) maintains that markets are the most efficient form of distribution, especially when alternatives such as central planning or other economic systems are considered. This is described in a vivid example by Lindblom (1995:685), who asks how many people are systematically co-ordinated through the market system to make one cup of coffee, or to bring steel to market.

White (2002), Lindblom (2001:277) and Granovetter (1985:482) caution that markets should not be thought of outside of their social context, as the social context assists societies to deal with the side-effects of market systems.

3.5 REQUIREMENTS FOR MARKETS TO FUNCTION

This section provides an overview of the platforms and institutions that are needed for a market to function optimally. It is important to note that not all markets require all these elements, but when efficient performances with optimal social benefits are required, then these elements are essential.

Mohr and Fourie (2007:29) explain that for a market to exist, the following conditions have to be met:

- there must be at least one potential buyer and one potential seller of the good or service;
- the seller must have something to sell;
- the buyer must have the means with which to purchase it;
- an exchange ratio – the market price - must be determined; and
- the agreement must be guaranteed by law or by tradition.

This description offered by Mohr and Fourie (2007:29) appears to be focused mostly on the ability of different parties to transact with each other. Earlier in this chapter it was explained that in its simplest form a market exists for supply and demand, with a bazaar or a flea market put forward as a good example of a market. McMillan (2002:5) states that careful analysis of even a simple market such as a bazaar will reveal that there is more at play than just supply and demand. There are rules and customs, and there are negotiations, search costs, price comparisons, transaction costs and competition between suppliers (Coase, 1991:715-716; 1937). There are also non-market actors, like the police outside, the property owner and the providers of credit and packaging (Rodrik, 2008; 2000:4). Rodrik (2000:4) and Dorward *et al.* (2005) claim that the idea that a market requires several non-market actors is still not a widely understood concept, and therefore this is an important aspect to deal with early in this chapter.

3.5.1 Market platforms and supporting institutions

Rodrik (2000:4) states that the question is not whether institutions per se matter to make markets perform optimally, but which institutions matter. McMillan's (2002) explanation is that for a market to work, five specific elements are required as a platform:

- information that flows smoothly;
- property rights that are protected;
- people must be able to be trusted to fulfil their promises;
- side effects on 3rd parties are curtailed; and
- competition in the market is fostered.

Rodrik (2000:5-10) identifies five non-market institutions that are needed for markets to perform which overlap with those described by McMillan:

- property rights;
- regulatory institutions;
- institutions for macroeconomic stability;
- institutions for social insurance; and
- institutions for conflict management.

In Table 3.1 the elements identified by McMillan and Rodrik in the preceding two bullet lists are compared.

Table 3.1: Comparison of McMillan's five elements with Rodrik's non-market institutions

McMillan's five elements of a market platform	Rodrik's five non-market institutions
Property rights that are protected	Property rights
Side effects on 3 rd parties are curtailed	Regulatory institutions
People can be trusted to fulfil their promises (or be held accountable)	
-	Institutions for conflict management
Information that flows smoothly	-
Competition in the market is fostered	-
-	Institutions for macroeconomic stability
-	Institutions for social insurance

Source: McMillan (2002) and Rodrik (2000:5)

From Table 3.1 it can be concluded that Rodrik and McMillan agree on property rights, although McMillan emphasises that these rights must be protected, but not overprotected. Rodrik's description of regulatory institutions and their functions combines McMillan's two elements, namely side effects on 3rd parties are curtailed and that people can be trusted to fulfil their promises. The description offered by McMillan seems to rely more on social trust (Ellickson, 1991) than on law enforcement, while Rodrik emphasises the role of laws and courts. Rodrik does not focus so much on information flows as does McMillan, and only discusses competition and its importance elsewhere.

Competition is central to the functioning of markets (McMillan, 2002:34). Vickers (1995:1) explains that competition is important for productive efficiency because:

- competitive pressure makes organisations internally more efficient by sharpening incentives to avoid sloth and slackness;
- competition causes efficient organisations to prosper at the expense of inefficient ones, and this selective process is good for aggregate efficiency; and
- competition to innovate is the major source of gains in productive efficiency over time.

Increasingly new technology is playing a role in making traditional markets work better, or in creating completely new markets.

3.5.2 Understanding how markets are embedded in social systems

Rodrik (2000:5) argues that markets are embedded in social systems that are not always apparent or visible, and that the embeddedness is often ignored or assumed by economists and econometric models such as the Arrow-Debreu model. Transactions often take place within a social context, as we prefer to deal with people we know or want to be associated with, or known and trusted brands. McMillan (2002) identifies the ability to trust other players to keep their promises as one of the key factors that determines whether markets work or not. This could describe the social context of relationships, but could also refer to the institutions that exist to enforce promises (or contracts). Elsewhere McMillan and Woodruff (2002:2422; 2000:154) contend that in some cases even where a legal system is functioning private negotiations may be preferred over courts due to lower transaction costs.

From an economic sociological perspective, authors such as Granovetter and Swedberg (2001), White (2002) and Fligstein (2001) have put forward strong arguments that markets are actually entrenched or, as Rodrik (2000:5) phrase it, “embedded” in social networks. Fligstein (2001) comments that markets actually exist along the lines of certain fields, where the actors become known and start acting in a consistent pattern. Granovetter (2005:34-47), McMillan and Woodruff (2002:2422;

2000:154) and Ellickson (1991) explain that in countries where the legal system is dysfunctional enterprise has to use bilateral relationships, communal norms, trade associations or market intermediaries as substitutes for the legal system.

Rodrik (2000:5-6) and Hollingsworth (2000:21) claim that the configurations of institutional arrangements that govern the behaviour of actors in one society cannot easily be transferred to another, due to their embeddedness in a social system of production that is societally distinct. Societies can borrow selected principles of foreign societies, but the effectiveness of such borrowing is often limited due to differences in the social systems, management styles and work practices.

3.6 WHEN MARKETS FAIL

Although economists describe perfectly competitive markets, in the real world markets do not always perform perfectly or optimally. When markets do not perform in an optimal way economists refer to the situation as a “market failure”. This section analyses the meaning of the expression “market failure” and describes the most commonly found market failures in some detail.

3.6.1 Defining market failure

In cases where markets do not organise production or goods allocation efficiently, the situation is described as a market failure (Oxford Reference Online, 2009a; Colin, 2003:125; Mankiw, 2003:11). The term “market failure” does not imply that a market is not working at all, but that it is not working efficiently because it is not producing goods that are wanted (Lines *et al.*, 2006:167). The MacMillan Dictionary (1986) describes market failure as *“The inability of a system of private markets to provide certain goods either at all or at the most desirable or ‘optimal’ level”*. Again reference is made to the allocation of resources not being at the desired or optimal level. Samuelson and Nordhaus (1992:741) define a market failure as *“An imperfection in a price system that prevents an efficient allocation of resources”*. In this definition reference is made to the importance of the price system being able to reflect the true costs and value of a product, with natural monopoly, imperfect competition, asymmetry of information and externalities cited as examples. In the case where a

price system cannot adequately reflect the true value of the good or service, a market failure may occur because resources may be allocated inefficiently.

Lines *et al.* (2006:167) explain that market failures are often visible in the forms of the growth of monopolistic firms and other non-competitive organisations, and when factors of production stand idle. Markets also fail when externalities such as water and air pollution are not included in their costs by firms, so that they make private profit at the cost of society. Roberts and Boudreaux (2007) explain that when a market fails this is effectively caused by failures in the institutional arrangements that support the market.

Thus addressing market failure is about getting markets to perform more efficiently or optimally in the way that resources are allocated or decisions made regarding the production of goods and services. While certain interventions will be aimed directly at the market, other interventions are needed at the institutional level. This is discussed in more detail in the next sections.

3.6.2 The classical perspective on markets and market failure

While the term “*market*” had already been identified early on in the field of economics, the term “*market failure*” was not explicitly used until early in the twentieth century. This section briefly looks at the use of these two terms by the classical economics authors.

Adam Smith (1776, reprinted 1937) is often credited as the founder of the field of economics with his publication in 1776 entitled “*An Inquiry into the Nature and Causes of the Wealth of Nations*” (generally known as “*The Wealth of Nations*”). Smith introduced and referred to the role of markets in co-ordination allocation as an “*invisible hand*”. Smith did not use the term “*market failure*”, although he described several inefficiencies in the way that markets perform or allocate. Another classical author, John Stuart Mill (1848, reprinted 1965), described various aspects of how markets, prices and value work, but did not describe market failure itself.

There is also a law (called Say's law²) which states "*supply creates its own demand*", meaning that markets always strive towards equilibrium (Snowdon & Vane, 2005:13). Snowdon and Vane caution that this law should not be taken too literally, as the basic idea that underlies it is that production, by creating income, simultaneously creates the necessary input to purchase that output (Henderson, 2008; Snowdon & Vane, 2005:46). Snowdon and Vane go on to state that Say's perspective was formulated in a time when barter still dominated trade, and when selling a good implied a desire for another good.

There are also scholars (Guillory, 2005; MacKenzie, 2002) and institutions (such as the Mises Institute) who claim that market failures do not exist and that only human and institutional failures exist. Both MacKenzie and Guillory claim that the main reason academics promote the concept of market failure is because they have an agenda to expand and empower the state (Guillory, 2005; MacKenzie, 2002).

3.6.3 More recent perspectives on market failure

In the last fifty years the concept of market failure has been dealt with by several leading economists. Several of these leading scholars such as Akerlof, Spence, Stiglitz and North have been awarded Nobel prizes for their contributions to economic literature, very often for work that contributed to a better understanding of markets and market failure (The Nobel Foundation, 2009).

Markets and market failure are also described from the perspective of New Institutional Economics, which emphasises the institutional frameworks required to perform optimally. Among those who contributed were North (1993; 1976) and Williamson (2000, 1987). Coase (1988, 1974a) concentrated on the role of institutions in reducing the cost of transactions and argued that if there were no costs in transacting, no institutions would be required.

² Although the law is called Say's law, there appears to be uncertainty as to whether Say really ever said this, or whether it was first used by James Mill or John Stuart Mill (HENDERSON, D.R. 2008. The concise encyclopedia of economics: biography of Jean-Baptiste Say (1767-1832). Liberty Fund Inc., [Web] <http://www.econlib.org/library/Enc/bios/Say.html> [Date of access: 7 January 2008].)

While initially the topic of market failure was mainly discussed by economists, authors such as Granovetter and Swedberg (2001), Fligstein and Mara-Drita (2001; Fligstein & Mara-Drita, 1996) have recently introduced a sociological perspective to the topic.

In the past ten years there have been several mainstream publications on the topic of market failure and how markets function by authors such as Shermer (2008), Kay (2004), McMillan (2002), Stiglitz (2002a, 2002b; 1998) and Lindblom (2001), all with the common objectives of demystifying markets and explaining market structures, market failures and the alternatives to market co-ordination. The topic of market failure is also dealt with in some other popular economics books by Harford (2006) and Levitt (Levitt & Dubner, 2005).

3.6.4 Market failure and marketing failure

It is important to distinguish between the economics concept of **market failure**, and the business management result of a **marketing failure**. A search in marketing literature could not find any relevant results for the term "*market failure*". A search for marketing failure only yielded results in case studies, and in general it seemed that in the marketing management literature a marketing failure implies that a firm has made a poor judgement in its marketing strategy, or that marketers have failed to understand that marketing should not be seen as a functional discipline but as an integrative business process (Doyle, 1995:23-24). To overcome marketing failures, Kotler (1994:100) advises that firms must have the optimal marketing mix for their specific industry or market (see Table 3.2: Kotler's marketing mix).

Table 3.2: Kotler's marketing mix

Marketing-mix tool	Description
Product mix	This describes the firm's tangible offer to the market, including product quality, design, features, branding and packaging
Price mix	This describes the amount of money customers must pay for the product, including discounts, allowances and credit terms
Place	This refers to the various activities the firm undertakes to make the product available and accessible to customers. It includes middlemen, marketers and distribution channels
Promotion	This describes the various activities the firm undertakes to communicate and promote its products

Source: Adapted from Kotler (1994:99-100)

When firms fail to capture a market share due to poor marketing strategies, this can be referred to as a marketing failure (Doyle, 1995:23-24; King, 1985).

3.7 MOST COMMON TYPES OF MARKET FAILURE

An overview of the economic literature identifies several different kinds of market failure. During the search for literature on the topic it became apparent that the different kinds of market failure received attention during certain periods, as if there was a trend to debate or discuss a specific topic at a certain time. It seems that these different emphases on specific market failures were typically associated with key researchers, many of whom have received recognition for their work through prizes such as the Nobel Prize. The most commonly described market failures are discussed in the following sections, and the leading researchers associated with the different market failures are identified.

3.7.1 Incomplete or non-existent property rights

Without full and complete property rights, markets are unable to take all the costs of production into account (Bardhan & Udry, 1999:170-173; Coase, 1960). Kay (2004), De Soto (2000) and Prahalad (2005) explain that the lack of access to formal property systems is a barrier to market entry for poor people, who cannot gain access to the formal capital markets without property rights. De Soto (2000) and Prahalad (2005) emphasise how dependant the modern world is on the existence of formal property rights and explain the links between property rights, poverty, innovation, wealth and progress.

Fligstein (2001:33) describes another view of property rights, which is who owns the profits and who decides how to apply or distribute the profits. This means that property rights also involve different legal forms of company or asset ownership, and the decision-making power of these owners to decide how to distribute the proceeds from business. But property rights not only affect business owners, but also societies. Nelson draws attention to the increased tendency for scientific knowledge that used to be in the public domain (commons) to be privatised (Nelson, 2003:1691). This is especially worrisome in instances where public funds have paid for research and development which is then transferred or managed as a private good.

Property rights do not only refer to the rights on physical objects, but also include patents, copyrights and other protective mechanisms (Landes & Posner, 2003; McMillan, 2002: Chapter 2; De Soto, 2000). Both De Soto and McMillan stress that the ability to use property to raise finance, or the exchange, trade or transfer of property, is as important as ownership of property.

While property rights, patents and copyrights are essential to the functioning of markets, there are cases where their existence could be counterproductive. Mazzoleni and Nelson (1998) **argue that the intention of patents and copyrights is to stimulate the commercial development of new inventions**. While patents and copyrights seem to stimulate development and further innovation in some industries, it does not always work in all industries. Mazzoleni and Nelson (1998:1051) conclude that not enough is known about the conditions under which

patent laws stimulate or undermine commercial development. Thus it can be concluded that while intellectual property rights are important, too much control could have undesired effects.

Rodrik (2000:5) asserts that property rights also require non-market mechanisms of contract enforcement and a judicial system for the private property market to function. These are usually functions of the state, and the failure of the state to provide these will lead to “government failure”. McMillan (2002:34) and Fligstein (2001:4) argue that governments have an important role to play in managing intellectual property in the marketplace, as these protective mechanisms are in effect “legal monopolies” which in essence give some actors unfair advantage or market access. This point is explored further in Paragraph 3.7.5: Sub-optimal market structures: monopolies and oligopolies.

3.7.2 Incomplete or asymmetrical information

During the investigation of the fluctuations in the performance of the used car sales market, Akerlof (2001:368; 1970:489) discovered that the market was underperforming due to the asymmetrical information between buyers and sellers. Akerlof (1970:489) describes the reason for the underperformance as follows: *“An asymmetry in available information has developed: for the sellers now have more knowledge about the quality of a car than the buyers. But both good cars and bad cars must still sell at the same price – since it is impossible for a buyer to tell the difference between a good car and a bad car”*. **Thus asymmetric information occurs where one party in a market transaction has more information than the other.** This may result in the misallocation of resources due to inefficient decision making on the part of organisations or individuals, or the collapse of whole markets. Bardhan and Udry (1999:223) explain that under conditions of imperfect information the market equilibrium is not Pareto-efficient.

This does not imply that all the sellers’ or buyers’ information must be known for transactions to take place. Kay (2004:232) contends that in a perfect market products will not sell because they will all be homogenous. Kay (2004:232) explains that markets with imperfect information exist because products are differentiated, and that

in imperfect markets, price is not balanced between supply and demand, because price becomes a medium of communication from sellers to buyers.

Neoclassical economists believed that if the price were right (low enough) any product would sell, or all employable people would be employed (Akerlof, 2001; Mill, 1848, reprinted 1965). This means that the price contains all the signals of the value of the product. Contrary to the assumption of the neoclassical model, consumers and producers do not always possess the information necessary to make rational decisions (Akerlof, 1970:500).

Adverse selection is related to asymmetrical information and is defined as "*making a sub-optimal decision as a consequence of incomplete or imperfect information regarding either risks or quality*" (Riley, 2001:433; Philips, 1988). Adverse selection arises from the fact that suppliers of the cheapest low-quality products will drive from the market any producer who for whatever reason wishes to supply higher-quality products (Von Ungern-Sternberg & Von Weizsaecker, 1985). An example of adverse selection is that only the policy holders of health insurance really know how their lifestyle impacts on their risk profile.

Akerlof (2001:368) and Spence (2001:408) comment that repeat sales and reputation can reduce the effects of asymmetrical information in a marketplace, but that in certain markets (e.g. health insurance for the elderly) the failures may not be so easy to overcome.

Despite all of the failures mentioned about market failure due to the lack of information flows, Kay (2004:233) concludes that markets are ingenious and resilient in developing mechanisms to overcome the challenges of asymmetrical information in imperfect markets. Thus it can be concluded that certain kinds of information in a complex modern economy will remain incomplete and imperfect (Kay, 2004:319; Akerlof, 1970:500). Kay (2004:233) maintains that a market failure occurs when there are major differences of information between buyers and sellers.

3.7.3 The inadequate expression of costs or benefits in prices

The market failures described under the heading of *“inadequate expression of costs or benefits in prices”* are very similar to the “Incomplete or asymmetrical information” market failure described in Paragraph 3.7.2, but are expressed differently. **For the purpose of this study the inadequate expression of costs and price benefits will be interpreted to mean that the value of the offering is not expressed properly or is not understood by the consumers of the service.**

Neoclassical economists believed that the price of an item contained its full monetary value (Akerlof, 2001; Mill, 1848, reprinted 1965:2), and that the cost of an item was mainly made up of the labour costs (1848, reprinted 1965:20). For a market to exist, one party must have something that is of value to another party. The value of the product or service must be known to the other party for the transaction to take place. Where physical goods are concerned, the value of a good can be determined by inspection. In the case of services, the intangibility of the service makes it very difficult to determine its real value, often leading to transactions not taking place.

At the time when the neoclassical economists were writing about economics and markets, trade was still mainly organised between individuals and not firms. Coase (1988, 1974a, 1937) recognised that trade and production was becoming increasingly organised through organisations, and that there were co-ordination costs and other costs involved in production that emerged as trade shifted from individuals to organisations. The work of Coase eventually led to a new field of study in economics known as total cost economics (TCE), which is recognised as a predecessor to the current form of new institutional economics (NEI).

With the shift from individuals transacting to organisations transacting, buyers increasingly had to spend time comparing products. The time spent searching for inputs further raises the costs of the transaction to society. McMillan (2002:44) and Stigler (1982b:1) describe these as *“search costs”* or *“evaluative costs”*. Spence (2001:407-409) explains that products have become so sophisticated that the initial purchase price alone does not signal the costs of owning or maintaining a product,

thus increasing the costs to society even further. The diversity of products on the market has reached a point where comparison between goods and services is becoming increasingly difficult. In some cases it is almost impossible for a consumer to distinguish one product from another. In this situation where there are undetectable or imperfectly detectable quality differentials, the alignment of incentives is typically imperfect. This means that the incentive of high-quality product owners to distinguish themselves and the incentive of low-quality owners to imitate the signal so as to obscure the distinction is fairly clear (Riley, 2001; Spence, 2001:408; Akerlof, 1970:489).

3.7.4 Public goods

A new awareness of public goods was raised by Samuelson and other authors in the middle of the last century (Davis & Whinston, 1967; Samuelson, 1954:387-389). Samuelson (Samuelson, 1954:387-389) made a distinction between a public and a private good by explaining that with a private good consumption by one person diminishes the availability of products to others. **Consumption of a public good does not diminish anybody else's access to the good. For the purpose of this study a public good is defined as something that is non-rivalrous and non-excludable.**

This means that consumption of the good by one individual does not reduce the amount of the good available for consumption by others, and no one can be effectively excluded from using that good (McMillan, 2002; Samuelson, 1954). Bergstrom and Goodman (1973:280) state that goods that are publicly supplied often share two features: the costs of the goods are divided among members of the community; and decisions about quantities to be supplied must emerge from a collective decision.

A public good market failure exists when public goods are provided in a way that benefits very little of society, or where the public sector fails to respond to a demand that is in the interest of society at large. There are many services that are deemed to be public goods, of which defence, law enforcement and basic education are most

often cited as examples (Coase, 1991:718). In many countries healthcare, and even secondary or tertiary education, is seen as a public good.

Adler (2001:216) and Arrow (1999:17) argue that even knowledge is a public good, because its availability to one consumer is not diminished by its use by another. Arrow (1999:17) explains that production consists when the private goods of capital and labour are combined with the public good, knowledge. By increasing the public knowledge that is available, economic growth occurs. However, when knowledge is provided as private goods, the cost of growth to a society increases.

Epple and Roman (1996:57-58) explain that there are cases where private goods are offered to supplement public goods. Examples are police protection being augmented by private security services, or public school students enhancing their education with private tutoring. Epple and Roman (1996:82) found in their research that the majority of voters preferred systems where private goods supplemented public goods over systems where only the government or the market provided the goods.

Adler (2001:217) and Varian (2000:473) explain that with public goods such as knowledge, reliance on the market/price mode forces a trade-off between production and allocation. Production of new knowledge could be optimised by establishing strong intellectual property rights that create incentives to generate knowledge; and conversely, not only are such rights difficult to enforce, but more fundamentally, they block socially optimal allocation. In a study of the effect of sharing information, Varian (2000) found that in some cases markets for sharing goods (like books in a library or rental cars) actually assist the producer to make more profit, while consumers get access to goods that they were not intending to purchase.

Public goods such as research and development by tertiary and other publicly funded institutions can play an important role in the innovation and production in a specific region, providing another form of a public good (Audretsch & Feldman, 1996). Arrow (1999:18) distinguishes between the knowledge captured in books and other literature (which is more prone to copyrights), and the tacit and implicit knowledge in individuals (human capital). The ease of diffusion of knowledge between firms and

between industry and supporting institutions is important for the competitiveness and innovation in regions, as there are strong proximity effects of knowledge. Therefore in a region such as Nelson Mandela Bay, the presence of a University should be seen as an important public good that enables the diffusion of knowledge, leading to a positive externality (see Paragraph 3.7.7) for firms in the region.

Not only is the provision of public goods by institutions supporting industry important, but so are the relationships between different institutions and industry. Cooke and Memedovic (2006) contend that the creation of a regional innovation system should be considered as a public good, as it enables firms in a region to compete through an effective interactive relationship between firms and supporting institutions (see Paragraph 2.7.4). Nelson (1995) explained the importance of the evolution of the interaction between industry structure, technology and educational institutions (the triple helix of economic development) as another force that affects the performance of regions. This kind of innovation system is also considered a public good that enables industries in a region to become more competitive.

Often private firms have low incentives to produce many services and goods because there is no way to exclude non-payers from receiving the benefits, except in cases where entrepreneurs do provide the goods and services for altruistic reasons (Kay, 2004; McMillan, 2002; Andreoni, 1989:1447-1448). Thus these goods have to be provided or subsidised by the government or philanthropists because they benefit large segments of society not willing to contribute directly to the provision of the service. Demsetz (1970) illustrated that in cases where the private sector can find ways to exclude non-payers, they can supply public goods in a private way. Bessen (2005) contends that the open source software movement is essentially providing complex public goods to society. A few years ago open source software was something reserved for individuals, whereas now even large firms, corporations and governments produce and use open source software. Von Hippel (2005, 2001) argues along a similar line that user communities that drive innovation are also providing what would typically be a private good as a public good.

There is a thin line between what can be classified as public goods and private goods, and even the examples given by authors such as Samuelson are not so clear

on the distinction (Davis & Whinston, 1967:361). A famous example is the so-called "*lighthouse in economics*" used as a typical public good by several classical authors such as Mill (1848, reprinted 1965), Sidgwick (1901:406) and Samuelson (1964:159). The basic argument was that because of "*free riding*", no entrepreneur would be willing to build a lighthouse for private returns, despite the obvious need for a lighthouse to warn ships of danger (Samuelson, 1964:159; Sidgwick, 1901:406). Coase (1988) claims that before lighthouses were provided as public goods they were often operated on a private basis by entrepreneurs, and cites several sources to prove his argument. Coase explains that the lighthouses were often built by philanthropists and entrepreneurs in co-operation with seafarers and insurers, and that these lighthouses were only nationalised by the state after 1830. Entrepreneurs built these lighthouses because the total marginal benefit to the ship-owners exceeded the total marginal cost, so they provided them despite the fact that other people could "free ride" (Olson, 2000). Kay (2004:249) proposes that government should pay for a lighthouse as it benefits all the seafarers that pass there and is a public good.

The lighthouse example illustrates that some public goods can be operated either as a public service or as a private good. Samuelson (1964:159) cautions that even in cases where the private sector could find a way to provide public goods on an exclusive basis (and thus charge a fee), this is always not always desirable as the disincentive created by the cost is not socially optimal. Coase (1974b:359) points out a paradox presented by Samuelson: the government has to provide lighthouses because private firms could not charge for their services. But if it were possible for private firms to make such a charge they should not be allowed to do so, which also presumably calls for government action (Coase, 1974b:359).

Mixed goods or joint goods have the characteristics of either rivalry or excludability. Brennan and Walsh (1981) describe mixed goods as "*goods which combine the non-rivalness in consumption characteristic of a pure public good with the costless excludability characteristic of a pure private good*".

Coase (1974b:358) explains that the provision of public goods is often also seen as a positive externality (see Paragraph 3.7.7).

3.7.5 Sub-optimal market structures: monopolies and oligopolies

When markets are structured in a sub-optimal way then imperfect competition, price discrimination and other uncompetitive behaviour such as monopolistic competition, oligopolies and monopolies can occur. This leads to a market failure. Stigler (2002) describes a monopoly as a situation where a single company is the only seller of a good or service, and an oligopoly as a situation where there are only a few sellers. Stigler (2002) argues that for a long time (roughly from 1776 to 1850) economists believed that market forces would correct monopoly power. Stigler (2002) goes on to say that successful monopolists earn extra-large profits **by raising prices above what they would be with competition**, so that customers pay more and the monopolists (and perhaps their employees) gain. Stigler (2002) and Williamson (1972:1513) elucidate that in these cases it was expected that competitors would enter the market and would reduce the market power of the monopoly. The truth is that in cases where there is a monopoly or oligopoly structure, it is difficult if not impossible for new competitors to enter the market, thus the barriers to entry are raised (Mohr & Fourie, 2007:244). These barriers exist either through the design of the market, or through limitations in the size of the market, licensing, patents or right, or even access to raw materials.

Olson (2000:1) asserts that if a society wants to earn its highest possible income, then the incentives must induce firms and individuals to interact in a socially efficient way. Olson continues saying that this means that the incentives must be similar to those in a perfectly competitive industry: the market must either be large – or the firms in it so small – that no single firm has a monopoly power of a perceptible effect on price. Mankiw (2003:11) describes this monopoly power as market power, and states that a single or small group of economic actors should not have substantial influence on market prices for an indefinite period. Stigler (2002) argues that when monopolists charge higher prices, fewer consumers purchase the goods or services, resulting in less being produced and the society becoming worse off in total.

Williamson (1972:1512; 1971) asserts that sometimes firms become dominant due to normal market processes, and that monopoly power is not always due to uncompetitive behaviour of firms. An example would be where a market is too small

to support many rivals (Mohr & Fourie, 2007:244). Furthermore, some have alleged that Wal-Mart is behaving like a monopoly, while Roberts and Boudreaux (2007) maintain that although they may have a dominant position, they are constantly increasing their value and reducing their profits and thus not behaving like a monopoly. Vandermerwe insists that even though some companies competing globally are able to increase their returns, this does not necessarily result in price increases (Vandermerwe, 1997:349).

Stenbacka (2001:1) explains that many new industries, such as software development or electronics, are characterised by asymmetric information, imperfect competition or external effects. For example, Stenbacka (2001:16) insists that strong technological scale economies on the supply side and the network effects on the demand side make market structures with a high concentration, and dominant firms both likely and efficient.

In other cases, monopolies form over time through mergers and acquisitions. Many countries have established anti-trust bodies or competition tribunals to identify or prevent monopolies from forming and remaining in power for indefinite periods (Stigler, 1982b; Williamson, 1972; Stigler, 1959). South Africa has a Competition Commission which is a statutory body constituted in terms of the Competition Act, No. 89 of 1998 by the Government of South Africa, which is empowered to investigate, control and evaluate restrictive business practices, abuse of dominant positions and mergers in order to achieve equity and efficiency in the South African economy (Competition Commission, 2008).

There are many cases monopolies (or oligopolies) that form due to regulations or uncompetitive behaviour of firms, and authors such as McMillan (2002:34) and McMillan and Woodruff (2002:154) argue that they are often nothing other than legalised monopolies. McMillan and Woodruff (2002:154) cite examples from countries such as Vietnam, Russia and China where state-owned firms, fearing competition, harass new firms, and corrupt bureaucrats extort bribes. Stigler (2002) adds that many monopolies exist because of government policies that exclude or limit rivals. Mohr and Fourie (Mohr & Fourie, 2007:244) cite examples of licensing, limiting access to raw materials and others.

Varian (2005:130) McMillan (2002:34) and Fligstein (2001:4) argue that governments have an important role to play in managing intellectual property in the marketplace, as these protective mechanisms are in effect legal monopolies that in essence give some actors unfair advantage or market access. Some experts, such as Landes and Posner (2003), argue for indefinite but renewable copyrights. These rights would depend on the creation of a global registry system of copyrights that would make it less costly to identify the current holders of copyrights, reducing the overall costs of licensing. Leibovitz (2002:2286) argues for the development of a non-exclusive patent system which would allow inventors such as Edison and Swan (Edison's rival who lost the race to patent the light bulb) both to qualify for patent protection. Varian (2005) provides a thorough literature study on the topic of copyright laws, and concludes that copyrights are not only protecting outputs, but that they often make certain inputs more expensive (Varian, 2005:128). The purpose of much of the current discussion about patents and copyrights seems to be on lowering the transaction costs of patent and copyright search and verification.

Stiglitz (1998:198) explains that monopolies form more easily in the least developed countries, because the positive spillovers, especially the knowledge spillovers, are lower. This creates a situation where the markets are not perfectly competitive, allowing some firms to enjoy monopoly rents and leading to the persistence of income differentials. This example provided by Stiglitz (1998:198) is an example of a monopoly, but also of another kind of market failure caused by externalities (see Paragraph 3.7.7).

There is another kind of monopoly which is both persistent and not caused by the government - what scholars describe as a natural monopoly (Stigler, 2002). Williamson (1972:1514) and Stigler (2002) explain that a natural monopoly exists in cases where markets cannot determine allocation for technical reasons, as when the economy of scale of allocation exceeds what a market can support. Examples are the provision of water or electricity distribution. Economists such as Stigler (2002) argue that if there is really a natural monopoly, then no firms would want to enter the market due to low returns. Therefore, if a market is not really a natural monopoly, there should be no reason for governments to prevent new entrants from entering the market and competing with the existing monopoly provider (like an electricity utility).

Spence (2001) claims that improvements in technology are constantly changing the rules of what can and what cannot be supplied by the market. An example is the recent advances in communication technology, which have made the previous natural monopoly of communication a service that can be provided by the market (McMillan, 2003; McMillan, Rothschild & Wilson, 1997; Scarf, 1994:113). Technology improvements often reduce the entry barriers into existing markets, or they reduce the costs of producers and hence increase the number of producers that can service a given market.

3.7.6 Indivisibilities or economies of scale

In the preceding paragraph a natural monopoly was described by Williamson (1972:1514) and Stigler (2002), with examples like electricity distribution or water distributed cited as examples.

An indivisibility describes a slightly different kind of market failure, **where the market can overcome the cost barrier, but where the economies of scale are large and thus investment is limited or is not taking place at all**. Several scholars such as Stigler (2002, 1982a) and Williamson (1972) do not distinguish between an indivisibility and a natural monopoly. For the purpose of this study an indivisibility will be treated as related to natural monopolies, but the emphasis will be on the **minimum cost of investment** (for entry or upgrading) as well as **exit costs**.

Scarf (1994:115) clarifies the matter by saying that in most sectors there are economies of scale, but there are also minimum efficient scales. An example of a minimum efficient scale is the minimum volume of steel that can be produced by a steel plant. The cost of investment is so high that only a few firms can overcome the barrier to entry. Due to the high economies of scale required to earn a return on investment, only a few firms enter this market. For these firms to earn their return on investment they may resort to monopolistic or other predatory behaviour. In markets where there are high indivisibilities there are typically a few large firms that dominate the sector, as smaller firms cannot access the capital nor the markets either to overcome the barrier to entry or to reach high enough economies of scale to make the investment worthwhile.

Carmagni and Cappello (1996:4) distinguish between institutional indivisibilities and competence indivisibilities as two barriers to entry that result from the process of technological change. There are many instances where the production requirements, methods or technologies to respond to a specific opportunity remain out of reach of firms. This means that an entry barrier exists that keeps firms from entering a new market. It would be tempting to try and reduce the barriers of entry to get more competitors into the market whenever high entry barriers are detected. But Hausmann and Rodrik (2003:603) caution that a certain level of entry barrier is essential in order to make sure that existing and potential entrepreneurs can reap a return on investment, otherwise they will not invest if anyone else can merely enter with no or little cost or risk (Rodrik, 2007a:3, 8-9; Klinger & Lederman, 2006:3).

Firms that manage to overcome the barrier to entry may be faced with another challenge, the barrier to exit (Camagni & Capello, 1996:5). This means that the sunk cost of switching to newer technology or different markets typically keeps these firms captive. This could be the same as path dependency (Mahoney, 2000; Liebowitz & Margolis, 1995) discussed earlier in this chapter .

Firms that do manage to overcome indivisibilities are often able to gain a competitive advantage. It is important to highlight the fact that indivisibilities not only keep new firms from entering a market, but also prevent existing firms from upgrading to new technology or from implementing new business models (Camagni & Capello, 1996:5).

3.7.7 Externalities

Mankiw (2003:11) describes an externality as the impact of one person's (or firm's) actions on the well-being of a bystander, with the classical example of pollution. Economists refer to the total cost of production as the social cost, which includes the private production costs plus the external costs (Coase, 1960). Researchers such as Pigou (1932) and Coase³ (1960) played an important role in starting discussions on

³ Coase was awarded a Nobel prize in 1991 partially for his work on transactions costs (**THE NOBEL FOUNDATION**. 2009. The Sveriges Riksbank prize in economic sciences in memory of Alfred Nobel

the social and private products that firms produce, and who should pay for the external effects (or externality). Pigou (1932) argued that some kind of government action (such as taxes) was required to reduce external effects. Coase's counter-argument led to what is labelled by Stigler (1989:631-633; 1982b:68-69) as the Coase Theorem, which states that when trade in an externality is possible and there are no transaction costs, bargaining will lead to an efficient outcome regardless of the initial allocation of property rights (Coase, 1991:717; 1974a, 1960).

Coase (1960) claims that poorly defined property rights cause externalities, and that expensive bargaining (referred to as Coasian Bargaining) could be prevented by clearly defined property rights, or through positive externalities caused by government actions or institutions (Cowen, 2002; Coase, 1991:717-718). Calabresi (1970) argues that in the case of pollution, a negotiated compromise is unlikely because of the poor bargaining power of the affected parties, hence the costs of negotiating are too high. A popular example of a negative externality is pollution by a producer that affects surrounding farms (through contamination of the water and air), thus the costs of the pollution are shared by everyone, while the profit is retained by the producer. Henderson (1994) investigated the effect of externalities on industrial development in places, and found that location (or place) also creates externalities for the industrial development in regions. Henderson (1994:84) concludes that past industrial performance affects future employment, and that a diverse pre-existing environment is important in attracting industries to a locality (especially high-tech industries).

Meade (1952:56) and Coase (1991:717-718) claim that externalities can also be positive, and this is often the case with public goods or certain government functions such as law enforcement or a functioning legal system (Coase, 1960:17). A positive externality exists when the behaviour of people and firms creates benefits for those not directly involved (Cowen, 2002; Meade, 1952).

In one of the most frequently cited articles on externalities, Meade (1952) identified two kinds of externalities: “*unpaid factors of production*” and “*creation of atmosphere*” (Cheung, 1973). The first refers to the effect of one actor on another (e.g. the positive relationship between a beekeeper and an apple farmer⁴), and the second refers to a fixed factor of production that affects all the producers in an industry or region (e.g. rainfall). Positive externalities in production means that social cost is less than private cost, and more of the good should be produced than will occur in a free market. There may also be positive externalities in consumption, such as education where the social value is greater than the private value.

Often in economics literature externalities and public goods are discussed under the same heading, for example Cowen (2002), or in the field of “*Law and Economics*” (Friedman, 2002; Calabresi & Melamed, 1972; Coase, 1960:1-44). Arguments have been made that governments should subsidise research and development, since it will have positive externalities for everyone else. Some people refer to many public goods, as well as the granting of time-limited patents and copyrights as these also provide positive externalities.

It seems that a strong relationship exists between the institutional requirements of markets discussed in Paragraph 3.5 and positive externalities and public goods. In Paragraph 3.7.4 the importance of knowledge as a public good that creates a positive externality for all the firms in an industry is described. By increasing the knowledge that is available in an industry, economic growth occurs as knowledge is combined with private capital and private labour leading to growth (Arrow, 1999:17). This diffusion or spillovers of knowledge is often affected by elements in the innovation system such as public research and development (Audretsch & Feldman, 1996), the density and networking between tertiary institutions, the specialisation of technological and supporting institutions, as well as the evolving relationships between these factors (Fagerberg & Verspagen, 2007; Cooke & Memedovic, 2006; Nelson, 1996; Nelson, 1995).

⁴ For an in-depth discussion on the relationship between beekeepers and apple farmers, see **CHEUNG, S.N.S.** 1973. The fable of the bees: an economic investigation. *Journal of Law and Economics*, 16(1):11-33.

Sub-optimal markets and monopolies were discussed in Paragraph 3.7.5. It was mentioned that monopolies often form in developing countries due a lack of knowledge spillovers between firms (Stiglitz (1998:198). It was mentioned that this kind of monopoly market failure is a direct result of a shortage of positive externalities in the marketplace where individuals, service providers and firms carried ideas between firms.

3.8 SUMMARISING THE CONSEQUENCES OF MARKET FAILURE

This section briefly summarises the most frequently cited consequences of market failure mentioned in Paragraph 3.7.

From Paragraph 3.7 it can be concluded that market failure leads to uncompetitive situations. This could either mean that new entrants are kept out of the markets due to monopolistic behaviour (McMillan & Woodruff, 2002:154), through high indivisibilities, or that consumers pay expensively for products that could be available at lower costs (Stigler, 2002; McMillan & McAfee, 1996:263). In uncompetitive situations, dominant players can exert power over the marketplace, price and other social partners, making it difficult for new competitors to enter the market (McMillan & Woodruff, 2002:154; Stigler, 2002; Olson, 2000:1; Stiglitz, 1998:198). Monopolies and oligopolies are also renowned for their poor service delivery and other shortcomings, and could in many cases be legal monopolies protected by governments. McMillan and McAfee (1996:263) assert that competition helps sellers price items when the buyers' willingness to pay is unknown.

It would be a mistake to assume that market failure is a phenomenon of developing countries and rural areas, although market failures in developing or underdeveloped countries are often more frequent and pervasive (Rodrik, 2008; Stiglitz, 1998). One of the main causes of market failure in established or newer industries relates to a lack of competition in these markets, or to a lack of a proper institutional landscape (Rodrik, 2000). In some cases demand exists, but there is low supply. This results in prices being driven higher, making products too expensive for many people. It may also lead to sales volumes being so low that a product is not supplied at all in a specific region. In other cases, supply could be available, but demand is very low.

This could result in the price dropping to a point where it is no longer viable for producers to manufacture a good or provide a service. In extreme cases, both supply and demand are low, leading to a low-equilibrium state. Examples are the software or pharmaceutical sectors in many developed countries which are not performing optimally.

Rodrik (2007a:4-5) and Stigler (2002) claim that in cases where producers cannot earn returns on their investment, underinvestment may occur. The uncertainty of return could be caused by indivisibilities such as high entry, adoption or exit costs, monopolies or property rights. This means that a suboptimal delivery of critical investment takes place in cases where the risk on return is too high, which leads to underinvestment by entrepreneurs as they are uncertain whether they can make a profit or not.

Rodrik (2007a:4-5) argues against the conventional wisdom that the problem is in supply, and contends that the problem lies in too low a demand which does not appear to be profitable to explore. Examples are where intellectual properties of firms are not protected, leading to underinvestment in research and development, or where training does not take place due to low demand for training caused by a low return on training (Pritchett & Woolcock, 2004). Carmagni and Cappello (1996:4) further distinguish between institutional indivisibilities and competence indivisibilities as two barriers to entry that result from the process of technological change. This results in firms remaining uncompetitive or being unable to upgrade in order to connect with dynamic markets.

Fligstein (2001) argues that due to the interconnectedness of markets a failure in one market could have an impact or a knock-on effect on several other markets. Thus a failure in the steel market could impact the automotive, construction and several manufacturing sectors. Stiglitz (1998:202) offers a similar argument as Fligstein (2001) and contends that in many cases market failures reinforce each other and they thus keep rural producers disconnected from markets in a low-equilibrium trap. Income stays low, investment capacity is low, there is little if any innovation and

upgrading, and producers remain mired in poverty. Stiglitz (1998:202) explains that this is often the case in developing countries⁵ or rural areas where producers are not sophisticated or have enough resources to overcome market imperfections, leading to a low-equilibrium situation.

Taking the argument of the impact on market failure on developing countries further, Fligstein (2001:1) and Stiglitz (1998:198) argue that market imperfections sometimes cause firms to use internal transactions to circumvent the market system through internal exchange, internal capital flows and internal information exchange. This is not a new phenomenon and was already described by Coase (1937) in the 1930s. Stiglitz (1998:198-199) continues by stating that when markets fail, it is usually the smaller firms and consumers that suffer the most, simply due to their lower human and financial resources available for finding ways around the “barriers” or “obstacles”. This means that in failing markets, larger firms may still be able to compete, while smaller firms struggle to perform. Demil and Lecocq (2006:20) confirm this argument and posit that when one mode of distribution fails, other modes or elements of other modes are combined to create new delivery channels.

Lastly, there are also welfare implications that result from market failure. Stiglitz (1998:202) claims that market failures block development options and thus create barriers to growth. Market failures furthermore place more demands on government, as government often feels obliged to step in when markets fail to deliver optimal social results (Hosseini, 2001). Many developing countries are trapped in situations where the markets exist, but they perform poorly (McMillan & Woodruff, 2000; Stiglitz, 1998). This leads to the governments in these countries intervening counterproductively, often causing a further weakening of the markets (McMillan, 2002:14; Hosseini, 2001). Less growth invariably means more poverty. Due to these dire consequences, governments everywhere are actively addressing system-immanent market failure, and many governments have set up anti-trust bodies to combat private monopolies.

⁵ Stiglitz specifically mentions the Least Developed Countries in this context.

The next section examines the capacity of different stakeholders to overcome market failure.

3.9 ADDRESSING MARKET FAILURE

In the preceding sections of this chapter attention was given to the requirements of markets, and the most common kinds of market failure identified were discussed in detail. The literature cited showed that different kinds of market failure may be present simultaneously, or that one kind of market failure could lead to another. The consequences of market failure were described in Paragraph 3.8.

In the discussion of the different kinds of market failure in Paragraph 3.7, many suggestions regarding the correct structure or designs of markets were made that would counter the different kinds of market failure. This section focuses more on the leading interventions to address market failures rather than on market failure itself.

From this study it becomes evident that different markets fail for different reasons, requiring different solutions or configurations that must always be context specific (Rodrik, 2008, 2000). The next section not only describes how the solution is context specific, but also who the lead actors should be.

3.9.1 Leading interventions to address market failure

Markets and governments are often at odds. **Markets work because of their decentralised decision-making structures, while governments are often driven by central priorities and decision making.** At the same time, markets cannot function without the state making certain decisions and taking on certain responsibilities (McMillan, 2002:149; Evans, 1995). Coase (1991:718) argued that positive externalities are often caused by the state when the state concentrates on reducing transaction costs through the provision of public goods. Therefore it is clear that the state plays an important role in enabling markets to function.

While most authors agree that the state should take the lead role in intervening when markets fail, there are also some who advocate that markets should be left to their

own devices. Fligstein (2001:28) and Evans (1995) caution that governments are most likely to be pressurised to intervene by their electorates or producers who are negatively influenced by market failure.

It is often implied in the literature that the governments are just waiting to interfere in markets. Fligstein (2001:28) contends that often it is the private sector that lobbies for governments to intervene in issues of competition or markets. The private sector responds this way simply because they are too busy to solve problems in the markets, or because they face issues of uncertainty and difficult competition that take up their time. The specific role that government can play in addressing market failure is discussed in detail in Paragraph 3.9.5.

Several authors such as Coase (1974a) and Demsetz (1971) have expressed their frustration with the asymmetric standards that are often used in market failure literature, according to which markets are beset with failures, whereas omniscient, omnipotent, benevolent governments would reliably administer efficacious remedies (Dixit, 1996). In the past many economists have argued that the way to rein in market failures such as sub-optimal market structures (i.e. monopolies) is to introduce government action (Shaw, 2002). But public choice economists point out that there is also such a thing as "government failure" (see Paragraph 3.10).

Bardhan and Udry (1999:223) claim that the public sector is no less affected by incomplete information than the private sector. They continue their argument by adding that while certain private markets are severely afflicted by moral hazard, adverse selection and enforcement problems, the state benefits from coercive powers and compulsory, universal membership. In the provision of public and merit goods the state may not have enough incentive to reduce costs, compared with a private contractor. Krueger (1990:10) and Shaw (2002) argue that public officials are as concerned with their own self-interest as is the private sector. Bardhan and Udry (1999:227) conclude that the public choice literature has drawn pointed attention to how the regulatory, interventionist state spawns an enormous waste of resources in rent-seeking activities, over and above the standard economic losses arising from the misallocation effects of policy-induced distortions (Shaw, 2002).

The ability of government to intervene in markets is not a new topic. Already in the 1960s Lewis (1965:5) argued that governments first had to learn to control the public sector before they could hope to usefully control the private sector. Lewis is quick to add that government has been better at stimulating the private sector than controlling it. Lewis blames twentieth century economists for calling on governments to redress the imperfections of the market, very much like the nineteenth century economists called on the markets to redress the imperfections of government.

This section is concluded with an argument by Williamson (2000:601) who asserts that no single role player is ideal: *“As we all should have recognised (but needed to be told), all feasible forms of organisation - government included - are flawed”*. Williamson (2000:602) and Rodrik (Rodrik, 2008; Hausmann & Rodrik, 2003) propose that a thorough analysis of the institutional landscape is required, with alternative modes of governance – spot markets, incomplete long-term contracts, firms and bureaus - being evaluated. Coase (1960) argues that a significant factor in deciding who should address a given problem depends on the cost of regulating or controlling the measures.

3.9.2 Strengthening the institutions that markets depend on

The role of institutions in efficient markets has been mentioned several times throughout this chapter. It is important to look briefly at some of the most important literature on institutions and their role in economies. This section draws on some of the works of leading academics in the fields of New Institutional Economics and sociology.

McMillan (2002:14) states that left to themselves, markets can fail. To deliver their full benefits they need support from a set of rules, customs and institutions. Coase (1991, 1974a) and the Coase Theorem proponents such as Friedman and Stigler (Friedman, 2002; Stigler, 1989) argue that the purpose of state support for markets should be to reduce transaction costs.

Hollingsworth (2000:5) identifies two kinds of institutions involved in the performance of economies and markets:

- the institutional environment, meaning the basic norms, values, rules, conventions and habits of society (Granovetter, 2005:34; North, 1993; North & Thomas, 1976); and
- institutional arrangements or organisations (Rodrik, 2008; Rodrik, 2007b; Rodrik, 2007a; 2000:5; Williamson, 2000, 1987).

The institutional environment is described by Hollingsworth (2000:7) as made up of the basic norms, value, rules, conventions and habits. These are the most fundamental properties of institutions and are the most enduring and resistant to change. These institutions are important as they regulate human activity; they reflect and shape the preferences of actors (Hollingsworth, 2000:7; North, 1971; Davis & North, 1970). North (1990:3) wrote that institutions reduce uncertainty by providing a structure to everyday life, and compares these institutions to the rules of the game of a competitive team sport. But unlike the well-defined rules of team sports, institutional rules often evolve spontaneously over time as by-products of individual choices, rather than deliberately through collective action (Rodrik, 2008:3-4; Olson, 2000, 1982; von Hayek, 1973). Lin and Nugent (1995:2306-2307) describe these institutions as a *“set of humanly devised behavioural rules that govern and shape the interactions of human beings, in part by helping them to form expectations of what other people will do”*. Granovetter (2005:34) explains that collective action that depends on overcoming the free-rider problem is more likely in groups whose social network is dense and cohesive, since actors in such dense groups typically internalise norms that discourage free riding and emphasize trust.

Hollingsworth (2000:61) describes institutional arrangements as the co-ordination of the various economic actors such as the producers of raw materials, processing, materials flow, finance, information, knowledge, customers, finished products and governments. This means that a society develops institutional arrangements to overcome the co-ordination problems and the conflicting interests of the various economic actors. Williamson (1987) describes these institutional arrangements as

governance structures that trading partners design to mediate economic relationships. The logic of different institutions is summarised in Table 3.3.

Table 3.3: Logic of institutional arrangements

Co-ordination mechanisms	Organisational structure	Rules of exchange	Individual means of compliance	Collective means of compliance
Markets	Easy entry and exit Bilateral exchange	Voluntary spot exchange	Legal enforcement of control Regulations to enforce contracts	Norm of private property Legitimacy of market mentality
Communities	Informal membership that evolves over a long period	Voluntary exchange based on social solidarity and high degree of trust	Social norms and moral principles impose obligations Knowledge of others and	Highly institutionalised norms and rules require members to accept corporate obligations
Networks	Semi-formal membership Bilateral or	Voluntary exchange over a time period	Contractual bonds Resource dependence	Personal relations Trust built outside the economic arena
Associations	Formal membership Multilateral exchange	Restricted to members Emphasis on insider/outsider or we/they	Self-interest Reputation effects	Some degree of compulsion Private interest type of governance
Private hierarchies	Complex organisations which tend to become	Restricted to members, exchange based on asymmetric power,	Rewards to individuals Asymmetric power, threat of sanctions	Highly institutionalised rules Members socialised into corporate culture, use of
State	Public hierarchy De jure and imposed	Unilateral action Indirect political and	Exit, voice (vote, lobbying), loyalty	Coercion Norms and public rules

Source: Hollingsworth (2000:61)

Table 3.3 summarises the logic of different institutional arrangements. These arrangements consist of markets, various types of hierarchies and networks, associations, the state, communities and even clans (Entwistle *et al.*, 2007:65; Hollingsworth, 2000:61; Olson, 1982). Rodrik (2008:3; 2000:4) explains that there is a great variation in the different institutional set-ups, as these institutional configurations vary from one society to another.

In conclusion of this section, Hollingsworth (2000:13) is quoted, who contends that the more free a market is, the more it depends on its institutional arrangements to co-ordinate economic transactions. Which organisations come into being and how they evolve through time is influenced by a society's rules and norms, that is by its "*institutions*" (North, 1990; North, 1971). Authors such as Kay (2004), Rodrik (2000:4) and North and Thomas (1976) have credited the rise of the West with its dense institutional landscape. Rodrik (2000:4) claims that it is not about whether institutions matter, but about which institutions matter. Elsewhere Rodrik (2008:4) explains that it is better for countries to develop second-best institutions, rather than copy institutions from elsewhere in an attempt to mimic best practices elsewhere.

A commonly cited risk with the evolutionary approach of institution development is path dependence (Mahoney, 2000; O'Brien, 1996) or lock-in (Liebowitz & Margolis, 1995), where the one of the few ways out of the path is through external shocks, such as the establishment of the European Union (Fligstein & Mara-Drita, 1996:5). It is important to note that market failure is often the result of inefficiencies in the design and performance of the institutions that support a marketplace.

3.9.3 Designing completely new markets

McMillan (2002:9) and Roth (2002:1342) make a seemingly obvious statement that the key to market performance lies in its design; they claim that economists, governments and entrepreneurs at times have to take on the role of market designer. McMillan (2003; 2002:9) and Roth (2008; 2007; 2002) explain that new markets are carefully designed by economists and academics and rely on theories from the social sciences such as game theory (Roth, 2000; Roth, 1999; McMillan & McAfee,

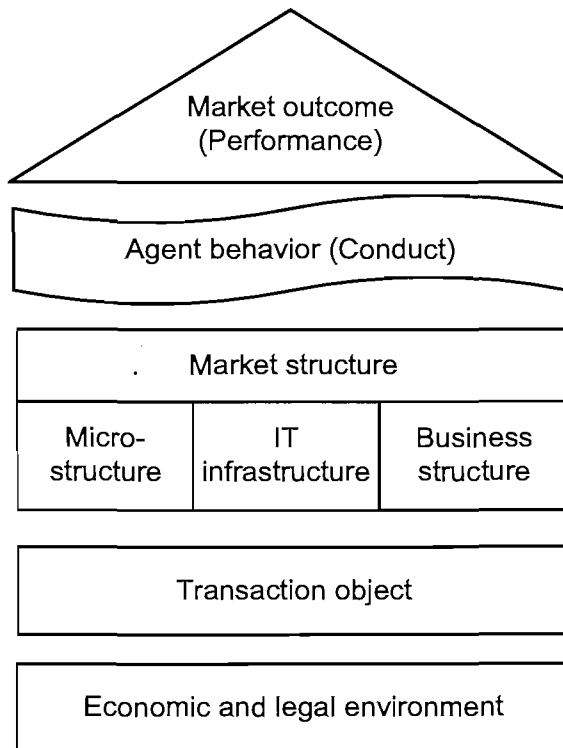
1996:263), auction theory (Roth, 2002; Milgrom, 1989; McAfee & McMillan, 1987; Milgrom, 1979) and competition theory (Vickers, 1995) to predict the behaviour of the market actors. Roth (2008; 2007; 2002) describes this emerging topic as “*design economics*” and explains that although a large number of the recent articles on recent market design centres on auctions, not all market designs involve auctions.

Roth (2008; 2002:1341) provides an overview of the design of markets over the last couple of decades, and explains that this field of economics, which is intended to further the design and maintenance of markets and other economic institutions, is called “*design economics*”. In order to design new markets, attention is given to the legal system, the role of government, enforcement, accreditation and other aspects of markets. The mechanisms for trade, transaction costs, the market’s culture, information flow channels, property rights, contracting and self-regulating norms must be attended to. McMillan and McAfee (1996:264) argue that competition reveals hidden information, and that the design of new markets, especially when auctions are used, can be important to reveal the costs or the value of a product.

McMillan (2003; 1997) and Spence (2001) explain that there are many instances where technology or other advances allow new products or completely new markets to be established where markets could previously not function due to high costs or low returns, or simply due to a lack of institutional alternatives. In the last two decades new markets have been designed for products such as green house gases, US defence contracts, electricity distribution and spectrum licenses (Binmore & Klemperer, 2002; McMillan *et al.*, 1997). An example of how technology allows the development of new markets within broader market systems is in the field of information management. Researchers in the field of information management have made inroads into market design regarding online auctions, e-commerce and other technology-based trading platforms in what is described as computer aided market engineering (CAME) (Gimpel, Jennings, Kersten, Ockenfels & Weinhardt, 2008; Weinhardt, Schnizler & Luckner, 2007; Weinhardt, Neuman & Holtman, 2006). In these environments, the designer of the technology platform in essence creates a complete virtual marketplace, with Amazon.com being an example (Gimpel *et al.*, 2008; Weinhardt *et al.*, 2007:4).

Weinhard *et al.* (2007:4) developed a process model for the development of electronic market platforms which is shown Figure 3.2.

Figure 3.2: The market engineering framework



Source: Weinhard *et al.* (2007:4)

Weinhard *et al.* (2007:4) explain that in the computer aided market engineering approach, careful attention is given to:

- the economic and legal environment;
- the transaction object;
- the market structure (microstructure, information technology infrastructure, business structure);
- agent behaviour; and
- the desired market outcome (performance).

The model proposed by Weinhard *et al.* (2007:4) combines elements from the field of economics (institutional framework, agent behaviour, economic and legal

environment) with business management (firm structure, transaction objects) and technology management (IT infrastructure).

Designing new markets is still a new field, with many experiments on, and learning taking place about, the complexities and dependencies of market design (Roth, 2002). Cases are emerging where careful consideration was not given to the wider economic and social systems in which these markets are embedded. McMillan (2002) cites an example of how California State designed a market for electricity supply that was flawed, and how these design flaws led to the Californian electricity crisis of 2001, and Klemperer (2002) relates another case where a 3G market was carefully designed but led to negative consequences.

Roth (2002:1345) summarises the learning on new market design of the last decade as follows:

- from design to implementation is very fast (in some cases less than a year elapsed since the contracting started to market implementation);
- much can now be learned from the design of previous or earlier markets and there are many opportunities to tinker with new ideas; and
- the adoption of new designs is very often at least partly a political process.

In most cases in this section single markets were described (e.g. for 3G access, radio spectrum, electricity, software). In these examples either the supply or the demand is uniform or homogeneous. The real world is far more complicated with its heterogeneous demand and supply, where different market systems are dependent on each other and entrenched in the social and institutional environments.

3.9.4 International pressure to reform markets

Often international institutions such as the International Monetary Fund (IMF), the World Trade Organisation or the World Bank exert pressure on developing countries to reform markets before these countries can gain access to international funds or markets. Joseph Stiglitz, the previous chief economist of the World Bank, is one of the most outspoken critics of the policies and recommendations of these institutions.

Stiglitz (2006:25-60; 2001:461) and Rodrik (2000:27) claim that these international organisations often ignore local institutional arrangements, preferring instead to concentrate on their own ideological preferences.

Rodrik (2008:2) criticises the World Bank for being biased towards best practices without considering important differences between different countries. Rodrik goes on to say that the World Bank presumes that it is possible to determine a unique set of appropriate institutional arrangements beforehand and views convergence towards those arrangements as inherently desirable.

Stiglitz (2006:25-60; 2001:461) argues that international institutions do not give enough consideration to issues such as financial structure, bankruptcy, capital flows and corporate governance. Examples of these market fundamentalist policies can be found in agreements such as the so-called “Washington Consensus” (Williamson, 2002, 1990) which prescribed certain ideas that many developing countries struggled with.

The key points of the Washington Consensus are described by Williamson (1990) and Williamson (2002):

- fiscal policy discipline;
- redirection of public spending from indiscriminate (and often regressive) subsidies toward broad-based provision of key pro-growth, pro-poor services such as primary education, primary health care and infrastructure investment;
- tax reform – broadening the tax base and adopting moderate marginal tax rates;
- interest rates that are market determined and positive (but moderate) in real terms;
- competitive exchange rates;
- trade liberalisation – liberalisation of imports, with particular emphasis on elimination of quantitative restrictions (i.e. licensing); any trade protection to be provided by low and relatively uniform tariffs;
- liberalisation of inward foreign direct investment;
- *privatisation of state-owned enterprises;*

- deregulation – abolition of regulations that impede market entry or restrict competition, except for those justified on safety, environmental and consumer protection grounds, and prudent oversight of financial institutions; and
- legal security for property rights.

In defence of the Washington Consensus, Williamson (2002) explains that the reforms rested on three main ideas: macroeconomic discipline, a market economy, and openness to the world in respect of trade and FDI. Following the Asian crises, many developing countries, especially in Latin America, are now increasingly resisting the recommendations of the likes of the World Bank and the IMF (Stiglitz, 2001:485).

From this section it can be concluded that reforms in the macroeconomic environment are not sufficient to address market failures, and that international pressure to reform markets can lead to disastrous results if the local institutional context is not carefully considered.

3.9.5 The role of government in overcoming market failure

Despite all the criticisms levelled against governments and their role in economies, the truth is that few markets exist without some interference or guidance from governments. This section will not re-discuss the issues raised in Paragraph 3.5, but will instead look at some of the obstacles that governments face in addressing market failure.

McMillan (2002:14) explains that if markets are left to themselves they often fail. Rodrik (2008, 2000) and McMillan (2002:14) emphasise that in order for markets to deliver their full benefits, they need support from a set of rules, customs and institutions that governments play a role in creating, although in many cases the government is following and not leading this institution-creating role (McMillan & Woodruff, 2000; Nelson, 1987:543). This is made more difficult by a wide range of government functions in a typical mixed economy. Nelson (1987:544) argues that

governments are not only directed (or needed) in cases where other actors fail, although certain types of market failure justify more state intervention.

Stiglitz (1998:202) contends that in developing countries, governments often face the same information, incentives, labour, skills and capital issues as the private sector. McMillan and Woodruff (2000) posit that in some of these cases the private sector will sometimes create its own systems in the absence of government institutions, along the lines described by Demil and Lecocq (2006) relating to the resilience of markets, networks and hierarchies. This describes another kind of low-equilibrium situation. Evans (1995) suggests that if governments concentrated on professional development of administrative staff, they would be able to intervene in markets to ensure that the rights of less organised groups are protected. However, the literature is divided on this topic, with several researchers making strong cases both for and against any government intervention.

It would therefore be an over-simplification simply to divide the debate into either markets or government. The question should rather be how to get governments and markets to work together in order to deliver socially and economic optimally solutions (Rodrik, 2007a; Fligstein, 2001), and whether certain market failures justify intervention from a government at all (Nelson, 1987:544).

Cowen (2002), and te Velde and Morrissey (2005:35) suggest that an important way for governments to overcome market failures is through the provision of public goods (such as technological knowledge) and through the assessment of externalities. However Nelson (1987:543-544) earlier cautioned that both public goods and externalities are too ubiquitous and hardly ever "pure". Coase (1991:718) contends that more attention should be given to positive externalities, and that one way to overcome externalities would be through improved property rights that are typically under the control of governments (Coase, 1960). In his more recent book, Stiglitz (2006:30-35) describes how Asian countries such as Korea concentrated on public goods (positive externalities) such as basic and secondary education, and on developing specialised technology institutions. Although these interventions were not aimed directly at market failure, they did support the market and the government system to grow the economies.

Klinger and Lederman (2006) regard the removal of entry barriers as important, but admit that sometimes entry barriers are useful in that they stimulate investment by entrepreneurs. These entrepreneurs then play an important role in signalling the value of a product to a new market. Rodrik (2007a:13) agrees with Klinger and Lederman (2006) and Coase (1991:718) and proposes that governments should also assist entrepreneurs to overcome co-ordination failures (an externality) that prevent the exploitation of new market opportunities or new discoveries from being made.

Earlier in the chapter (see Paragraph 3.7.5) the importance of competition was discussed and why it should be ensured that due to market design monopolies or oligopolies do not undermine competition (Stigler, 2002; Vickers, 1995; Stigler, 1982a).

Stiglitz (1998:202) describes several important interventions for governments in developing countries that summarise some of the key points raised by other investigators.

Stiglitz recommends that governments should:

- identify some of the main causes of pervasive market failure;
- address pervasive markets through good policies such as reducing government impact on the effective working of the markets;
- identify which market failures can be addressed through non-market institutions; and
- play an instrumental role in establishing such non-market institutions.

Stiglitz (1998:202) argues that it is important to recognise the limits and the strengths of markets, as well as the strengths and limits of government interventions aimed at correcting market failures. Coase already in 1960 (1960:18) argued that the cost of government interventions should be weighed up, as unilateral administrative interventions could easily outweigh the costs of market allocations. Coase suggest that ultimately the government should be selective in its interventions, and that the best allocation mechanisms in the society should be identified based on the costs. In many cases, problems in market allocations are solved in time.

3.9.6 Evolution of markets to overcome market failure

There are many proponents of a bottom-up evolutionary approach to market formation (Klinger & Lederman, 2006:2; Hausmann & Rodrik, 2003; Rodrik, 2000:10). This approach recognises that markets work differently in different situations and that there is no perfect market map or recipe for the institutions needed to support it. Rodrik (2000:10) argues that markets function because of the sum and evolution of all the components needed to make them function under the local conditions. This does not mean that nothing can be done or that there are no universal principles according to which markets function. It means that each market system is based on a unique and specific development path built on local knowledge and the institutional landscape, and that there are no universal one-size-fits-all solutions like so many authors like to think exist (Rodrik, 2008:2).

Rodrik and others (Klinger & Lederman, 2006:2; Hausmann & Rodrik, 2003; Rodrik, 2000:10) argue that institutions for high quality growth can be developed by implementing a bottom-up participatory approach that elicits and aggregates local information to create institutions. This is the opposite of the top-down blueprints that are often over-emphasised at the expense of local experimentation and participation, and builds on the arguments of Smith (1776, reprinted 1937) that the participants are the closest to the demand and supply constraints in the market (Rodrik, 2008:2). Rodrik (2000) concludes that participatory political systems are the most effective at applying local knowledge for institution building that enables higher economic growth, and that democracy is a meta-institution for building good institutions that make markets work adequately.

Markets often evolve from the bottom upwards through the innovations of the market participants, provided the right enablers exist to allow the market to perform. Where the right environment does not exist, market players often invent their own localised solutions, such as informal contract enforcement (Rodrik, 2008:2-3; McMillan, 2002:11; De Soto, 2000; Stiglitz, 1998:198).

For many investigators, such as the followers of Keynes, the approach outlined above would be too *laissez-faire*. Medema (2007) provides an overview of the classical authors and argues that their approach was mainly *laissez-faire* and

dependent on an evolutionary approach. In Paragraph 3.9 the different approaches to address market failure were described, and in many cases government could play a strong role. In other cases a more laissez-faire approach would be more desirable, although there is sometimes a risk that gains that are not spread more evenly across a society could lead to social unrest.

3.9.7 The role of new technologies in overcoming market failure

In many cases, technology has changed the way that markets function, and in some cases it has greatly reduced the costs of finding information or transacting (Powell & Snellman, 2004:202; McMillan, 2002:21). Quite recently the Internet has changed the way markets deal with information, and is most likely to lead to dramatic changes in the future as technology evolves, especially with the emergence of the knowledge economy (Powell & Snellman, 2004:200). Earlier markets had very clear geographic boundaries, but with the arrival of the Internet these boundaries have disappeared or shifted to a large extent (Spence, 2001). Bardhan and Udry (1999:218) argue that the increasing importance of technology to markets is often to reduce transaction and search costs.

Ellison and Ellison (2005) maintain that technologies such as the Internet simply provide an improved method of transaction, and that most of the classical economic principles still apply. Earlier Nelson (1987:549) argued that even though technological innovation leads to economic growth, the system is rife with market failures in the sense of inefficiency of distribution and duplication of effort. Despite this warning the fact cannot be ignored that technological advances allow many aspects of markets to perform better, and in many cases require markets to be redesigned.

Stenbacka (2001:1) acknowledges the important role of new technology and innovation in economic growth, but argues that the new information economy is characterised by imperfect competition, asymmetric information or external effects. Stenbacka (2001:16) emphasises that policy makers should take care when designing competition policy for hi-tech markets, as there are counteracting aspects that form necessary preconditions for the functioning of the new economy (this includes topics

like scale-economies and network effects). For example, Stenbacka (2001:16) explains that the strong technological-scale economies on the supply side and the network effects on the demand side make market structures with a high concentration and dominant firms both likely and efficient.

Stiglitz (1998) cautions that many markets in least developed countries may not be able to enter the knowledge economy, or may face serious challenges in earning a return on investment in new technology. This is caused mainly by the weakness of the overall system, leading to a general low-equilibrium situation with high negative externalities.

Spence (2001:437) explains that there are three forces that will change the economics of information in the future. They are described as follows:

- Moore's law (Schaller, 1997; Moore, 1965) is an empirical observation that the number of transistors on a chip doubles every eighteen to twenty-four months (originally stated as every 12 months), leading to a 50-billion time cost reduction in computer technology in less than 50 years (Spence, 2001:437), although Brenner (1997) observes that the rate of doubling has been slowing down over time. This is refuted by Aizcorbe (2005), who argues that there were increases in productivity and performance in the late 1990s.
- Metcalfe's law describes what is sometimes called the "network effect", where the value of a network to the entities attached to it is proportional to the square of the number of connected entities. This means that the value and hence the speed of connecting accelerates as the number of users increase, although there is a lot of disagreement about the exact multiplier (Briscoe, Odlyzko & Tilly, 2006).
- The noise reduction advances in fibre optic cables. Through scientific and technical advances the noise generated when light reflects off the side of a fibre optic cable is being reduced dramatically, which has led to very large increases in data rates with existing fibre cables. This translates into large cost reductions in providing bandwidth.

According to Spence (2001:437), these three forces interact with each other and accelerate the economic benefits, constantly reducing transaction costs and increasing information flows. They are relevant to this study because they:

- are responsible for recent productivity gains that are only now detectable;
- are associated with reduced transaction costs;
- improve the performance of markets;
- enable the creation of new markets that were too expensive to create without technology; and
- allow the ability to reduce the time and cost of the co-ordination of economic activity inside the firm or in the supply or value chain.

Examples of recent redesigns of markets include the change-over to a completely electronic trading system at the Johannesburg Stock Exchange, or banking via short messaging services (SMS).

3.9.8 Improving information flows

McMillan (2002:Chapter 4) devotes a whole chapter to the topic of how information can be set free in order to make markets perform better. McMillan (2002:44), Coase (1991:715-716; 1937) and Stigler (1982b:1) are of the opinion that search costs (for both suppliers and consumers) weaken the forces of competition, making it difficult for consumers to compare options and thus increasing transaction costs. Institutions play an important role in reducing all kinds of transaction costs for market participants.

One of the ways to improve the information flows in a market is through the strengthening of the signals in the market place (Riley, 2001, 1975). Signalling is the idea that one party (the agent) conveys some meaningful information about itself to another party (the principal). The issue of signalling was first thoroughly described by Michael Spence (1973) in his article "*Job Market Signalling*". Spence discovered that even if education did not contribute anything to an employee's productivity, good employees would still buy more education in order to signal their higher productivity

to employers. This signalling is not simply a specific way of behaviour, but actually requires an investment of time and resources (Riley, 2001:434).

Signalling took root in the idea of asymmetric information, which says that in some economic transactions, inequalities in access to information upset the normal market for the exchange of goods and services. Riley (2001:434) explains that these signals, such as building a reputation as being honest or trustworthy, is costly. If the costs of these signals are too high, a market failure may occur.

In recognition of the importance of their work on asymmetrical information, Michael Spence, George Akerlof and Joseph Stiglitz were awarded a Nobel prize for their analyses of markets with asymmetric information in 2001 (The Nobel Foundation, 2009). In his Nobel Prize lecture, Spence (2001:407) describes two terms that are used to communicate in a marketplace, "*signals*" and "*indices*"⁶. He explains that indices are attributes over which one has no control, such as gender and race. They are unalterable attributes of something, not necessarily a person. Signals are things one does that are visible and that are in part designed to communicate. They are alterable attributes. Signals carry information persistently in equilibrium from sellers to buyers, or more generally from those with more (termed "agents") to those with less information (termed "principals"). An example would be a signal like a warranty offered by the seller to the buyer, thus signalling information that the good is worth the value.

There are four signals that firms often use to differentiate their higher-quality goods from those of competitors with lower qualities:

- developing a reputation for higher quality;
- certification by a respected third party;
- warranties; and
- information disclosure (Dewally & Ederington, 2006).

⁶ Spence credits Robert Jervis with the origins of these terms.

Information flows and knowledge of a society are also topics that are receiving increased attention. Several recent publications (Powell & Snellman, 2004; Thurik & Wennekers, 2004; Adler, 2001; Audretsch & Thurik, 2000) highlight the role of knowledge in society, and Stiglitz (1998) argues that developing countries face a new risk in that large parts of their societies could be left out of the new knowledge networks and cross-boundary network societies that are now emerging. Potter (2004:10) explains that knowledge flowing out of a region can create inward capital flows, and how knowledge flowing into a region can connect firms to global markets and technologies. Potter also comments that ICT is playing an increasingly important role in facilitating these knowledge flows between regions. te Velde and Morrissey (2005:35) propose that market failure that prevents industrial development can be addressed through the improved provision of knowledge, specifically technological knowledge as a public good.

This section relates back to the beginning of this chapter on the discussions of market structure (Paragraph 3.5) and the market failures related to information flows (Paragraphs 3.7.2 and 0). Therefore improving the flows of information in market places is an obvious starting point for market interventions. This means that the role of technology, signals and indices must be considered. However, care should be taken not to confuse technology with information, as social networks and other forms of communication are also important in information flows.

3.10 THE RELATIONSHIP BETWEEN GOVERNMENT FAILURE AND MARKET FAILURE

Whereas the term "*market failure*" has been broadly discussed over the last century, the term "*government failure*" is still a fairly recently topic of discussion. In 1944 von Hayek (1944, reprinted 2001) argued that market failure does not imply that government should attempt to solve market failures, because the costs of government failure might be worse than those of the market failure it attempts to fix.

Shaw (2002) contends that for some, government failure is the opposite of market failure. **A government failure occurs when a government intervention causes a**

more inefficient allocation of goods and resources than would occur without that intervention. Wolf (1979:107) described a similar idea as government failure already in 1979, except that he called it “*nonmarket failure*”. As with market failure, government failure does not imply that a government has failed in total, but rather that a systemic problem exists which prevents an efficient government solution to a problem.

Strong markets require strong governments (McMillan, 2002; Fligstein, 2001:3; Messner & Meyer-Stamer, 1992). Krueger (1990:1-10) asserts that in many developing countries, the failures of the government far exceed the failures of the markets. The role of the government in the development of markets is even more important in lesser developed countries, as the state must play a role in acquiring new skills and ensuring a stable market platform (Fligstein, 2001; Hosseini, 2001; Stiglitz, 1998). Although markets can function in countries without governments, it must be questioned whether these unchecked markets create socially optimally solutions.

Stiglitz (1998:202) emphasises that governments are faced with the same problems as firms in weaker markets, in that they have limited information, labour and other resources. Hosseini (2001:263-264) and Stiglitz (1998:202) explain that the uncertainty and perceptual problems of policy makers cause government failures in less advanced nations. Furthermore, these public officials are also individual economic agents who are influenced by self-interest and sometimes greed. Hosseini (2001:263-264) argues that policy makers as economic agents must make decisions in complex environments in which the difficulty of these decisions exceeds their abilities to decipher the available information. This leads to government failures.

In an assessment of a pro-market development approach in business service development, Altenburg and Von Drachenfels (2005:1) accuse many practitioners involved in market development of actually being more fixated on government failure than on addressing market failure.

It would be too simplistic to reduce the debate to governments versus markets. Markets can be useful instruments for governments to achieve their objectives.

McMillan (2002:182) asserts that a well-designed market could be a useful government instrument because it puts resources into the hands of people who can use it best. McMillan (2002:195) argues that this means that while governments often fail to pick “winners”, they can create a market place where the best firms compete to implement certain solutions that benefit society. Rodrik (2007a:3) argues that in recent years, industrial policy has shifted from a focus on getting policy output right towards ensuring that the policy process is working. Thus Rodrik promotes a discovery process that allows for adjustment and interaction between the public and the private sectors.

3.11 SUMMARY

Markets are more than physical marketplaces or simplifications of demand and supply. Societies organise their production, growth and resource allocation through markets, hierarchies and networks. The world is filled with interacting and interdependent markets, and a problem in one market could have knock-on effects on several other markets and even societies (Fligstein, 2001). When markets do not perform optimally this is referred to as a market failure.

The term market failure does not imply that a market is not working at all, but that the system is not delivering socially and economically optimal results. Several different kinds of market failure can be described, including information asymmetry, indivisibilities, externalities, public goods failure, monopolies and others.

Governments play an important role in the performance of markets, as they are mostly tasked with the creation of market-supporting legal, regulatory, competition and other institutions that allow the market to perform its functions (McMillan, 2002:14; Rodrik, 2000). However, markets and governments are often confronted with similar problems of scarce skills, incomplete information, or economies of scale. Strong markets require strong governments. When markets are left to themselves they often create inequitable social outcomes, like the increasing poverty gap in many countries. Furthermore, when governments intervene in markets they are often not aware of the other unintended consequences of their actions in the market

system. Thus government is often faced with the same incomplete information and uncertainty that confront market actors (Pritchett & Woolcock, 2004; Hosseini, 2001).

The literature study highlighted the claims by many leading investigators (Rodrik, 2008, 2007a; Hollingsworth, 2000; Rodrik, 2000) that markets are highly context specific, and that they require a range of non-market institutions in order to work. Markets are also embedded in broader social and cultural environments and therefore the copying or blueprinting of markets from one location to another is very difficult (Rodrik, 2008).

The different methods to address market failure range from strengthening the role of government to relaxing the grip of government on certain regulations. The role of technology and the increasing importance of knowledge and information raises the issue that developing countries may fall further behind if they do not respond urgently with supportive education and technology-related policies. Coase (1991:717-718) urges that more attention be given to positive externalities, and Rodrik (2007a:13) comments that in many cases coordination failure (or high coordination costs) prevents the exploitation of opportunities or new markets.

While it seems easier to design a new market than to fix a market failure, the world is nevertheless full of markets that are not performing optimally. It seems that there is no single best way to approach interventions to address market failure. There are many variables ranging from legal frameworks, to competition to culture that may make a perfectly plausible intervention inefficient. Several researchers such as Rodrik (2008, 2000) feel that markets work best when they grow or evolve from the bottom up, based on the argument that it is those closest to the working of the market who are best able to address the issues. This will only work if no single market actor can manipulate the process for their own benefit. Furthermore, the tools required to stimulate this bottom-up evolution are still in its infancy. This study contributes to this topic.

CHAPTER 4: LITERATURE REVIEW OF THE EVOLUTION OF INTERVENTIONS IN BUSINESS SERVICE MARKETS

4.1 INTRODUCTION

In the preceding two chapters, the service economy and markets were discussed in detail. In this chapter a literature study of the practice and experiences of the development of business service markets is presented. The literature cited in this chapter was mainly produced by donors and development agency publications, of which only a few articles were published in journals. This already leads to the first challenge, as most documents by development practitioners seem to repeat more or less the same content, with very little evidence of interaction or discussion with academics.

In Chapter 2 it was explained that producer services are made up of government services, transportation, storage, communication, finance and **business services** (Statistics South Africa, 2005b). Business services are services that firms require in their day-to-day operations and are often intermediate inputs into the processes of production or service delivery of firms (Kox & Rubalcaba, 2007:3). Some business services are also known as knowledge-intensive business services or intermediary services (OECD, 2006; Powell & Snellman, 2004; Drake & Nicolaidis, 1992). Examples of business services include accounting, legal, bookkeeping, market research, management consultancy, consulting engineering, advertising and labour services (Statistics South Africa, 2005b:62).

For donors, governments and agencies responsible for economic development, the growth of small enterprises is an important outcome that contributes to growth in employment, income and the achievement of other social policy objectives (Eilgmann, 2005:7; Lindahl, 2005; Beck, Demirgüç-Kunt & Levine, 2004; Hinchins, Elliot & Gibson, 2004; Rogerson, 2004). A business service is an important input into

the growth and well-being of an enterprise, and hence is seen as a strategic point of intervention into the well-being of an enterprise.

For decades, governments, donors and development agencies provided business services directly to small enterprises (Gibson, 1999). During the 1990s it became evident that the impact yield of this kind of intervention was low (Committee of Donor Agencies for Small Enterprise Development, 2001). Attention shifted from the supply of generic state-funded business development services (BDS) towards the development of service markets for BDS, better known as the BDS market development approach (Donor Committee on Enterprise Development (DCED), 2007; Committee of Donor Agencies for Small Enterprise Development, 2001). At first, governments and development agencies grappled with the new approach. While many donors and governments to this day are still struggling to get to grip with this approach, others have since moved on to the topic of Making Markets Work for the Poor (M4P⁷). Whereas BDS market development was focused on BDS, or simply business services, Making Markets Work for the Poor (M4P) looked at broader market systems with the poor as beneficiaries.

Some of the most prominent instruments used by donors and governments to identify intervention points in business service markets are discussed at the end of this chapter. Most of the instruments focus on analysis, and not much literature exists on the design of market-correcting interventions.

4.2 BUSINESS SERVICES

Business services are services that firms require in their day-to-day operations. These include accounting, legal, bookkeeping, market research, management consultancy, consulting engineering, advertising and labour services (Statistics South Africa, 2005b:62). The term business services includes a wide range of activities that are not all related even if they are provided or consumed by

⁷ A whole series of acronyms were created by development programmes, ranging from Business Development Services Market Development Approach (BDS MDA), to Making Markets Work for the Poor (M4P or MMW4P).

businesses. An example would be transportation-related and financial services that are in the same Standard Industrial Classification category, but that are not strictly interpreted as business services. In some instances even equipment rental, engineering services and the management of complex engineering projects are included under the general category of business services (Kox & Rubalcaba, 2007:2). While some business services owe their existence to regulations (such as legal and tax services), others owe their existence to new technologies and increased globalisation of business.

In Chapter two it was explained that services are often defined by exclusion, until Hill defined services as distinct from products. Kox and Rubalcaba (2007:4) improve on Hill's definition, and define business services as *"a set of service activities that - through their use as intermediary inputs - affect the quality and efficiency of the production activities, by complementing or substituting the in-house service functions"*. At this point the distinction between producer services, business services, knowledge-intensive business services and general services is still weak. Kox and Rubalcaba (2007:4) provide a model that illustrates the relationship between the various kinds of service in Figure 4.1 that provides an operational taxonomy of the aforementioned definition.

The illustration in Figure 4.1 is unique in that it brings all the different business service-related concepts together in one model. Kox and Rubalcaba (2007:4) create a link between business services to some consumer services that are often used by enterprises (such as travel services). They make a distinction between operational business services that may be standardised or generic, and knowledge-intensive business services that are specific to the enterprise.

Figure 4.1: The relationship between different kinds of business services

Producer services	Business-related services	Business services	Knowledge-intensive business services	<ul style="list-style-type: none"> • software and computer services; • strategy and management consultancy; • auditing, tax and legal advice; • marketing services, opinion polling; • technical services, engineering; • personnel training, headhunting
			Operational business services	<ul style="list-style-type: none"> • security services; • facility management, cleaning; • administration, bookkeeping; • temporary labour recruitment; • other operational services
			<ul style="list-style-type: none"> • distribution and trade services; • transport and logistics; • banking insurance and stock exchange; • telecommunications; • courier; • energy services 	
	Consumer services partly used by enterprises (business travel, company health services, social insurance services)			

Source: Kox and Rubalcaba (2007:4)

In the knowledge-based era, business is becoming more knowledge intensive, resulting in certain services being labelled as knowledge-intensive business services or KIBS (Miles, 2007:278; Toivonen, 2004; Roberts, 2003:130). Miles (2007:277) explains that almost all activities in an economy are based on some knowledge, and that all societies are knowledge based. Thus the discussion of knowledge in business services should focus on what knowledge services are used for. Miles (2007:277) explains that when people refer to knowledge intensity, they refer to highly specialised knowledge, or codified knowledge. This knowledge is about the principles, “*know why*”, and methods that can be generalised across numerous specific situations and problems, and should be contrasted with “*know-how*” and “*know-whom*” knowledge that are tied to particular tasks and places.

Knowledge-intensive business services are concerned with the collection, analysis and distribution of information and knowledge, and play a significant role in the

creation, dissemination and application of knowledge both within and between firms at the level of the region, the nation and internationally (Andersen *et al.*, 2000; Antonelli, 1999; Miles *et al.*, 1995).

Miles *et al.* (1995:ii) define knowledge-intensive business services as services that:

- rely heavily upon professional knowledge;
- either supply products which are themselves primarily sources of information and knowledge to their users (for example reports or training consultancy);
- use their knowledge to produce services which are intermediate inputs to their clients (for example communication and computer services);
- own knowledge-generating and information processing activities; and
- are of competitive importance and supplied mainly to other businesses.

In a more recent publication Miles (2007:277) adds that knowledge-intensive business services can be classified into two broad classes. First is the social and institutional knowledge involved in many traditional professional services, with an emphasis on problem solving or applying rules and procedures (Miles, 2007:280). Accounting or communication services typically fall into this class. Second is the knowledge that has risen to the fore in recent years, which is more focused on science and technology. These services often deal with artefacts and the real world, such as aircraft, engineering, construction and infrastructure. There are services such as architecture that often combines these two classes of services.

4.3 THE GROWING INTEREST IN BUSINESS SERVICES

Although the interest in business services is a fairly recent phenomenon, services have been around for a long time as part of vertically integrated production and agricultural activities. Kox and Rubalcaba (2007:2) explain that agriculture and manufacturing already include service functions such as planning, management, administration, quantity and quality assessment, product improvement, labour recruitment, learning and education, marketing, transport, storage and distribution. Service professions gradually took over part of these business functions, running them as specialised and commercially independent activities. These specialised

service providers play an important role in the transfer of knowledge between firms, and in contributing towards the introduction of new technologies into companies (OECD, 2006; Hauknes, 1999:5, 14; Miles *et al.*, 1995).

The growing interest in business services is discussed next from the perspectives of industry and governments.

4.3.1 Industry perspective on the importance of business services

The close relationship between the manufacturing sector and the service sector is discussed in Paragraph 2.7. The present section focuses primarily on the increased dependence of industry on business services.

During the 1990s a trend emerged where many existing companies started to outsource non-core activities to specialised service providers (Kox & Rubalcaba, 2007:3; Toivonen, 2004; Roberts, 2003:130; Murphy & Vickery, 1999:15; Chase, Aquilano & Jacobs, 1998:466). Chase, Aquilano and Jacobs (1998:466) describe outsourcing as the practice where firms purchase material, assemblies and services that were previously provided within the firm from sources outside the firm. This shift from services inside firms to external service providers was partly due to process and product innovations by the service providers, technological advancement and improvements in the way outsourcing is managed (Bryson & Daniels, 2007; Casale, 2007b).

According to Murphy and Vickery (1999:14), commonly outsourced strategic business services affect activities such as research and development (R&D), design, human resources, management and production operations, information technology (IT) functions and marketing.

The most often-cited reasons for firms to outsource specialised services and functions are:

- concentration of firm and management resources on core activities (Casale, 2007a; Murphy & Vickery, 1999:14; Chase *et al.*, 1998:466);
- specialisation of outsourced functions (Murphy & Vickery, 1999:14) which includes access to world-class capabilities (Casale, 2007a); and
- creating a competitive advantage through cost reduction (Chase *et al.*, 1998:466-470) that can be achieved through flexible resource management, less management and control costs, reduced risks with difficult-to-manage functions, accelerated implementation costs, reduced time to market (Casale, 2007a).

Petit (2007:88) and Sassen (2007:187) contend that the business services market sphere is growing rapidly in urban and concentrated areas, which allows mainly for the externalisation of peripheral tasks of firms. The growing market sphere for business services is furthermore assisting producers to reach global markets and to access new means of production.

4.3.2 The interest of governments and donors in business services

The importance of services reaches further than internal benefits to the growth and competitiveness of firms (see Paragraph 2.7). The role of business services in the wider economy is recognised as an important public policy instrument for economic growth and industry competitiveness (OECD, 2005a:12; Commission of European Communities (CEC), 1998).

In a 1999 meeting (OECD, 1999) of the OECD Council at ministerial level, services were identified as one factor driving long-term growth: *“Ministers asked the OECD to study the causes of growth disparities and identify factors and policies (such as rapid technological innovations and the growing impact of the knowledge-based society and its demand on human capital, the arrival of new service industries, the best framework conditions for fostering the start-up and growth of new enterprises including SMEs) which could strengthen long-term growth performance”*.

Increasingly governments are becoming interested in the performance of their service sectors due to the increased recognition of the close relationship between services and the manufacturing sectors (see Paragraph 2.7). According to Murphy and Vickery (1999), the OECD has identified five services (labelled as Strategic Business Services) that are important to the process of increasing the growth and competitiveness of the manufacturing sector:

- computer services and information processing services;
- research and development and technical testing services;
- marketing services;
- business organisation services (comprising management consultancy and labour recruitment services); and
- human resource development services.

Other organisations prioritise knowledge-intensive business services (KIBS), or services that assist with innovation and technology upgrading (Miles, 2007; Toivonen, 2004).

The attention that business services are increasingly receiving from governments and donors is partly because of the high growth of the service sector, and partly because of the high-paying jobs that it creates (Bryson & Daniels, 2007:5-6; OECD, 2005b:22; 2005a).

Another important factor relates to the effect of business services on the performance of small enterprises, especially with the increasing employment contribution that small enterprises make in developing countries like South Africa (Centre for the Development of Enterprise (CDE), 2004; Department of Trade and Industry (DTI), 2004a:131).

In a submission to the OECD, the Commission of the European Communities (Commission of European Communities (CEC), 1998) summarised the main challenges to an optimal environment for business services growth as:

- matching skills to knowledge-based business services;
- exploring the huge potential of European exports by putting business service companies at the forefront of international competition;
- ensuring that European business service companies are clustering and operating in networks so the full potential of access to innovation and the capital market is realised; and
- contributing to the competitiveness, growth and innovation of industry, in particular of SMEs, by promoting their use of business services.

While the topic of services in international trade has already been covered earlier in this thesis (Paragraph 2.7.3), the importance of business services in international trade has not been mentioned. Restrictions and trade barriers often drive up the costs of business services, and business services are now increasingly recognised as an essential enabler for many different kinds of foreign direct investment (OECD, 2005a:18). Business services also provide opportunities to countries such as South Africa for exports in what is described by Riddle (2000) as Mode 2 exports, where services are produced in one place and consumed in another (see Paragraph 2.7.3). These tradable services feature prominently in the new National Industrial Policy Framework of the South African Government (Department of Trade and Industry (DTI), 2007:16).

4.4 AN OVERVIEW OF THE EVOLUTION IN THE PROVISION OF BUSINESS SERVICES TO SMALL ENTERPRISES

Since the mid-1990s there has been a steady evolution in the paradigm of how donors and governments can provide support to small enterprises. This does not mean that all donors and governments have shifted their perspective, or that everybody has kept up with the discussion. There is also evidence to suggest that although some organisations have simply adopted new labels, they have not fundamentally changed their positions.

This section will provide an overview of the key discussions over the last decade under the following headings:

- the traditional approach of direct provision of business services to small enterprises;
- the Business Development Market approach; and
- the Making Markets Work for the Poor (M4P) approach.

Before the evolution of the small enterprise development field is discussed, it is necessary to briefly consider why small enterprises are receiving this much attention in the first place.

4.4.1 Small enterprises and the poor as target groups for donor interventions

At the outset of this section it is important to note that policy makers and donors often use the concepts of small enterprise promotion and entrepreneurial promotion synonymously. Wennekers and Thurik (2004:140; 1999:29) advise against this approach, explaining that while small firms no doubt can be entrepreneurial and may have advantages in the modern global economy, they are not necessarily synonymous with entrepreneurship or entrepreneurial ventures.

Hallberg (1999:2-3) justifies interventions aimed at small and medium enterprises (SMEs) on the grounds of market and institutional failures that bias the size distribution of firms, rather than on the grounds of any inherent benefits provided by small firms. Hallberg (1999:8) admits that in many developing countries, large numbers of people are employed in small enterprises, and that this in itself is a good enough reason to intervene. Furthermore, job losses in many traditional sectors where large firms dominate exert more pressure on governments to attempt to stimulate small enterprise formation (Carree & Thurik, 1998).

Biggs (2002:2), on the contrary, explains that many donors such as the International Finance Corporation (IFC) and governments pursue small enterprise development in the belief that:

- small enterprises hold the key to faster economic growth and poverty reduction;
- jobs are created by small and medium enterprises at relatively lower capital cost than those created by large enterprises;
- small enterprises are the seedbed for future economic growth (as innovators, developers of entrepreneurial talent and exporters); and
- promoting the establishment of small enterprises increases competition and adds flexibility to the industrial structure, thereby promoting greater economic dynamism and speedier and less costly adjustments to economic shocks.

Biggs (2002:2) and others (Beck *et al.*, 2004; Manning, 1996:63-64) systematically investigated each of the statements above and found that there was very little empirical evidence to support the arguments made by donors that justified interventions aimed at developing small enterprises. Beck *et al.* (2004) conducted a 76-country survey and found that although a large small and medium sized enterprise (SME) sector is characteristic of successful economies, the data fail to support the hypothesis that small and medium sized enterprises (SMEs) exert a causal impact on growth. Thurik *et al.* (Thurik, Carree, Van Stel & Audretsch, 2008:683) find that as per capital income increases, so does the likelihood increase of people exiting unemployment by becoming entrepreneurs This finding was confirmed by Van Stel, Carree and Thurik (Van Stel, Carree & Thurik, 2005) using a different dataset.

Furthermore, Beck *et al.* (2004) found no evidence that small and medium sized enterprises reduce poverty. Thurik *et al.* (2008:683) found that the research into the effect of entrepreneurship and self-employment on job creation is ambiguous. The authors go on to say that two radically different policy approaches emerge from the literature:

- Literature focusing on the decision to become an entrepreneur suggests that public policy can reduce unemployment by providing instruments to promote entrepreneurship but does not necessarily stimulate economic growth.
- Literature focusing on the generation of economic growth suggests that entrepreneurship will mitigate unemployment and will result in policy that focuses on instruments inducing high-growth entrepreneurship. The authors go on to say that this approach is a more sensible macro policy approach as the chances that a high-growth entrepreneur will employ unemployed individuals are better (Thurik *et al.*, 2008:684), thus reducing unemployment and stimulating economic growth.

Snodgrass and Winkler (2004:14-18) provide an overview of the economic growth process and its effects on small and medium enterprises (SMEs) which are suddenly being squeezed by large firms entering their markets, more competition, and difficulties of attracting talent. Giving a different perspective, Audretsch *et al.* (Audretsch, Prince & Thurik, 1999b:208) find that small firms do not compete with large firms, and that small firms' profits are independent of large firms' profits. Their results indicate that small firms do not follow large firms, but rather pursue their own independent policies by, for example, targeting product or market niches. Audretsch *et al.* (1999b:208) conclude that rather than imposing a dead-weight loss on society, the process of creating and occupying a strategic niche enables the small firm to serve as an agent of change through innovative activity.

Hisrich and Drnovsek (2002) provide an in-depth analysis of entrepreneurship and small business research across Europe. They describe a wide range of interventions in Europe, concentrating on all levels of the entrepreneurial system, from within the firm to the enabling environment. Lazonick (2008) argues that to better understand poverty it is necessary to look at the nature and causes of wealth in developed

countries – and that a major driver of wealth is often entrepreneurial ventures. Naudé *et al.* (Naudé, Havenga, Dana & Anderson, 2007) provide an overview of African entrepreneurship and small business research.

Despite the evidence to the contrary cited in the preceding paragraphs, many donors and governments continue to pursue private sector development strategies aimed at small and medium sized enterprises as a means to achieve higher economic growth. In fact, many donors and governments not only pursue approaches aimed at small enterprises, they also try to address other social policy objectives simultaneously such as poverty alleviation, gender equity, youth development, rural development and community development (Eiligmann, 2005:7; Lindahl, 2005; Beck *et al.*, 2004; Hitchens *et al.*, 2004; Rogerson, 2004).

In South Africa, very similar debates took place on the role of small enterprises in growth, employment and efficiency (Berry, Von Blotnitz, Cassim, Kesper, Rajaratnam & Van Seventer, 2002; Kesper, 2001; Rogerson, 2001). Kesper (2001:197) found that many manufacturing enterprises were growing, although this was mainly jobless growth due to the increased use of technology. The increases in productivity and technology usage were caused by an aversion to employing more labourers due to perceived labour rigidity and other uncertainties. Still, small enterprise growth is seen as an important pillar in the South African Government's strategy to reduce unemployment and to achieve other objectives.

Rogerson (2001:777) claims that one of the reasons for the poor performance of the South African Government's small, micro and medium enterprise (SMME) development policies in the period between 1994–2003 was the policy confusion between economic (competitiveness), welfare (poverty alleviation) and political (black empowerment) objectives.

In South Africa (Department of Trade and Industry (DTI), 1995:10), small, micro and medium enterprises (SMMEs) are seen as a vehicle to:

- address the problem of high unemployment levels;
- activate domestic competition;
- redress the inequalities inherited from the apartheid period;
- contribute to black economic empowerment; and
- play a crucial role in people's efforts to meet basic needs.

Kesper (2001:198) concurs with Rogerson (2001:777) and recommends that the South African government must decide which of the objectives originally set in the White Paper (Department of Trade and Industry (DTI), 1995:10) on SMMEs are most desirable to fulfil. Jeppesen (2005) claims that similar policy confusion about the context and objectives of small enterprise development have occurred in many countries in the world.

To summarise, from this section it becomes evident that there is no final consensus on whether small enterprises lead to economic growth and increased competition, or whether small enterprises are the result of economic growth and increased competition. However, the view that interventions aimed at stimulating entrepreneurship through the contribution of small enterprises to innovation and technological change seems to be justified (Acs & Audretsch, 2005; Carree & Thurik, 1998). However, this is purely an economic and competitive approach and should be seen as different to a social and redistribution approach. When these two approaches are confused, causing conflicting policies to emerge, the impact of interventions is much weaker (Jeppesen, 2005; Kesper, 2001:198; Rogerson, 2001:777).

4.4.2 The traditional approach of direct provision of business services to small enterprises

National governments and donors have a long tradition of providing business services direct to small enterprises in an effort to achieve growth, profitability and higher employment (Massey, 2003:129). Often developing countries pursue this

approach, arguing rightly that industrialised countries also subsidise business support measures for their own enterprises (Hallberg, 1999:11).

Small enterprises were often thought of by many donors and governments as being a small, weak and marginalised group that could not articulate their needs or understand their own business requirements (Kintu, 1999). Kintu (1999) argues that governments often justified their interventions on the argument that small enterprises do not offer a growing or viable market for commercial services.

In South Africa, the Small Business Act of 1995 (Department of Trade and Industry (DTI), 1995:46) established an implementation vehicle of Local Business Support Centres (LBSCs) that would provide a range of services directly to small and micro enterprises. The Act foresaw that each of these centres would provide a range of services from business information, general business management advice and counselling, aftercare and networking to other services (Rogerson, 2004). These centres were complemented by a whole range of other government-funded services ranging from Tender Advisory Centres (TACs) to Manufacturing Advisory Centres (MACs). In an evaluation of Local Business Support Centres it was found that despite the media coverage of their poor performance, the reasons why many centres offered poor services, were poorly managed and had a very poor service fit with their target groups had not yet been properly analysed (Bloch & Daze, 2000:2).

In many cases internationally and in South Africa, governments often did not consider that there were existing service markets that were supplying services to small enterprises (Anderson, 2000; Gibson, 1999:4). Gibson (1999:4) contends that the net effect of years of government and donor-supported interventions has been to undermine the development of market forces. Gibson (1999:4) also states that private sector providers of BDS are often "*crowded out*" by government and Non-governmental Organisation (NGO) suppliers of services to business. This was largely because small enterprise development practitioners were convinced that state-subsidised business development services should be provided directly to small business people (Hileman & Tanburn, 2000:1-5), despite evidence that many small and micro enterprises were already using commercial services (Anderson, 2000). In

some cases this behaviour by public officials was caused by a mistrust of external agents (Kesper, 2001).

Massey (2003:130) provides an insight into the behaviour of policy makers by explaining that the choice of consultants and advisors available to small enterprises is often affected by whether governments see enterprise development as benefiting the owners of the enterprise (the private good model) or society at large (public good model). Massey's argument (2003:130) could explain the findings in the preceding paragraph by Gibson (1999:4), Hileman and Tanburn (2000:5) and Kesper (2001) that small enterprise development practitioners and public officials tend to mistrust commercial service providers, as they see small enterprise development as a public good that should benefit society at large.

Manu (1998:4) explains that the lack of impact of state-provided BDS is not necessarily due to incompetence or failed delivery; in fact, some small enterprise development programmes such as PRIDE Tanzania have an excellent service delivery track record. On evaluation of the PRIDE programme it was found that it had hardly any impact in terms of income levels and growth, which defeated the original purpose of creating the programme.

Very often government-funded small enterprise programmes are supply driven and not based on the real needs of small enterprises (Rogerson, 2004:772). In a more recent assessment, the South African Department of Trade and Industry acknowledged that the establishment of the Small Enterprise Development Agency had not yet delivered the desired results and was overly supply driven (Department of Trade and Industry (DTI), 2007:27).

4.4.3 The Business Development Service Market development approach

During the early 1990s the impact and poor performance of traditional support to small enterprises became apparent and raised concerns in the donor community (Gibson, 1999:2-3; Manu, 1998:4). Eventually after several publications and five international conferences a group of international donors agreed to a new set of guidelines regarding government support to business services (Donor Committee on

Enterprise Development (DCED), 2007; Committee of Donor Agencies for Small Enterprise Development, 2001). During the analysis and preparation for the release of the so-called donor guidelines, a new term was coined, “Business development services”, which were described as “*non-financial services that are critical to the entry, survival, productivity, competitiveness and growth of SME’s*” (Committee of Donor Agencies for Small Enterprise Development, 2001). Although later on the “development” in business development services was dropped by many organisations, for a while the term was widely used and associated with the principles contained in the donor guidelines (McVay, 2005:8; Bear *et al.*, 2003).

The poor were still central to this new approach outlined by the Donor Guidelines (Donor Committee on Enterprise Development (DCED), 2007; Committee of Donor Agencies for Small Enterprise Development, 2001), but many questions remained as to whether poor people would be able to afford commercially provided business services (Eiligmann, 2005). Different donors and practitioners have tried different approaches to reach the poor. The Swiss and others experimented with voucher schemes to entice small enterprises into use training services (Botelho & Goldmark, 2001). Others, such as the United States Agency for International Development (USAID) and Action for Enterprise experimented with different sub-sectoral approaches to try and identify intervention points where sufficient scale could be identified to make services commercially viable (Lusby & Panlibuton, 2004; Lusby & Panlibuton, 2002).

The so-called market development paradigm placed far more emphasis on the development of commercially viable business service markets that provided BDS to small enterprises. Table 4.1 compares the so-called traditional approach with the market development approach.

Table 4.1: Comparison of the traditional with the market development paradigm

	Traditional paradigm	Market development paradigm
Understanding the system	Small enterprises are seen as grateful beneficiaries of government-subsidised support.	Small enterprises are seen as discerning consumers of services.
	Government organisations and NGOs are seen as the key providers of services.	The activities of the private sector in functioning markets become paramount.
	Services are primarily considered as a set of primarily public goods.	Services are seen as a set of private goods.
	BDS is financed primarily by the state.	Transactions are commercial between supply and demand.
What Business Development Services are	Narrow view: Formal / education orientated.	Broader view: Enterprise / pragmatic orientated.
	Emphasised donors and government's supply-side beliefs of what was good for small enterprises.	From a market development perspective reflects a demand-side orientation as constituted by small enterprises' own view and therefore much broader.
	Encompassed a strong emphasis upon training and counselling small enterprises.	BDS is best conceptualised in terms of a broad and continuously changing frontier or array of services that are needed by small enterprises to effectively run their businesses.
How it should be provided	Organisations: Mainly government-owned or sponsored agencies and not-for-profit agencies.	Market system: Mainly the for-profit private sector, including informal networks, business associations and business-to-business relationships.
How it should be promoted	General support for the design and delivery of BDS with an implicit assumption of continued subsidy and often standardised services.	Finite, focused support aimed at addressing BDS market constraints through limited interventions, "facilitated".

Source: Adapted from Hitchins *et al.* (2004:9)

Table 4.1 illustrates how important the shift was from direct interventions towards the so-called market development paradigm outlined by the Donor Committee on Enterprise Development (Committee of Donor Agencies for Small Enterprise Development, 2001). This new approach was fundamentally different, and many donors and governments had some challenges to overcome in order to shift from the traditional supply-driven approach to a more market-orientated approach. That some organisations were not comfortable with this approach became clear during on-line facilitated discussions (McVay, 2005), and at the annual Business Development Service (BDS) conference hosted by the International Labour Organisation or ILO (Miehlbradt & McVay, 2005).

Hileman and Tanburn (2000:4) explain that the main questions that the market development approach raises are:

- What services do small enterprises believe warrant an investment of time and money? What services have they had that might be useful?
- How can demand be met profitably?
- If demand is weak, why?
- What prevents service providers from meeting demand more effectively?
- What unique opportunities are there for mutual profit between smaller and larger enterprises?

Hileman and Tanburn (2000:4) argue that answering these questions with the active participation of private sector service providers can lead to innovative and sustainable methods of meeting small enterprise needs. The donor guidelines (Committee of Donor Agencies for Small Enterprise Development, 2001) propose that interventions should be “*demand led*” and “*business-like*”, and thus require flexibility towards different realities in their implementation.

Eiligman (2005:10) contends that poor micro entrepreneurs demand different services to enterprises with a more sophisticated company structure. Service delivery models and modes of payment also differ. Eiligman (2005:10) continues that services targeting poor micro entrepreneurs have to be more tangible, and benefits have to become visible quickly.

Another challenge for governments and donors is that a central task in business development services (BDS) market development is facilitation (Bear *et al.*, 2003; Committee of Donor Agencies for Small Enterprise Development, 2001). The challenge is that this facilitation task is often misunderstood by governments and development agencies and that it requires a thorough understanding of business and how markets function (Ferrand *et al.*, 2004; Bear *et al.*, 2003; Hitchins, 2002). This implies that an adequately skilled facilitator will be available to facilitate the discussion between small enterprises, private sector service providers and other supporting bodies. Bear *et al.* (2003:3-4) argue that many donors and government agencies simply do not have enough practitioners with the experience and facilitation skills required to facilitate such complicated processes.

According to Bear *et al.* (2003:4), the core logic of the market development approach is about addressing causes (rather than symptoms) of underdevelopment. Whereas conventional small enterprise development interventions ask: *“What problems does business have and how can I help to solve these?”* the market development approach asks: *“What problems do businesses have and why isn’t the market environment providing solutions to these?”* Bear *et al.* (2003:4) conclude that if the one is about why the business isn’t working then the other is about why the market isn’t working.

Hitchins (2002:5) proposes that solutions should move beyond the supply and consumption of services towards the sustained functioning of markets. He suggests that solutions should consider the role of various role players (both public and private), the functions provided, the payment mechanisms involved and the wider context of the market.

Critics of the business development service (BDS) approach argue that the link between business development service (BDS) market development and poverty reduction is too indirect, or that the approach is too fundamentalist (Gagel, 2006). In an assessment of a pro-market development approach to business service development, Altenburg and Von Drachenfels (2005:1) accuse many practitioners involved in market development of actually being more fixated on *“government failure”* than on addressing market failure. These critics (Gagel, 2006; Altenburg &

Von Drachenfels, 2005) call for a more hybrid approach where a mixture of public and private sector provision of services is promoted.

Altenburg and Stamm (2004:8) argue that the approach pursued by many development practitioners and donors ignores the fact that many services simply are not able to be provided in a fully cost recovery (or commercial) way, and that many services should be state subsidised or even full public goods. They continue by stating that donors were naive about how long it would take for a functioning service market to emerge.

In one of the earlier business development service market development publications, Hallberg (1999:11) comments that governments should focus on addressing market failures that create cost disadvantages for small enterprises, reduce fixed costs that make small enterprises less competitive, and invest in public goods that open market access and develop markets for support services.

The BDS movement seemed to have ignored the political economy that subsidised services to small enterprises, and the legitimacy that many governments earned through this practice (Altenburg & Stamm, 2004:9). In one of the earlier documents used in the field, Hallberg (1999:8) cautioned that governments had political reasons to intervene with subsidies and services to the poor, although many practitioners seem to have forgotten this caution in the following years. Furthermore, government bureaucrats who stand to lose their jobs through BDS market development would resist such approaches in their own self-interest.

Despite the criticisms against the business development service market development approach, many other development fields are also increasingly shifting from state-funded provision towards market-based delivery (Eiligmann, 2005; Lindahl, 2005; Miehlbradt & McVay, 2005). Fields such as trade promotion, agricultural development and sectoral development programmes all have long traditions of being supply-driven, state-funded activities.

Bear *et al.* (2003) claim that the field of agricultural extension is engaged in its own debate around market development for the following reasons, which are very similar to the debate around business services:

- traditionally provided services have not brought many small-scale or rural farmers into the mainstream economy, but have rather cemented their disconnection;
- services are not functioning well, and have limited outreach, efficacy and sustainability;
- the development challenge is about encouraging the development of more effective markets for services and redefining a more specific role for government; and
- the previous hesitancy to place services in a market context has been swept aside by the realities on the ground.

Massey (2003:133) argues that in many countries there is a move away from supplying services to firms based on the perceived public goods that will result from enterprise development, towards an approach that emphasises the private benefit of the service to the owner of a small enterprise. Massey continues by saying that the private benefit model of the consultancy-based approach fits better because consultants are more able to understand the small enterprises' specific organisation context, and have better process skills and technical knowledge. This in essence signals a shift from the centrally controlled generic services offered by the public sector, towards the decentralised decision making offered by markets for different consulting and business services.

4.4.4 From BDS market development to Making Markets Work for the Poor

In 2003 the United Kingdom's Department for International Development (DFID) piloted several programmes on a concept that has become known as "*Making Markets Work for the Poor*", or M4P (Ferrand *et al.*, 2004; Hitchins *et al.*, 2004). This approach took the learning from BDS market development combined with learning from other fields, and focused more on the markets that the poor participated in (Gibson, 2007). The DFID funded the establishment of the ComMark Trust in the

Southern Africa region to improve the lives of the poor through improvements in commodity, product and service markets (ComMark, 2006). This approach has spread to other donors and governments with the German Technical Co-operation (GTZ), the Swiss and others designing programmes on the same principles (Eilgmann, 2005; Harper & Tanburn, 2005; Miehlabradt & McVay, 2005).

The Making Markets Work for the Poor concept shares the same emphasis on market development as the business development service (BDS) market development approach discussed in the preceding section, but at the same time it is much wider with a less clearly defined scope (Meyer-Stamer, 2006:21). In the Making Markets Work for the Poor (M4P) discussion, the term business development service (or BDS) is now replaced by business services, business service markets or supporting markets (Harper & Tanburn, 2005; Miehlabradt & McVay, 2005; Bear *et al.*, 2003).

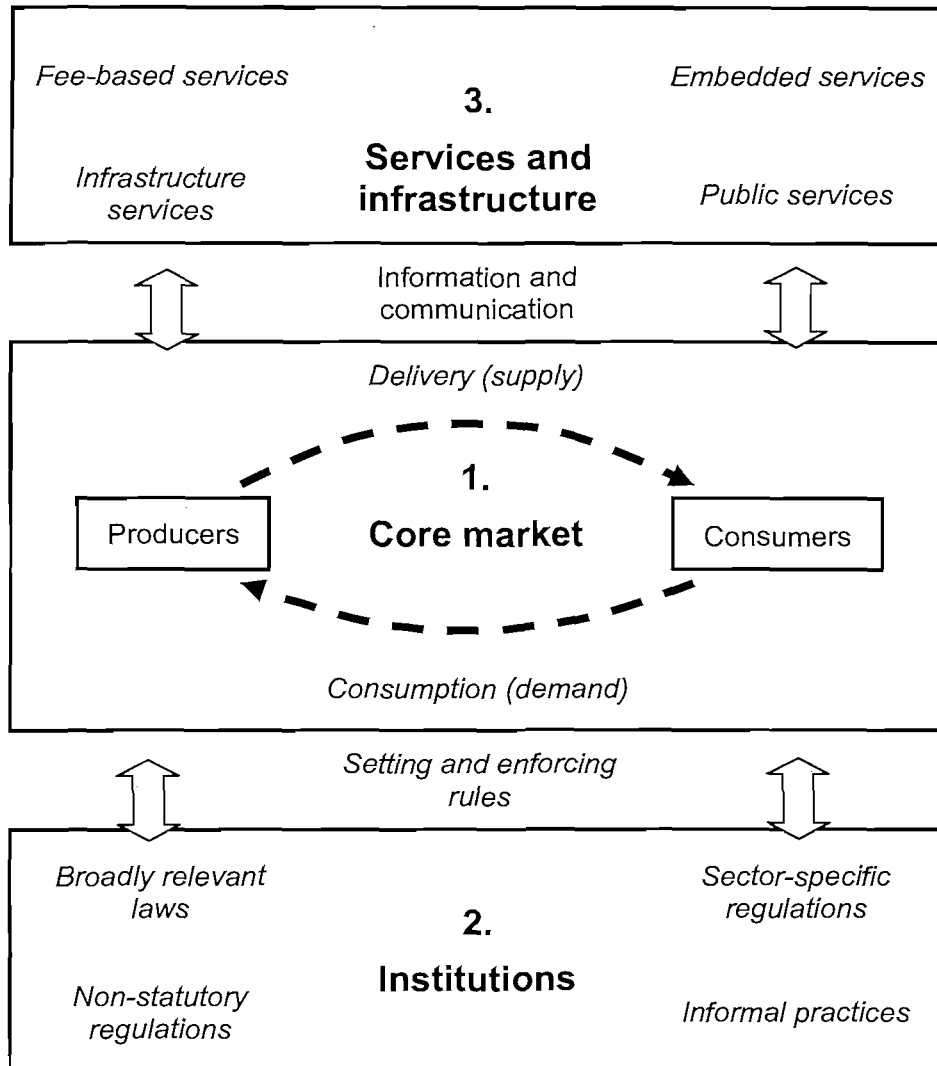
Bear *et al.* (2003:7) propose that a detailed understanding of markets shapes interventions in two particular ways: a) assessment of existing market situations, especially to identify underlying constraints, forms a starting point for intervention (answering the question: “*what is the current situation?*”); and b) developing a detailed picture of how a market might work more effectively in the future – a picture of sustainability – sets a target for an intervention (“*What could be?*”).

Bear *et al.* (2003:7) also state that it would be logical that the challenge of intervention is how to get the markets to go from (a) to (b). This approach described by Bear *et al.* (2003:7) has evolved into a philosophy that the British DFID, and more recently other donors such as the German Technical Co-operation (GTZ), promote as “*Making Markets Work for the Poor*” or M4P or even MMMWP (Eilgmann, 2005; Harper & Tanburn, 2005; Ferrand *et al.*, 2004:3). Ferrand *et al.* (2004:11) contend that in order to understand a market it must be analysed using its key dimensions:

- the core market – the central supply-demand set of transactions;
- institutions – the rules of the game framework; and
- services and infrastructure.

These key dimensions are illustrated in Figure 4.2.

Figure 4.2: Key market dimensions



Source: Adapted from Ferrand *et al.* (2004:13).

The framework proposed by Ferrand *et al.* (2004:13) suggests that the core of the market should be analysed in order to establish the performance, trends, players, structures and issues (Figure 4.2, number 1). They add that it is important to determine where the poor fit into a specific market. It is important to understand what the wider influences and prospects are for a given market and what the levels of participation are for the poor in a specific market (Ferrand *et al.*, 2004:14). Under the institutional analysis Ferrand *et al.* (2004:13) focus on the analysis of the institutional level which includes the sets of rules and the enforcement mechanisms (formal and

informal) that impinge on markets (Figure 4.2, number 2). Governments are often the main formal players, but the private sector through associations may be more effective at developing industry-specific regulations and interventions.

Ferrand *et al.* (2004:16) propose that the services and infrastructure should be analysed using two key questions:

- What are the main services offered currently in a market, how are they offered and by whom?
- What has been the experience of the key market players in consuming these services?

Ferrand *et al.* (2004:16) explain that the services and infrastructure dimension could take several forms:

- fee-based business services (business consulting, computer services and other BDS services);
- “embedded” business services that are included in other commercial transactions; and
- infrastructure, including electricity, telephones, roads and water.

Although the Making Markets Work for the Poor evolution from the very simple micro analysis of transactions between supply and demand to a cognisance of institutions is commendable, key elements of the functioning of markets are not discussed in the literature. Authors such as Meyer-Stamer (2006:21) criticise the M4P approach promoted by Ferrand *et al.* (2004) as not being grounded in proper academic research on how markets function, and he also criticises them for neglecting how markets interact with other forms of co-ordination, namely hierarchies and networks (see Paragraph 3.4).

Dorward and Kydd (2005:16) argue that taking Making Markets Work for the Poor too far would also be self-defeating, as markets depend on other forms of direct and indirect market institutions. They observe that highly fragmented markets can lead to

prohibitively high transaction costs while at the same time creating barriers to entry that reinforce critical bottlenecks.

Furthermore, the approach described by Ferrand *et al.* (2004) does not explore the influence of a given services characteristic on the market design, nor does it analyse the sources of competitiveness or innovation in service or other markets.

Meyer-Stamer (2006:27) contends that the Making Markets Work for the Poor approach suffers from a conceptual weakness in that the “poor” in the expression is not clearly defined. Meyer-Stamer (2006:27) further contends that the different levels of poverty ranging from relative income poverty to absolute destitution is not expanded properly. Meyer-Stamer (2006:29) identifies another conceptual weakness: hierarchies in developing countries tend to be weak, and in some cases M4P programmes effectively bypass the weak governments. Gibson (2007) refuted many of Meyer-Stamer’s arguments about M4P in a letter to the editor of the Small Enterprise Development Journal, which appeared alongside a published response by Meyer-Stamer (2007). Although Gibson (2007) provides anecdotal evidence to counter many of the academic arguments made by Meyer-Stamer (2007), very few of Gibson’s arguments are found in prominent discussion documents on M4P or in more academic literature.

The M4P discussion is still evolving (Harper & Tanburn, 2005), and the disagreements between Gibson and Meyer-Stamer should be seen within the ongoing strengthening of the debate.

4.5 THE MARKET DEVELOPMENT APPROACH IN SOUTH AFRICA

The BDS market development approach (BDSMDA), and the Making Markets Work for the Poor (M4P) development approaches are already visible in South Africa.

Following the international discussion on business service market development, the German Technical Co-operation (GTZ) introduced some of the concepts to South Africa in a German-South African programme on business development services. In the 2003 Annual Review of Small Business in South Africa, the Department of Trade

and Industry (Department of Trade and Industry (DTI), 2004a) introduced the Business Development Service (BDS) market development approach in a separate chapter in order to stimulate debate on the relevance of this approach to South Africa. The South African edition of the Global Entrepreneurial Monitor (GEM) Report (Orford, Wood, Fischer, Herrington & Segal, 2003:52) dedicated a chapter to business development services in 2003 and concluded that small firms needed access to commercially driven business services. The Global Entrepreneurial Monitor report also stated that these services should be provided by people with business experience that stimulates the growth and development of entrepreneurs.

Both the Department of Trade and Industries Annual Review of Small Business in South Africa 2003 Report (2004a) and GEM (Orford *et al.*, 2003) chapters were inspired by the results of a comprehensive market assessment of business development services in Nelspruit (Cunningham & Trah, 2004b) and Queenstown (Cunningham & Trah, 2004c) by the GTZ BDS programme. The research conducted by GTZ in South Africa showed that small and micro firms already used commercially provided business services (in some service categories such as financial planning) and that the small firms that used business services were in general in a healthier state than their counterparts that did not use services.

Independent research by the Centre for the Development of Enterprise (CDE) also argued that commercially provided business services were key to the growth of small enterprises in South Africa (Centre for the Development of Enterprise (CDE), 2006, 2004). The Human Sciences Research Council (HSRC) was tasked to do research into the role of service markets in the South African economy by the South African government's economic cluster, but unfortunately the research was never completed nor officially published (Altman, 2003; Altman *et al.*, 2003). In the National Industrial Policy Framework (NIPF) there is a whole section that deals with services, more specifically with the technical services that are required by small enterprises (Department of Trade and Industry (DTI), 2007:27). Furthermore, the fact that larger and medium enterprises were neglected was acknowledged. The framework undertakes to better understand the relationship between different industry players, educational institutions, firms types and public agencies (Department of Trade and Industry (DTI), 2007).

During 2004-2005 the GTZ BDS Programme, ComMark Trust and the Eastern Cape Manufacturing Centre (ECMAC) developed a pilot programme to test the commercial delivery of business services in the Eastern Cape Province (Cunningham, Moyo, Oosthuizen & Wegmann, 2006). Although early results looked promising, the pilot was ended prematurely after this initiative was not taken up by the newly formed Small Enterprise Development Agency (SEDA) which is a merger of the former National Manufacturing Advisory Programme and Ntsika Enterprise Promotion Agency (Cunningham *et al.*, 2006:4).

In other fields such as education (Centre for the Development of Enterprise (CDE), 2005), private sector providers are already playing an important role in extending services in the country on a commercial basis.

4.6 INSTRUMENTS USED BY DONORS AND GOVERNMENTS TO IMPROVE BUSINESS SERVICE MARKETS

In the preceding part of this chapter, several broad approaches used by donors to improve business services delivery to small enterprises were discussed. This section describes the main instruments used to diagnose BDS markets or market failure.

4.6.1 Market assessments

The homepage of the website of the Donor Committee for Enterprise Development (Tanburn, 2009) identifies market assessment as the main starting point for interventions aimed at developing value chains, linkages and service markets. The website lists more than 160 market assessments that have been completed in the past decade by donors, governments and development practitioners.

The market assessment is often seen as a compulsory step in BDS intervention programme design. According to Miehlbradt (2001; 1999:10), the market assessment instrument is mainly based on traditional market research instruments such as:

- usage, attitude and image surveys (UAI);
- product concept tests; and
- focus group discussions.

From the earlier publications on market assessments, it is clear that the instrument was always meant to be about market research or rather consumer research on how better to promote services (Miehlbradt, 1999:10), and not about market systems or how markets function (Meyer-Stamer, 2006:24; Cunningham & Trah, 2004a). Meyer-Stamer (2006:24) argues that a weakness of the market assessment is that it is better suited to product and market research and that it lacks the micro-economics insight required for market failure analysis. Some of the first market assessments funded by donors were actually conducted by market research firms, and not by economists or development experts (Rana, 2001). This fact is not contested by Miehlbradt and many of the development practitioners in the field, although many inexperienced practitioners might be tempted to try and use market research to diagnose market failure.

Engelman and Isiaho (2005:2) confirm that the results of a market assessment will not provide insights into interesting or innovative business models, or ideas on how to address those problems. Despite this acknowledgement of the shortcomings of a market assessment, many development projects use the results of market assessment to develop their market improvement activities (Tanburn, 2009). This relates to another challenge concerning the difficulty of project or donor staff to analyse the findings and to develop sensible interventions from the large amount of data collected (Cunningham & Trah, 2004a).

In the Making Markets Work for the Poor (M4P) approach a traditional market assessment is combined with several other analytical frameworks to strengthen the findings of the market research.

Despite these criticisms, this instrument is useful for improving existing services that are used by slightly more sophisticated enterprises. Petit (2007:94-95) explains that the question should not so much be about how to access certain services, but rather about how to get certain qualified users to make better use of the services.

4.6.2 Sub-sector or value chain analysis

The analysis of sub-sectors and clusters often leads to the identification of obstacles and problems that prohibit or restrain the performance of small enterprises. While assessing value chains or sub-sectors is not a new topic, the BDS Market Development paradigm allowed for a different intervention than the previous state-dominated interventions.

Bear *et al.* (2003:9-10) explain that business services are often provided in a cross-sectoral way, which means that generic business service markets (e.g. accounting or legal services) intersect horizontally with the vertical product and commodity markets (e.g. green beans, canned pineapples or the automotive industry). Lusby and Panlibuton (2002) provide a simple methodology to identify business service needs of specific sub-sectors. In a revised version of their publication they broadened the assessment of services to include all services that could be provided on a commercial basis to the target sector, or all problems in the sector that could be solved by a commercial service provider (Lusby & Panlibuton, 2004).

Services are not always visible because many kinds of services are embedded or bundled within other product offerings (Bear *et al.*, 2003:9-10). An example of an embedded service is where a small building contractor is assisted by a wholesale supplier to determine the costing of supplies for a tender. The wholesaler is providing a service (costing) which is included in the price of the hardware. Bear *et al.* (2003:9-10) explain that the recognition that services (especially in a sub-sectoral context) are often embedded within other commercial transactions, and that this insight has set the development field free from only thinking in terms of fee-based services.

Another way to identify weak business service markets is through the analysis of sub-sectors or value chains (Lusby & Panlibuton, 2004; Lusby & Panlibuton, 2002).

Commercial service offers can then be shaped to strengthen the performance of the target sector, based on the diagnosis of the sector through a value chain or sub-sector assessment. In many cases even this approach may not be feasible due to scale requirements for certain services to be commercially viable.

The website of the Donor Committee for Enterprise Development (Tanburn, 2009) lists several documents that capture experiences gained in business service market development in the context of certain value chains or sub-sectors.

4.6.3 Geographical approach to service assessment

Another approach to assessing service markets would be from a targeted geographical perspective, such as the surveys conducted in Nelspruit and Queenstown by Cunningham and Trah (2004b, 2004c) in the context of a GTZ Local Economic Development programme in South Africa. A result of this survey was the publishing of service profiles in the local media that assisted in overcoming information asymmetry that prevented certain transactions from occurring (Cunningham & Trah, 2004a).

While this approach provided an interesting insight into how related markets function, the project team still had problems with design interventions due to the different requirements of certain target groups. This problem was further compounded by the disinterest of service providers to diversify their service offerings or to target smaller enterprises.

4.7 SUMMARY

Business services are being increasingly recognised as important for the growth, competitiveness and global expansion of both large and small enterprises. For donors and governments the growth and improved performance of small enterprises are particularly important, especially since business interventions are often combined with other policy objectives such as gender equality, youth development and rural development.

Traditional small enterprise development concentrated on directly provided or state-subsidised services to small enterprises and saw enterprise development as a public good (Massey, 2003:130). Although some of these enterprise development programmes were managed efficiently, the results and the impact on economic growth and job creation were disappointing.

Many governments and donors then shifted their attention to commercial business development service providers and the markets that they interacted with. This was caused by a shift to where enterprise development is increasingly seen as a private good that must be customised to the unique organisational context of the small enterprise (Massey, 2003:133). This approach of developing the consulting market in support of small enterprise development is known by donors and governments as the Business Development Services (BDS) market development approach. Earlier documents that led to the formation of the BDS movement was very clear about the intention to search for public goods, market failures or externalities (Hallberg, 1999:6), but this seems to have been forgotten in the development field. Many development practitioners seem to have been carried away by the notion of commercialising all kinds of service delivery to small enterprises without considering the fact that some services may be public goods, or that some commercial services depend on public services to be performed.

The last phase of the evolution of the discussion relates to an even broader approach than BDS market development which is known as Making Markets Work for the Poor (M4P or MMMW4P). This approach is not only combined with business services, but could examine whole commodity markets, value chains or industries. Some critics are sceptical that the Making Markets Work for the Poor approach is not based on proper academic research. The proponents of this new approach do not agree, and contend that it provides powerful instruments to deal with market design, poverty alleviation and small enterprise growth.

Lastly, the different instruments used by donors to analyse and improve business service markets were described. All the approaches described here concentrate more on finding problems with service markets than with providing structured instruments to solve these problems or design new market systems or services.

CHAPTER 5: LITERATURE REVIEW OF QUALITY MANAGEMENT AND STANDARDS

5.1 INTRODUCTION

This chapter discusses the related terms of quality, quality management and standards.

The term **quality** is a description that is often **used to describe the qualitative or quantitative characteristics of a person, product or service** (Dale & Bunney, 1999:3). All kinds of organisations, ranging from producers to government departments, have an interest in managing quality.

During the past three decades the discussion on quality management has evolved through distinct phases of: inspection, quality control, quality assurance and, more recently, total quality management or TQM (Dale & Bunney, 1999:25).

For the purpose of this study, two recent trends in the Quality Management field are relevant. The first relates to the **emergence of international standards**, such as the ISO 9000 series that can be **applied to almost any kind of organisation**. From these more international standards, sector and even firm-specific standards have emerged that often include generic standards such as ISO 9000 in its entirety. Nadvi and Wältring (2004:67) explain that this has happened due to the technical complexity of certain kinds of industries, supply chain management in particular sectors, or in particular firm value chains with specific requirements. Examples are the Aerospace AS 9000 standard or the US Automobile QS 9000 standard (Stamatis, 1998:23). An example of a firm-specific standard is the German *Verband der Automobilindustrie* (VDA, 2008) that was developed by Volkswagen to manage its production and suppliers.

The second trend is a **philosophy of total quality management**, or TQM. Total Quality Management can be described as a management philosophy that covers all

aspects of a business, from management to production and customer interaction (Chase *et al.*, 1998:200). A popular instrument in Total Quality Management is continuous improvement.

Not all firms need to be certified to an international standard, and many choose to develop their own internal quality management system, or to adapt a management system of consulting. In South Africa, companies such as Pick n Pay (2009) and Woolworths (2006) operate their own quality management systems. But whenever firms want to compete or participate in international markets, standards becomes an issue. Therefore international standards play an important role in enabling international transactions.

This chapter describes quality management systems in more detail. It is relevant to the study because the empirical research specifically looks at quality management services provided to the tool, die and mould making industry. The international competitiveness of the tool, die and mould making industry is undermined by poor quality standards. This study specifically investigates the market for quality management services to the tool, die and mould making industry.

5.2 UNDERSTANDING QUALITY MANAGEMENT

According to Chase *et al.* (1998:200), the quality movement is more than just a series of quality standards and awards. It involves a total rethink of how a business should be run. Stamatis (1998:1) and Dale and Bunney (1999:2) describe quality as the totality of features and characteristics of a product or a service that bear on its ability to satisfy a stated or implied need. According to Stamatis (1998), this description takes into account that users often have requirements that remain unstated. He also states that quality means meeting the requirements of customers, whatever these requirements may be. These requirements change over time, which means that quality is not a static concept; it is rather a moving target.

Dale and Bunney (1999:3) explain that the term “quality” could be used to describe:

- a qualitative feature of a product, which is a non-technical situation and could be highly subjective (Dale & Bunney, 1999:3);
- a quantitative term which could define acceptable quality levels (AQL), described as the sample of non-conforming parts in a batch;
- uniformity of the product characteristics or delivery of a service around a nominal or target value (Dale & Bunney, 1999:4);
- conformance to agreed and fully understood requirements (Dale & Bunney, 1999:6);
- fitness for purpose or use (Dale & Bunney, 1999:8); and
- satisfying customer expectations and understanding their needs and future requirements (Dale & Bunney, 1999:8).

In the past 30 years there has been an evolution of systems for quality management which has progressed through four distinct phases: inspection, quality control, quality assurance and more recently Total Quality Management (Dale & Bunney, 1999:25). Of specific interest to this study is the Total Quality Management concept as it integrates all the preceding approaches to quality management, and it then relates it to the strategy and management of the organisation. According to Aquilano *et al.* (Aquilano, Chase & Davis, 1995:126) the more recent thinking on quality management builds on the work of early lead thinkers like Deming (1986, reprinted 2000), Juran and Crosby (1979).

The term Total Quality Management (TQM) has been coined to describe a philosophy that makes quality values the driving force behind leadership, design, planning and improvement initiatives of an entire business (Dale & Bunney, 1999:28). Elsewhere, TQM is described as a business-level strategy with components of process and content (Reed, Leam & Mero, 2000:6-7). In TQM, the focus shifts from detection towards prevention (Dale & Bunney, 1999:29).

One way of achieving TQM is by continued improvement. Chase *et al.* (1998:210) describe continued improvement as a management philosophy that approaches the challenge of product and process improvement as a never-ending process of

achieving small wins, which is an integral part of a Total Quality Management system. Continued improvement seeks continuous improvement of machinery, materials, labour utilisation, and production methods through the application of suggestions and ideas of team members.

Quality management also affects the competitiveness of firms. Garvin (1987) identified eight different quality dimensions on which companies can compete: performance, features, reliability, conformance, durability, serviceability, aesthetics and perceived quality. Although firms may complain of a lot of paperwork and bureaucracy, those firms that integrate quality management systems into their business strategy seem to have a competitive advantage over firms with no official quality management policy and strategy (Reed *et al.*, 2000:20; Curkovic & Pagell, 1999; Aquilano *et al.*, 1995:118).

5.3 QUALITY SPECIFICATIONS AND STANDARDS

Fundamental to any quality programme is the determination of quality specifications and the costs of achieving them. According to the International Organisation for Standardization (International Organization for Standardization (ISO), 2009a), standards ensure desirable characteristics of products and services such as:

- quality;
- environmental friendliness;
- safety, reliability;
- efficiency; and
- interchangeability at an economical cost.

According to the International Organisation for Standardization (ISO/IEC, 2009), standards can be broadly sub-divided into three categories, namely product, production process and management system standards.

5.3.1 Product standards

Product standards refer to characteristics related to quality and safety (ISO/IEC, 2009). Design quality refers to the inherent value of the product in the marketplace and is thus a strategic decision for the firm (Chase *et al.*, 1998:209). Stamatis (1998:2-6) describes product standards as what firms do and how well they do it. This must always be understood from the perspective and requirements of the customer.

5.3.2 Process standards

Process standards refer to the conditions under which products and services are to be produced, packaged or refined (ISO/IEC, 2009). Stamatis (1998:6) explains that to produce each product and service requires many different processes, and each consists of inputs, a conversion activity and an output. This process feeds from suppliers to customers, with a feedback loop from the customers to the suppliers and a feed-forward from the suppliers to the customers. Stamatis claims that quality addresses all the processes involved in the provision of a product or service with respect to the wants and how's so that these processes can be continuously improved to function better at lower costs.

According to Chase *et al.* (1998:209) conformance quality refers to the degree to which the product or service design specifications are met, and relates to day-to-day operational activities. Quality at the source refers to the concept that every person involved in production takes responsibility to make sure that his/her output meets the specification, with the goal being zero defects.

5.3.3 Management system standards

Management system standards assist organisations to manage their operations (ISO/IEC, 2009). They are often used to help create a framework that then allows the organisation to consistently achieve the requirements that are set out in product and process standards.

5.3.4 Cost of quality

The costs of quality is described by Chase *et al.* (1998:210) and Crosby (1979) as all of the costs attributable to the production of quality that is not a hundred per cent perfect. Chase *et al.* (1998:210) offer a less stringent definition that only those costs that are the difference between what can be expected from excellent performance and the current costs that exist.

Three basic assumptions justify the costs of quality:

- that failures are caused;
- that prevention is cheaper; and
- that performance can be measured.

Chase *et al.* (1998:210) identify four types of costs of quality:

- appraisal costs – the sum of all costs of inspection, testing and other tasks to ensure that the product or quality is acceptable;
- prevention costs – the sum of all costs to prevent defects, such as the costs of identifying the cause of the defect and implementing corrective actions, training, system or product redesign, or costs of new equipment;
- internal failure costs – the costs for defects incurred within the system such as scrap, rework or repair; and
- external failure costs – the costs for defects that pass through the system such as customer warranty replacements, loss of customers or goodwill and product repair.

5.4 THE ROLE OF STANDARDS AND QUALITY MANAGEMENT IN INTERNATIONAL TRADE

According to Nadvi and Wältring (2004:53), globalisation has heightened the interest and importance in global standards. These standards address a wide range of issues from labour conditions (e.g. the ILO's Global Compact), health and safety norms (e.g. HACCP and EUREPGAP), quality management procedures (e.g. ISO

9000) to environmental (e.g. ISO 14000) and social (e.g. Fairtrade) concerns. International standards and their use in technical regulations on products, production methods and services play an important role in sustainable development and trade facilitation through the promotion of safety, quality and technical compatibility (ISO/IEC, 2009; Department of Trade and Industry (DTI), 2007:26).

Meeting global quality standards is difficult due to the differences in operating practices in different countries. For example, some countries use the Imperial unit measurement system while others use the metric system. The International Organisation for Standardization (ISO) defines how things should be measured (Chase *et al.*, 1998:200) so that a unit of measurement in one country compares precisely with the unit of measurement in another. The International Organisation for Standardization (ISO) function goes beyond measurement also to define how processes should be documented and what processes are essential to ensure quality and is a generic standard for all organisations (Stamatis, 1998:11). This includes how production processes and flow of goods are documented in order to ensure traceability of goods and products.

Countries have started to develop national quality infrastructure in order to participate in international trade and to compete globally (Sanetra, 2007). This quality infrastructure typically consists of four pillars, namely metrology, standards, testing and quality. In South Africa these functions are performed by the National Metrology Institute of South Africa (NMISA), the South African Bureau of Standards (SABS), the newly established NRCS (National Regulator for Compulsory Specifications) and various testing, certification and accreditation bodies. Accredited Quality Management service providers function throughout the system to support firms and organisations to design, develop, implement and monitor various quality and standards-related activities. The national quality infrastructure is in turn connected to the international quality infrastructure, and this then ensures that South African standards, measurements and testing facilities and processes are in line with international agreements.

There are fears that international standards are the new technical barriers that prevent developing countries from accessing global markets (Department of Trade

and Industry (DTI), 2007:26; Nadvi & Wältring, 2004:90; Guerrero-Cusumano & Selen, 1997:207). But it can also work the other way, as in the case of Mexico, which decided to protect its home markets against goods from United States firms, because Mexico did not approve of the way the United States Government accredits ISO certifiers (Voss, 1994:6). South Africa is a signatory to the WTO Agreement on Technical Barriers to Trade (WTO TBT), which stipulates that standards and technical regulations should not be used as barriers to trade (NRCS, 2008).

South Africa will through the new National Industry Policy Framework (Department of Trade and Industry (DTI), 2007:14) enforce better quality standards to protect the domestic economy against low-quality imports that undermine the local manufacturing sector. In effect this means raising a non-tariff barrier to low-quality imports. The view that quality standards are a new trade barrier (called a non-tariff barrier or NTB) is especially related to the increased quality controls and standards relating to agricultural and foodstuff exports to Europe in the past ten years, or to the costs of certification and compliance (Myburgh, 2004; UNIDO, 1996).

Proponents of international standards argue that global standards assist developing countries with technology transfer, levelling of playing fields and access to world markets (International Organization for Standardization (ISO), 2009b; ISO/IEC, 2009). In the discussion of free trade, four terms that regularly show up are: regulations, standardisation, accreditation and traceability.

While the debate continues about whether international standards are good for developing countries or not, it seems evident that improving standards and quality is increasingly important if developing countries wish to trade with industrialised countries, or even just survive in their own markets (International Organization for Standardization (ISO), 2009b; Gillingham, 2007). This is because the pressure to conform to good quality standards and quality management procedures often comes from customers, consumers or more powerful players in value chains.

5.5 DIFFERENT STANDARDS SYSTEMS

The previous section ended with an assertion that quality management is often demanded by customers (or their customers), consumers or other powerful actors in the value chains (Gillingham, 2007). It should be understood that not all quality processes involve systems such as ISO 9000 or other official standards (Curkovic & Pagell, 1999). Any organisation can develop its own quality management system, but international or other quality standards become important when firms wish to transact with other firms.

Nadvi and Wältring (2004:62-71) describe three generations of standards which are useful to describe briefly the development of the global quality and standards landscape. The one is not more important or advanced than the others; rather in some cases generic standards are sufficient, while in sectors with highly integrated supply chains more specific standards are required.

5.5.1 First-generation generic international standards – ISO 9000

The ISO 9000 standard provides assurance that a product or a service conforms to established and specific requirements, and that the firm or service providers have appropriate quality management procedures in place. According to the International Organization for Standardization (International Organization for Standardization (ISO), 2009a), it is the most widely recognised standard in the world. The standard is generic and can be applied to manufacturing, service and public service sectors (Stamatis, 1998:11).

Although this is a voluntary standard, the popularity of ISO 9000 stems from both public and private pressures. In some cases, the public sector could use ISO 9000 as part of testing or certification requirements for certain products or processes (Wilson, 1999; Guerrero-Cusumano & Selen, 1997:206). In the private sector, many companies use ISO 9000 (and other standards) as a filtering mechanism to assess the process competencies of their suppliers to ensure that they use equivalent quality standards and processes (Nadvi & Wältring, 2004:63; Guerrero-Cusumano &

Selen, 1997:206). Firms that do not have ISO 9000 certification are not able to access these supply chains.

Not everybody is convinced of the ISO 9000 system, and it is often accused of being a variant of TQM or a paper-driven process of limited value (Curkovic & Pagell, 1999:54). Furthermore, ISO 9000 certification is also costly and time consuming. Despite these criticisms, customers who demand ISO 9000 are shaping the demand for the accreditation of organisations to these standards (Curkovic & Pagell, 1999:56-57).

5.5.2 Second-generation sector-specific standards

Sector-specific quality assurance standards are sometimes developed based on the ISO 9000 standards. Nadvi and Wältring (2004:67) explain that this happens due to the technical complexity of certain kinds of industries, supply chain management in particular sectors, or in particular firm value chains with specific requirements. Examples are the aerospace AS 9000 standard or the US Automobile QS 9000 standards (Stamatis, 1998:23). These two standards contain the ISO 9000 in its entirety, but with additional requirements specific to their sectors (Guerrero-Cusumano & Selen, 1997). Both these standards developed due to co-ordination of lead firms in their sectors to develop transparency and quality insurance along their own supply chains.

5.5.3 Third-generation firm-specific standards

Nadvi and Wältring (2004:67) describe the third generation of standards as those developed by specific firms in the development of their own supply chains. Examples from the automobile industry are the German *Verband der Automobilindustrie* (VDA, 2008) that was started by Volkswagen, and the standard initiated by the French company Peugeot "Evaluation d'Aptitude Qualité Fournisseurs" (Guerrero-Cusumano & Selen, 1997). Although both VDA and EAQF started as firm-specific standards, they are increasingly enjoying industry-wide acceptance. Guerrero-Cusumano and Selen (1997) provide a comparison between the various automobile industry standards.

The QS-9000 system that is also widely used in the automotive industry contains a section that is company specific. Thus the same standard contains the ISO 9000 standard, an automotive industry standard, as well as a company-specific section (Stamatis, 1998:24). The TE Supplement to QS-9000 was developed as an extension of QS-9000 by several automotive companies in an attempt to clarify the quality system requirements of the tooling and equipment supplier base (Stamatis, 1998:31).

Two other international standards that will not be discussed in detail here are Hazard Analysis and Critical Control Points (HACCP) and the European Retailers Representative groups standards on Good Agricultural Practices (EUREP-GAP), both of which are relevant to the food and agri-processing industries (EUREP, 2001; Food and Agriculture Organisation (FAO), 1998). Although they started as regional standards, they are now impacting global food chains, and even local retailers such as Woolworths are starting to adopt this system.

5.6 QUALITY MANAGEMENT AS A SERVICE

When it comes to the certification to quality standards such as ISO 9000, there are generally three approaches identified by Chase *et al.* (1998:210):

- a first-party audit is where a firm audits itself against the ISO 9000 standard;
- a second-party audit is where a customer audits its supplier; and
- a third-party audit is when a “qualified” national or international standards or certifying agency serves as the auditor.

The most popular accreditation is through a third party, as certified firms are registered as having achieved ISO 9000 status (SANAS, 2009). In the European Union a user can sue a company for damages if they are hurt using the product (Chase *et al.*, 1998:210). An ISO 9000 certified company can protect itself from these claims if it can prove that it adhered to the standards. In many cases, even if a firm used an external evaluator, it would still require an in-house quality management system. Furthermore, if customers want to buy from a non-certified supplier, then they have to take on additional costs of inspection and risk control. Hence customers

who are for example ISO 9000 certified may choose to buy from ISO 9000 certified suppliers as this reduces quality control costs.

This being said, formal certification schemes such as ISO 9000 and HACCP are not always a requirement (Reed *et al.*, 2000; Curkovic & Pagell, 1999). TQM is a much broader approach than the ISO system, and impacts on the whole business and its relationships with its customers (Reed *et al.*, 2000:6). Companies such as Pick n Pay (2009) and Woolworths (2006) have long had their own internal quality management systems. Custom total quality management approaches are often developed by external consultants who assist companies with the design and implementation of internal quality management systems, or assist companies to implement the consultants' own TQM system (Dale & Bunney, 1999:232-234). These custom systems can draw on elements of international systems, for example as the retail food operations of Woolworths (2006) draw on international standards for organic food production and retailing combined with Woolworths' own internal quality management system for food distribution and packaging.

In South Africa, the service providers who provide certification are called certification bodies, and they are accredited by the South African National Accreditation System (SANAS, 2009). The certification bodies certify organisations to quality management systems such as ISO/IEC 9001, and they certify products to various standards/certifications such as HACCP and environmental management systems (EMS). The certification bodies must also comply with stringent quality management standards and procedures such as ISO/IEC Guide 62, Guide 65 and others.

5.7 SUMMARY

Quality management is becoming increasingly important, especially for organisations involved in international competition. In recent years there has been a noticeable shift towards recognising that quality management should be a business philosophy, not only an activity that takes place on a production line.

In the last 30 years there has been an evolution of systems for quality management which has progressed through four distinct phases: inspection, quality control, quality

assurance and more recently total quality management (Dale & Bunney, 1999:25). Of specific interest to this study is the total quality management concept as it integrates all the preceding approaches to quality management, and then relates it to the strategy and management of the organisation.

For many firms and organisations it is necessary to be certified to generic international standards such as ISO (International Organization for Standardization (ISO), 2009a). Sector-specific standards or standards from certain large customers are important for firms wanting to form part of local or international supply chains, or wanting to manage their own suppliers (Nadvi & Wältring, 2004:67; Stamatis, 1998:23).

Although international quality management systems and recognition are important, some firms choose to develop their own internal quality management systems or adapt the systems promoted by consultancies (Reed *et al.*, 2000; Curkovic & Pagell, 1999; Dale & Bunney, 1999). Some customers may not be satisfied with custom or in-house standards, and would have to incur additional costs in checking and certifying standards from firms that do not comply with certain recognised standards (Dale & Bunney, 1999). Therefore firms that do not meet the quality management demands of customers may have a disadvantage compared to firms that comply with the criteria of large buyers (Reed *et al.*, 2000; Curkovic & Pagell, 1999). Reed *et al.* (2000:20) investigate the claims that total quality management leads to competitive advantage, and found that standards are increasing the whole time. Therefore firms that have a total quality management approach as a competitive strategy are constantly increasing their competitiveness.

For firms in the tool, die and mould making sector, certification and standards are *important*, as these firms often provide inputs into other firms or supply chains. This means that firms in this sector have to comply with at least generic international standards, or perhaps even sector or firm-specific standards. The FRDIGE (FRIDGE, 2005) study found that there were several quality management issues that were affecting the competitiveness of the South African tool, die and mould making industry.

CHAPTER 6: BACKGROUND TO THE TOOL, DIE AND MOULD MAKING INDUSTRY

6.1 INTRODUCTION

The tool, die and mould making industry is an important provider of equipment and inputs into the manufacturing sector. Firms in the tool, die and mould making industry design and build special tools, dies, jigs, fixtures, moulds, die-casting dies, gages, special machines, precision-machined parts and components, or they depend on these tools to manufacture their products (International Special Tooling Machining Association (ISTMA), 2009; National Tooling Initiative (NTI), 2008).

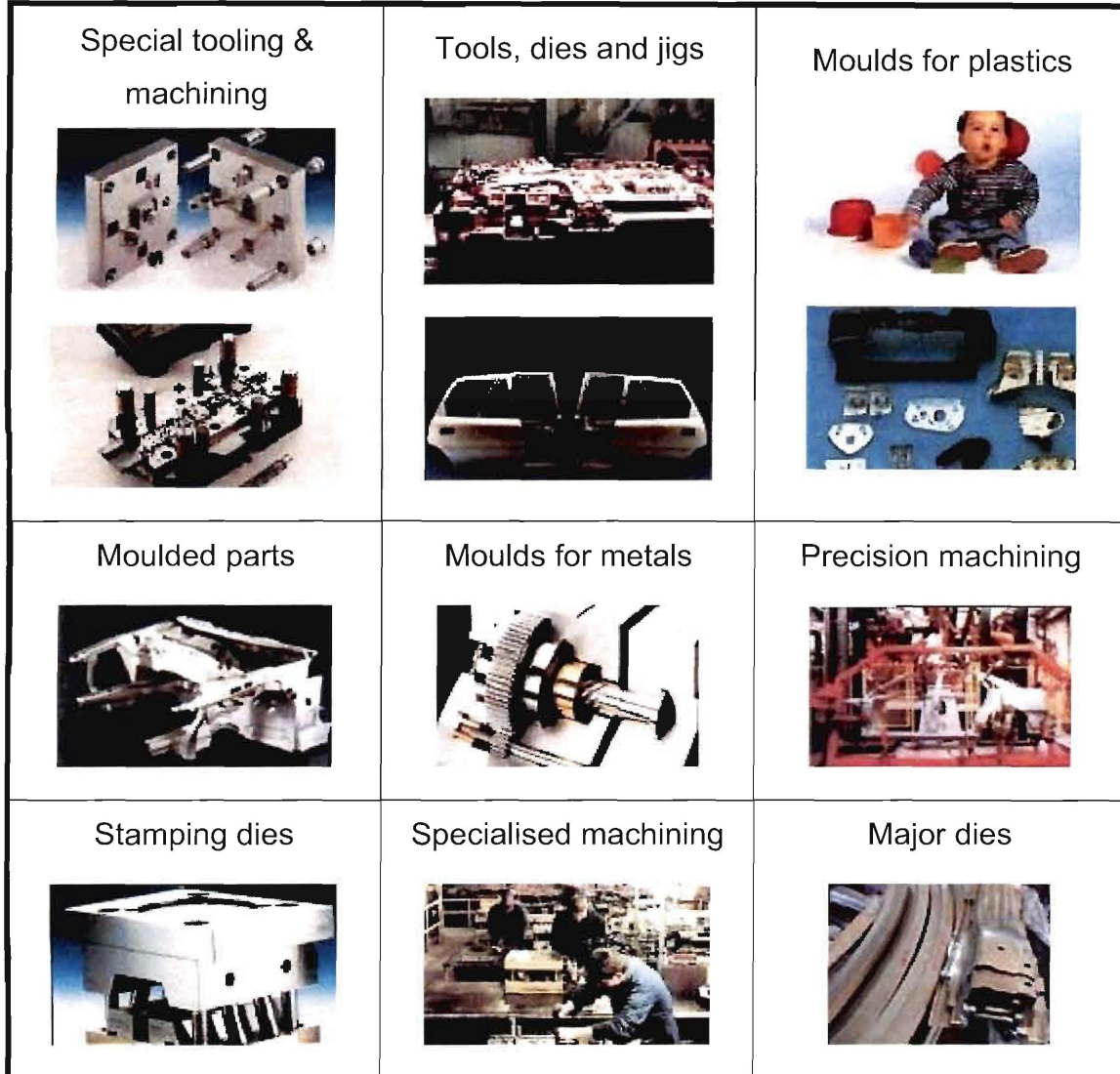
According to the United States Department of Labor (Bureau of Labor Statistics (BLS), 2007), tool, die and mould makers are among the most highly skilled workers in manufacturing. These workers produce and repair tools, dies and special guiding and holding devices that enable machines to manufacture a variety of products. This sometimes involves the design of the tool in question, manufacturing it and testing it in a manufacturing environment.

The tool, die and mould (TDM) making industry is a cross-cutting industry that spans several standard industry classifications (Sonn & Dimitrov, 2006). Tool making often takes place in companies that specialise in tool, die or mould making (International Special Tooling Machining Association (ISTMA), 2009). Large manufacturing companies such as Volkswagen have their own in-house tool shop in East London. In South Africa, the tool, die and mould making industry even includes suppliers of tools and accessories, specialised tooling companies, and the users of tools, dies and moulds (TASA, 2009; NTIP, 2008).

Essentially the main function of a tool shop is to provide production equipment for a production or manufacturing enterprise (Sonn & Dimitrov, 2006:1). The tool, die and mould making industry supplies machine tools and components to a variety of industries such as the plastics, mining, automotive and other sectors. According to Sonn and Dimitrov (2006:1), the core products of the tool, die and mould making

industry are hollow moulds, i.e. pressing tools, injection moulds, blow moulds, and casting and forging dies.

Figure 6.1: Examples of different kinds of tools, dies and moulds



Source: Images from the International Special Tooling and Machining website (International Special Tooling Machining Association (ISTMA), 2009)

Figure 6.1 shows some examples of the different kinds of tools, dies and moulds and the products that they typically produce. In Figure 6.1 it is visible that tools, dies and moulds are characterised by complex geometries such as free form surfaces and the need for cutting of high-strength materials, thus resulting in complex machining operations (Sonn & Dimitrov, 2006:1). In addition to hollow moulds, an (internal) tool

and die shop usually has to provide jigs and fixtures, measuring and test equipment as well as other means of production (for examples see Figure 6.1).

The fact that many manufacturers run their own internal tool shops (such as Volkswagen) probably means that any financial or employment data on the sector will tend to under-value or under-report the true size and importance of the sector.

In this chapter, the strategic importance of the tool, die and mould making industry to the manufacturing sector will be discussed. Furthermore, an overview of the South African tool, die and mould making industry will be provided, based mainly of the results of the so-called FRIDGE Report (FRIDGE, 2005).

6.2 THE STRATEGIC IMPORTANCE OF THE TOOL, DIE AND MOULD MAKING INDUSTRY TO THE MANUFACTURING SECTOR AND GOVERNMENT

In recent years, the cross-cutting tool, die and mould making industry has received increased attention from several government departments and the tooling sector in South Africa. The National Tooling Initiative (NTI) was started as a public-private partnership between the Tooling Association of South Africa (TASA) and the Department of Trade and Industry (DTI) to promote the competitiveness and upgrading of the tool, die and mould making sector (TASA, 2009; NTIP, 2008). This was done based on the insight that the tool, die and mould making sector is important to the overall manufacturing competitiveness of South Africa. The Department of Science and Technology, and other actors such as the Automotive Industry Development Centre are also providing support to the National Tooling Initiative (NTI) and the tooling sector. Over the past three years the Tooling Association of South Africa and the National Tooling Initiative has established provincial affiliates of both bodies in at least five of the provinces in South Africa (NTIP, 2008), with plans to roll out to the other provinces imminent.

Several programmes and improvement projects have already been implemented over the past three years. In 2005 an in-depth diagnosis of the South African tool, die and mould making industry was undertaken with funding from the Fund for Research into Industrial Development, Growth and Equity (FRIDGE, 2005). This report is used as a baseline study for many of the programmes and improvement activities undertaken into the tool die and mould making sector. The sector features in several of the projects undertaken by the Department of Trade and Industry, and features as an important input sector in the National Industrial Policy Framework of the DTI (Department of Trade and Industry (DTI), 2007). The perspective of the DTI on the sector is that it is a key sector for the overall competitiveness and diversification of the broader manufacturing sector.

Other government departments, such as the Department of Science and Technology, are also involved in interventions to strengthen the tool, die and mould making sector. The Department of Science and Technology's National Advanced Manufacturing Technology Strategy outlines a broad approach to improve various aspects of the aerospace, automobile, white goods and other sectors; and includes the upgrading and support to the tooling sector as an important input sector (CSIR, 2008; Department of Science and Technology (DST), 2005).

Another initiative is the establishment of the Institute for Advanced Tooling, a programme (Phaho & Skosana, 2007) implemented by the Tshumisano Trust with Department of Science and Technology funding and with technical support from the German Development Co-operation (GTZ). The intention of the programme is to establish centres of excellence at the Walter Sisulu University, Tshwane University of Technology and Stellenbosch University (Institute for Advanced Tooling (IAT), 2007; Tshumisano Trust, 2007). The centres operate on a network approach focused on tool design, tooling technology transfer, research and innovation to enhance the competitiveness of the small and medium enterprise (SMEs) in the tooling industry. The intention of the Institute of Advanced Tooling is to act as the catalyst to re-establish the South African tooling industry as a cost-competitive solution to the needs of the greater manufacturing base (Phaho & Skosana, 2007).

This will be achieved through three main activities:

- a comprehensive training strategy;
- technological innovation (including technology transfer); and
- the establishment of a distributed service network to accommodate existing and new entrants into the industry (Institute for Advanced Tooling (IAT), 2007).

6.3 OVERVIEW OF THE SOUTH AFRICAN TOOL, DIE AND MOULD MAKING SECTOR

The literature search for research on the status of the tool, die and mould making industry could only identify one credible and empirically significant study with a specific focus on the tooling industry in South Africa. This is the so-called FRIDGE report (FRIDGE, 2005) funded by the Department of Trade and Industry in 2005 through the Fund for Research into Industrial Development, Growth and Equity (FRIDGE). This specific publication forms the base of the support programmes to the tool, die and mould making industry undertaken by the departments of Science and Technology and Trade and Industry, and the Tooling Association of South Africa.

According to the study, the annual value of the South African tool, die and mould making industry exceeds ZAR 3.3 billion, with imports of ZAR 1.25 million and exports of ZAR 400 million (FRIDGE, 2005:9). This resulted in a negative trade balance of ZAR 1.25 million and indicates that South Africa is a net importer of tooling equipment. These data are still probably much lower than the real numbers, due to so many TDM activities that are taking place inside large firms such as Volkswagen.

The report shows that the GDP per employee in this industry is high for a manufacturing industry at ZAR 862 000 and value added along the value chain is much higher even than in the automotive industry at 1.9% (FRIDGE, 2005:9). The tool, die and mould making industry represents 1% of manufacturing GDP and consists of geographically clustered groupings across South Africa, typically located close to the major customers in the packaging and automotive industries.

According to the FRIDGE report there were 240 tool rooms in South Africa in 2005, of which 30 were considered captive (part of a larger manufacturing operation). Of the 240 tool rooms, only 20 could be considered large. The remainder, as is the case internationally, are small and medium enterprises. The industry employs an estimated 2 900 directly, and is an industry where high levels of skills are required. For every 20 employees in this industry, 17 can be considered relatively highly skilled.

The FRIDGE report explains that price is a leading factor of competition around the world (FRIDGE, 2005:9). Delivery time and product quality are typically the next most important competitive factors, and this often translates, from a quality point of view, into quality management capability and ranking and design expertise. There is increasing pressure on the South African TDM sector to produce a wider range of products faster, and improve on quality and service at the same time (Sonn & Dimitrov, 2006:2).

Related to the importance of quality management is the aspect of metrology. The FRIDGE study explains that South African tool, die and mould making firms often fall short of international standards because they manufacture tools to a toolmaker's specifications without regard for the dimensional accuracy of the components (FRIDGE, 2005:9). Due to the stringent requirements of automation in assembly and handling of components the precise verification of dimensional requirements in the manufacture of tooling has become an essential part of the process in final inspection as well as inter-operational verification against computer aided designs.

Some of the problems in the South African tool, die and mould making sector results from the shift from mass production towards single production, where the skills and precision requirements are much higher than what was required in the past (Sonn & Dimitrov, 2006).

The FRIDGE (2005:92) report describes much of the South African tool, die and mould industry as being perceived as *"backward and generally weak regarding quality levels and competitiveness"*. Criticism of a lack of quality standards and metrology service usage also surfaces again where small enterprises are described

as not using adequate inspection facilities, resulting in them only being able to produce low-technology tools in an increasingly hi-tech industry requiring extremely precise and efficient tooling (FRIDGE, 2005:93).

6.4 QUALITY MANAGEMENT SERVICES AS A BUSINESS SERVICE TO THE TOOL, DIE AND MOULD MAKING INDUSTRY

International standards bodies such as the International Organization for Standardization (ISO) concentrate on the co-ordination and development of international standards. They do not monitor compliance to their standards such as ISO 9000 or ISO 14000, nor do they provide certification (International Organization for Standardization (ISO), 2009a). This is also the case for HACCP, EUREPGAP, and many other international standards (EUREP, 2001).

Instead, independent auditors in the marketplace provide advisory, accreditation and certification services as service providers to industries, firms and governments. These auditors could either be employed by well-known international certification firms such as the *Société Générale de Surveillance* (SGS), national standards organisations such as the South African Bureau of Standards (South African Bureau of Standards (SABS), 2009) or independent service providers that are accredited by various accreditation bodies such as the South African National Accreditation System (SANAS, 2009).

In South Africa, the SABS played both the roles of the national standards generating body and a service provider to industry on quality management, certification and testing issues until 31 August 2008. Effective from 1 September 2008, two new Parliamentary Acts - the National Regulator for Compulsory Specifications (NRCS) Act (Act No. 5 of 2008) and the new Standards Act (Act No. 8 of 2008) - were promulgated (NRCS, 2008). The result of the new acts is the separation of standardisation and regulatory functions nationally, bringing the South African technical infrastructure into alignment with world best standardisation and regulatory practice (South African Bureau of Standards (SABS), 2009). In line with the new acts, the former Regulatory Division of the SABS, its regulatory function and its

employees, were transferred to the National Regulator for Compulsory Specifications (NRCS), a new institution under the Department of Trade and Industry (NRCS, 2008).

Quality assurance services cover all activities from design, development, production, installation, servicing and documentation (South African Bureau of Standards (SABS), 2009). Services include the regulation of the quality of raw materials, assemblies, products and components; services related to production; and management, production and inspection processes. The NRCS also goes beyond manufacturing to cover health and occupation, food safety, labour standards and other topics as well (NRCS, 2008). While some activities are seen as compulsory, many others are voluntary. The tool, die and mould making sector is affected by both compulsory standards as well as voluntary standards (NRCS, 2008).

All the above mentioned factors combine to create a market of certification bodies, accreditation bodies, metrology services, quality management and standards bodies that provides a mixture of public and private services to the industry. Firms that use or manufacture tooling, dies and moulds should use most of the services offered in this marketplace, because they have to comply with a range of compulsory and voluntary standards and metrological requirements. While some firms may have internal quality management, quality assurance or quality control functions, third-party certification or accreditation is still more credible and a requirement by many firms or supply chains.

In order for a South African firm to supply components or services to international firms (as in the automotive sector), a combination of voluntary, compulsory standards, as well as internationally generic standards (such as ISO) combined with company-specific standards may apply.

In practice, this means that a South African component manufacturer supplying to Volkswagen would be required to meet compulsory metrological standards required by South African law (NRCS, 2008), combined with a voluntary ISO certification for its administrative and business processes (South African Bureau of Standards (SABS), 2009). Furthermore, Volkswagen may require that the firm also adhere to

the internal quality management system for the automotive sector-led Volkswagen “Verband der Automobilindustrie” (VDA, 2008). To make it even more complicated, Volkswagen is a signatory to the Global Compact of the United Nations, which may require this South African to adhere to the fair labour and business principles set out by the Global Compact (United Nations, 2009). For the South African firm in this example, it will thus be necessary either to appoint various internal staff to deal with all the different standards, or to engage with a series of service providers and institutions in order to ensure that the firm complies with all these requirements.

6.5 SUMMARY

In this chapter an overview was provided of the South African tool, die and mould making industry. It was found that the tool, die and mould making industry is an important sector in the overall competitiveness of the South African manufacturing sector. In recent years the sector has been in decline, resulting in job losses and raising input costs to the rest of the manufacturing sector.

As a result of the decline in the competitiveness of the sector, the Department of Science and Technology targeted the sector in its Advanced Manufacturing Technology Strategy. The sector is furthermore receiving support from the automotive sector and the Department of Trade and Industry, and from several other development programmes such as the funded Tshumisano Trust (2007) funded by the Department of Science and Technology.

During 2005 an in-depth study into the competitiveness of the tool, die and mould making industry was conducted. The report describes much of the South African TDM industry as being perceived as “backward and generally weak regarding quality levels and competitiveness” (FRIDGE, 2005:92). Criticism of a lack of quality standards and metrology service usage also surfaces again, where small enterprises are described as not using adequate inspection facilities. This results in their only being able to produce low-technology tools in an increasingly hi-tech industry requiring extremely precise and efficient tooling (FRIDGE, 2005:93).

Related to the importance of quality management is the aspect of metrology. The FRIDGE (2005:9) study explains that South African tool, die and mould making firms often fall short of international standards because they manufacture tools to a toolmaker's specifications without regard for the dimensional accuracy of the components.

An objective of this study is to better understand why the South African tool, die and mould making industry would allow its quality standards to drop, especially in the light of the well-developed supply chains that exist in the country. Furthermore, South Africa has an advanced quality management industry as well as an internationally recognised accreditation system, and in the geographic focus area of this study there are a rich landscape of Quality Management supporting institutions present.

CHAPTER 7: RESEARCH DESIGN

7.1 INTRODUCTION

This first chapter in the empirical research section of the study describes the research methodology in detail.

The primary objective of this research was to identify the determinants of market failure that affect the efficient provision and consumption of Quality Management-related services and the tool, die and mould making industry in the Nelson Mandela Bay area. This was achieved by means of an exploratory study of the determinants of market failure in the Quality Management service marketplace.

Welman and Kruger (1999:18) explain that the purpose of exploratory research is to determine whether or not a phenomenon exists so as to gain familiarity with such a phenomenon, not to compare it with other phenomena. They conclude that the purpose of conducting research into theories and other research problems is to define, explain and consequently predict and even modify or control human behaviour, its organisations or events (Welman & Kruger, 1999:19).

The research process used in this study follows the steps proposed by Neuman (1997:10-11) and Welman and Kruger (1999:33) that are illustrated in Figure 1.3.

The first two steps illustrated in Figure 1.3 were dealt with in preceding chapters. The research topic and problem are discussed in Chapter 1 of this study, while the second step is the literature review that is presented in Chapter 2 to Chapter 6 of this study.

The present chapter deals with Steps 3 and 4 (research design and data collection). The methods used for the analysis of the data are discussed at the end of this chapter, and a detailed discussion of the research results is presented in Chapter 8.

7.2 RESEARCH DESIGN

Research design is the plan according to which research participants are obtained (sampling), data are collected, and a conclusion about the research problem is reached (Welman & Kruger, 1999:46; Bless & Higson-Smith, 1995:63). In this study a mixture of quantitative and qualitative research was conducted.

Quantitative research uses structured methods to collect and evaluate objective data (Welman *et al.*, 2005:10). Creswell (2002:18) explains that quantitative research develops new knowledge by using post-positivist thinking, i.e. cause and effect thinking, reduction to specific variables and hypothesis and questions, use of measurement and observation, and by testing theories. In this study the research into the demand side (tool, die and mould making firms) and supply side (Quality Management service providers) was conducted using quantitative research. A structured questionnaire was used to test the latent factors that shape or influence market failure within the context of the Quality Management service market in the Nelson Mandela Bay area. The design of the questionnaire is described in Paragraph 7.3

Welman *et al.* (2005:8-10) maintain that a qualitative approach is a more flexible approach than a quantitative study as it allows the researcher to investigate subject data and phenomena. Creswell (2002:18) explains that in qualitative research the researcher often makes knowledge claims based primarily on constructivist perspectives or advocacy-based perspectives. He adds that qualitative research is useful in the development of certain themes from the data. In this research, qualitative interviews were held to identify the actors involved in the Quality Management service marketplace, and to determine how the marketplace works at an abstract level in order to inform the development of the research instrument.

7.3 DEVELOPMENT OF THE RESEARCH INSTRUMENT

One of the most efficient ways to collect data is through research instruments such as questionnaires (Cummings & Worley, 2005:117). Because questionnaires contain fixed-response queries about various features of an organisation, these measures

can be administered to large numbers of people simultaneously. Moreover, data collected through questionnaires can be analysed quickly, permitting quantitative comparison and evaluation.

The questionnaire was designed to test for various conditions and factors that influence the optimal performance of the Quality Service marketplace. The literature study provided valuable insights into the identification of issues that could indicate whether a market was performing optimally, whether the design of the market was functional, and how the characteristics of the service allowed it to be traded through market mechanisms. Some of the items from previous pilot research (Cunningham & Trah, 2004a, 2004b, 2004c) in the field of Business Development Service (BDS) market development were identified, and where necessary improved and modified. The research instrument were built on the foundations laid by Miehlabradt (2002a) and on experiences from other donor projects in Vietnam (Miehlabradt, 2002b; Miehlabradt, 2001) and Bangladesh (Katalyst, 2003).

It was decided to develop a questionnaire that was different from previous research instruments used in the field of BDS market development by developing an instrument that could be applied to both the demand side (tool, die and mould making firms) and the supply side (Quality Management service providers) simultaneously. In a traditional market assessment the main focus is consumer or demand side research, and if the supply-side complete a questionnaire then it is different from the demand-side questionnaire (Cunningham & Trah, 2004b, 2004c; Miehlabradt, 2002b). For the purpose of this study it was decided to develop a research instrument that would be completed by both groups of respondents (demand and supply), in order to allow for an analysis of the differences of opinion or perception between the two groups.

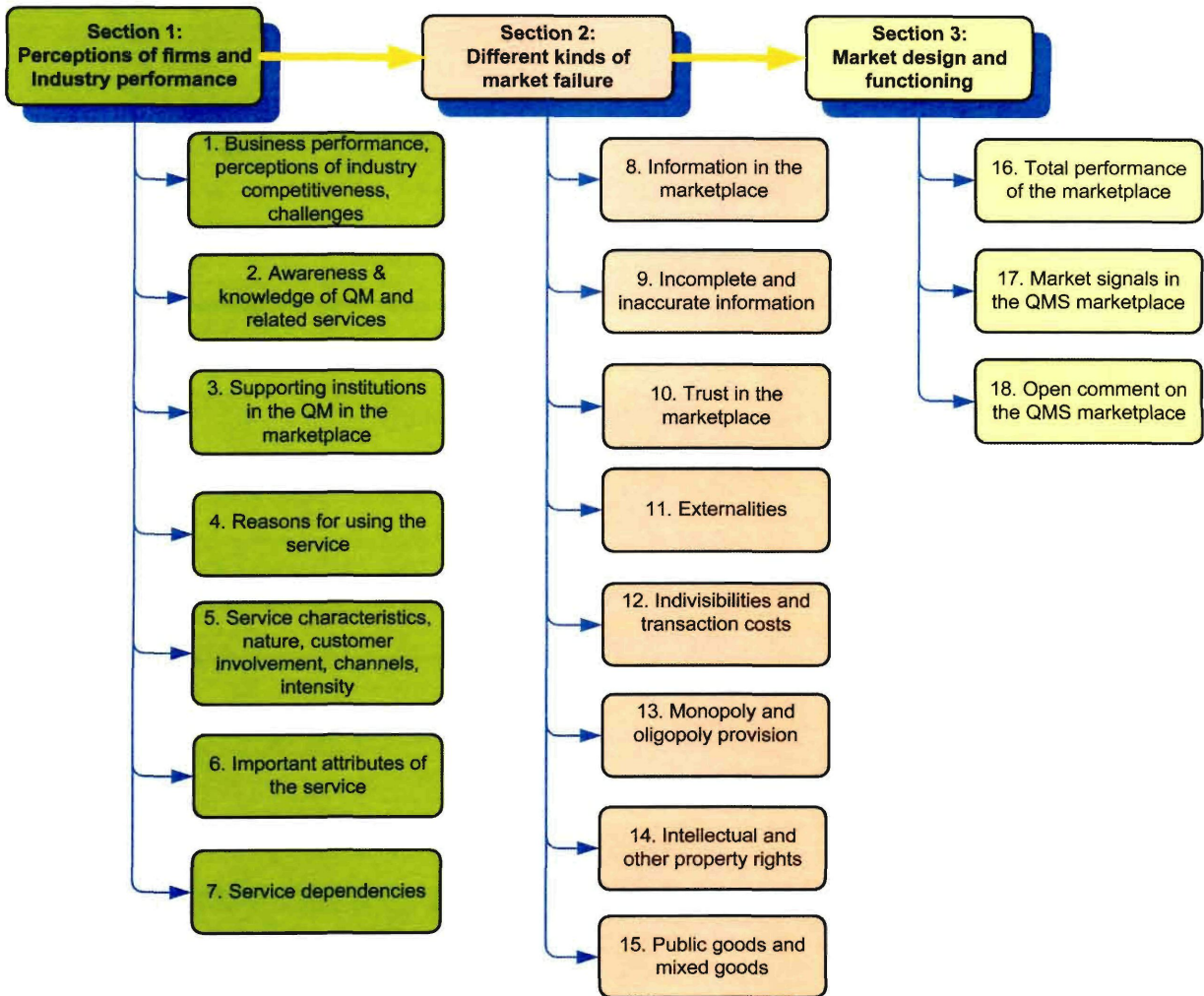
The questionnaire is divided into three sections (see Figure 7.1: Structure of the questionnaire):

- *firm and industry performance;*
- *testing for different kinds of market failure; and*
- *market design and functioning.*

These three sections are discussed in more detail in the following paragraphs.

The questionnaire used for the fieldwork is given in Annexure 1.

Figure 7.1: Structure of the questionnaire



7.3.1 Section 1: Perceptions of firms and industry performance

In the first part of section 1 the performance of the participating firms is tested, as well as the overall performance and competitiveness of the industry that they belong to. The participating firms' orientation to competitiveness is tested, as well as the sources of or motivation for innovation. This section is informed by Paragraphs 2.7 and 2.8 of the literature study.

The second part of Section 1 deals with the characteristics and attributes of Quality Management-related services from both the perspectives of the Quality Management service providers and the tool, die and mould making (TDM) firms. The items in this section were designed on the basis of Paragraph 2.4 and Chapter 5.

A set of latent constructs were identified on the basis of the characteristics of Quality Management services that capture:

- the awareness, attitude and knowledge of quality management services;
- the intensity of providing or consuming the service;
- the frequency of and reasons for use;
- the mechanisms of providing or using the service;
- important attributes of Quality Management services; and
- the signals that are used in the marketplace to signal value.

7.3.2 Section 2: Different kinds of market failure

In Section 2 of the questionnaire the symptoms of different kinds of market failure are tested. This section of the questionnaire was designed based on the insights gained in Chapter 3 and follows the logic of Paragraph 3.7.

The latent constructs that are related to the performance of markets were identified as:

- incomplete and asymmetrical information;
- inadequate expression of costs or benefits of services;
- public and mixed goods;
- the use of property rights;
- sub-optimal market structures;
- externalities; and
- indivisibilities and transaction costs.

For each kind of market failure identified in Paragraph 3.7 several symptoms were identified. Each of these symptoms then had to be contextualised or phrased in a

way that the item was relevant to the tool, die and mould making industry or Quality Management service providers.

7.3.3 Section 3: Market design and overall performance

In Section 3 the design and overall performance of the Quality Management service market is assessed based on the literature discussed in Paragraphs 3.5 and 3.9.

The latent constructs identified as relevant to the design and functioning of the market system were identified as:

- the signals used in the Quality Management market place to communicate good value;
- the flow of information in the marketplace between supply, demand and the supporting institutions;
- whether people can be held responsible for their promises (trust);
- the legal options available to hold parties accountable; and
- the attitude and responses to competitive pressures by actors.

7.3.4 Biographic and business structure information

The biographic information of each respondent and information regarding the business structure of the participating firms were captured in Question 19 at the end of each interview (see Annexure 1, Question 19). These data provide important information regarding the job function and the highest academic qualifications of the respondents.

The business structure information collected allows a comparison of the participating firms and includes the following information on the firms: age of the firm, number of employees, financial turnover, foreign earnings, main sources of competition and black economic empowerment status. The results of the biographic and business structure information are presented in Paragraphs 8.3 and 8.4.

7.3.5 Testing for effects

A comprehensive measurement instrument to evaluate these constructs was developed in three phases. These are: formulate the items to measure each latent variable after a comprehensive review of the available literature; test the draft measurement instrument in at least one tool, die and mould making firm and with at least three industry experts; and refine the measuring instrument.

Neuman (1997:107) explains that researchers who focus on causal relationships begin with an effect and then search for its causes. Each item used in the questionnaire was carefully designed to test for a specific effect. The most important innovation of this survey is that it concentrates on the symptoms of market failure (as effects) from a transactional perspective, and on the functioning of the total Quality Management marketplace. This allows the researcher to determine the root causes of specific kinds of market failure, and allows a more responsive design of interventions. The fact that traditional market assessment surveys used by donors depend too much on typical market research instruments such as Usage, Attitude and Image (UAI) surveys has already been discussed in Paragraph 4.6.1.

Where possible seven-point Likert scales are used in the questionnaire. A Likert scale, also referred to as a summated scale, consists of a collection of statements about the attitudinal object (Babbie & Mouton, 2001:153; Page & Meyer, 2000:75; Huysamen, 1994:125). For each item, subjects have to indicate the degree to which they agree or disagree with its content on a certain scale (Welman & Kruger, 1999:155; Huysamen, 1994:125). Welman and Kruger (1999:156) explain that some statements may reflect a positive attitude while others reflect a negative attitude. This allows for a comparison of the attitudes of the two groups of respondents for each item. An additional benefit is that a Likert-scale is also easier to compile than any of the other attitudinal scales, e.g. the Guttman and Thurstone scales (Welman *et al.*, 2005:156; Huysamen, 1994:126).

In most parts of the questionnaire, the Likert scale used was divided into seven choices. An example from Question 6 in Section 1 is shown below where 1 = *not very important* and 7 = *very important*.

How important is the following?		Not very important			Neutral			Very important
1	Receiving a written quote from the service provider	1	2	3	4	5	6	7

A different seven-point Likert scale is used in Section 2 of the questionnaire, where 1 = *strongly disagree* and 7 = *strongly agree*.

Information in the marketplace		Strongly disagree			Neither/Nor			Strongly Agree
1	I have chosen a quality-related service offering before that did not have the impact I intended in my firm.	1	2	3	4	5	6	7

This same scale is used throughout Section 2 of the questionnaire to test for the various kinds of market failure.

In Section 1 and Section 3 other methods such as *true/false* statements, closed questions or rankings were used. Question 7 and Question 18 of the survey allowed for an open response to a question.

The questionnaire is attached in Annexure 1 for reference purposes.

7.4 DETERMINING THE POPULATION OF THE STUDY

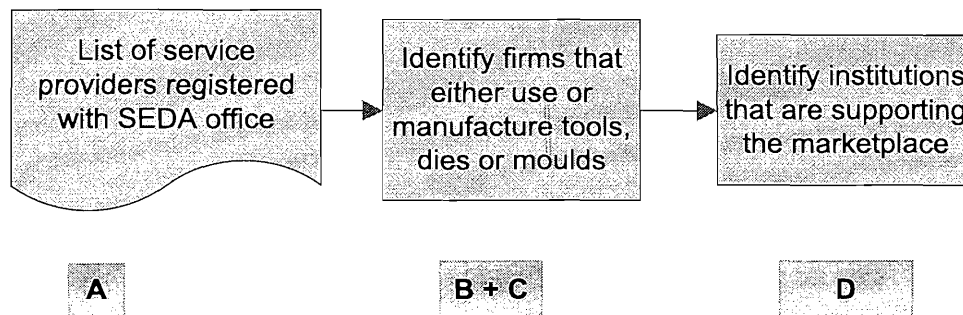
Field (2005:3) and Welman *et al.* (2005:52-53) describe a population as the study object that consists of individuals, groups, events or the conditions to which they are exposed.

For this research, a total sampling frame was developed that represents the populations of the marketplace analysed (Field, 2005:3). The total sampling frame was constructed from the following four populations:

- firms that provide quality management services to the manufacturing sector (N_{SP});
- firms that manufacture or design tools, moulds or dies (N_{TDM});
- firms that use tools, dies or moulds in their manufacturing processes (N_{TDM}); and
- institutions that support the marketplace.

These four groups are described as units of analysis by Welman *et al.* (2005:52). Figure 7.2 illustrates the three steps followed to develop the total sampling frame for this study. The letters in the yellow blocks correspond to the numbers used in the previous numbered list.

Figure 7.2: Units of analysis for the research



The next paragraph discusses how the populations representing the various groups were developed.

7.4.1 Identify the population of Quality Management service providers in the region

This step refers to Step A in Figure 7.2. It was necessary first to determine the total population of service providers of quality management services (N_{SP}). The total service provider population was determined using a combination of the Small

Enterprise Development Agency's (SEDA) registered Quality Management service providers database, the yellow pages and snowball sampling. Due to problems making contact with some service providers, it was decided to include all the reachable Quality Management-related service providers in the service provider sample ($N_{SP} = 15$).

7.4.2 Identify the firms that either use or manufacture tools, dies or moulds

This refers to steps B & C in Figure 7.2. In order to develop the total population of the tool, die and mould making sector (N_{TDM}), it was necessary first to determine the total manufacturing population (N_{MAX}) in the Nelson Mandela Bay area.

Firstly, the formal firms that use or manufacture tools, dies or moulds must be identified. These firms make up the total manufacturing population that were used for this research. This is a more complicated step as no formal databases exist of the total number of formal manufacturing firms in the municipality. The regional services council levy database had not been used or updated in the previous three years and could therefore not be used. Various representatives of the municipality and the largest chamber of commerce estimated the total number of manufacturers (formal and informal) to be in the region of between 500 and 1 500 firms. This number was too vague for this research and it was decided to develop a new database of firms with the assistance of the Small Enterprise Development Agency office in Nelson Mandela Bay. Again the database of customers of the Eastern Cape Manufacturing Advisory Centre (ECMAC) was used. This agency focuses on the development and support of manufacturing firms in the municipal region and has a good understanding of the local marketplace and the manufacturing firms in the region.

Figure 7.3: Process to identify the total manufacturing population

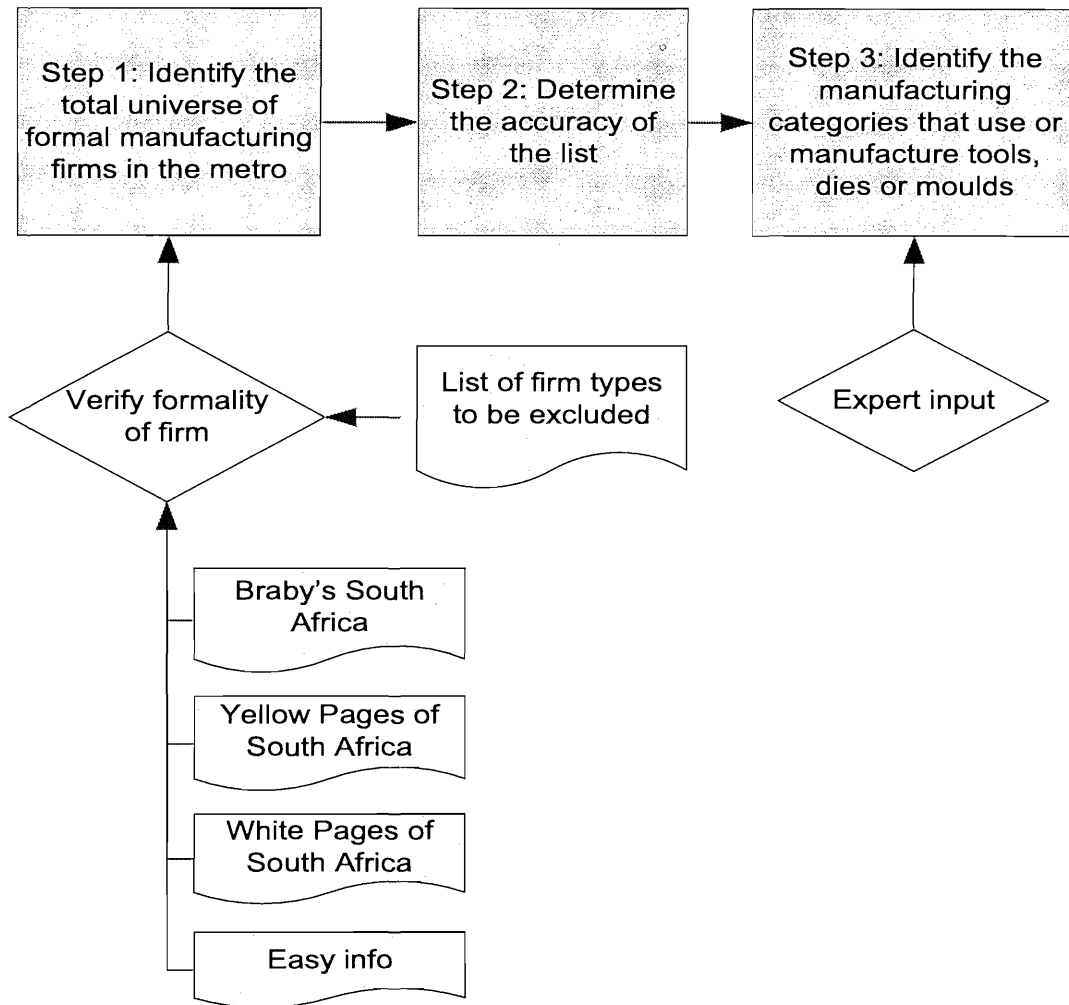


Figure 7.3 illustrates the process that was followed to identify the manufacturing population. The three steps illustrated above will be discussed under the next three headings.

7.4.2.1 Step 1: Identify the total number of manufacturing firms in the Nelson Mandela Bay area

Figure 7.3 shows that the first step was to develop a picture of the total manufacturing universe. All formal manufacturing enterprises had to be identified. The term “formal” by definition excludes any enterprise not operating with a listed or known contact number as well as any or all of the types of firms or enterprises listed in Table 7.1.

Table 7.1: List of firm types excluded from the manufacturing universe

Firm type excluded	Example
Home industries Micro enterprises	One-man shows
Distribution of original manufactured parts that rely on retail	Distribution arms of motor vehicle components as some items on the product list may be imported
The distribution of parts/components when manufactured for “personal” services or creations	Personal or corporate stationery as opposed to already manufactured basic stationery), Domestic “bars” and/or decks, etc.
The distribution of parts or components or complete items on demand to satisfy personal/individual tastes (i.e. does not serve markets – but rather sporadic individuals)	Personalising of already manufactured items such as number plates, etc.
Butchers Carpenters	
“In-store” production	Pick n Pay bakeries

A universe of manufacturing firms was compiled, using the Braby's South Africa directory (2005), The Yellow Pages of South Africa (TDS, 2006b), the Phone Book of South Africa (TDS, 2006a) and Easy Info (2007).

The above sources were scrutinised with the aim of developing a universe framework to assist with the next stage of sampling. Essentially, each data-seek delivered a number of firms (given the exclusions listed above) to be added to the total number of firms within this sector. The totals within each of the sources were merged and any duplication was deleted (see Table 7.1).

7.4.2.2 Step 2: determining the level of accuracy of the compiled universe

The firms in the compiled lists were contacted to verify that they existed and that they were manufacturing firms. As this exercise was not a census as such, but rather the compilation of a universe framework, categories that delivered a "0" in the data-seek were excluded from this process. Two tasks were necessary in this step:

- to establish whether the delivered firms existed; and
- to ask the respondents how many firms of this nature (within each category) were operating in Nelson Mandela Bay

Table 7.2: Total manufacturing population in the Nelson Mandela Bay area

TOTAL NUMBER OF FIRMS	514
Estimated accuracy based on calls	88.1%
Estimated accuracy based on snowball suggestions	89.7%
Possible lowest number of manufacturers	457
Possible highest number of manufacturers	636

7.4.2.3 Step 3: Identify the categories of manufacturers that use or manufacture tools, dies or moulds

Not all manufacturing firms use tools, dies or moulds in the production of their products. Two industrial advisors employed by the Small Enterprise Development

Agency (previously from the Eastern Cape Manufacturing Advisory Centre) office in Nelson Mandela Bay were asked to assess all categories and then to advise which manufacturing categories, from the universe, should be considered to form part of the population for the research. The experts were also asked to review the chosen categories and amend the universe size based on their knowledge.

Table 7.3 shows the selected categories of the universe together with the amended universe figures. In several cases the experts were able to identify additional firms that were not identified using the other measures described in Step 1 (Paragraph 7.4.2.1).

In Step 2 (see the preceding paragraph) a finite list of 514 manufacturing firms was developed (N_{MAX}), of which 253 to 287 were considered either to be manufacturers of tools, dies and moulds; or a manufacturing firm that depended on tools, dies and moulds (N_{TDM}). Of the total in the list only two firms indicated that they were purely tooling firms.

Table 7.3: Categorised list of the total universe with expert verification

Selected Category (A to I)	Original list	Verified by expert	Selected Category (I to T)	Original list	Verified by expert
Aircraft Manufacturers	1	1	Joinery Equipment	11	16
Automotive Seating	1	2	Jewellery Designers &	15	17
Battery Manufacturers	1	1	Kitchenware	2	2
Block Manufacturers	3	3	Metal Furniture Manufacturers	2	2
Board Game Manufacturers	2	3	Motor Vehicle Assemblers & Manufacturers	7	7
Board Manufacturers	1	1	Motor Component Manufacturers	30	35
Brick Manufacturers	18	23	Nameplate Manufacturers	1	1
Brush ware Manufacturers	2	3	Paint Brush Manufacturers	1	1
Bulk Tanker Manufacturers	2	2	Pallet Manufacturers	5	5
Cable Manufacturers	8	7	Paving Manufacturers	1	2
Conveyor Manufacturers	1	1	Plastic & Plastic Goods	31	35
Electrical Equipment Manufacturers	9	10	Pottery Manufacturers	4	4
Fibreglass Manufacturers	3	4	Refrigerator & Freezer	1	1
Gear Manufacturers	1	1	Sheet Metal Workers & Manufacturers	5	5
Geyser Manufacturers	1	1	Sign Manufacturers	18	20
Hydraulic and Pneumatic Equipment	5	5	Switchboard & Telephone Manufacturers	3	3
Industrial and Medical Gas	6	6	Tool Manufacturers	2	2
Industrial and Scientific Instruments	12	15	Trailer Manufacturers	5	5
Industrial Equipment	4	4	Trolley & Truck Manufacturers	1	1
Industrial & General	6	6	Tyre Manufacturers	13	14
Iron & Steel Manufacturers	8	10			
			TOTAL	253	287

7.4.3 Identifying the population of institutions that are supporting the marketplaces

Most of the institutions that support this marketplace are in place due to government regulations or specific public sector strategies to support specific kinds of economic activities. Expert interviews with actors in the marketplace and a review of literature have identified the following institutions:

- the Automotive Industry Development Centre (AIDC);
- Small Enterprise Development Agency (SEDA);
- the Nelson Mandela Bay Metropolitan Municipality;
- the Nelson Mandela Metropolitan University;
- the Nelson Mandela Bay office of the South African Bureau of Standards (SABS);
- South African National Accreditation Service (SANAS – Pretoria); and
- the Tooling Association of South Africa.

7.5 SAMPLING

After identifying the total population frame the researcher must decide on the sampling method to be used. This allows the researcher to use a small sub-set of data that can then be used to infer findings about the population as a whole (Field, 2005:3). This then implies that that sample must be representative of the appropriately defined population.

Welman *et al.* (2005:56) distinguish between two kinds of sampling, namely probability samples and non-probability samples. Examples of probability samples are simple random samples, stratified random samples and systematic samples. Non-probability samples are accidental or incidental samples, quota samples or snowball samples.

7.5.1 Determining the manufacturing sample method and accuracy

According to Cramer and Howitt (2004:162), in situations such as this research where a population frame is made up of different sub-groups or categories, straightforward random sampling may omit a particular class of cases. In these cases, a sampling method known as stratified sampling is applied, where the frame is organised into different strata (Levine, Stephan, Krehbiel & Berenson, 2008:256; Welman *et al.*, 2005:62; Cramer & Howitt, 2004:162). A sample is then selected from each stratum separately. A stratified sample is produced which ensures that particular groups within a population are adequately represented in the sample, and which improves efficiency by gaining greater control of the composition of the sample (Upton & Cook, 2006; Welman *et al.*, 2005:62; Cramer & Howitt, 2004:162-163).

Welman *et al.* (2005:62) summarise the main reasons for using a stratified sampling as follows:

- to ensure that particular groups within a population are adequately represented in the sample; and
- to improve efficiency by gaining greater control of the composition of the sample.

Welman *et al.* (2005:62) go on to say that with stratified random sampling, major gains in efficiency (either lower sample sizes or higher precision) can be achieved by varying the sampling fraction from stratum to stratum. The sample size is usually proportional to the relative size of the strata. However, if variances differ significantly across strata, sample sizes should be made proportional to the stratum standard deviation. Disproportionate stratification can provide better precision than proportionate stratification, because all the items across the entire population are represented (Levine *et al.*, 2008). Typically, strata should be chosen to:

- have means which differ substantially from one another; or
- minimise variance within strata and maximise variance between strata.

The sample size (n) determines the shape of the normal curve of error (Field, 2005). A normal curve usually shows that 68.27% of the sample would lie within one standard deviation of the sample mean. Therefore n should be stipulated in order to determine the distance from the sample mean along the x-axis. This deviation is known as the confidence interval, and the probability of a sample mean lying within the confidence interval is termed the confidence coefficient. Field (2005:4) and Bartlett *et al.* (Bartlett, Kotrlík & Higgins, 2001:45) recommend that a confidence coefficient of 95% be used if the research budget allows. Due to the budgetary constraints placed on this survey, it was decided that a 90% confidence coefficient would be sufficient. A large part of the research instrument depends on seven-point Likert scales, thus a standard deviation of 3 was decided upon. This is justified on the basis that previous statistics for this research instrument is not available.

With a known finite population frame ($N_{TDM} = 253$) a known confidence level (90%), a standard deviation ($\sigma = 3$), and an error (z) of no more than 0.05, the sample size can be calculated using the following formula provided by Levine *et al.* (2008:300).

$$n_0 = \frac{Z^2 \sigma^2}{e^2}$$

However, in this study there is a finite population frame, therefore the finite population correction factor must be applied using the following formula:

$$n = \frac{n_0 N}{n_0 + (N - 1)}$$

The results of these formulas indicate that for a 90% accuracy 70 interviews are required.

The contribution of each category to the universe was used to determine the number of firms that should be interviewed in each category.

It was decided to systematically adapt all the categories using the following rules:

- systematically subtract 1 from every category that delivered a total of 3;
- systematically subtract 2 from every category that delivered a total of more than 3; and
- systematically add 1 to every refined category with a real number smaller than 1.

The column entitled *final sample* in Table 7.4 indicates the total number of firms included in the sample. During the analysis of the data it would be possible to factor the results to show the sample and universe proportions, as these relationships are known.

Table 7.4: Determined tool, die and mould sample size and structure

SELECTED CATEGORY	Proportion of the total	Proportionate sample	Final sample	SELECTED CATEGORY	Proportion of the total	Proportionate sample	Final sample
Aircraft Manufacturers	0.4	0.3	1	Industrial & General	2.4	1.7	2
Automotive Seating Manufacturers	0.4	0.3	1	Iron & Steel Manufacturers	3.2	2.2	2
Battery Manufacturers	0.4	0.3	1	Jewellery Designers &	5.9	4.2	3
Block Manufacturers	1.2	0.8	1	Metal Furniture Manufacturers	0.8	0.6	1
Board Game Manufacturers	0.8	0.6	1	Motor Vehicle Assemblers &	2.8	1.9	2
Board Manufacturers	0.4	0.3	1	Motor Component Manufacturers	11.9	8.3	7
Brick Manufacturers	7.1	5.0	3	Nameplate Manufacturers	0.4	0.3	1
Brushware Manufacturers	0.8	0.6	1	Paint Brush Manufacturers	0.4	0.3	1
Bulk Tanker Manufacturers	0.8	0.6	1	Pallet Manufacturers	2.0	1.4	1
Cable Manufacturers	3.2	2.2	2	Paving Manufacturers	0.4	0.3	1
Conveyor Manufacturers	0.4	0.3	1	Plastic & Plastic Goods	12.3	8.6	7
Electrical Equipment Manufacturers	3.6	2.5	2	Pottery Manufacturers	1.6	1.1	1
Fibreglass Manufacturers	1.2	0.8	1	Refrigerator & Freezer	0.4	0.3	1
Gear Manufacturers	0.4	0.3	1	Sheet Metal Workers &	2.0	1.4	1
Geyser Manufacturers	0.4	0.3	1	Sign Manufacturers	7.1	5.0	3
Hydraulic and Pneumatic Equip.	2.0	1.4	1	Switchboard & Telephone	1.2	0.8	1
Industrial and Medical Gas	2.4	1.7	2	Tool Manufacturers	0.8	0.6	1
Industrial and Scientific Instruments	4.7	3.3	3	Trailer Manufacturers	2.0	1.4	1
Industrial Equipment	1.6	1.1	1	Trolley & Truck Manufacturers	0.4	0.3	1
Joinery Equipment	4.3	3.0	3	Tyre Manufacturers	5.1	3.6	3
Kitchenware	0.8	0.6	1	TOTAL	100	70	70

7.5.2 Determining the sample of the Quality Management service providers

All providers of Quality Management and related services are registered with the Small Enterprise Development Agency in Nelson Mandela Bay. Due to the small number of service providers that are registered in the region, it was decided to include as many of them as possible in the final sample frame.

In total 21 service providers (N_{SP}) were identified after eliminating those who did not respond to telephone calls or physical visits (the original list received from the Small Enterprise Development Agency (SEDA) office contained more than forty service providers, many of whom were no longer in business, and several of whom were duplicated). Of the 21 remaining on the list after filtering out duplications and closed firms, only 15 service providers remained who had experience in providing Quality Management services to the manufacturing sector. It was decided to include this complete list of 15 service providers in the Quality Management service provider sample ($n_{SP} = 15$).

7.5.3 Determining the sample of the institutional interviews

Due to the small number of institutions that are actively involved in this marketplace, it was decided to interview as many of them as possible using a qualitative discussion. Different institutions provide different (but sometimes overlapping) support services to the marketplace, and hence interviewing more rather than fewer institutions provides a better picture of the system.

Both the CSIR and the SABS were included in the sample of Quality Management service providers, due to the fact that their regional Nelson Mandela Bay offices indicated that they were actively providing Quality Management services on a transactional basis to industry as well as providing limited support activities to the Quality Management service marketplace. The representative of the Tooling Association of South Africa in Nelson Mandela Bay was included in the tool, die and mould making population.

7.5.4 The total sample frame

The total sample frame for the application of the research instrument consists of the total of the samples of the various populations described in the preceding paragraphs: 70 tool, die and mould making firms (manufacturers) and one interview with the Tooling Association of South Africa ($n_{TDM} = 71$) and 15 Quality Management service providers ($n_{SP} = 15$). Ten qualitative institutional interviews were used to supplement the quantitative research.

7.6 DATA COLLECTION

The third step in the process proposed by Neuman (1997:10-11) and Welman and Kruger (1999:33) is to collect data through direct interviews with respondents (see Figure 1.3: Steps in the research process).

Bless and Higson-Smith (1995:99) explain that the benefit of primary research is that gathering of data is directed towards answers to the questions raised by the researcher in a precise way. Due to the specific requirements and the nature of this research it was decided to collect primary data for the analysis. The challenge of data collection is to persuade participants to co-operate with the researcher (Bless & Higson-Smith, 1995:96). A lack of responses or incomplete questionnaires must be avoided because they lead to unreliable results.

There are five methods that can be used to collect data: direct, systematic observation, personal visits / interviews, telephonic, postal and group administration (Bless & Higson-Smith, 1995:96; Huysamen, 1994:139). Although direct interviewing is a more expensive approach, the benefits of controlling the interview and increasing the response rate outweigh the cost (Welman *et al.*, 2005:164). It was decided that for this research direct interviewing would be used, because a small final sample of non-responses or uncompleted questionnaires would compromise the results.

The interviews were structured in a way that allowed the interviewer to guide the participant through the structured questionnaire, which would give the interviewer

more control. Precise instructions on how to answer the questions were provided in the questionnaire to ensure consistency and to prevent the interviewer from manipulating the situation or the conditions (Neuman, 1997:31; Bless & Higson-Smith, 1995:106).

The research instrument was administered to a total of 86 respondents and the data were captured in the SPSS software application (SPSS Inc, 2005). Of this total, 15 respondents represented Quality Management service providers and 71 represented tool, die and mould making firms. At the start of each interview the respondents were asked to confirm that they were senior decision-makers involved in decisions relating to Quality Management services. Several interviews were conducted with industry experts and government officials that were not recorded on questionnaires, but served more to interpret the findings.

7.7 ANALYSIS OF THE DATA

Cummings and Worley (2005:123) describe two broad classes of data analysis: qualitative and quantitative. Qualitative techniques are generally easier to use because they do not rely on numerical data. Quantitative techniques, on the other hand, can provide more accurate readings of the organisational problem. Cummings and Worley (2005:126) explain that the most common quantitative techniques are means, standard deviations, frequency distributions, scatter grams, correlation coefficients and difference tests. The data in this research were generated from a small study population for which statistical inference and p-values are not relevant (Ellis & Steyn, 2003:51).

The next seven paragraphs discuss the quantitative analysis that was applied to the data.

7.7.1 Arithmetic mean

The arithmetic mean (typically referred to as the mean) is the most common measure of central tendency. The mean (\bar{x}) is calculated by adding together all the values in a data set and then dividing that sum by the number of values in the data set (Levine *et al.*, 2008:97). Because all the values play an equal role, a mean is greatly affected by any value that is greatly different from the other values in the data set (Levine *et al.*, 2008:97). It is therefore necessary to use the mean with care or in combination with other measures such as the standard deviation.

7.7.2 Standard deviation and frequency distribution

According to Field (2005:6), the mean (\bar{x}) can be a misleading statistic in itself as it only describes the average value and thus provides no information on the distribution of the responses. Therefore the standard deviation is a useful measure as it indicates the variability or dispersion of a data set. A low standard deviation indicates that the data points tend to be close to the same mean, while a large standard deviation indicates that the data are spread out over a large range of value.

Different patterns of responses can produce the same arithmetic mean score. Therefore it is important to use the standard deviation along with the frequency distribution to gain a clearer understanding of the data. The frequency distribution is a graphical method for displaying data that show the number of times a particular response was given (Field, 2005:8).

7.7.3 Effect size analysis

In many cases it is important to know whether a relationship exists between two variables (Steyn, 2002:10). The effect size is independent of sample size and is a measure of the practical significance (importance) of an item (Ellis & Steyn, 2003:51). There are several different kinds of effect sizes, but only two kinds are useful in this study.

The first kind of effect size is calculated to analyse the **difference between means (d)**, while the other tests for the **effect sizes in contingency (two-way) tables (w)**. Cohen's guidelines are used to interpret effect size when calculating the difference between means: small effect: $d = 0.2$; medium effect: $d = 0.5$; and large effect: $d \geq 0.8$ (Field, 2005:32; Ellis & Steyn, 2003:51-53; Cohen, 1992:155-159). Results with medium effects can be described as visible effects, while $d \geq 0.8$ is regarded as evidence of a practical significant difference in the results between the different groups of respondents.

The formula to calculate d can be calculated by taking the absolute of the mean of the service providers (\bar{X}_{SP}) minus the mean of the tool, die and mould making firms (\bar{X}_{TDM}), and dividing the result by the larger of the two standard deviations (s):

$$d = \frac{|\bar{X}_{SP} - \bar{X}_{TDM}|}{S_{\max}}$$

According to Field (2005:726), a contingency table is a table representing two or more categorical variables. The levels of each variable are arranged in a grid, and the number of observations falling into each category is noted in the cells in the table. The effect size (w) is calculated by determining the square root of the chi-square statistic (see Paragraph 7.7.4) divided by the sample size:

$$w = \sqrt{\frac{\chi^2}{n}}$$

Cohen (Field, 2005:32; Ellis & Steyn, 2003:51-53; Cohen, 1992:155-159) gives the following guidelines for the interpretation of effect sizes in contingency tables: small effect: $w = 0.1$; medium: $w = 0.3$; large: $w \geq 0.5$.

The practical significant measure helps to determine whether the two groups of respondents differ significantly with respect to each item tested (Steyn, 2000:3). Therefore only items that yield a practical significant effect where $w \geq 0.5$

(contingency tables) or where $d \geq 0.8$ (difference between means) will be discussed in Chapter 8.

7.7.4 Pearson's chi-square test

The Pearson's chi-square test is used to see whether a relationship exists between two categorical variables. A condition for this test is that the frequency must be larger than 5. If the significance (p) of the test is less than 0.05 then it can be interpreted to mean that the two variables are in some way related (Field, 2005:691). The value of the test is considered significant when $p < .001$.

7.7.5 Correlation coefficients

In addition to describing data, quantitative techniques also permit researchers to make inferences about the relationships between variables. The correlation coefficient is a measure of the strength of a relationship between two variables and indicates how changes in one variable are associated with changes in another (Field, 2005:109; Welman *et al.*, 2005:234). A positive correlation reflects a direct relationship, where the change in one variable corresponds to an increase in the other variable. A negative correlation reflects a situation where an increase in the one variable corresponds to a decrease in the other.

Field (2005:129) explains that when data are measured at the ordinal level they are said to be non-parametric and then Spearman's correlation coefficient should be used. Spearman's correlation coefficient is expressed as *rho* (r), and is calculated to determine the strength of the relationships between different items. The correlation coefficient (r) can be interpreted as follows: $r = 0.1$ yields a small relationship; $r = 0.3$ yields a medium; and $r = 0.5$ yields a strong relationship between different items.

When interpreting the correlation between two variables, Field (2005:128) cautions that a strong relationship between two items cannot be interpreted as causal for two reasons:

- the third variable problem where another unmeasured variable may be affecting the results; and
- the direction of causality is unknown.

In the discussion of the results in Chapter 8, only the items that yielded large correlation coefficients ($r = 0.5$) are discussed.

7.7.6 Independent means t-test

According to (Field, 2005:286) the independent means t-test is used when there are two experimental conditions and participants took part in both conditions of the experiment. The t-test is used to show that the results, such as the difference between the means of the groups, are statistically significant (Ellis & Steyn, 2003:51). The p -value is a criterion of the statistical significance of the difference if it is below 0.05.

7.7.7 Standard error

Field (2005:17) describes the standard error as the standard deviation of the sample means. It is a measure of how representative of the population a sample is likely to be. A large standard error means that there is a lot of variability between means of different samples, and so the sample that we may have is not representative of the population. A small standard error thus indicates that the sample is an accurate reflection of the population. According to Field (2005:15), the standard error is calculated by dividing the population standard deviation by the square root of the sample size (n).

$$SE = \frac{\sigma}{\sqrt{n}}$$

7.8 DATA INTERPRETATION

According to Du Plooy (1995:42), the interpretation of data is essential for the simple reason that the usefulness and relevance of the research findings lie in proper interpretation. Interpretation refers to the task of drawing inferences from the collected facts and implies a search for the broader meanings of the findings.

7.9 SUMMARY

This chapter started by describing the research process used to conduct this study. The design of the research instrument in the form of a questionnaire was explained in detail. The questionnaire consists of three sections that assess firm and industry performance, different kinds of market failure and the design and functioning of the market system. In each section different latent constructs were developed that test for the presence of symptoms that could indicate the presence of a specific kind of market failure.

The process of identifying the sample was explained in detail in Paragraph 7.4. It was first necessary to construct a manufacturing population list due to the lack of reliable databases of manufacturing firms in the Nelson Mandela Bay Metropolitan area. The total population frame consisted of the Quality Management service providers, the manufacturing firms that use or manufacture tools, dies or moulds, and institutions that support the marketplace. Based on the total population frame, a sample was drawn using stratified sampling. In stratified sampling the total population frame is organised into different strata. In this study a sample was selected separately from each stratum (Levine *et al.*, 2008:256; Welman *et al.*, 2005:62; Cramer & Howitt, 2004:162). The final sample consisted of 71 tool, die and mould making firms and 15 Quality Management service providers.

The data were collected through 89 direct interviews, and the results were captured in the SPSS software application. The chapter concluded by describing the various quantitative techniques that will be applied to analyse the data in Chapter 8, and on which the interpretation (Chapter 9) is based.

CHAPTER 8: RESEARCH RESULTS

8.1 INTRODUCTION

In this chapter the statistical results of the empirical research are discussed.

The chapter starts with a description of the response rate of the survey. In order to contextualise the research findings, the biographical information of the respondents is discussed first, followed by the structure of the participating firms.

Thereafter the results are discussed following the logic of the questionnaire (see Annexure 1). Section 1 tested the perspective of the respondents on the performance of their firms and the industry they form part of. The second half of Section 1 (Question 2 to Question 6) elaborates on the findings of the questions related to the awareness, knowledge, institutional landscape, reasons for use, characteristics and attributes of Quality Management services.

Section 2 of the questionnaire tested for different kinds of market failure using eight questions (Question 8 to Question 16). Each question consists of several items that are formulated to test for the presence of certain symptoms that would indicate a market failure.

In the last section of the chapter, the results of Section 3 of the questionnaire are presented. Section 3 analysed the market design and the market functioning, and consisted of two questions (Question 16 and Question 17).

8.2 RESPONSES TO THE SURVEY

The total manufacturing population in the Nelson Mandela Bay area is estimated to be 514 firms. Of this total manufacturing population, 270 firms were identified as being dependent on tools, dies and moulds in their manufacturing processes. The research instrument was administered to a total of 71 tool, die and mould making firms, thus a response rate of 26% was achieved. These participating tool, die and

mould making firms are referred to as the tool, die and mould making firms in this survey and represent the demand side of the Quality Management services marketplace.

The research instrument was also applied to a second population of participants consisting of 15 Quality Management service providers who represented the supply side of the Quality Management service marketplace. Of the finite total population of 21 Quality Management service providers (QM SPs) identified in the Nelson Mandela Bay area, 15 participated in the survey.

8.3 BIOGRAPHICAL INFORMATION OF THE RESPONDENTS

Certain biographical information was collected from the respondents during the interview, i.e. the highest academic qualifications of the respondents and job function. This information was collected in Question 19 of the questionnaire (see Annexure 1).

8.3.1 Highest academic qualifications of the respondents

The respondents were asked to indicate their highest academic qualifications. The results are shown in Table 8.1.

Table 8.1: Highest academic qualifications of the respondents

Highest academic qualifications	QM SP		TDM		Total
	Number	%	Number	%	
Lower than matric	1	7%	2	3%	3
Matric	0	0%	10	14%	10
Certificate	2	13%	10	14%	12
Diploma	1	7%	19	27%	20
Degree	8	53%	25	35%	33
Post-graduate	2	13%	4	6%	6
Other	1	7%	1	1%	2
Total	15	100%	71	100%	86

In this table, QM SP refers to the Quality Management service providers, and TDM refers to the tool, die and mould making firms.

The results in Table 8.1 show that 53% of the respondents representing the Quality Management service providers have a degree and 13% have a post-graduate qualification. Furthermore, a total of 7% of the respondents have a qualification lower than matric or a diploma, and 13% have only a certificate.

The results indicated that the tool, die and mould making representatives have a wider spread over the different categories of qualifications (see Table 8.1). Of the representatives, 35% have a degree, 27% a diploma, 14% have a matric, 14% have a certificate, and 3% have a qualification lower than matric (senior certificate). The remaining 6% of the respondents have a post-graduate qualification.

8.3.2 Job function of the respondents

The respondents chose their main job function from a list of seven descriptions (see Annexure 1). The results are presented in Table 8.2.

Table 8.2: Job functions of the respondents

Job function	QM SP		TDM		Total
	Number	%	Number	%	
Business owner	10	67%	16	23%	26
Senior decision maker	1	7%	14	20%	15
Consultant	1	7%	13	18%	14
Enterprise development	0	0%	3	4%	3
Procurement manager	3	20%	21	30%	24
Technical expert	0	0%	4	6%	4
Total	15	100%	71	100%	86

The results in Table 8.2 show that the job functions of the representatives of the Quality Management service providers (QM SP) are: business owner (67%), procurement manager (20%), senior decision maker (7%) or consultant (7%).

The job function of the representatives of the tool, die and mould making (TDM) firms are: procurement manager (30%), business owner (23%) or senior decision maker (20%).

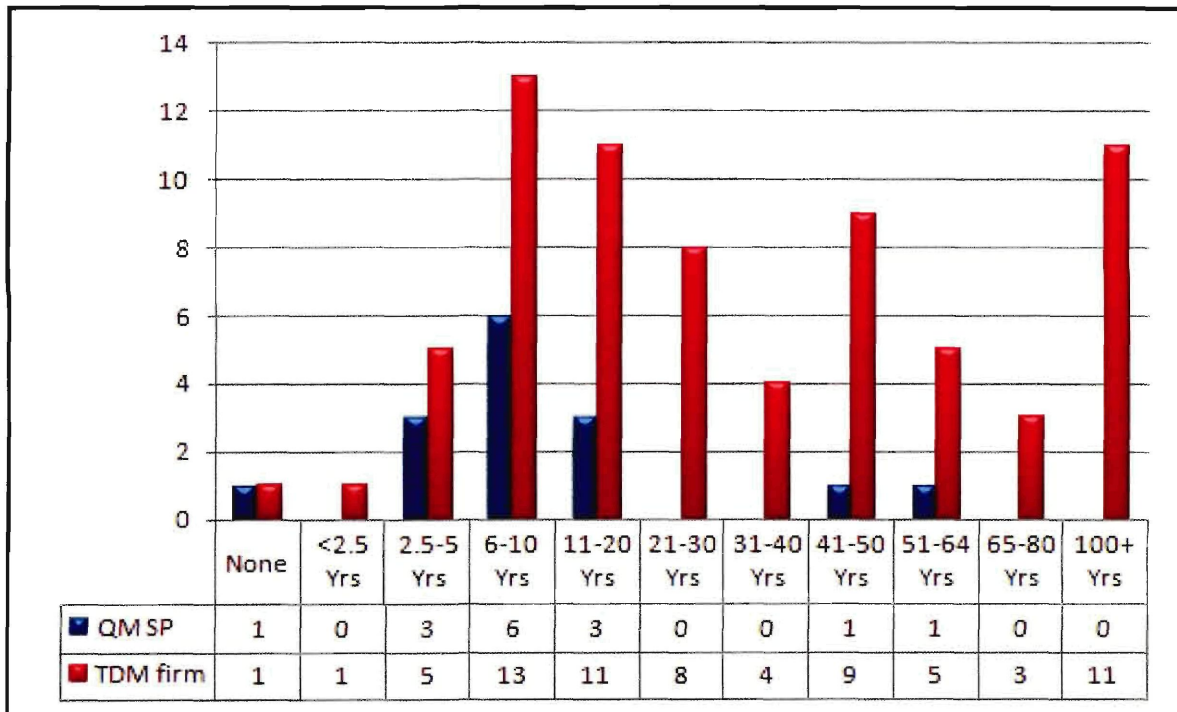
8.4 STRUCTURE OF THE PARTICIPATING FIRMS

During the interview structural information of the participating firms were collected in Question 19 (see Annexure 1). The following information was collected from the participating firms, i.e. the organisation type (legal status), the number of permanent employees in the firms, the estimated turnover of the firm per annum, the estimated percentage of foreign earnings of the firm, the main sources of competition from other firms (local, regional, national, international) and black ownership. The results of the structure information of the participating firms will be discussed in the next eight paragraphs.

8.4.1 Age of the participating firms

The age of the participating firms was recorded during the interviews and the results are presented in Figure 8.1. For reference purposes the item can be found under Question 19.6 in Annexure 1.

Figure 8.1: Age of the participating firms



The results in Figure 8.1 reveal that the tool, die and mould making firms span the total width of the scale, ranging from less than two-and-a-half years to older than a hundred years, while the Quality Management service providers are concentrated on the left side of the range (up to 20 years of age). The highest number of participating tool, die and mould making firms (13) is in the six-to-ten year category, with 11 firms each in the 21-to-30 year category and the older than 100 year category respectively. There are only 6 tool, die and mould making firms that are five years old or less. Two respondents could not specify the age of the firms they represented.

8.4.2 Organisation type of the participating firms

The respondents classified their firms into one of seven types of organisation during the interview (see Question 19.7 in Annexure 1). With regard to the Quality Management service providers, 80% are classified as *private companies* or *closed corporations*, 13.33% as *government or state agencies*, and the remaining 6.67% are classified as *public companies*.

The majority (67.61%) of the tool, die and mould making firms are classified as *private companies* or *closed corporations*, 30.99% as *public companies*, and 1.14% as *business membership organisations*.

8.4.3 Number of permanent employees

The South African government classifies the size of firms according to the number of permanent employees. The respondents were asked to provide the number of people employed in the participating firms, and the results are presented in Table 8.3.

Table 8.3: Number of employees of the participating firms

Number of employees	QM SP		TDM		Total
	Number	%	Number	%	
1 - 4	10	67%	7	10%	17
5 - 10	1	7%	10	14%	11
11 - 25	0	0%	21	30%	21
26 - 50	1	7%	14	20%	15
51 - 100	2	13%	7	10%	9
101 - 200	1	7%	3	4%	4
200+	0	0%	9	13%	9
Total	15	100%	71	100%	86

The results in Table 8.3 indicate that the majority (67%) of the participating Quality Management service providers employ between one and four employees.

With regard to the participating tool, die and mould making firms, only 10% employ one to four employees, with a further 14% employing between five and ten people. Most of the participating tool, die and mould making firms employ between 11 and 50 people (50%), 10% employ between 51 and 100 people, 4% between 101 and 200 people and 13% more than 200 people.

The South African Small Business Act (Department of Trade and Industry (DTI), 1996) and National Small Business Amendment Bill (Department of Trade and Industry (DTI), 2004b:2) classify micro, very small, small and medium-sized businesses as businesses that employ fewer than 200 employees. Thus the majority of the respondents that participated in this survey are small and medium-sized businesses as defined by the South African government.

8.4.4 Annual financial turnover of the participating firms

A second criterion of the determination of the size of a firm relates to its annual financial turnover (Department of Trade and Industry (DTI), 1996:13-14). During the interview the respondents were asked to indicate their annual turnover on a voluntary basis. The annual turnover of the participating firms is presented in Table 8.4.

Table 8.4: Annual financial turnover of participating firms

Annual turnover	QM SP		TDM		Total
	Number	%	Number	%	
<R1 m	12	80%	27	38%	39
R1 m - R2.5 m	2	13%	14	20%	16
>R2.5 m - R10m	0	0%	10	14%	10
>R10 m - R50 m	0	0%	8	11%	8
>R50 m - R100 m	0	0%	5	7%	5
>R100 m	1	7%	5	7%	6
No response			2	3%	2
Total	15	100%	71	100%	86

The results presented in Table 8.4 show that the majority (80%) of the Quality Management service providers have annual financial turnovers of less than R1 million. The remaining 13% ($n = 2$) service providers indicated a turnover of R1 million to R 2.5 million, with 7% ($n = 1$) indicating a turnover of more than R100 million per annum. Using the guideline of the South African Government, the majority of the Quality Management service providers can be classified as very small according to their financial turnover (Department of Trade and Industry (DTI), 1996:13-14).

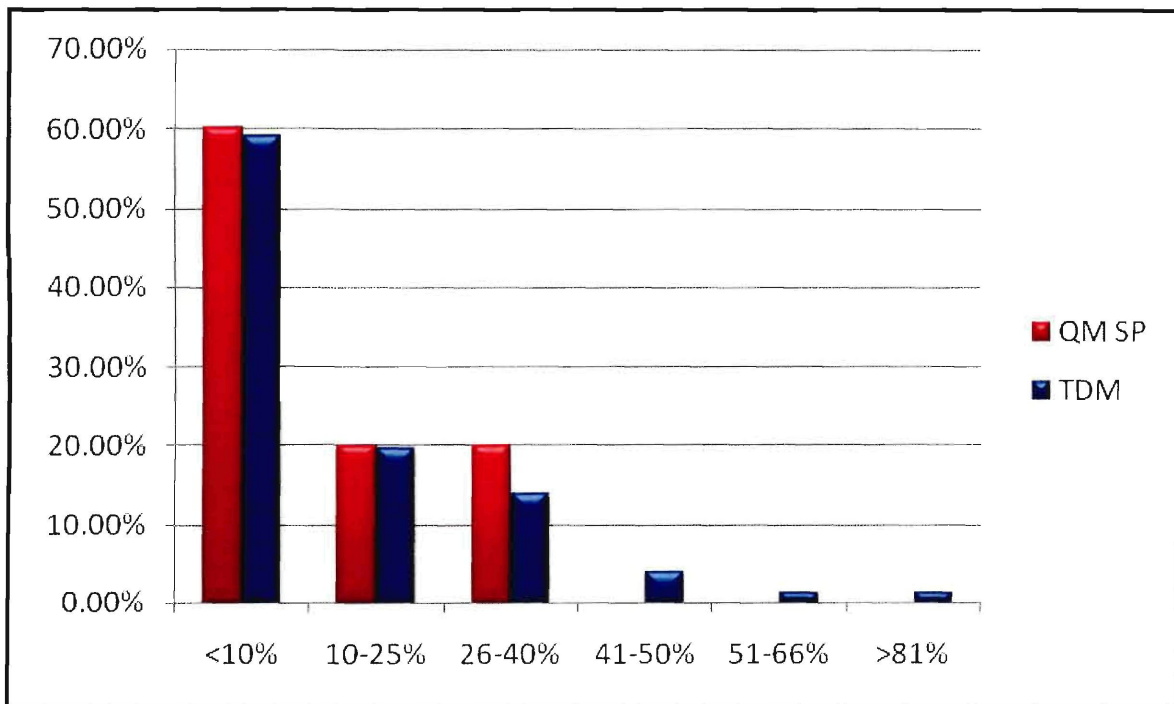
Of the participating tool, die and mould making firms, 38% ($n = 27$) reported a financial turnover of less than R1 million per annum and 20% ($n = 14$) a turnover between R1 million and R2.5 million. Thus the majority (58%) of the tool, die and mould making firms have annual turnovers of less than R2.5 million and can be classified as small using the National Small Business Act classification (Department of Trade and Industry (DTI), 1996:13-14). Of the remaining tool, die and mould making firms, 7% ($n = 5$) have financial turnovers of more than R100 million, which is classified as large.

Two (3%) of the representatives of the participating tool, die and mould making firms were not able to share their financial results with the interviewer.

8.4.5 Estimated percentage of foreign earnings

The respondents were asked to provide an estimate of the total foreign earnings in order to establish whether they had a mainly local focus, or a broader international perspective (see Question 19.12 in Annexure 1). The results are shown in Figure 8.2.

Figure 8.2: Percentage of foreign earnings of the participating firms



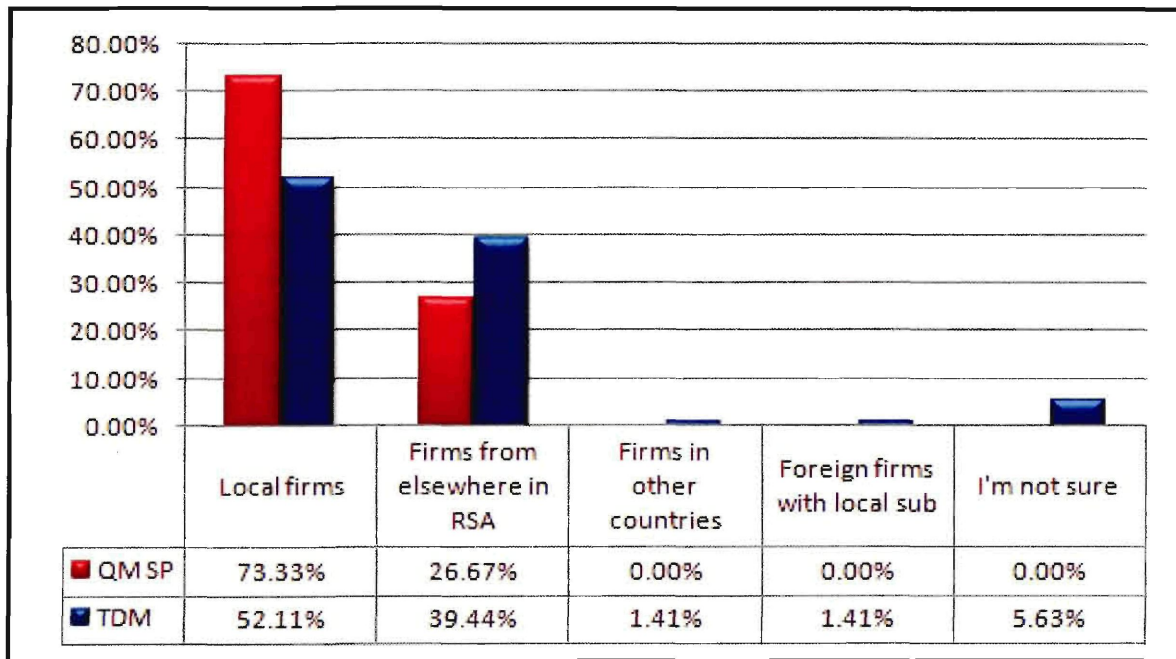
In Figure 8.2 it is clear that the majority of the Quality Management service providers (60%) earn less than 10% of their income from abroad, with 20% earning between 10% to 25% and 26% to 40% respectively.

The majority (59.15%) of the participating tool, die and mould making firms earn less than 10% from abroad, with 19.72% earning between 10% to 25%, and 14.08% earning 26% to 40%. The remaining 7.04% of the tool, die and mould making firms earn more than 40% of their earnings from abroad.

8.4.6 Main source of competitors

The main source of competitors of the participating firms was recorded during the interviews (see Question 19.13 in Annexure 1), and the results are shown in Figure 8.3.

Figure 8.3: Main source of competitors

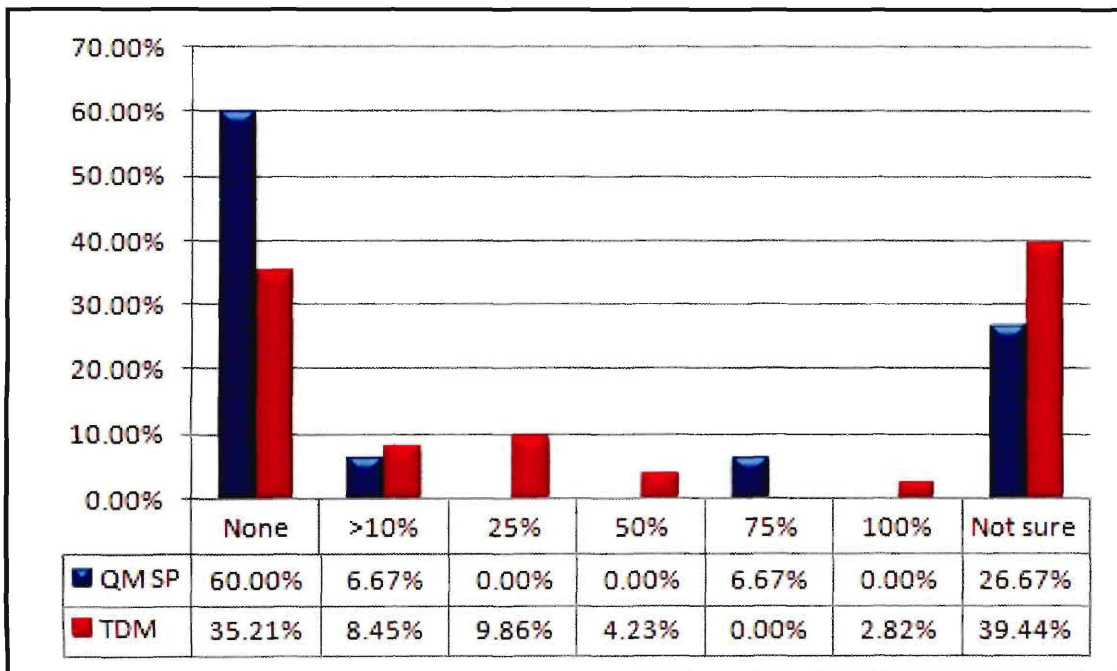


The results presented in Figure 8.3 show that the majority of Quality Management service providers (73.3%) and tool, die and mould making firms (52.11%) compete with local firms in the Nelson Mandela Bay area. The rest of the participating firms compete with firms from elsewhere in South Africa and internationally (26.67% and 39.44% respectively).

8.4.7 Black economic empowerment status of participating firms

The black economic empowerment status of the participating firms was collected during the survey, and the results are shown in Figure 8.4.

Figure 8.4: Black economic empowerment status of the participating firms



In Figure 8.4 the tendency of most respondents to indicate *none* or *not sure* is clearly visible. The majority of Quality Management service providers selected either *none* (60%) or *not sure* (26.67%), and the majority of the tool, die and mould making firms also selected either *none* (35.31%) or *not sure* (39.44%).

8.4.8 Membership of an industry association or business membership organisation

The last item in Question 19 of the questionnaire required the *respondents* to indicate whether the firm they represented belonged to a tool, die and mould making industry association, whether their firm could be classified as a tool, die and mould making firm, or neither. Of the participating tool, die and mould making firms, 13 indicated that they were members of a tool, die and mould making industry association, seven classified themselves as part of the tool, die and mould making sector, while 45 selected “none of these” and five firms indicated that they belonged to another industry association. All the Quality Management service providers indicated that they did not belong to a tool, die and mould making industry association, nor that they formed part of the tool, die and mould making sector. The

representatives of the Quality Management service providers did not indicate any other industry associations that they belonged to.

8.5 RESULTS OF PERCEPTIONS OF FIRMS AND INDUSTRY PERFORMANCE SECTION

Section 1 of the questionnaire (see Annexure 1) collected data on the perspective of the respondents concerning the competitive orientation of the participating firm and the business environment that affects the performance of the firm. In the second part of Section 1 (Question 2 to Question 6), the attention shifts to the awareness and usage, characteristics and attributes of Quality Management services within the manufacturing environment.

8.5.1 Perception of industry performance

Question 1 in the questionnaire (see Question 1 in Annexure 1) consisted of 17 items where the respondents had to choose between true or false. The data were analysed in contingency tables in order to determine whether any relationship existed between the responses of the tool, die and mould making firms and those of the Quality Management service providers with regard to each *true/false* item. Cohen's guidelines for the interpretation of effect sizes in contingency tables are: small effect: $w = 0.1$; medium effect: $w = 0.3$; and large effect: $w \geq 0.5$ (Field, 2005:32; Ellis & Steyn, 2003:51-53; Cohen, 1992:155-159). A small effect size ($w = 0.1$) would indicate that the difference of the results between the two responding groups is small, whereas a large effect ($w \geq 0.5$) indicates a practically significant difference in the results of the respondents with regard to a specific item. The items where practically significant effects are calculated indicate a difference in opinion between the two groups of respondents that affects the respondents' interest in transacting with another actor in Quality Management services.

The main purpose of this question is to determine the competitive environment that the different respondents operate in. It provides information on the respondents' attitudes towards business, innovation, productivity and their competitors. The results are presented in Table 8.5.

Table 8.5: Results of a means comparison for Question 1

Item	QM SP			TDM firm			w
	True	False	Total	True	False	Total	
Q1.1 My company is making optimal use of its equipment	8	7	15	62	8	70	0.352
	53.33%	46.67%	100.00%	88.57%	11.43%	100.00%	
Q1.2 Small firms are able to provide quality services and products	9	6	15	57	14	71	0.182
	60.0%	40.0%	100.0%	80.3%	19.7%	100.0%	
Q1.3 It is easy to find new suppliers locally	9	6	15	53	18	71	0.124
	60.0%	40.0%	100.0%	74.6%	25.4%	100.0%	
Q1.4 It is easy to find new customers locally	8	7	15	54	17	71	0.192
	53.33%	46.67%	100.00%	76.06%	23.94%	100.00%	
Q1.5 Belonging to a BMO helps to identify new suppliers	7	8	15	57	13	70	0.307
	46.7%	53.3%	100.0%	81.4%	18.6%	100.0%	
Q1.6 It requires very high skills and qualifications to run a business	7	8	15	46	25	71	0.141
	46.67%	53.33%	100.00%	64.79%	35.21%	100.00%	
Q1.7 The industry I belong to is well organised	11	4	15	67	4	71	0.275
	73.33%	26.67%	100.00%	94.37%	5.63%	100.00%	
Q1.8 The industry I belong to is benefitting from the adoption of new technologies	10	5	15	65	6	71	0.283
	66.67%	33.33%	100.00%	91.55%	8.45%	100.00%	
Q1.9 Globalisation has forced me to become more competitive	11	4	15	47	24	71	0.058
	73.33%	26.67%	100.00%	66.20%	33.80%	100.00%	
Q1.10 Commercial service providers have assisted my business to become more competitive	10	5	15	41	30	71	0.069
	66.67%	33.33%	100.00%	57.75%	42.25%	100.00%	
Q1.11 It is risky to do business with small firms as suppliers or customers	6	9	15	41	30	71	0.135
	40.00%	60.00%	100.00%	57.75%	42.25%	100.00%	
Q1.12 It is possible to find staff with the right skills in the marketplace	8	7	15	50	21	71	0.138
	53.33%	46.67%	100.00%	70.42%	29.58%	100.00%	
Q1.13 The costs of running my business has increased dramatically in the last few years	10	5	15	61	10	71	0.192
	66.67%	33.33%	100.00%	85.92%	14.08%	100.00%	
Q1.14 I am making a profit in my business	11	4	15	62	9	71	0.148
	73.33%	26.67%	100.00%	87.32%	12.68%	100.00%	
Q1.15 I understand the financial statements of my business	9	6	15	63	8	71	0.295
	60.00%	40.00%	100.00%	88.73%	11.27%	100.00%	
Q1.16 Local HEIs are able to provide people with the skills needed in my business	6	9	15	49	22	71	0.229
	40.00%	60.00%	100.00%	69.01%	30.99%	100.00%	
Q1.17 My business depends on one customer for all my business	3	12	15	11	60	71	0.046
	20.00%	80.00%	100.00%	15.49%	84.51%	100.00%	

The results presented in Table 8.5 indicate that none of the items in Question 1 yielded a practically significant effect size ($w \geq 0.5$), with only two items (Question 1.1; $w = 0.35$ and Question 1.5; $w = 0.31$) showing visible effects ($w \geq 0.3$).

Correlation coefficient

Spearman's ρ (r) was calculated to determine the relationships between the 17 items in Question 1. The data table was split between the two groups so that relationships between items could be calculated for each group. For the purpose of this study, only the strong relationships ($r > 0.50$) are discussed.

From a service provider perspective the following relationships were identified:

- *My company is making optimal use of its equipment* (Question 1.1) yielded a strong relationship ($r = 0.607$; $n = 15$), with *Belonging to a business membership organisation helps to identify new suppliers* (Question 1.5) and a second strong relationship ($r = -0.535$; $n = 15$) with *My business depends on one customer for all my business* (Question 1.17).
- *It is easy to find new suppliers locally* (Question 1.3) yielded a strong relationship ($r = 0.764$; $n = 15$) with *It requires very high skills and qualifications to run a business* (Question 1.6).
- *It is easy to find new customers locally* (Question 1.4) yielded a strong relationship ($r = -0.607$; $n = 15$) with *it is possible to find staff with the right skills in the marketplace* (Question 1.12).
- A strong relationship was detected ($r = 0.607$; $n = 15$) between *Belonging to a business membership organisation helps to identify new suppliers* (Question 1.5) and *My company is making optimal use of its equipment* (Question 1.1).
- *It requires very high skills and qualifications to run a business* (Question 1.6) yielded a strong relationship with ($r = 0.564$; $n = 15$), *The industry I belong to is well organised* (Q.1.7), and also with ($r = 0.661$; $n = 15$), *Commercial service providers have assisted my business to become more competitive* (Question 1.10).
- A strong relationship ($r = 0.533$; $n = 15$) was detected between *The industry I belong to is well organised* (Q.1.7) and *Commercial service providers have assisted my business to become more competitive* (Question 1.10).

The following relationships were calculated for the tool, die and mould making firms:

- *My company is making optimal use of its equipment* (Question 1.1) yielded a strong relationship ($r = 0.533$; $n = 70$) with *I am making a profit in my business* (Question 1.14).
- A strong relationship ($r = 0.532$; $n = 71$) exists between *Small firms are able to provide quality services and products* (Question 1.2) and *It is possible to find staff with the right skills in the marketplace* (Question 1.12).
- There is a strong relationship ($r = 0.583$; $n = 71$) between *It is easy to find new suppliers locally* (Question 1.3) and *It is easy to find new customers locally* (Question 1.4).

8.5.2 Awareness and knowledge of Quality Management-related services

The first part of Question 2 in the questionnaire (see Annexure 1) tested the awareness and knowledge of the following Quality Management and related services:

- Quality Management services (QMS);
- metrology services (Metrology);
- environmental management systems (EMS);
- occupational health and safety services (OHS); and
- business process management systems (BPMS).

The acronyms in brackets are used in the figures and tables in this section.

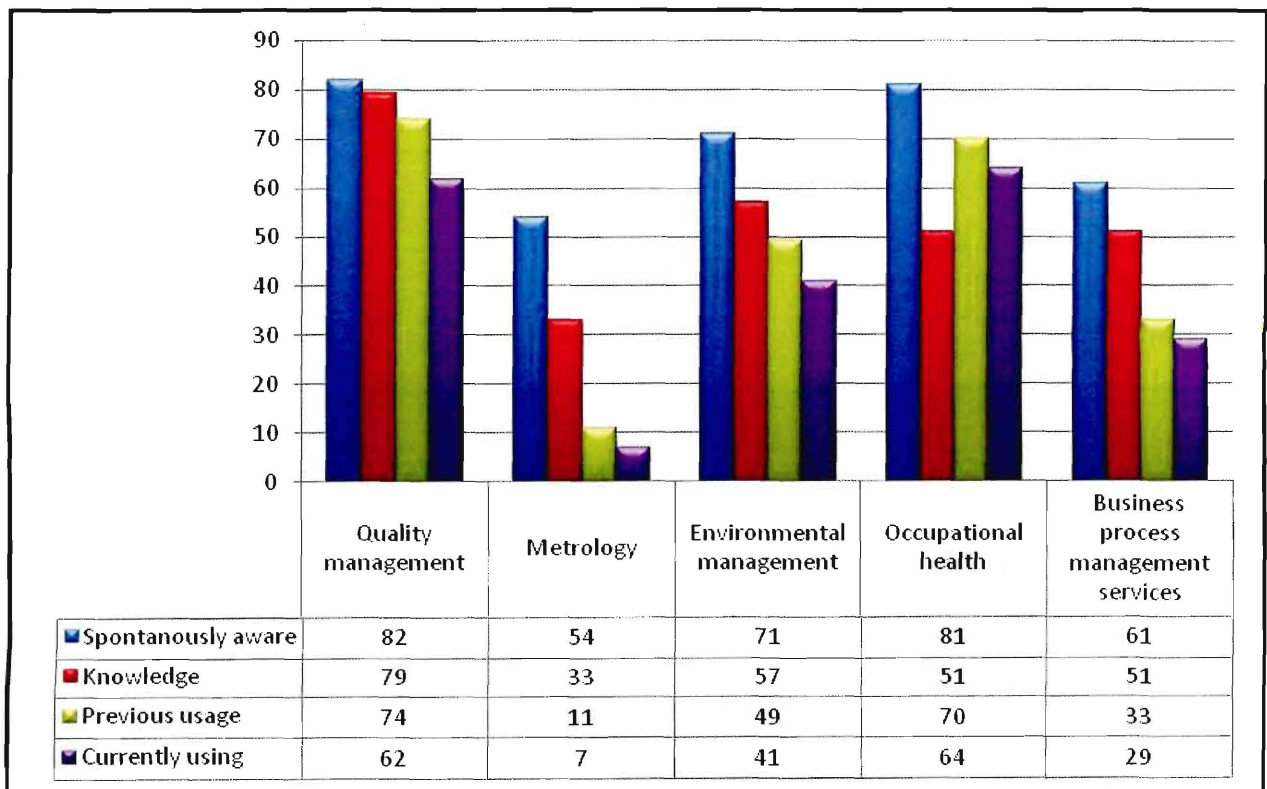
After awareness and knowledge were tested, respondents were asked to indicate whether they had ever used any of the five services before, followed by the question as to whether they were currently using any of the five Quality Management-related services. The results of the different tests are presented in the following five paragraphs.

8.5.2.1 Spontaneous awareness and knowledge of Quality Management and related services

The first item in Question 2.a required the respondents to spontaneously name (without guidance from the interviewer) the quality management and related services that they could think of. In the next step (Question 2.b) the respondents were asked whether they considered themselves to be knowledgeable according to a provided list of quality management and related services. This is referred to as an aided test.

The results for all the respondents are shown in Figure 8.5. In the data table immediately below Figure 8.5 the number of respondents who selected each item is indicated.

Figure 8.5: Awareness, knowledge and usage of different Quality Management and related services



The results in Figure 8.5 reveal that of the different services, *Quality Management services* was the most frequently identified spontaneously by the respondents (total = 82; $n_{TDM} = 67$), followed by *Occupational Health services* (total = 81; $n_{TDM} = 67$), *Environmental Management services* (total = 71; $n_{TDM} = 56$) and *Business Process Management services* (total = 61; $n_{TDM} = 47$). *Metrology services* (total = 54; $n_{TDM} = 41$) were least often identified by the respondents.

The results of the aided awareness test (Question 2.b) are also presented in Figure 8.5. The results indicate that the services were known in the same order as the spontaneous awareness test (Question 2.a), with *Quality Management services* best known (total = 79; $n_{TDM} = 64$) and *Metrology services* least known (total = 33, $n_{TDM} = 22$).

8.5.2.2 Previous and current usage of Quality Management and related services

The next item (Question 2.c) tested whether the respondents had ever used any of the five listed Quality Management and related services before.

The results are presented in Figure 8.5, and a pattern emerges between the awareness of the different services and the previous usage of the specific service. Of the different services, *Quality Management services* was most frequently selected as having been used before (total = 74; $n_{TDM} = 59$), followed by *Occupational Health services* (total = 70; $n_{TDM} = 59$), *Environmental Management services* (total = 49; $n_{TDM} = 41$), *Business Process Management services* (total = 33; $n_{TDM} = 23$) and *Metrology services* least often used before (total = 11; $n_{TDM} = 7$).

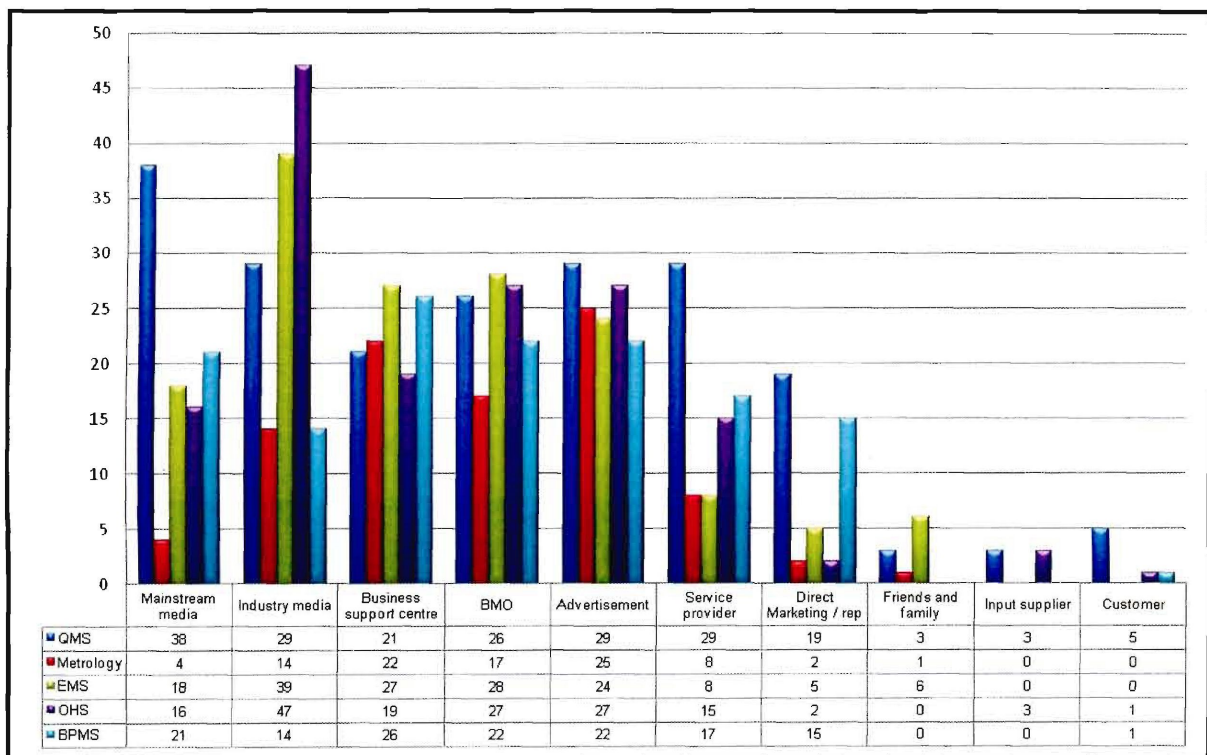
In the next item (Question 2.d), the respondents had to indicate whether the participating firms were currently using any of the five Quality Management and related services. The currently used services used by most of the participating firms were *Occupational Health services* (total = 64; $n_{TDM} = 54$) and *Quality Management* (total = 62; $n_{TDM} = 49$), followed by *Environmental Management services* (total = 41;

$n_{TDM} = 34$), *Business Process Management Services* (total = 29; $n_{TDM} = 19$) and with *Metrology services* being used by the least number of firms (total = 7; $n_{TDM} = 6$).

8.5.2.3 Source of awareness of Quality Management and related services

After identifying the awareness and knowledge in the preceding questions, it was necessary to determine the source of the awareness of the five different services (see Question 2.e in Annexure 1). The respondents could select more than one option from the ten options listed in the questionnaire. The results are presented in Figure 8.6.

Figure 8.6: Sources of awareness test for Quality Management and related services



The different sources of awareness of each respondent for each of the five services are shown in Figure 8.6. The results show that Quality Management services (QMS) benefit from most sources of awareness, except from *friends and family*, *input suppliers* and *other* (which is not included in the figure as it was not selected once). Figure 8.6 furthermore reveal that *Metrology Services* (Metrology) is not known

through *mainstream media, direct marketing, family and friends or input suppliers*. Customers played a small role in raising the awareness of the different services among tool, die and mould making firms.

8.5.2.4 Most important source of awareness for each of the Quality Management and related services

These results of the previous question (Question 2.e) show which sources are credited by the respondents as sources of awareness, but they do not determine which source of awareness is the most important source for each of the five quality-related services tested. In Question 2.f (see Question 2.f in Annexure 1) **the respondents were asked to identify the most important single source of awareness** for each of the five Quality Management and related services. The results for Question 2.f are presented in Figure 8.7.

Figure 8.7: Most important source of awareness

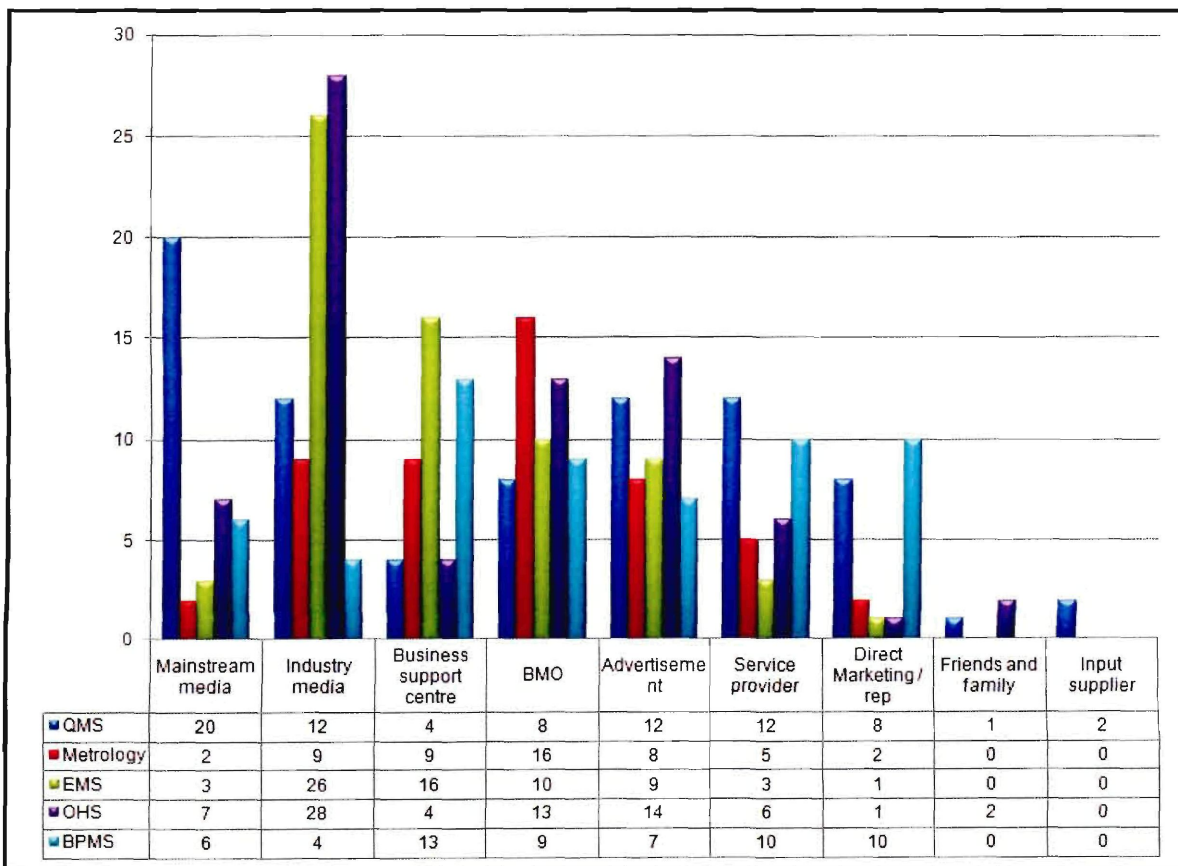


Figure 8.7 presents the most important sources of awareness identified by the respondents. For Quality Management services (QMS) *mainstream media* is the most important source of awareness, although from Figure 8.7 it becomes evident that Quality Management services seem to benefit from most of the different kinds of media. Another service that appears to benefit from a wide range of media is *Occupational Health Services (OHS)*, although it benefits the most from *industry specific media*. *Environmental Management services (EMS)* tend also to benefit from a wide range of media, but mostly from *industry specific media*. For *Metrology Services (Metrology)*, the *business member organisations* play the most important awareness-raising role. *Business Process Management services (BPMS)* are best known through *business support centres* or through a *business membership organisation (BMO)*.

8.5.2.5 Form of interaction with Quality Management services

From this point onward in the questionnaire **only Quality Management Services is the topic of discussion**. In Question 2.g, only respondents who had previously indicated in Question 2.c and Question 2.d that they had used Quality Management services were asked to select between five different kinds of interaction with Quality Management services (see Question 2.g in Annexure 1). Only the results of the tool, die and mould making firms are presented and discussed in Table 8.6.

Table 8.6: The location of source of QM service used by TDM firms

Item	Number	%
We have/had an internal division in the company that handles(d) every aspect of quality management	22	33.33%
We have/had an internal division that handles(d) most of the functions of quality management – although certain aspects are outsourced	23	34.85%
I use outside suppliers of quality management services all the time	6	9.09%
I use outside suppliers of quality management services some of the time	15	22.73%
Other, specify	4	6.06%
Total	66	100.00%

The results in Table 8.6 indicate that for 34.85% of the tool, die and mould making firms, the service is provided partially by an in-house Quality Management function with certain aspects being outsourced to external service providers. This is followed closely (33.33%) by tool, die and mould making firms using an internal unit or division that handles every aspect of Quality Management. Only 9.09% of tool, die and mould making firms responded that they used Quality Management service providers all the time, while a further 22.73% of the respondents indicated that they used Quality Management service providers some of the time.

8.5.3 Institutional actors in the quality management marketplace

In the literature study the importance of the institutional landscape that supports a marketplace is discussed in Paragraph 3.5.

Paragraph 7.4.3 gives the different institutions that support the Quality Management service in South Africa as:

- tertiary institutions that provide either training or information on quality management;
- the South African National Accreditation Service (SANAS);
- the Small Enterprise Development Agency (SEDA);
- the South African Bureau of Standards (SABS);
- the National Productivity Institute (NPI);
- various implementation consultants;
- certification agencies or bodies;
- other South African actors; and
- other international actors.

In Question 3 the awareness of the respondents of the broader institutional landscape that enables the Quality Management service marketplace to function was assessed in four phases during the interview.

Firstly, in Question 3.a the respondents were asked to spontaneously name the different institutions that they could think of without assistance from a list, while the

interviewer marked the institutions identified on the questionnaire. Next, in Question 3.b the respondents were provided with a list of organisations supporting the Quality Management service marketplace, with respondents confirming or denying whether they knew of these organisations. The third step (Question 3.c) was to test whether the respondents could name a contact person at the respective organisations. The final step (Question 3.d) was to check if the respondents were currently interacting with the organisations or the contact persons.

The results of Question 3 are discussed next, firstly from the tool, die and mould making firm perspective, followed by the Quality Management service provider perspective.

8.5.3.1 The TDM firms' awareness and knowledge of, and interaction with, the institutional actors in the Quality Management service marketplace

The awareness of the tool, die and mould making firms of the institutional level supporting the Quality Management service market place is tested in Question 3 (see Question 3, Annexure 1). The results of the tool, die and mould making firms are presented in Table 8.7.

Table 8.7: TDM awareness and knowledge of, and interaction with, institutions in the Quality Management service marketplace

	Question 3.a	Question 3.b	Question 3.c	Question 3.d
Institution	Spontaneous	Aided awareness	Know someone	Interact with
Tertiary institutions	50	59	15	19
SANAS	30	55	14	17
SEDA	39	57	19	23
SABS	55	64	44	57
NPI	7	43	4	2
Implementation consultants	6	43	7	5
Certification agencies	13	45	8	9
Other RSA actors	4	27	5	3
Other international institutions	0	1	0	0

Spontaneous awareness and aided awareness (Question 3.a and Question 3.b)

The results presented in Table 8.7 show that the first four institutions (Tertiary institutions, SANAS, SEDA and the SABS) were most often identified spontaneously by the tool, die and making mould respondents in Question 3.a. With the aid of a list in Question 3.b, the respondents' awareness increased across most institutions, except for *Other international institutions* and *Other RSA actors*.

Interaction (Question 3.c and Question 3.d)

The results of Question 3.c are shown in Table 8.7. The number of respondents who knew someone by name in the different institutions is low, except in the case of the SABS where 44 of the tool, die and mould making respondents indicated that they knew someone by name.

In Question 3.d the respondents were asked to indicate whether they had previously interacted with any of the institutions on the list. The results in Table 8.7 reveal that the SABS (57) was most often identified as an institution that the tool, die and mould making respondents had interacted with before.

8.5.3.2 The Quality Management service providers' awareness and knowledge of, and interaction with, the institutional actors in the Quality Management service marketplace

The awareness of the different institutions supporting the Quality Management marketplace by the Quality Management service providers was tested in Question 3 (see Question3, Annexure 1). The results are presented in Table 8.8.

Table 8.8: Service providers' awareness of institutions in the marketplace

	Question 3.a	Question 3.b	Question 3.c	Question 3.d
Institution	Spontaneous	Aided awareness	Know someone	Interact with
Tertiary institutions	15	15	6	7
SANAS	6	15	2	4
SEDA	7	14	3	5
SABS	12	14	11	13
NPI	9	15	5	8
Implementation consultants	8	14	5	7
Certification agencies	2	13	1	5
Other RSA actors	0	1	1	1
Other international institutions	0	0	0	0

Spontaneous awareness and aided awareness (Question 3.a and Question 3.b)

The results in Table 8.8 show the Quality Management service providers spontaneously identified as the *Tertiary institutions* (15), followed by the *SABS* (12), and the *NPI* (9) in Question 3.a.

In Question 3.b the respondents had to select the institutions that they were aware of from a list of Quality Management supporting institutions. The results reveal that the majority of the service providers showed a high awareness of the different institutions, with the exception of *Other RSA actors* and *Other international institutions*.

Interaction (Question 3.c and Question 3.d)

Question 3.c tested whether the Quality Management service providers knew a contact person in the respective institutions. The *SABS* was indicated most often (11) by the respondents, with the rest of the institutions on average receiving low scores.

The results for Question 3.d regarding the interaction with institutions presented in Table 8.8 indicate that the SABS (13) is the most often interacted with. The results for Question 3.d are in many cases higher than the results for Question 3.c, which may indicate that the interaction with these organisations is through non-personal means.

8.5.4 Reasons for using Quality Management services

Question 4 (see Annexure 1) probed the reasons why respondents thought it was necessary to use Quality Management services. The respondents had to respond to eight items by selecting either *true* or *false*. The data were analysed in a contingency table with two variables that enable a comparison between the responses of the tool, die and mould making firms and the Quality Management service providers.

The effect size (w) was determined by first determining Pearson's chi-square, and then calculating the square root of the chi-square and the total sample to determine the practical significance of the effect (Ellis & Steyn, 2003:51-53). Cohen (Field, 2005:32; Ellis & Steyn, 2003:51-53; Cohen, 1992:155-159) gives the following guidelines for the interpretation of effect sizes in contingency tables: small effect: $w = 0.1$; medium effect: $w = 0.3$; and large effect: $w = 0.5$.

The results of Question 4 are presented in Table 8.9.

Table 8.9: Reasons for using Quality Management services

Item	QM SP			TDM Firm			Effect
	True	False	Total	True	False	Total	
Q4.1 This service helps firms that are not performing so well	13	2	15	64	6	70	0.062
	86.67%	13.33%	100.00%	91.43%	8.57%	100.00%	
Q4.2 This service helps firms to grow their business	7	8	15	59	11	70	0.344
	46.67%	53.33%	100.00%	84.29%	15.71%	100.00%	
Q4.3 My business requires this on a frequent basis for its normal operations	6	9	15	56	14	69	0.343
	40.00%	60.00%	100.00%	80.00%	20.29%	100.00%	
Q4.4 Firms need quality management services for specific projects from time to time	10	5	15	62	8	70	0.232
	66.67%	33.33%	100.00%	88.57%	11.43%	100.00%	
Q4.5 Customers and suppliers demand that I use this service	6	9	15	38	31	69	0.116
	40.00%	60.00%	100.00%	55.07%	44.93%	100.00%	
Q4.6 This service assists firms to be more competitive	7	8	15	57	13	70	0.307
	46.67%	53.33%	100.00%	81.43%	18.57%	100.00%	
Q4.7 This service improves the profitability of my firm	10	5	15	49	21	70	0.028
	66.67%	33.33%	100.00%	70.00%	30.00%	100.00%	
Q4.8 This service assists my firm to better market itself to new and existing customers	6	9	15	53	17	70	0.295
	40.00%	60.00%	100.00%	75.71%	24.29%	100.00%	

Using Cohen's guidelines (Field, 2005:32; Ellis & Steyn, 2003:51-53; Cohen, 1992:155-159) for interpretation of the different effect sizes, it can be seen from Table 8.9 that there are three questions (Question 4.2, $w = 0.344$; Question 4.3; $w = 0.343$ and Question 4.6; $w = 0.307$) that yielded visible effect sizes (medium effect: $w = 0.3$). None of the items yielded a practically significant result ($w = 0.5$).

Correlation coefficient

Spearman's *rho* (r) was calculated to determine the relationships between the 17 items in Question 1. For the purpose of this study, only the strong relationships ($r > 0.50$) are discussed.

No strong relationships were calculated for the Quality Management service providers.

For the tool, die and mould making firms, a strong relationship ($r = 0,500$; $n = 70$) was calculated between *This service helps firms to grow their business* (Question 4.2) and *This service assists firms to be more competitive* (Question 4.6).

8.5.5 The main characteristics of Quality Management services

Question 5 in the questionnaire is formulated to test for the different characteristics of the Quality Management service. The items used in the questionnaire (see Annexure 1) were formulated based on insight gained from Chapter 2 in the literature study where the characteristics of services were discussed.

The method of service delivery, frequency of service usage, user involvement, intangible benefits, service rating and good value were investigated. All the items, except for Question 5.3, consist of five items, of which the respondents had to choose the most fitting that described their perspective. The five items are discussed next under separate headings.

8.5.5.1 The main form of delivery for Quality Management services

In Question 5.1 the main means of the delivery of Quality Management services is determined. The purpose of this item is to better understand how the service was delivered by a Quality Management service provider to a Quality Management service consumer. The results are presented in Table 8.10.

Table 8.10: Main means of delivery of Quality Management services

Q5.1: How is this service delivered mostly?	QM SP		TDM		Total	
	Number	%	Number	%	Number	%
Electronic	5	33.33%	28	39.44%	33	38.37%
Telephonic	4	26.67%	31	43.66%	35	40.70%
Quality Management service provider goes to tool, die and mould making firm	4	26.67%	6	8.45%	10	11.63%
Printed material	1	6.67%	2	2.82%	3	3.49%
Tool, die and mould making firm goes to Quality Management service provider	1	6.67%	4	5.63%	5	5.81%
Total	15	100.00%	71	100.00%	86	100.00%

In this and following tables, QM SP refers to Quality Management service providers, and TDM refers to tool, die and mould making firms

The results in Table 8.10 reveal that for the tool, die and mould making firms Quality Management services are mostly delivered *via telephone* (43.66%) and *electronic means* (39.44%).

For the Quality Management service providers the main delivery takes place *via electronic means* (33.33%), with *site visits* and *telephone calls* both scoring high (26.67% respectively).

8.5.5.2 Frequency of use of Quality Management services

In Question 5.2, the frequency of use of Quality Management services is determined. The results are presented in Table 8.11.

Table 8.11: Frequency of use of Quality Management services

Q5.2: How often is the service of the service provider needed?	QM SP		TDM		Total	
	Number	%	Number	%	%	Number
Daily	2	13.33%	38	53.52%	40	46.51%
Weekly	8	53.33%	21	29.58%	29	33.72%
Monthly	5	33.33%	9	12.68%	14	16.28%
Yearly	0	0.00%	2	2.82%	2	2.33%
Less frequently	0	0.00%	1	1.41%	1	1.16%
Total	15	100.00%	71	100.00%	86	100.00%

The results in Table 8.11 indicate that the majority of tool, die and mould making firms (53.52%) used the service on a *daily* basis, with 29.58% indicating that they used the service on a *weekly* basis.

The Quality Management service providers indicated that the service was mainly needed by users on a *weekly* (53.33%) and a *monthly* (33.33%) basis.

8.5.5.3 Involvement of the user in the delivery of the Quality Management service

Question 5.3 is formulated to determine the involvement of the respondents in the delivery of the Quality Management service. The purpose of this item is to investigate how intensely involved senior decision makers are in the use of the service. At the beginning of the interview the interviewer confirmed with the respondents that they were senior decision makers in their organisations regarding decisions about transactions in Quality Management services. The results are presented in Table 8.12.

Table 8.12: Involvement of the user in the delivery of Quality Management services

Q5.3: How involved is the user in the delivery of this service?	QM SP		TDM		Total	
	Number	%	Number	%	Total	%
Not so involved	2	13.33%	9	12.68%	11	12.79%
Partially involved	7	46.67%	27	38.03%	34	39.53%
Intensely involved	6	40.00%	35	49.30%	41	47.67%
Total	15	100.00%	71	100.00%	86	100.00%

The results in Table 8.12 reveal that the majority of the tool, die and mould making firm respondents are *intensely involved* (49.3%) or *partially involved* (38.03%) in the delivery of the Quality Management service. The Quality Management service providers indicated that in the majority of cases the users were *partially* (46.67%) or *intensely* (40%) involved in the delivery of the service.

8.5.5.4 Intangible benefits provided by Quality Management services

In Chapter 5 of the literature study several benefits of using Quality Management services were identified. The purpose of Question 5.4 is to determine which of the various intangible benefits to firms are associated with Quality Management services. The results are presented in Table 8.13.

Table 8.13: Intangible benefits and value of quality management services

Q5.4: What are the intangible benefits this service provides?	QM SP		TDM		Total	
	Number	%	Number	%	Total	%
Peace of mind	2	13.33%	18	25.71%	20	23.53%
Cost savings	5	33.33%	18	25.71%	23	27.06%
Quality and standards	8	53.33%	24	34.29%	32	37.65%
Management insight	0	0.00%	7	10.00%	7	8.24%
Competitive edge	0	0.00%	3	4.29%	3	3.53%
Total	15	100.00%	70	100.00%	85	100.00%

The results presented in Table 8.13 indicate that the tool, die and mould making firms believed that the intangible benefits of the service came mainly through *quality and standards* (34.29%), with *peace of mind* (25.71%) and *cost savings* (25.71%) scoring second highest.

For the Quality Management service providers, the main intangible benefit was *quality and standards* (53.33%), with *cost savings* (33.33%) the second most important and *peace of mind* (13.33%) the third most important.

8.5.5.5 Measuring the impact of the Quality Management service

The purpose of Question 5.5 is to determine how the respondents rated the impact of Quality Management services. They had to select one option from five items describing the different kinds of impact that Quality Management services could have on a firm. The results are presented in Table 8.14.

Table 8.14: Rating the impact of Quality Management services

Q5.5: How is the impact of the service rated?	QM SP		TDM		Total	
	Number	%	Number	%	Total	%
A task is completed	0	0.00%	12	17.14%	12	14.12%
Certain problems are solved	4	26.67%	18	25.71%	22	25.88%
Skills of staff are upgraded	3	20.00%	14	20.00%	17	20.00%
Systems work better	6	40.00%	11	15.71%	17	20.00%
Profit increased	2	13.33%	15	21.43%	17	20.00%
Total	15	100.00%	70	100.00%	85	100.00%

Table 8.14 above indicates that the impact of the Quality Management service is rated by tool, die and mould making firms mainly on *Certain problems are solved* (25.71%), *Profits are increased* (21.43%) or *A task is completed* (17.14%).

The Quality Management service providers had a different set of priorities when it came to rating the impact of the service. They indicated that *Systems worked better*

was the most important (40%), followed by *Certain problems are solved* (26.67%) and *Skills of staff are upgraded* (20%).

8.5.5.6 Determining good value

It is necessary to understand how the respondents decided whether a Quality Management service provided good value. In Question 5.6 (see Annexure 1), the respondents were asked how they determined whether good value in Quality Management services by selecting the most important criteria from a list of five options. The results are presented in Table 8.15.

Table 8.15: Determining good value

Q5.6: How is good value determined?	QM SP		TDM		Total	
	Number	%	Number	%	Total	%
On speed of delivery	0	0.00%	9	12.86%	9	10.59%
On variety of options	3	20.00%	8	11.43%	11	12.94%
On quality of the service	8	53.33%	35	50.00%	43	50.59%
On price	4	26.67%	15	21.43%	19	22.35%
On impact	0	0.00%	3	4.29%	3	3.53%
Total	15	100.00%	70	100.00%	85	100.00%

The results presented in Table 8.15 reveal that for the tool, die and mould making firms good value in Quality Management services was determined through the *quality of the service* (50%) criterion, with *price* the second criterion (21.43%). The Quality Management service providers indicated that the *quality of the service* (53.3%) was an important criterion, followed by *price* (26.67%) and *variety of options* (20%).

8.5.6 The importance of different service attributes of Quality Management services

Question 6 in Section 1 of the questionnaire tested the importance of certain attributes of Quality Management services (see Annexure 1, Question 6). The question consisted of 27 items rated on the seven-point Likert scale, ranging from 1 being *not very important* to 7 being *very important*. Cohen's guidelines are used to interpret effect size when calculating the difference between means: small effect: $d = 0.2$; medium effect: $d = 0.5$; and large effect: $d \geq 0.8$ (Field, 2005:32; Ellis & Steyn, 2003:51-53; Cohen, 1992:155-159). Results with a medium effect indicate a visible difference in the responses of the two groups of respondents, while items where $d \geq 0.8$ indicate a practically significant difference in the way the two groups responded to each item.

The study focuses on items that yielded a practically significant difference in responses of the two groups to an item, which may indicate an impediment to transactions in Quality Management services that would result in the Quality Management marketplace not performing optimally.

The results of Question 6 are discussed in the next three paragraphs. The perspective of the tool, die and making mould firms is presented first in Paragraph 8.5.6.1, followed by the perspective of the Quality Management service providers on the importance of Quality Management service attributes in Paragraph 8.5.6.2. In Paragraph 8.5.6.3 the two data sets are combined and the effect sizes are discussed.

8.5.6.1 The important attributes of Quality Management services from a TDM perspective

The arithmetic mean (\bar{x}) and standard deviation (s) of the tool, die and mould making firms' perspective on the importance of different attributes of Quality Management services are presented in Table 8.16.

Table 8.16: The importance of various attributes of QMS from a TDM perspective

Q	Item	Total	\bar{x}	s
Q6.22	That a certificate of compliance or proof of service competence is issued	71	5.465	1.575
Q6.4	A written contract before work starts	71	5.338	1.603
Q6.16	The track record of the service provider	71	5.282	1.551
Q6.20	That the service provider belongs to an industry association	71	5.197	1.536
Q6.10	A report on what was done and how it is now working	71	5.183	1.334
Q6.13	The good reputation of the service provider	71	5.155	1.737
Q6.15	The professionalism of the support staff	71	5.141	1.726
Q6.19	That the service provider advertises in industry or local media	70	5.129	1.474
Q6.7	Frequent reports on progress	71	5.113	1.369
Q6.9	Monitoring of progress of implementation	71	5.113	1.526
Q6.3	Different payment options for a service is important	71	4.986	1.720
Q6.8	Well defined product/service options	71	4.873	1.558
Q6.27	Is this service very dependent on the experience of the lead expert in the service firm?	71	4.761	1.677
Q6.25	The way QMS are charged for makes sense	70	4.729	1.702
Q6.21	That the service consumer understands how the service is charged for	71	4.718	1.504
Q6.5	Performance criteria for the service	71	4.690	1.400
Q6.6	Project management of intervention	71	4.690	1.600
Q6.24	It is possible to compare the service offerings of different service providers	71	4.592	1.661
Q6.23	Is it possible to define clear standards or modules for this service?	70	4.586	1.429
Q6.18	That the customer is educated on the use of the service	71	4.535	1.611
Q6.11	Printed invoice explaining the various items charged for	71	4.507	2.035
Q6.2	Flexible service options / packages at different prices	71	4.507	1.557
Q6.14	The age of the business providing the service	71	4.451	1.402
Q6.26	Can people with less than 5 years' experience provide this service?	71	4.310	1.670
Q6.12	Impact measurement of the intervention	71	4.268	1.621
Q6.1	Receiving a written quote from the service provider	71	3.986	2.155
Q6.17	That the service provider provides brochures and printed material	71	3.887	2.032
<i>Results sorted from the highest to the lowest mean (\bar{x})</i>				

In Table 8.17 the results are sorted from the highest to the lowest mean (\bar{x}). Thus the items at the top of Table 8.17 were rated as the most important by the tool, die and mould making respondents.

The tool, die and mould making respondents ranked the item *That a certificate of compliance or proof of service competence is issued* the highest ($\bar{x} = 5.46$). *A written contract before work starts* ($\bar{x} = 5.34$), as well as *The track record of the service provider* ($\bar{x} = 5.28$) were rated as important. It was important for the tool, die and mould making firms that the Quality Management service providers should also *belong to an industry association* ($\bar{x} = 5.20$), and that *a report was issued* containing information on *What was done and how it is now working* ($\bar{x} = 5.18$). The *Good reputation* of the Quality Management service provider ($\bar{x} = 5.15$) and the *Professionalism of the supporting staff* ($\bar{x} = 5.14$) also obtained high rankings. The visibility of the Quality Management service provider through *Advertisements in the local media* received a high ranking as well ($\bar{x} = 5.13$).

Two items indicated as not being important by the tool, die and mould making firms are *That the service provider provides brochures and printed material* ($\bar{x} = 3.89$), and *Receiving a written quote* ($\bar{x} = 3.99$), which both received a low score. Both of these items scored below neutral on the seven-point Likert scale.

8.5.6.2 The important attributes of Quality Management services from a Quality Management service provider perspective

The arithmetic mean (\bar{x}) and standard deviation (s) of the Quality Management service providers' perspective on the importance of different attributes of Quality Management services are presented in Table 8.17.

Table 8.17: The important attributes of Quality Management services from the service provider perspective

Q	Item	Total	\bar{x}	s
Q6.10	A report on what was done and how it is now working	15	5.800	1.474
Q6.25	The way QMS are charged for makes sense	15	5.600	1.502
Q6.20	That the service provider belongs to an industry association	15	5.533	1.246
Q6.7	Frequent reports on progress	15	5.467	1.598
Q6.8	Well defined product/service options	15	5.467	1.922
Q6.11	Printed invoice explaining the various items charged for	15	5.333	1.291
Q6.26	Can people with less than 5 years' experience provide this service?	15	5.333	1.447
Q6.9	Monitoring of progress of implementation	15	5.200	1.821
Q6.18	That the customer is educated on the use of the service	15	5.067	1.831
Q6.6	Project management of intervention	15	5.000	1.852
Q6.13	The good reputation of the service provider	15	5.000	1.254
Q6.12	Impact measurement of the intervention	15	4.933	1.438
Q6.16	The track record of the service provider	15	4.933	1.907
Q6.15	The professionalism of the supporting staff	15	4.800	1.935
Q6.22	That a certificate of compliance or proof of service competence is issued	15	4.733	2.017
Q6.19	That the service provider advertises in industry or local media	15	4.600	1.957
Q6.27	This service is very dependent on the experience of the lead expert in the service firm	15	4.600	1.957
Q6.3	Different payment options for a service is important	15	4.533	1.807
Q6.14	The age of the business providing the service	15	4.533	1.995
Q6.24	It is possible to compare the service offerings of different service providers	15	4.533	2.167
Q6.4	A written contract before work starts	15	4.467	2.134
Q6.5	Performance criteria for the service	15	4.467	1.922
Q6.1	Receiving a written quote from the service provider	15	4.333	2.440
Q6.21	That the service consumer understands how the service is charged for	15	4.333	2.289
Q6.17	That the service provider provides brochures and printed material	15	4.267	1.831
Q6.23	Defining clear standards or modules for this service	15	4.200	2.178
Q6.2	Flexible service options / packages at different prices	15	4.067	2.187

Results sorted from the highest to the lowest mean (\bar{x})

In Table 8.17 the results are sorted from the highest to the lowest mean (\bar{x}). Thus the attributes identified by the Quality Management service providers with the highest

importance are shown at the top of the table, with the least important items at the bottom.

The Quality Management service providers ranked the item *A report on what was done and how it is now working* as the most important ($\bar{x} = 5.8$). *The way that QMS are charged for makes sense* ($\bar{x} = 5.6$) scored second highest. The service providers indicated that it was important for service providers to *belong to an industry association* ($\bar{x} = 5.533$). The following two items: *Frequent reports on progress must be issued* and *Well defined product or service options* were both ranked equally important with $\bar{x} = 5.467$. The next two items were also rated as equally important ($\bar{x} = 5.333$): *Printed invoice explaining the various items charged for* and *People with less than 5 years' experience cannot provide this service*.

The least important attributes according to the Quality Management service providers appear at the bottom of Table 8.17. *Flexible service options / packages at different prices*" ($\bar{x} = 4.067$) scored the lowest, followed by the defining of *Clear standards or modules for the service* in the second last position.

8.5.6.3 Comparison of the service attributes between the two groups of respondents

The complete results of Question 6 sorted according to the question numbers are presented in Table 8.18 (see Question 6 in Annexure 1).

Table 8.18: Comparison of the service attributes between the two groups of respondents

Q	QM SP			TDM			d
	Total	\bar{x}	s	Total	\bar{x}	s	
Q6.1	15	4.333	2.440	71	3.986	2.155	0.142
Q6.2	15	4.067	2.187	71	4.507	1.557	0.201
Q6.3	15	4.533	1.807	71	4.986	1.720	0.250
Q6.4	15	4.467	2.134	71	5.338	1.603	0.408
Q6.5	15	4.467	1.922	71	4.690	1.400	0.116
Q6.6	15	5.000	1.852	71	4.690	1.600	0.167
Q6.7	15	5.467	1.598	71	5.113	1.369	0.222
Q6.8	15	5.467	1.922	71	4.873	1.558	0.309
Q6.9	15	5.200	1.821	71	5.113	1.526	0.048
Q6.10	15	5.800	1.474	71	5.183	1.334	0.419
Q6.11	15	5.333	1.291	71	4.507	2.035	0.640
Q6.12	15	4.933	1.438	71	4.268	1.621	0.463
Q6.13	15	5.000	1.254	71	5.155	1.737	0.124
Q6.14	15	4.533	1.995	71	4.451	1.402	0.041
Q6.15	15	4.800	1.935	71	5.141	1.726	0.176
Q6.16	15	4.933	1.907	71	5.282	1.551	0.183
Q6.17	15	4.267	1.831	71	3.887	2.032	0.207
Q6.18	15	5.067	1.831	71	4.535	1.611	0.290
Q6.19	15	4.600	1.957	70	5.129	1.474	0.270
Q6.20	15	5.533	1.246	71	5.197	1.536	0.270
Q6.21	15	4.333	2.289	71	4.718	1.504	0.168
Q6.22	15	4.733	2.017	71	5.465	1.575	0.363
Q6.23	15	4.200	2.178	70	4.586	1.429	0.177
Q6.24	15	4.533	2.167	71	4.592	1.661	0.027
Q6.25	15	5.600	1.502	70	4.729	1.702	0.580
Q6.26	15	5.333	1.447	71	4.310	1.670	0.707
Q6.27	15	4.600	1.957	71	4.761	1.677	0.082

Table 8.18 combines the results discussed in the previous two paragraphs, and compares effect sizes. For none of the items a large effect was calculated where $d > 0.8$. From the data presented in Table 8.18 it can be seen that three items (Question 6.11, $d = 0.640$; Question 6.25; $d = 0.580$ and Question 6.26; $d = 0.707$) yielded visible effect sizes where $d \geq 0.5$.

8.6 RESULTS OF THE MARKET FAILURE ANALYSIS SECTION

The design of Section 2 of the questionnaire was informed by the different kinds of market failure described in Paragraph 3.7. Following the literature study, latent constructs were identified which are related to the performance of markets. These are:

- incomplete or asymmetrical information;
- the inadequate expression of costs or benefits of services;
- public and mixed goods;
- the use of property rights;
- sub-optimal market structures;
- externalities; and
- indivisibilities or economies of scale.

Questions were designed to test the latent constructs, each composed of various items that were carefully formulated to test for potential impediments to transactions between Quality Management service providers and tool, die and mould making firms.

For this section of the questionnaire seven-point Likert scales were used, with 1 representing *strongly disagree*, 4 representing *neutral* and 7 representing *strongly agree*. Both groups of respondents (Quality Management service providers and tool, die and mould making firms) responded to the same items. Therefore an analysis of the differences in the responses of the two groups on a per item basis may provide insight into factors or perspectives that influence their decisions regarding transactions in Quality Management services. The effect size (d) is determined by calculating the absolute difference between the means of the two groups of respondents, and then dividing the result by the larger of the two standard deviations. The equation to calculate the effect size (d) is showed below.

$$d = \frac{|\bar{X}_{SP} - \bar{X}_{TDM}|}{S_{\max}}$$

From the equation to calculate the d -value, it can be seen that the effect size is independent of sample size and is a measure of practical significance (Ellis & Steyn, 2003:51-53). When calculating the difference between means, Cohen's guidelines are used to interpret effect size: small effect: $d = 0.2$; medium effect: $d = 0.5$; and large effect: $d \geq 0.8$ (Field, 2005:32; Ellis & Steyn, 2003:51-53; Cohen, 1992:155-159). Steyn (2000:3) explains that the practical significance measure helps to determine whether the two groups of respondents differ significantly with respect to each item tested. Results with a medium effect indicate a visible difference in the responses of the two groups of respondents, while items where $d \geq 0.8$ indicate a practically significant difference in the way the two groups responded to each item.

The discussion of the results focuses on those items that yield a practically significant difference in the responses of the two groups, as the variability may indicate an impediment to transactions in Quality Management services that take place. The identified impediments result in the Quality Management marketplace not performing optimally, a situation that is described as a market failure.

Following the discussion of the effect sizes, the correlation coefficients between the different items are presented. As described in Paragraph 7.7.5, Spearman's ρ (r) is used to measure the strength of the relationships between items, and the correlation coefficient can be interpreted as follows: $|r| = 0.1$ yields a small relationship, $|r| = 0.3$ yields a medium and $|r| = 0.5$ yields a strong relationship. When interpreting the correlation between two variables, Field (2005:128) cautions that a strong relationship between two items cannot be interpreted as causal for two reasons:

- the third variable problem where another unmeasured variable may be affecting the results; and
- the direction of causality is unknown

Only items that yield a strong relationship ($r = .05$) are discussed in Paragraph 8.6.1 (Question 8) to Paragraph 8.6.8 (Question 15).

8.6.1 Question 8: Information in the marketplace

The importance of the smooth flow of information in a marketplace is discussed in Paragraph 3.7.1. The purpose of Question 8 is to gain insight into the flow and availability of information in the Quality Management service market. The insights gained from the literature study were used to formulate seven items that would measure the effects of the information flows in the Quality Management service marketplace. The formulation of the question used in the survey is given in Annexure 1, Question 8.

The calculation of the arithmetic mean (\bar{x}), standard deviation (s) and effect size (d) are presented in Table 8.19.

Table 8.19: Information flow in the Quality Management marketplace

Item	Type	<i>n</i>	\bar{x}	<i>s</i>	<i>d</i>
Q8.1 I have chosen a quality-related service offering before which did not have the impact I intended in my business	SP	15	3.067	2.890	0.023
	TDM	68	3.000	2.123	
Q8.2 It is difficult to distinguish between a good service offering and a poor offering in the marketplace	SP	15	5.067	2.344	0.245
	TDM	68	4.515	2.168	
Q8.3 It is easier for service consumers to use their current service provider than to switch to a new service provider	SP	15	5.667	1.496	0.403
	TDM	71	4.873	1.971	
Q8.4 It is better for a business to employ in-house staff than to pay for external service providers	SP	15	6.267	0.594	0.969
	TDM	71	4.197	2.136	
Q8.5 The use and impact of this quality management service are well known in the marketplace	SP	15	5.333	1.589	0.021
	TDM	71	5.366	1.376	
Q8.6 Most firms in my industry know of quality management services and their benefits	SP	15	4.467	1.552	0.656
	TDM	70	5.486	1.282	
Q8.7 It is possible to find reliable service providers in the current market	SP	15	4.600	1.724	0.036
	TDM	71	4.535	1.811	

The results of Question 8 are shown in Table 8.19. They indicate that only Question 8.4 yielded a practically significant effect ($d = 0.969$), meaning that the two groups of respondents differ significantly with respect to the item.

In Question 8.4 the Quality Management service providers on average scored a high mean and a relatively small standard deviation ($\bar{x}_{SP} = 6.267$; $s_{SP} = 0.594$), indicating that the respondents concentrated their choice at the higher end (strongly agree) of the Likert scale. The tool, die and mould making firms scored a lower average mean but with a larger standard deviation ($\bar{x}_{TDM} = 4.197$, $s_{TDM} = 2.136$), indicating that although the mean is 4.197 on the Likert scale, the spread of the responses on the scale is wider. This item yielded a practically significant effect size (large effect: $d = 0.969$).

Only Question 8.6 yielded a medium effect size ($d = 0.656$), indicating a visible effect in responses between the different groups. The effect sizes for Question 8.1 ($d = 0.023$), Question 8.2 ($d = 0.235$), Question 8.5 ($d = 0.021$) and Question 8.7 ($d = 0.036$) are small, indicating that there are small differences in the way the two groups of respondents scored the respective items. In all these questions the effect sizes were below 0.3, but the standard deviations within the two groups were often high, indicating a wide distribution of responses.

Correlation coefficient

Spearman's ρ (r) was calculated to determine the relationships between the seven items in Question 8. For the purpose of this study, only the strong correlations (relationships) ($r > 0.50$) are discussed.

The calculation of the correlation coefficients resulted in only one item with $r > 0.50$. For the service providers group, a strong relationship was identified between Question 8.2 and Question 8.3 ($r = 0.814$; $n = 15$). This indicates that the item *It is difficult to distinguish between a good service offering and a poor offering* is strongly related to the item *It is easier for service consumers to use their current service provider than to switch*.

8.6.2 Question 9: Incomplete and inaccurate information

While Question 8 tested for effects relating to the way information flows in the Quality Management service marketplace, Question 9 assesses the effects of incomplete and inaccurate information as potential inhibitors of transactions between the tool, die and mould making firms and the Quality Management service providers. The items used in the questionnaire were mainly formulated based on insights gained in Paragraph 3.7.2. For reference purposes the question can be found in Annexure 1, Question 9.

The calculation of the arithmetic mean (\bar{x}), standard deviation (s) and effect size (d) for Question 9 are presented in Table 8.20. As in Paragraph 8.6.1, the discussion of the results mainly focuses on the items that yielded a practically significant effect size ($d \geq 0.8$).

Table 8.20: Incomplete and inaccurate information in the Quality Management marketplace

Item	Group	<i>n</i>	\bar{x}	<i>s</i>	<i>d</i>
Q9.1 Many problems in my business are related and reinforce each other	SP	15	3.600	2.898	0.294
	TDM	71	2.746	1.955	
Q9.2 It has happened that the full benefit of a QM-related service did not materialise because of other problems in my business	SP	15	4.200	2.111	0.175
	TDM	71	3.831	1.875	
Q9.3 Small firms can often not answer all the questions that service providers ask about the business	SP	15	4.200	2.042	0.261
	TDM	71	4.732	2.000	
Q9.4 It is necessary sometimes to pretend to understand the other party in this kind of transaction – otherwise I look stupid	SP	15	5.467	1.598	0.798
	TDM	70	3.671	2.250	
Q9.5 I have to inflate my business performance and figures so as not to scare off the other party from entering into a contract	SP	15	5.400	1.454	1.097
	TDM	68	3.088	2.107	
Q9.6 I hide information from the other party because I do not want to reveal how much I need them	SP	15	4.467	1.885	0.889
	TDM	70	2.757	1.922	
Q9.7 It is important that a business is first properly diagnosed by the service provider before a service is provided	SP	15	5.000	1.813	0.124
	TDM	71	5.225	1.446	
Q9.8 It is difficult to prioritise the areas of my business that need attention	SP	15	3.933	2.251	0.480
	TDM	71	5.014	2.067	
Q9.9 I always check up on the referrals of the other party before transacting	SP	15	4.133	2.200	0.292
	TDM	71	4.775	1.632	

The results of Question 9 are presented in Table 8.20. They reveal that three items (Question 9.4, $d = 0.798$; Question 9.5, $d = 1.097$ and Question 9.6, $d = 0.889$) yielded practically significant effect sizes ($d \geq 0.8$), indicating a significant difference between the two groups with respect to the different items. Although the result for Question 9.4 is just below the ($d \geq 0.8$) guideline proposed by Cohen, Thompson argues that the guidelines of Cohen should be interpreted with flexibility in these instances (Thompson, 2001:80-93; Cohen, 1998; 1992:155-159).

In all three items the Quality Management service providers on average tended to agree more than the tool, die and mould making firms by scoring a higher mean (Question 9.4: $\bar{x}_{SP} = 5.467$, $s_{SP} = 1.598$; Question 9.5: $\bar{x}_{SP} = 5.400$, $s_{SP} = 1.454$; Question 9.6: $\bar{x}_{SP} = 4.467$, $s_{SP} = 1.885$). These results indicate that on average the Quality Management service providers were more inclined to hide information or exaggerate when dealing with the other party. In comparison, the mean of the tool, die and mould making respondents scored low in all three items on the Likert scale, indicating that on average they did not agree with the item (Question 9.4: $\bar{x}_{TDM} = 3.671$, $s_{TDM} = 2.250$; Question 9.5: $\bar{x}_{TDM} = 3.088$, $s_{TDM} = 2.107$; Question 9.6: $\bar{x}_{TDM} = 2.757$, $s_{TDM} = 1.922$).

Correlation coefficient

Spearman's ρ (r) was calculated to determine the relationships between the nine items in Question 9. For the purpose of this study, only the strong correlations (relationships) ($r > 0.50$) are discussed.

From the tool, die and mould making firms' perspective the following strong relationships between items were calculated:

- *It is necessary sometimes to pretend to understand the other party in this kind of transaction – otherwise I look stupid* (Question 9.4) yielded a strong relationship ($r = 0.615$; $n = 67$) with *I have to inflate my business performance and figures so as not to scare off the other party from entering into a contract* (Question 9.5). Question 9.4 also yielded a strong relationship ($r = 0.627$; $n = 69$) with *I hide information from the other party because I do not want to reveal how much I need them* (Question 9.6).
- *I have to inflate my business performance and figures so as not to scare off the other party from entering into a contract* (Question 9.5) yielded a strong relationship ($r = 0.646$; $n = 67$) with *I hide information from the other party because I do not want to reveal how much I need them* (Question 9.6).

From the Quality Management service providers' perspective, the following strong relationships between items were calculated:

- *Many problems in my business are related and reinforce each other* (Question 9.1) yielded a strong relationship ($r = -0.6$; $n = 15$) with *It is necessary sometimes to pretend to understand the other party in this kind of transaction – otherwise I look stupid* (Question 9.4).
- *It has happened that the full benefit of a Quality Management-related service did not materialise because of other problems in my business* (Question 9.2) yielded a strong relationship ($r = -0.563$, $n = 15$) with *I hide information from the other party because I do not want to reveal how much I need them* (Question 9.6).
- *Small firms can often not answer all the questions that service providers ask about the business* (Question 9.3) yielded a strong relationship ($r = -0.535$; $n = 15$) with *I always check up on the referrals of the other party before transacting* (Question 9.9).
- *It is necessary sometimes to pretend to understand the other party in this kind of transaction – otherwise I look stupid* (Question 9.4) yielded a strong relationship ($r = 0.652$; $n = 15$) with *I hide information from the other party because I do not want to reveal how much I need them* (Question 9.6).
- *It is difficult to prioritise the areas of my business that need attention* (Question 9.8) yielded a strong relationship ($r = 0.592$; $n = 15$) with *I always check up on the referrals of the other party before transacting* (Question 9.9).

8.6.3 Question 10: Trust in the marketplace

In the literature study it was established (see Paragraph 3.7) that the ability of different parties to trust each other affects the willingness of the parties to engage in a transaction. Eight items were formulated to test for effects that would indicate that the tool, die and mould making firms and Quality Management service providers did not trust each other, thus affecting their interest in transacting with each other.

The calculation of the arithmetic mean (\bar{x}), standard deviation (s), and effect size (d) for Question 10 is presented in Table 8.21.

Table 8.21: Trust in the Quality Management marketplace

Statement	Group	<i>n</i>	\bar{x}	<i>s</i>	<i>d</i>
Q10.1 There is a risk that the other party to this transaction could share my business secrets with my competitors	SP	15	4.133	2.949	0.365
	TDM	71	3.056	2.144	
Q10.2 Service providers must hide their techniques and methods from their customers, otherwise they will not be needed any more	SP	15	5.267	1.870	0.956
	TDM	71	3.239	2.121	
Q10.3 I trust the trading partners to be honest about their ability to transact in a mutually beneficial way	SP	15	6.000	0.845	0.374
	TDM	71	5.507	1.319	
Q10.4 I would prefer it if the other party signed a confidentiality agreement	SP	15	4.733	2.549	0.348
	TDM	71	5.620	1.743	
Q10.5 Service providers that are bound by a code of conduct are more likely to get more business	SP	15	3.600	1.502	0.820
	TDM	71	5.000	1.707	
Q10.6 Service providers can be trusted to provide the right solutions to small firms	SP	15	4.667	1.047	0.202
	TDM	71	4.972	1.52	
Q10.7 Service providers that offer written contracts with timelines and budgets get more business	SP	15	4.600	1.404	0.209
	TDM	71	4.944	1.647	
Q10.8 Service providers often attempt to sell firms services that they do not need	SP	15	5.200	1.821	0.818
	TDM	71	3.634	1.914	

The results presented in Table 8.21 show that three items yielded large effect sizes where $d \geq 0.8$ (Question 10.2, $d=0.956$; Question 10.5, $d = 0.820$; and Question 10.8, $d = 0.818$). The large effects of these three items are practically significant and therefore of practical importance for this study.

Question 10.2 probed whether respondents felt it was necessary for service providers to hide their methods from their customers otherwise they would not be needed any more. On average, the mean of the Quality Management service providers is higher ($\bar{x}_{SP} = 5.267$; $s_{SP} = 1.87$) compared to the low mean of the tool, die and mould making firms ($\bar{x}_{TDM} = 3.239$; $s_{TDM} = 2.12$). This result can be interpreted to mean that the service providers on average believed that it was necessary to hide their methods from their customers in order to remain contracted (needed), while the

tool, die and mould making firms tended to disagree with this item. The effect size for this item is practically significant with $d = 0.956$.

In Question 10.5 the average score of the Quality Management service providers is lower ($\bar{x}_{SP} = 3.600$; $s_{SP} = 1.502$) than the average mean of the tool, die and mould making respondents ($\bar{x}_{TDM} = 5.00$; $s_{TDM} = 1.707$). The practically significant effect size is large ($d = 0.820$). This is interpreted to mean that the tool, die and mould making firms tended to agree that *Service providers bound by a code of conduct are more likely to get more business*, while the service providers tended not to agree with the item. The result of the effect size calculation yielded a large result ($d = 0.820$) which is considered to be practically significant.

The last item with a large effect is Question 10.8, where the practically significant effect is $d = 0.818$. The Quality Management service providers on average tended to agree that *Quality Management service providers often attempt to sell small firms services that they do not need* ($\bar{x}_{SP} = 5.200$; $s_{SP} = 1.821$). The tool, die and mould making firms on average did not to agree with the item ($\bar{x}_{TDM} = 3.634$; $s_{TDM} = 1.914$).

Correlation coefficient

Spearman's *rho* (r) was calculated to determine the relationships between the nine items in Question 10. For the purpose of this study, only the strong correlations (relationships) ($r > 0.50$) are discussed.

From the tool, die and mould making firms' perspective, no strong relationships were calculated between the items in Question 10.

The calculation of correlation coefficients for the Quality Management service providers yielded the following results:

- *There is a risk that the other party to this transaction could share my business secrets with my competitors* (Question 10.1) yielded a strong relationship ($r = -0.530$; $n = 15$) with *I would prefer it if the other party signed a confidentiality agreement* (Question 10.4);
- *There is a risk that the other party to this transaction could share my business secrets with my competitors* (Question 10.1) yielded a strong relationship ($r = -0.440$; $n = 15$) with *Service providers that are bound by a code of conduct are more likely to get more business* (Question 10.5);
- *Service providers must hide their techniques and methods from their customers otherwise they will not be needed* (Question 10.2) yielded a strong relationship ($r = -0.525$; $n = 15$) with *Service providers that are bound by a code of conduct are more likely to get more business* (Question 10.5).

8.6.4 Question 11: Externalities

Externalities are outside forces that affect the ability or willingness of different parties to transact with each other. Based on Paragraph 3.7.7 and Paragraph 3.7.4, seven items were formulated to determine whether there were external effects that influenced the Quality Management service marketplace.

The calculation of the arithmetic mean (\bar{x}), standard deviation (s), and effect size (d) for Question 11 are presented in Table 8.22.

Table 8.22: Externalities in the Quality Management marketplace

Item	Group	<i>n</i>	\bar{x}	<i>s</i>	<i>d</i>
Q11.1 When other firms use this service my firm also benefits even if I do not use it myself (indirect benefit)	SP	15	3.600	2.586	0.204
	TDM	71	4.127	1.912	
Q11.2 Staff that interact intensively with these service providers are developed and become more valuable	SP	15	6.267	1.033	0.498
	TDM	71	5.465	1.611	
Q11.3 It is more beneficial to train staff internally (on the job) than to send them on formal training	SP	15	6.333	0.900	0.971
	TDM	71	4.085	2.316	
Q11.4 It is cheaper to poach experienced staff members than to train them internally	SP	15	5.600	1.183	1.115
	TDM	71	3.338	2.028	
Q11.5 It is possible to imitate what other firms are doing without having to undergo a difficult learning process	SP	15	5.000	2.330	0.339
	TDM	71	4.211	1.949	
Q11.6 The behaviour of other firms in this marketplace impacts on my firm negatively	SP	15	4.533	2.200	0.351
	TDM	71	3.761	1.848	
Q11.7 The more firms in my industry that use this service, the more competitive we all become	SP	15	5.133	1.642	0.050
	TDM	71	5.225	1.845	

The discussion of the results presented in Table 8.22 focus on the two items that yielded large effect sizes where $d \geq 0.8$ (Question 11.3; $d = 0.971$ and Question 11.4; $d = 1.115$). These two items are considered to be of practical significance for this study, as the large effect indicates a difference in the way the two groups responded to the respective items.

Question 11.3 tested whether participants agreed that *It is more beneficial to train staff internally than to send them on formal training*. The mean of the Quality Management service providers is high on the Likert scale ($\bar{x}_{SP} = 6.333$; $s_{SP} = 0.900$), indicating that they agreed that is more beneficial to train staff internally, while the tool, die and mould making firms scored a lower mean ($\bar{x}_{TDM} = 4.085$; $s_{TDM} = 2.316$), indicating disagreement with the item. The calculation of Cohen's d yielded a large effect ($d = 0.97$), indicating a practically significant difference in the responses of the two groups of respondents.

The Quality Management service providers tended to agree ($\bar{x}_{SP} = 5.6$; $s_{SP} = 1.183$) with the item *It is cheaper to poach experienced staff member than to train them internally* (Question 11.4). The tool, die and mould making firms on average tended to disagree ($\bar{x}_{TDM} = 3.338$; $s_{TDM} = 2.028$), indicating that they preferred rather to train staff internally. The calculation of the effect size for this item is large ($d = 1.115$), indicating a practically significant result.

Correlation coefficient

Spearman's *rho* (r) was calculated to determine the relationships between the nine items in Question 11. For the purpose of this study, only the strong correlations (relationships) ($r > 0.50$) are discussed.

From the tool, die and mould making firms' perspective it was found that:

- *When other firms use this service my firm also benefits even if I do not use it myself (indirect benefit)* (Question 11.1) yielded a strong relationship ($r = -0.573$; $n = 71$) with *The behaviour of other firms in this marketplace impacts on my firm negatively* (Question 11.6);
- a strong relationship ($r = 0.655$; $n = 71$) was calculated between *It is more beneficial to train staff internally (on the job) than to send them on formal training* (Question 11.3) and *It is cheaper to poach experienced staff members than to train them internally* (Question 11.4); and
- *It is cheaper to poach experienced staff members than to train them internally* (Question 11.4) yielded a strong relationship ($r = 0.542$; $n = 71$) with *The behaviour of other firms in this marketplace impacts on my firm negatively* (Question 11.6)).

For the Quality Management Service providers, the following correlations were detected:

- *When other firms use this service my firm also benefits even if I do not use it myself* (Question 11.1) yielded a strong relationship ($r = -0.565$; $n = 15$) with *Staff that interact intensively with these service providers are developed and become more valuable* (Question 11.2); and
- a strong relationship ($r = -0.598$; $n = 15$) was calculated between *When other firms use this service my firm also benefits even if I do not use it myself (indirect benefit)* (Question 11.1) and *It is more beneficial to train staff internally (on the job) than to send them on formal training* (Question 11.3).

8.6.5 Question 12: Indivisibilities and transaction costs

Indivisibilities are described in Paragraph 3.7.6 as situations where the market could overcome a large cost barrier, but where the economies of scale and risks are large, resulting in underinvestment. Transaction costs are described in Paragraph 3.7.3 as a phenomenon related to indivisibilities which occur in situations where there are high entry barriers or transaction costs that inhibit transactions. Indivisibilities and high transaction costs may hamper transactions or lead to underinvestment in Quality Management by tool, die and mould making firms and Quality Management service providers. Question 12 comprises twelve items that were formulated to test for the presence of high transaction costs and indivisibilities.

The calculation of the arithmetic mean (\bar{x}), standard deviation (s), and effect size (d) for Question 12 are presented in Table 8.23. Only items that generate large effect sizes ($d \geq 0.8$) are discussed, as they indicate a practically significant difference between the responses of the two groups with respect to the respective items.

Table 8.23: Indivisibilities and transaction costs in the Quality Management marketplace

Item	Group	<i>n</i>	\bar{x}	<i>s</i>	<i>d</i>
Q12.1 The duration to recover the cost of using QMS determines whether firms use it	SP	15	2.000	1.852	0.803
	TDM	71	3.535	1.911	
Q12.2 Without the right equipment a firm cannot benefit from this service	SP	15	6.067	1.668	0.317
	TDM	71	5.465	1.896	
Q12.3 Using the service takes too much time and energy of the business owner or senior manager	SP	15	6.600	0.828	1.547
	TDM	71	3.930	1.726	
Q12.4 Only an expert with high qualifications can provide this service	SP	15	5.733	1.033	0.496
	TDM	70	4.986	1.508	
Q12.5 Firms prefer to buy from service providers that offer customised solutions with different payment options	SP	15	5.867	0.743	0.717
	TDM	71	4.831	1.444	
Q12.6 If I could afford a better service provider I would switch immediately	SP	15	4.800	2.042	0.474
	TDM	70	3.814	2.080	
Q12.7 The cost of learning to use this service is high	SP	15	4.600	1.404	0.517
	TDM	71	3.690	1.761	
Q12.8 The cost of providing this service is high	SP	15	4.667	1.915	0.493
	TDM	71	3.704	1.952	
Q12.9 A written quote helps to clarify what the impact and requirements of a service are	SP	15	4.733	1.907	0.214
	TDM	71	5.141	1.505	
Q12.10 It takes a while to get the full benefit of this service	SP	15	5.133	1.846	0.293
	TDM	71	4.592	1.801	
Q12.11 It is very time consuming for me to find reliable transacting partners for this service	SP	15	4.533	1.959	0.553
	TDM	71	3.451	1.873	
Q12.12 Many smaller firms do not have enough cash flow to use this service frequently	SP	15	5.400	1.502	0.452
	TDM	71	4.493	2.006	

From the results of Question 12 presented in Table 8.23, only two questions (Question 12.1; $d = 0.803$ and Question 12.3; $d = 1.547$) yielded large effect sizes

where $d \geq 0.8$. The large effect sizes calculated for Question 12.1 and Question 12.3 indicate a practical significance and are therefore relevant to this study.

The item in Question 12.1 was formulated to test whether the two groups of respondents believed that the cost recovery time of the service influenced whether firms used the service or not. On average both groups of respondents scored low means, indicating that they did not agree with the item ($\bar{x}_{SP} = 2.000$; $s_{SP} = 1.852$; $\bar{x}_{TDM} = 3.535$; $s_{TDM} = 1.911$). The mean of the Quality Management service providers was low on the Likert scale, while the tool, die and mould making firms had a higher average mean. The d -value is large ($d = 0.803$), indicating a practically significant difference in the responses of the two groups.

In Question 12.3 the respondents had to indicate whether the Quality Management service took too much time and energy of the decision maker or the business owner. The service providers on average agreed that the Quality Management service took too much time and energy of decision makers ($\bar{x}_{SP} = 6.600$; $s_{SP} = 3.926$), while the tool, die and mould making firms tended to disagree with the item ($\bar{x}_{TDM} = 3.930$; $s_{TDM} = 1.765$). The large standard deviation of the service providers indicates a wide variation in their responses. The effect size calculated for this item is large ($d = 1.547$), indicating a practically significant effect size.

Correlation coefficient

Spearman's ρ (r) was calculated to determine the relationships between the twelve items in Question 12. For the purpose of this study only the strong relationships where $r > 0.50$ are discussed.

From the tool, die and mould making firms' perspective it was found that a strong relationship ($r = 0.669$; $n = 71$) exists between the items *The cost of learning to use this service is high* (Question 12.7) and *The cost of providing this service is high* (Question 12.8).

From the Quality Management service providers' perspective it was found that:

- Question 12.1 yielded more than one strong relationship with other items. *The duration to recover the cost of using QMS determines whether firms use it* (Question 12.1) yielded a strong relationship ($r = -0.606$; $n = 15$) with *Without the right equipment a firm cannot benefit from this service* (Question 12.2). Question 12.1 also yielded a strong relationship ($r = 0.654$; $n = 15$) with *It is very time consuming for me to find reliable transacting partners for this service* (Question 12.11) and another strong relationship ($r = 0.519$; $n = 15$) with *Many smaller firms do not have enough cash flow to use this service frequently* (Question 12.12).
- *Without the right equipment a firm cannot benefit from this service* (Question 12.2) yielded a strong relationship ($r = 0.602$; $n = 15$) with *Firms prefer to buy from service providers that offer customised solutions with different payment options* (Question 12.5) and a strong relationship ($r = -0.526$; $n = 15$) with *The cost of providing this service is high* (Question 12.8).
- *Only an expert with high qualifications can provide this service* (Question 12.4) yielded a strong relationship ($r = 0.634$; $n = 15$) with *Firms prefer to buy from service providers that offer customised solutions with different payment options* (Question 12.5).
- *It takes a while to get the full benefit of this service* (Question 12.10) yielded a strong relationship ($r = 0.588$; $n = 15$) with *Many smaller firms do not have enough cash flow to use this service frequently* (Question 12.12).
- *It is very time consuming for me to find reliable transacting partners for this service* (Question 12.11) yielded a strong relationship ($r = 0.543$; $n = 15$) with *Many smaller firms do not have enough cash flow to use this service frequently* (Question 12.12).

8.6.6 Question 13: Sub-optimal market structures

In Paragraph 3.7.5 sub-optimal market structures were discussed where there are concentrations in market power in the form of monopoly or oligopoly structures. These sub-optimal market structures affect new market entry, market innovation, productivity improvement and value creation. Question 13 comprises six items that

were formulated to test for different symptoms that indicate the presence of sub-optimal market structures.

The calculation of the arithmetic mean (\bar{x}), standard deviation (s), and effect size (d) of Question 13 are presented in Table 8.24. Only the results of the items that yielded a large effect size ($d \geq 0.8$) are relevant to this study, as these effects indicate a practically significant difference in the way the two groups responded with respect to the variable.

Table 8.24: Monopoly and oligopoly behaviour in the Quality Management service marketplace

Item	Group	n	\bar{x}	s	d
Q13.1 In this market there are only a few players who influence what is provided and what is used	SP	15	3.400	2.922	0.099
	TDM	71	3.690	2.315	
Q13.2 There are people that are preventing new service providers from entering the market	SP	15	5.667	1.589	0.234
	TDM	71	5.225	1.884	
Q13.3 There are many service providers to choose from	SP	15	5.667	1.633	0.402
	TDM	71	4.831	2.077	
Q13.4 All service providers sell more or less the same services	SP	15	5.667	1.113	0.881
	TDM	71	4.127	1.748	
Q13.5 All customers demand more or less the same services from their service providers	SP	15	4.867	2.386	0.463
	TDM	71	3.761	1.901	
Q13.6 There is a need for more diverse service offerings in this market	SP	15	4.600	1.805	0.456
	TDM	71	5.423	1.627	

The results in Table 8.24 show that only Question 13.4 ($d = 0.881$) yielded a large effect size where $d \geq 0.8$. Therefore only the result of Question 13.4 is practically significant and relevant to this study.

Question 13.4 was formulated to imply that *All service providers sell more or less the same services* ($d = 0.881$). On average, the Quality Management service providers

tended to agree with this item by scoring a high mean ($\bar{x}_{SP} = 5.667$; $s_{SP} = 1.113$). The tool, die and mould making firms also agreed with the item, but had a lower mean ($\bar{x}_{TDM} = 4.127$; $s_{TDM} = 1.748$). The result of the effect size calculation is large ($d = 0.881$) and indicates a practically significant difference in the results of the two groups of respondents.

Correlation coefficient

Spearman's *rho* (r) was calculated to determine the relationships between the six items in Question 13. Only the results where $r = 0.5$ are discussed below, as this would indicate a strong relationship between items.

The tool, die and mould making firms did not yield any strong correlation coefficients where $r = 0.5$.

From the results of the Quality Management service providers, the following relationships were determined:

- *In this market there are only a few players who influence what is provided and what is used* (Question 13.1) yielded a strong relationship ($r = -0.509$; $n = 15$) with *There are people that are preventing new service providers from entering the market* (Question 13.2).
- A strong relationship ($r = 0.549$; $n = 15$) exists between *There are people that are preventing new service providers from entering the market* (Question 13.2) and *There are many service providers to choose from* (Question 13.3).
- *There are many service providers to choose from* (Question 13.3) yielded a strong relationship ($r = 0.370$, $n = 15$) with *All customers demand more or less the same services from their service providers* (Question 13.5).

8.6.7 Question 14: Intellectual and other property rights

The importance of property rights in the functioning of markets is discussed in the literature study in Paragraph 3.7.1. Intellectual rights and copyrights are two variations of property rights that allow investors to use property rights to raise finance or to exchange, trade or transfer the property rights. Fear of not being able to protect

property rights, or the inability to fully capitalise on various property rights, undermines the optimal performance of a marketplace, often resulting in underinvestment or over-protection. Based on the literature study, four items were formulated to test whether intellectual and other property rights were protected in the Quality Management service marketplace.

The calculation of the arithmetic mean (\bar{x}), standard deviation (s), and effect size (d) of Question 14 are presented in Table 8.25. Only the items yielding a large effect size ($d \geq 0.8$) are considered to be of practical significance and are discussed after Table 8.25.

Table 8.25: Contingency table of the results of Question 14

Item	Group	n	\bar{x}	s	d
Q14.1 My firm has assets that can be used for collateral in order to access finance	SP	15	2.733	2.187	1.010
	TDM	71	5.085	2.328	
Q14.2 My firm uses patents and copyright laws to protect its assets	SP	15	5.333	1.447	0.167
	TDM	70	5.014	1.907	
Q14.3 There are patents and intellectual property rights that prevent my firm from expanding or competing	SP	15	5.200	1.147	0.777
	TDM	71	3.718	1.907	
Q14.4 There is a possibility that my staff can use my methods and approaches to start a rival firm despite intellectual and property rights and copyrights	SP	15	5.267	1.944	1.012
	TDM	71	3.113	2.128	

The results for Question 14 are presented in Table 8.25. They indicate that only Question 14.1 ($d = 1.010$) and Question 14.4 ($d = 1.012$) yielded large effects ($d \geq 0.8$), indicating a practically significant difference in the responses of the two groups. According to Thomson (2001:80-93), cases such as Question 14.3 ($d = 0.777$) where the result is close to the Cohen guideline should be interpreted with flexibility, therefore the results will also be discussed as it is close to the $d \geq 0.8$ guideline.

Question 14.1 is formulated to test whether the participating firms had assets that could be used as collateral to access finance. The mean (\bar{x}) of the Quality Management service providers is at the lower end of the Likert scale, and the result is interpreted to mean that the service did not agree with the item ($\bar{x}_{SP} = 2.733$; $s_{SP} = 2.187$). The tool, die and mould making firms on average agreed with the item as they scored a higher mean on the scale, albeit with a higher standard deviation ($\bar{x}_{TDM} = 5.085$; $s_{TDM} = 2.328$). The item yielded a large effect size ($d = 1.010$), which is considered to be of practical significance for this study and indicates a large difference between the responses of the two groups.

Question 14.3 probed to see whether the respondents were prevented from expanding or competing by intellectual or property rights. The Quality Management service providers scored a high means ($\bar{x}_{SP} = 5.200$; $s_{SP} = 1.147$), indicating that they were affected by intellectual rights. The tool, die and mould making firms did not agree with the item ($\bar{x}_{TDM} = 3.718$; $s_{TDM} = 1.907$).

The item in Question 14.4 is formulated to test the risk of staff from the respondents copying the methods and approaches and then competing with the participating firms. On average, the Quality Management service providers agreed with this item ($\bar{x}_{SP} = 5.267$; $s_{SP} = 1.944$), indicating that they faced this risk. The tool, die and mould making firms scored a lower mean on the Likert scale, indicating that they did not agree with the item ($\bar{x}_{TDM} = 3.113$; $s_{TDM} = 2.128$). The effect size for this item is large with $d = 1.012$, indicating a practically significant effect in the difference of responses of the two groups of respondents.

Correlation coefficient

Spearman's *rho* (r) was calculated to determine the relationships between the four items in Question 14. As in the preceding paragraphs, only the items where $r = 0.5$, which indicates a strong relationship between items, are considered relevant to this study.

For the Quality Management service providers, a strong relationship ($r = -0.804$; $n = 15$) was calculated between the item *My firm has assets that can be used for*

collateral in order to access finance (Question 14.1) and *There is a possibility that my staff can use my methods and approaches to start a rival firm despite intellectual and property rights and copyrights* (Question 14.4).

In the data of the tool, die and mould making firms it was found that a strong relationship ($r = -0.549$; $n = 71$) existed between *My firm has assets that can be used for collateral in order to access finance* (Question 14.1) and the item *There is a possibility that my staff can use my methods and approaches to start a rival firm despite intellectual and property rights and copyrights* (Question 14.4).

8.6.8 Question 15: Public goods and mixed goods

The role of public and mixed goods in the performance of markets is discussed in Paragraph 3.7.4. Furthermore, as discussed in Paragraph 4.3.2, it was found that business services (such as Quality Management services) are often prone to market interference in the form of subsidies or direct competition with markets by the state. However, many markets depend on public goods and mixed goods provided by the state, tertiary institutions, business membership organisations and other institutions to function properly.

This question comprises fourteen items formulated to test whether this service market is adequately supported by public and mixed goods, or whether the public goods provided by the state and other organisations are undermining the functioning of the Quality Management marketplace. Some of the items were formulated to determine what kind of public and mixed goods the two populations in the study receive in order to stimulate transactions between the Quality Management service providers and the tool, die and mould making firms.

The calculation of the arithmetic mean (\bar{x}), standard deviation (s), and effect size (d) for Question 15 are presented in Table 8.26. Only items that yielded a large effect sizes ($d \geq 0.8$) are discussed, as this would indicate a practically significant difference in the way that the two groups responded to a specific item.

Table 8.26: The performance of public and mixed goods in the Quality Management marketplace

Item	Group	n	\bar{x}	s	d
Q15.1 There is at least one public information source that I use to stay up to date with the latest QMS products and services for my business	SP	15	4.000	2.878	0.098
	TDM	71	4.282	1.914	
Q15.2 Current information sources in the QMS marketplace are too generic for my business	SP	15	5.867	1.457	0.981
	TDM	71	4.070	1.831	
Q15.3 I know of at least one incentive scheme or support programme for my industry that is useful that promotes the use of better quality management	SP	15	5.533	1.552	0.259
	TDM	71	5.113	1.626	
Q15.4 The government is adequately promoting the growth and performance of the QM services Market	SP	15	2.800	1.656	0.613
	TDM	71	4.070	2.072	
Q15.5 The QM advice provided by a university, business advice centre or local government is useful to my firm	SP	15	3.333	1.397	0.761
	TDM	71	4.746	1.857	
Q15.6 Small firms cannot really become more competitive if they depend on the generic services of government-sponsored agencies	SP	15	5.533	1.995	0.715
	TDM	71	3.972	2.184	
Q15.7 BMOs play an important role in connecting QM service providers and firms	SP	15	3.800	2.007	0.612
	TDM	71	5.028	1.621	
Q15.8 The professional body representing the QMS industry can assist me with general information on the service	SP	15	4.667	2.289	0.343
	TDM	71	5.451	1.274	
Q15.9 There are websites and other media available that assist me to identify and contract relevant QM service providers	SP	15	5.067	1.831	0.698
	TDM	71	3.789	1.820	
Q15.10 Service providers that adhere to certain Quality Management standards such as ISO, etc. provide better service	SP	15	3.933	2.219	0.747
	TDM	71	5.592	1.283	
Q15.11 The public or subsidised agencies provide goods of a similar value at a lower price than private sector service providers	SP	15	5.067	1.668	0.738
	TDM	70	3.600	1.988	
Q15.12 The needs of my industry are promoted to QM service providers adequately	SP	15	4.933	1.100	0.071
	TDM	71	5.042	1.525	
Q15.13 QMS providers that specialise in my industry provide me with better services	SP	15	4.133	1.807	0.721
	TDM	71	5.437	1.619	
Q15.14 Tertiary institutes play an important role in the QMS marketplace by providing relevant skills and information	SP	15	3.600	2.197	0.558
	TDM	69	4.826	1.553	

The results in Table 8.26 reveal that only Question 15.2 yielded a practically significant effect size with $d = 0.981$.

Question 15.2 is formulated to test whether the current information sources in the Quality Management service marketplace are too generic to be of use for the participating firms. The Quality Management service providers scored a high mean ($\bar{x}_{SP} = 5.867$; $s_{SP} = 1.457$), indicating that for them the information sources are too generic. The tool, die and mould making firms scored a lower mean, indicating a response between neutral and disagreement ($\bar{x}_{TDM} = 4.070$; $s_{TDM} = 1.831$). The calculation of the effect size for this item yielded a large result, $d = 0.981$, indicating a practically significant difference in the way the two groups responded to the item.

Correlation coefficient

Spearman's *rho* (r) was calculated to determine the relationships between the 14 items in Question 15. For the purpose of this study, only the strong correlations (relationships) ($r > 0.50$) are discussed, as this indicates a strong relationship between two variables.

There were no items that yielded strong relationships ($r = 0.5$) from the perspective of the tool, die and mould making firms.

For the Quality Management service providers the following relationships were identified:

- *Current information sources in the QMS marketplace are too generic for my business* (Question 15.2) yielded a strong relationship ($r = 0.540$; $n_{SP} = 15$) with *Tertiary institutions play an important role in the QMS marketplace by providing relevant skills and information* (Question 15.14).
- There is a strong relationship ($r = 0.900$; $n_{SP} = 15$) between *The government is adequately promoting the growth and performance of the QM services market* (Question 15.4) and *The QM advice provided by a university, business advice centre or local government is useful to my firm* (Question 15.5).
- *Business Membership Organisations play an important role in connecting QM service providers and firms* (Question 15.7) yielded a strong relationship

($r = 0.631$; $n_{SP} = 15$) with *I know of at least one incentive scheme or support programme for my industry that is useful that promotes the use of better quality management* (Question 15.3).

- There is a strong relationship between Question 15.9 and Question 15.12 ($r = -0.712$; $n_{SP} = 15$), indicating that the item *There are websites and other media available that assist me to identify and contract relevant QM service providers* is correlated with *The needs of my industry are promoted to QM service providers adequately*.

8.6.9 Large effects detected in the market failure analysis

The discussion of the results of this section concentrated on items with practically significant effect sizes, as the variability may indicate an impediment to transactions in Quality Management services that take place. The identified impediments result in the Quality Management marketplace not performing optimally, a situation that is described as a market failure. All the items that yielded practically significant effect sizes ($d \geq 0.8$) in Question 8 to Question 15 are listed in Table 8.28. Question 14.3 was at the margin of the guideline proposed by Cohen, and was included in the discussion as Thompson (2001:80-93) argued that Cohen's guideline should be interpreted with flexibility.

Table 8.27: Practically significant results of market failure analysis

Item	Group	n	\bar{x}	s	d
Q8.4 It is better for a business to employ in-house staff than to pay for external service providers	SP	15	6.267	0.594	0.969
	TDM	71	4.197	2.136	
Q9.4 It is necessary sometimes to pretend to understand the other party in this kind of transaction – otherwise I look stupid	SP	15	5.467	1.598	0.798
	TDM	70	3.671	2.250	
Q9.5 I have to inflate my business performance and figures so as not to scare off the other party from entering into a contract	SP	15	5.400	1.454	1.097
	TDM	68	3.088	2.107	
Q9.6 I hide information from the other party because I do not want to reveal how much I need them	SP	15	4.467	1.885	0.889
	TDM	70	2.757	1.922	
Q10.2 Service providers must hide their techniques and methods from their customers, otherwise they will not be needed any more	SP	15	5.267	1.870	0.956
	TDM	71	3.239	2.121	
Q10.5 Service providers that are bound by a code of conduct are more likely to get more business	SP	15	3.600	1.502	0.820
	TDM	71	5.000	1.707	
Q10.8 Service providers often attempt to sell firms services that they do not need	SP	15	5.200	1.821	0.818
	TDM	71	3.634	1.914	
Q11.3 It is more beneficial to train staff internally (on the job) than to send them on formal training	SP	15	6.333	0.900	0.971
	TDM	71	4.085	2.316	
Q11.4 It is cheaper to poach experienced staff members than to train them internally	SP	15	5.600	1.183	1.115
	TDM	71	3.338	2.028	
Q12.1 The duration to recover the cost of using QMS determines whether firms use it	SP	15	2.000	1.852	0.803
	TDM	71	3.535	1.911	
Q12.3 Using the service takes too much time and energy of the business owner or senior manager	SP	15	6.600	0.828	1.547
	TDM	71	3.930	1.726	
Q13.4 All service providers sell more or less the same services	SP	15	5.667	1.113	0.881
	TDM	71	4.127	1.748	
Q14.1 My firm has assets that can be used for collateral in order to access finance	SP	15	2.733	2.187	1.010
	TDM	71	5.085	2.328	
Q14.3 There are patents and intellectual property rights that prevent my firm from expanding or competing	SP	15	5.200	1.147	0.777
	TDM	71	3.718	1.907	
Q14.4 There is a possibility that my staff can use my methods and approaches to start a rival firm despite intellectual and property rights and copyrights	SP	15	5.267	1.944	1.012
	TDM	71	3.113	2.128	
Q15.2 Current information sources in the QMS marketplace are too generic for my business	SP	15	5.867	1.457	0.981
	TDM	71	4.070	1.831	

From the results in Table 8.27 it is visible that seven items with practically significant items are located in the latent constructs of Question 8, Question 9 and Question 10. All three these questions analyse different aspects of information asymmetry, namely: information flows (Question 8), adverse selection due to poor information (Question 9), and trust (Question 10).

8.7 RESULTS OF MARKET DESIGN AND FUNCTIONING SECTION

Section 3 of the questionnaire is more abstract and evaluates the overall performance of the Quality Management service marketplace in a holistic manner.

8.7.1 Total performance of the marketplace

The first question (Question 16) in Section 3 of the questionnaire consisted of six items that were formulated based on the discussion in Paragraph 3.5.1. The purpose of Question 16 is to analyse the existence of the overall preconditions of a functioning market described by McMillan (2002:5) and Rodrik (2000:5-10). In Question 16.1 to Question 16.5 a five-point Likert scale is used, with 1 being *weak* and 5 being *strong*. For Question 16.6 an item with a *true / false* choice was used. The calculation of the arithmetic mean (\bar{x}), standard deviation (s), and effect size (d) for Question 16.1 to Question 16.5 are presented in Table 8.28. The results of Question 16.6 are discussed after the discussion of the results of the first five items.

Table 8.28: Total performance of the marketplace

Item	Group	<i>n</i>	\bar{x}	<i>s</i>	<i>d</i>
Q16.1 Legal recourse in case another party does not keep to the agreement	SP	15	3.267	1.486	0.056
	TDM	71	3.183	1.376	
Q16.2 The way information flows in the marketplace between the various players	SP	15	4.000	1.000	0.326
	TDM	71	3.563	1.339	
Q16.3 The ability of service providers and service consumers to trust each other	SP	15	4.067	1.163	0.450
	TDM	70	3.543	0.912	
Q16.4 The competitiveness of the Quality Management service marketplace	SP	15	3.733	1.387	0.054
	TDM	68	3.809	0.966	
Q16.5 The ability of the transacting parties to protect their assets and copyrights	SP	15	4.000	1.069	0.156
	TDM	71	4.169	1.082	

In Table 8.28 it is clear that none of the items yielded a large effect size with $d \geq 0.8$, indicating that although there are differences in the means of the two groups of respondents, the effects are not practically significant.

Question 16.6 was the last item in Question 16, and respondents had to choose between *true* and *false* when responding to the statement *In this market demand is met by supply*. The result is presented in Table 8.29.

Table 8.29: Demand is met by supply in the QMS marketplace

Item	QM SP			TDM firm			<i>w</i>
	True	False	Total	True	False	Total	
Q16.6 In this market demand is met by supply	12	3	15	53	15	68	0.019
	80.00%	20.00%	100.00%	77.94%	22.06%	100%	

The results in Table 8.29 show that the majority of service providers (80%) and tool, die and mould making firms (77.94%) selected *true*, indicating that on average both groups of respondents felt that in the Quality Management service marketplace *demand* was being met by *supply*. The result of the effect size calculation is small with $w = 0.019$.

8.7.2 Market signals in the QMS marketplace

The importance of signals in the performance of marketplaces is elaborated upon in Paragraph 3.9.8, with several other references to signals as means to reduce the cost of transactions discussed under different sub-headings in Paragraph 3.7. The literature study informed the formulation of five items that represent different signals that communicate good value in the Quality Management service marketplace (see Annexure 1, Question 17). In Question 17, the respondents had to rank the five signals listed in the questionnaire in order of most important to least important.

The five signals that communicate good value in the Quality Management service market place are:

- the price of the product or service;
- the promotional activities of the Quality Management service provider;
- guarantees provided by the Quality Management service provider;
- the brand value of the Quality Management service provider; and
- the international associations of the service provider.

To analyse the results, a points system was developed which is presented in Table 8.30. In each instance where an item was ranked first, five points were awarded, with each following rank position awarded one point less.

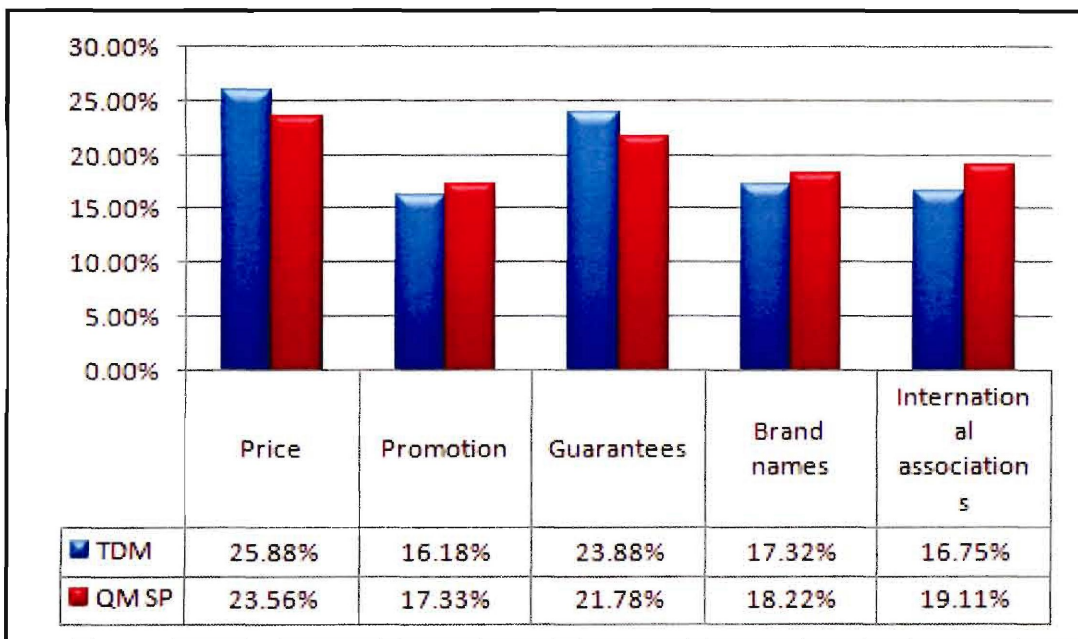
Table 8.30: Scoring of the market signal ranking instrument

Rank position given by respondent	Points awarded
1 st position (most important)	5 points
2 nd	4 points
3 rd	3 points
4 th	2 points
5 th (least important)	1 point

The points listed in Table 8.30 were applied according to the different ranking position of each of the signals, and the totals added up. Because of the difference in

sample size between the two groups of respondents, the totals of the tool, die and mould making firms were much higher than those of the Quality Management service providers, making a comparison difficult. It was decided to calculate the percentage of each signal item of the total score of the scale, thus allowing the percentages of the different rankings between the two groups to be compared (see Question 17 in Annexure 2 for the detailed table). The final comparable result of the ranking by the two groups is shown in Figure 8.8.

Figure 8.8: Comparison of the signals that communicate good value in the marketplace



The results shown in Figure 8.8 of the signal ranking for the tool, die and mould making firms indicate that *price* is the most important signal, with *guarantees* ranked second most important. These two indicators stand out visibly from the next three indicators in plotted in Figure 8.8. For the tool, die and mould making firms, *brand name* came third, *international associations* came fourth and *promotion* came last.

From the ranking by the Quality Management service providers shown in Figure 8.8 it is clear that *price* and *guarantees* stand out in first and second positions respectively, but slightly lower than the results for the tool, die and mould making firms. Visibly lagging the first two positions, the Quality Management service

providers ranked *international associations* third, *brand name* fourth, with *promotion* the least important signal of value. This is a different order than the ranking order determined for the tool, die and mould making firms.

8.8 SUMMARY

In this chapter the results are presented of the research instrument administered to 71 tool, die and mould making firms, and 15 Quality Management service providers in the Nelson Mandela Bay area.

The structural information of the participating firms shows that the Quality Management service providers were mainly very small firms and the majority of tool, die and mould making firms were small. The main source of competitors for the majority of the Quality Management service providers (73.33%) and just over half (52.11%) of the tool, die and mould making firms were identified as being local.

The discussion of the results focuses on items that yielded a practically significant difference in responses of the two groups, as the variability may indicate an impediment to transactions in Quality Management services. The identified impediments result in the Quality Management marketplace not performing optimally, a situation that is described as a market failure.

The assessment of the performance of the participating firms and the industries they belong to did not yield any practically significant difference in the responses of the two groups (Question 1).

In the test to determine how aware the respondents were of Quality Management and related services, it became apparent that Quality Management services are well known and often used in the marketplace, with awareness raised through a wide range of sources. Some of the Quality Management-related services, such as Metrology services, were not known to the respondents.

The results showed that a third of the tool, die and mould making firms had an internal division that attended to most of the issues relating to Quality Management, while another third had an internal Quality Management function which depended on external service providers for specific functions.

The results of Question 3 showed that of the different institutional actors supporting the Quality Management service marketplace, the South African Bureau of Standards (SABS) was the best known and most frequently interacted with, followed by tertiary institutions, the South African National Accreditation Service (SANAS), and the Small Enterprise Development Agency (SEDA).

The results of Question 4 on the different reasons for using Quality Management services were evaluated, and no practically significant effects in the responses of the two groups were calculated.

As far as the characteristics of Quality Management services are concerned (Question 5), the results indicate that Quality Management service is an intensive service that requires the full or partial involvement of senior decision makers in the delivery. The users of the service engage with their service providers through telephone calls and electronic means on a daily and weekly basis. The main intangible benefits of Quality Management service are identified as *improvements in quality and standards*, followed by *peace of mind* and *cost savings*. The assessment of how Quality Management services are rated showed that the tool, die and mould making firms rated the impact of Quality Management services mainly by *certain problems are solved*, *profits are increased*, or *tasks are completed*. The Quality Management service providers rated the impact as *systems are working better*, *certain problems are solved* and *staff skills are upgraded*. The majority of the respondents indicated that good value in Quality Management services is determined by the quality of the service.

In Question 6 the importance of certain attributes of Quality Management services was evaluated. The results for each group were sorted from the highest to the lowest means (most important to least important) and then compared. It was found that for

the tool, die and mould making firms, the most important attribute of Quality Management service is that a certificate of compliance is issued by the service provider, with a second important attribute being a written contract entered into before work commences. The track record and reputation of the service provider are important attributes, as is the Quality Management service provider belonging to a business membership organisation. Various kinds of documentation, such as reports on what was done, frequent progress reports and implementation monitoring were identified as important by the tool, die and mould making firms. The least important attributes identified by the tool, die and mould making firms were identified as printed brochures and material, and a written quote from the service provider.

From the Quality Management service providers' perspective, a report on what was done and how it is working was deemed the most important attribute of Quality Management services. The Quality Management service providers rated *The way that items are charged for must make sense to the customers* as important, and that belonging to an industry association was also important. Frequent progress reports and well defined products and services were regarded as important too. The quality Management service providers identified flexible service options and packages as the least important, followed by the definition of clear standards or modules for the service.

The questions were designed to test the latent constructs. Each was composed of various items that were carefully formulated to test for potential impediments to transactions between Quality Management service providers and tool, die and mould making firms.

The results of Section 2 of the questionnaire evaluated items that were carefully formulated to test for potential impediments to transactions between Quality Management service providers and tool, die and mould making firms. These impediments may result in market failure, which means that the market is not performing optimally.

The results for Question 8 (Information in the market place) yielded only one item with a practically significant effect. The result of this item shows that the Quality Management service providers felt strongly that it was better to employ in-house staff than to use external service providers. The tool, die and mould making firms scored below neutral on the Likert scale, indicating that on average they did not agree with the item.

The evaluation of the presence of incomplete and inaccurate information (Question 9) yielded two items with a practically significant effect size ($d \geq 0.8$). The results show that on average the Quality Management service providers appeared to be more willing to hide information from the other party, and that they were more willing to pretend to understand their customers rather than look silly. The tool, die and mould making firms on average did not agree with these items.

However, in the results of the next question (Question 10) the Quality Management service providers expressed the view that they expected the other party to the transaction to be honest about their ability to transact in a mutually beneficial way. Question 10 yielded three items with a practically significant effect size where $d \geq 0.8$. The Quality Management service providers expressed the view that they had to hide their methods and techniques from their customers or they may not be needed any more, a statement with which the tool, die and mould making firms did not agree. The tool, die and mould making firms felt strongly that Quality Management service providers who are bound by a code of conduct are more likely to get more business, an item that the Quality Management service providers did not agree with.

Externalities are outside forces that affect the ability or willingness of parties to transact with each other, and were evaluated in Question 11. The results identified two items with practically significant effects. The Quality Management service providers appeared to be constrained by challenges of recruiting staff, a theme that surfaced again in the discussion about public goods in Question 15. The service providers resorted to poaching staff from other firms or training staff in-house due to difficulties in training staff recruiting people with the right qualifications in the marketplace.

The results of the presence of indivisibilities and high transaction costs (Question 12) yielded two items with practically significant effect sizes ($d \geq 0.8$). Both groups of respondents on average disagreed that the cost recovery time was not a deterring factor in the use of the service, although the two groups indicated that it sometimes does take a while to get the full benefit of the service. The Quality Management service providers believed that the service might take up too much time of senior decision makers, an item that the tool, die and mould making firms did not agree with.

With regard to monopoly and oligopoly behaviour in the Quality Management service marketplace (Question 13), the results revealed that the Quality Management service providers believed that most service providers were providing more or less the same services. The tool, die and mould making firms did not agree with the item.

As far as the assessment of intellectual and property rights in Question 14 is concerned, the tool, die and mould making firms indicated that they were able to use their assets as collateral to access finance. The Quality Management service providers indicated that they were not able to leverage their assets. The Quality Management service providers on average agreed that it was possible for their staff to use their methods and approaches to start rival firms despite intellectual and property protection mechanisms. However, the tool, die and mould making firms were of the opinion that their staff would use their methods to compete against them.

The last Question in Section 2 assessed whether the Quality Management service marketplace was adequately supported by public and mixed goods (Question 15). The results yielded only one item with a practically significant effect size. The Quality Management service providers agreed strongly that the information sources in the marketplace were too generic for their firms, while the tool, die and mould making firms had a neutral stance on this item.

In the final section of the questionnaire the total performance of the Quality Management service marketplace was evaluated by the two groups of respondents. The results yielded only small effects ($d = 0.2$).

Finally, the different signals used in the Quality Management marketplace to communicate good value were evaluated. Both groups of respondents identified price as the most important signal, with guarantees second most important.

CHAPTER 9: CONCLUSION AND RECOMMENDATIONS

9.1 INTRODUCTION

The service economy in South Africa is under-researched, and the potential of the service sector in achieving the country's growth and competitiveness targets has yet to be exploited (See Paragraph 2.2.3). Many of the countries with which South Africa competes and to which it exports produce, such as the OECD countries or the European Union member states, are investing resources in analysing the service sector (OECD, 2006, 2005b, 2005a; European Commission, 2002). The service sector consists of a wide range of activities, ranging from very basic activities that are highly labour absorbing (i.e. domestic work or tourism) all the way to sophisticated scientific or technical services that are typically knowledge intensive, such as Quality Management services.

A fairly recent phenomenon in the competitiveness of firms, industries and countries is the emergence of knowledge-intensive business services (Bryson & Daniels, 2007; Garelli, 2006:607-618; Miles *et al.*, 1995). These kinds of knowledge-intensive business services play an important role in developing technological advances, solving problems and transferring knowledge between companies. Furthermore, knowledge-intensive business services play a role in overcoming human capital indivisibilities by providing professional services to companies that are too small or specialised to build in-house capacity (Kox & Rubalcaba, 2007:31-34). In many cases, professional service companies are at the forefront of developing or refining new technologies, and are essential for the development of other high-technology industries.

The topic of market failure is introduced in Chapter 3. A market failure does not imply that a market is not working at all, but that it is not carrying out production allocation efficiently (Lines *et al.*, 2006:167; Colin, 2003:125). Although markets are robust and can emerge spontaneously almost anywhere (McMillan, 2002:16), they do require

certain institutional arrangements in order to achieve socially optimal outcomes. These institutions can be of a governing nature, or they can play the role of spreading information, developing skills, providing supportive public goods and overcoming barriers to entry (Rodrik, 2000:4). Boudreaux and Roberts (2007) explain that when a market fails this is effectively caused by failures in the institutional arrangements that allow a market to work.

The topics of knowledge-intensive business services and market failure merge when it is recognised that service markets in the new economy are prone to market failure (European Commission, 2002). This is in part due to the characteristics of services (intangibility, simultaneity of production and consumption, perishability and heterogeneity), but also to other economic factors such as high indivisibilities, low economies of scale, poor information flows, competing or unsupportive public goods, and externalities (Stenbacka, 2001). Service markets are also prone to monopolistic behaviour, although the evidence suggests that this is not necessarily harmful to consumers as costs are generally driven down due to increased economies of scale.

A diagnosis of the tool, die and mould making sector has revealed that the sector is facing many challenges that are hindering the competitiveness of the sector, amongst which low usage of quality management and related services have emerged (FRIDGE, 2005:92).

The empirical research in this study focused on the interaction of Quality Management service providers with the tool, die and mould making industry. The transactions between the Quality Management service providers and the tool, die and mould making firms are supported by an institutional framework that governs and supports the Quality Management service marketplace and enables it to deliver services to industry in a socially optimal way. Previous research into the tool, die and mould making sector suggests that the sector is not using Quality Management services, which is leading to the industry fast becoming uncompetitive and unable to meet international standards (FRIDGE, 2005:92). This study attempts to understand the role of market failure in the delivery of Quality Management services to tool, die and mould making firms via the Quality Management service marketplace.

This chapter offers conclusions and recommendations based on the empirical research, and it relates the findings to the relevant parts in the literature study. The implications of the findings and recommendations for actors in the Quality Management service marketplace on how to remedy some of the market failures are discussed.

In Paragraph 9.6 the study is evaluated against the primary and secondary objectives that were determined at the beginning of the study. This is followed by recommendations which are given in Paragraph 9.7 resulting from this study.. Suggestions are made as to how the research instrument can be refined for application in other markets.

The study concludes with a summary of this chapter.

9.2 CONCLUSIONS OF THE RESULTS OF THE PERFORMANCE ANALYSIS OF FIRMS AND THE INDUSTRY

This section discusses the conclusions based on Section 1 of the questionnaire discussed in Paragraph 8.3 to Paragraph 8.5. The conclusions are supported by the insights gained from the literature study.

9.2.1 Perceptions of the firms' and the industry's performance

The Quality Management service providers and the tool, die and mould making firms that make up the two groups of respondents in the empirical study represent two very different industries. There are differences other than the obvious observation that the tool, die and mould making firms are part of the manufacturing sector and the Quality Management service providers are part of the service sector.

Firstly, the two groups are entrenched in two different competitive environments that are shaped by different dynamics. The tool, die and mould making firms are competing on a local, national and international level. Even in cases where some of the tool, die and mould making firms are small, they often still

compete against international competitors for contracts. The tool, die and mould making firms are confronted by challenges of sourcing suppliers of goods and services in their local market and buying their products and services from all over the world. The tool, die and mould making firms that participated in the survey extended over a large age range, with eleven participating firms (15.5%) older than 100 years, and 26.76% older than fifty years. Only six (8%) were less than five years old.

The Quality Management service providers tend to be very small firms (both in turnover and staff) that compete mainly in the Nelson Mandela Bay area, with 60% earning less than 10% of their money from international sources. Of the participating Quality Management service providers, 60% were less than ten years old. Not only are they competing in a small geographic market for local contracts, but they are also competing with many different kinds of firms for a small pool of knowledge workers from which they can recruit. The majority of service providers reported that they often faced competition from international competitors who used expertise based elsewhere to compete with the local service providers. The majority of participating service provider firms are less than ten years old. A large number of the service providers (40%) indicated that they did not understand their own financial statements, and 26.67% indicated that they were not making a profit.

Secondly, the two industries receive different levels of public support. The tool, die and mould making firms are organised through a local chapter of the Tooling Association of Southern Africa (TASA) in the Nelson Mandela Bay area, and there are also other industry associations. The influence of the old Eastern Cape Manufacturing Advisory Centre (now part of the Small Enterprise Development Agency, SEDA) was frequently mentioned by the tool, die and mould making respondents during the interviews. There are several other government support programmes to sectors such as the automotive sector that are also having a positive effect on the tool, die and mould sector. For example, the Automotive Industry Development Centre (AIDC) is active in the geographical area where the study was done, and the Automotive Component Technology Station based at the Nelson Mandela Metropolitan University also focuses on the development of automotive component manufacturers. Moreover, the tool, die and mould making firms do not

seem to have problems with the recruitment of staff, probably because of the prominence and visibility of the manufacturing sector in the Nelson Mandela Bay area. They also reported that the universities and other training institutions were able to equip the workforce with the relevant skills needed for employment by tool, die and mould making firms.

The Quality Management service providers are not as well organised into formal networks as are the tool, die and mould making firms, although several respondents commented that there were strong informal relationships between several service providers. Only half of the service providers benefitted from being members of a business membership organisation. In many cases the Quality Management service providers that operate on a commercial basis perceived a competitive threat from publicly funded institutions such as the Council for Scientific and Industrial Research (CSIR), the Nelson Mandela Metropolitan University (NMMU) and even the South African Bureau of Standards (SABS).

The Quality Management service providers also indicated that they had problems with the recruitment and retention of experienced staff. This could either be caused by a lack of suitably qualified staff entering the job market from the universities, or unwillingness by the service providers to meet the salary demands of job seekers. Either way, the knowledge intensity and experience required of a quality management expert or consultant are high, and require a combination of qualifications and industry experience. The service providers are furthermore confronted by the tendency of experienced staff to resign and start rival firms.

Thirdly, the drivers of competition of the two industries are different.

Competition is central to the functioning of markets (McMillan, 2002:34; McMillan & Woodruff, 2002:154), and as Vickers (1995:1) explained in Paragraph 3.5.1, competition is important for productive efficiency because:

- competitive pressure makes organisations internally more efficient by sharpening incentives to avoid sloth and slackness;
- competition causes efficient organisations to prosper at the expense of inefficient ones, and this selective process is good for aggregate efficiency; and
- competition to innovate is the major source of gains in productive efficiency over time.

The majority of the respondents indicated that they had experienced high increases in the costs of running their businesses in the last few years, and increased pressure from globalisation. The competition in the Quality Management service marketplace is affected by the pressure on the tool, die and mould making sector to be competitive. Despite the FRIDGE report (FRIDGE, 2005) and other studies pointing out the lack of Quality Management in the tool, die and mould making sector, the tool, die and mould making respondents indicated that they were not pressurised by their customers to adhere to Quality Management standards.

The tool, die and mould making firms are under constant pressure to reduce costs, as there is a prevailing belief that they are losing business to other countries mainly due to high costs. The overwhelming majority indicated that they were benefitting from the adoption of new technology (91.55%), although other research is less optimistic about the investment in new technology by tool, die and mould making firms (TASA, 2009; Phaho & Skosana, 2007; Sonn & Dimitrov, 2006; Department of Science and Technology (DST), 2005; FRIDGE, 2005:93). However, there are tool, die and mould making firms that are using new equipment that allows them to take on highly specialised tasks on small production runs.

Research suggests that there is an increased shift away from labour-intensive to capital-intensive production in the tool, die and mould making sector. This trend

seem to be driven by customers demanding more technologically sophisticated products and designs (Sonn & Dimitrov, 2006), but could also be the result of the current labour environment in South Africa. The findings of this study showed that tool, die and mould making firms did not report as much difficulty finding skilled workers as some government strategies and even the Tooling Association of South Africa (TASA, 2009) suggest. Seventy per cent of the tool, die and mould making firms indicated that it was possible to find staff with the right skills in the marketplace. Furthermore, 70% of the firms indicated that the higher education institutions were providing people with sufficient skills for the workplace.

The findings show that Quality Management service providers' innovative behaviour is mainly shaped by demands from their customers and on-the-job problem solving and learning.

Many of the service providers do not undertake any proactive marketing, nor do they promote standardised, modular or flexible service offerings. In fact, the findings indicate that the Quality Management service providers are not competing very hard to find new customers. This is evident from the fact that hardly any of the tool, die and mould making firms had been contacted directly by Quality Management service providers. Many service providers were more concerned with having brochures and printed material than providing customers with written quotes and contracts.

Furthermore, it seems that many service providers are often promoted to tool, die and mould making firms by business support centres and other public support structures, which may explain the under-investment by service providers in developing other means to differentiate themselves from their competitors. When Quality Management service providers are connected with potential customers through business support centres, they are often required to bid for a job that is specified by the business support centre, thus reducing the transaction to the service providers' cost estimation (price) of undertaking a specific task. This is undermining investment and competitiveness in the market place by Quality Management service providers.

Finally, the competitiveness of the Quality Management service marketplace is also affected by the competitiveness and performance of other related marketplaces. The competitive pressure on Quality Management service providers to offer high-performance services is directly affected by the competitive and performance pressures on the tool, die and mould making sector, and may even be affected by other markets not covered in this study. If the tool, die and mould making sector is uncompetitive for a variety of reasons, of which a lack of quality management processes is only one, then these other factors might deter tool, die and mould making firms from being overly concerned about low quality. From other studies (TASA, 2009; Phaho & Skosana, 2007; Sonn & Dimitrov, 2006; Department of Science and Technology (DST), 2005) it seems that many tool, die and mould making firms are using outdated equipment, which may dramatically decrease their competitiveness. This may result in a short-sighted approach where quality management and other costs are cut which will reduce costs in the short term, but will make the manufacturing firms uncompetitive in the medium to longer term.

In conclusion, the performance of the Quality Management service marketplace is directly influenced by the competitiveness of the tool, die and mould making sector, which in turn is affected by the competitiveness of many other sectors. The Quality Management service marketplace is entrenched in a broader market system where failures and underperformance in other markets will have a direct influence on the performance of the market studied.

9.2.2 Awareness and knowledge of industry-specific business services

In this study, the term **awareness** refers to the ability of the respondents to spontaneously recall a service or institution, while **knowledge** refers to the ability of the respondent to describe a service or institution. These two terms were used in Question 2 and Question 3 of the survey.

The **awareness** of Quality Management services and other related services is high, and there were only four tool, die and mould making firms that were not aware of Quality Management services. All the respondents except seven tool, die and mould

making firms indicated that they were **knowledgeable** about Quality Management services.

Two of the other services related to Quality Management which were included in Question 2 of the questionnaire are metrology services and business process management services. These all have a direct bearing on the quality of products and processes produced by firms.

Metrology services are important for the calibration of manufacturing equipment and the accuracy of measurements used in the manufacturing environment. The FRIDGE report (FRIDGE, 2005:9) contends that South African tool, die and mould making firms often fall short of international standards because they manufacture tools to a toolmaker's specifications without regard to the dimensional accuracy of the components. Due to the stringent requirements of automation in assembly and handling of components, the precise verification of dimensional requirements in the manufacture of tooling has become an essential part of the process in final inspection, as has inter-operational verification against computer aided designs. Criticism of a lack of quality standards and metrology service usage surfaces again where small enterprises are described as not using adequate inspection facilities. The result is that they are only able to produce low-technology tools in an increasingly hi-tech industry requiring extremely precise and efficient tooling (FRIDGE, 2005:93).

With only seven tool, die and mould making firms indicating (Paragraph 8.5.2.2) that they were using metrology services at the time of the survey, there is good reason to be concerned about the accuracy and specifications of international and national customers. Metrology services were the least known to the respondents in the different Quality Management-related services assessed in the survey.

The increased usage of **business process management services** not only by manufacturing firms, but also the service industry and the public sector, can be attributed to the increased awareness of the benefits of total quality management (TQM). Total quality management can be described as a management philosophy

that covers all aspects of a business, from management to production and customer interaction (Chase *et al.*, 1998:200). In Question 2 of the survey the majority of the service providers and half of the tool, die and mould making firms indicated that they had knowledge of this service. At least ten service providers and 23 tool, die and mould making firms had used the service before, with only ten service providers and 19 tool, die and mould making firms indicating that they were using business process management services at the time of the survey.

The two other services assessed in Question 2 are **environmental management services** and **occupational and health services**. The knowledge and usage of environmental management services were moderate, probably due to pressure from customers, legal requirements and local pressure groups. However, the knowledge and usage of occupational and health services were high.

9.2.3 Source of knowledge of different Quality Management-related services

In the survey in Question 2, respondents were asked to identify the different sources of awareness of the various Quality Management and related services (see Paragraph 8.5.2).

It was found that most of the respondents' awareness of the different services was raised through the various media and advertisements, or through information disseminated by a business support centre or various business membership organisations. It is evident from the results that metrology services does not benefit so much from the general media, and that most respondents who were aware of metrology services became aware through industry-specific media or direct contact with a business advisor or service provider.

The respondents had to identify **the single most important source of knowledge of the different Quality Management and related services** (see Paragraph 8.5.2.4). The results show that the respondents became knowledgeable about Quality Management services through mainstream or industry-specific media, or through direct marketing by service providers. Furthermore, the respondents'

knowledge of metrology services was gained mainly from business membership organisations (e.g. TASA) or business support centres (e.g. Small Enterprise Development Agency or Eastern Cape Development Corporation).

9.2.4 Form of interaction with Quality Management services

The source of interaction with Quality Management services was identified. The results show that a third of the tool, die and mould making firms had an internal division that attended to most of the issues relating to Quality Management, while another third had an internal Quality Management function which contracted external service providers for specific functions (see Paragraph 8.5.2.5). About 10% of the tool, die and mould making firms were completely dependent on external Quality Management Service providers, with 22.73% using Quality Management service some of the time.

9.2.5 Institutional actors in the Quality Management marketplace

The institutions that support the Quality Management service marketplace play an important role in regulating (governing) the marketplace, connecting and supporting the different actors, promoting the usage of Quality Management and related services, as well as providing education in quality management services (see Paragraph 3.9.2).

The results presented in Paragraph 8.5.3 show that of the different institutional actors supporting the Quality Management service marketplace, the South African Bureau of Standards (SABS) was the best known and most frequently interacted with, followed by tertiary institutions, the South African National Accreditation Service (SANAS), and the Small Enterprise Development Agency (SEDA). Despite the knowledge of the different supporting institutions, the respondents' interactions with many of them were low.

The current usage of the services offered by the different institutions is an indication that many participating firms either had their own internal Quality Management system, or that they simply did not understand what a certification agency or

implementation consultants offer. In most cases where a firm complies with a national or international quality management standard, one or several of the institutions such as the SABS, SANAS, or other certification agencies and implementation consultants should be involved.

Several respondents claimed that they were interacting with some of the institutions supporting the Quality Management marketplace, but without knowing the name of a specific contact person at the institution (see Table 8.7 in Paragraph 8.5.3.1). This could be an indication that the respondents were using the information resources of the institutions without much human interaction (such as websites or call centres). However, this amounts to self-help and excludes formal accreditation or certification. It was mentioned in the literature study that while internal quality management systems are already a good first step towards Quality Management (Curkovic & Pagell, 1999), credible accreditation and certification is often required by customers and supply chains (Nadvi & Wältring, 2004:63; Guerrero-Cusumano & Selen, 1997:206), and are in some cases compulsory (NRCS, 2008; Chase *et al.*, 1998:210).

9.2.6 Reasons for using Quality Management services

The analysis of the reasons for using Quality Management services did not yield any large effect sizes, indicating that there was no practically significant variation in the way the two groups responded to the items (see Paragraph 8.5.4).

The Quality Management service providers and the tool, die and mould making firms on average agreed that Quality Management services assisted firms that are underperforming, improved the profitability of their firms, and were required by specific projects from time to time. Furthermore, the tool, die and mould making firms on average indicated that quality management services assisted their firms to grow, made their firms more competitive, and were required frequently by their firms.

Surprisingly, only 55% of the tool, die and mould making firms indicated that their customers demanded that they use Quality Management services. This could either

indicate that the tool, die and mould making firms were not informed by their customers that they should improve their quality standards (until it was too late), or that they were not aware of the accusations levelled in the FRIDGE report (2005:92) against the poor Quality Management practices of the tool, die and mould making sector.

The Quality Management service providers believed that Quality Management services did not help them to attract new or existing customers, stimulate growth or increase their competitiveness. On the contrary, they seemed to be unaware that the tool, die and mould making firms preferred their Quality Management service providers to be accredited or certified to use formally recognised Quality Management systems.

9.2.7 The main characteristics of Quality Management services

A third of the tool, die and mould making firms had their own internal quality management experts or staff, and therefore it is not certain whether their response about the main characteristics of the service was about the usage of the internal service unit or the interaction with the external service provider (see Paragraph 8.5.2.5). However, from the survey results it can be seen that whatever the source of the service, the interaction between the service provider and the tool, die and mould making firms' decision makers is intense and takes up a lot of senior management time (see Paragraph 8.5.5). The user of the service in a tool, die and mould making firm is typically a senior decision maker who is intensely or partially involved in the implementation of the service.

The users of Quality Management services engage with their service providers through telephone calls and electronic means on a daily and weekly basis, and are fully or partially involved in the delivery (implementation) of the Quality Management service.

The intensity of the Quality Management service could be one of the reasons that smaller tool, die and mould making firms tend not to use the service as much,

although this can also be influenced by the kind and preferences of the customers of the tool, die and mould making firms. Then again, there were some small tool, die and mould making firms that were using Quality Management services because of a grant or subsidy from a public source (ECDC, 2008). This is probably caused by the good intentions of public organisations as discussed in Paragraph 4.4 to promote small enterprises as a means to achieve multiple socio-economic objectives.

However, the literature study showed that these kinds of interventions are typically counterproductive as they undermine the competitiveness and innovation of the providers of products or services (such as Quality Management) being subsidised, even if they are described by government agencies as market development. There is a strong chance that the small firms that use Quality Management services because of an initial subsidy will not continue to do so in the long run because of the intensity and involvement of the business owner (which translates to transaction cost) in using a Quality Management service. Furthermore, the literature study in Paragraph 5.2 highlighted the fact that Quality Management extends beyond certification and becomes a philosophy of managing and competing, therefore only focusing on certification and documentation in a firm is not effective (Reed *et al.*, 2000:6-7).

The three most important intangible benefits of Quality Management services were identified by the tool, die and mould making respondents as improvements in quality and standards, followed by peace of mind and cost savings. With regard to the way that impact of Quality Management was rated, the tool, die and mould making firms assessed the impact of Quality Management services by: certain problems solved, profits increased and tasks completed. Conversely, the Quality Management service providers measured the impact by: systems working better, certain problems solved and staff skills upgraded. The majority of the respondents indicated that good value in Quality Management services is determined by the quality of the service.

9.2.8 The service attributes of Quality Management services

The respondents assessed the importance of different attributes of Quality Management systems, allowing a comparison to be made between the results of the two groups (see Paragraph 8.5.5).

From the perspective of the tool, die and mould making firms, the most important attribute of Quality Management service is that a certificate of compliance should be issued by the service provider, indicating that there is an expectation that the service providers are accredited or certified to certain quality management or standards bodies such as the International Organisation for Standardization (ISO). A second important attribute is that a written contract should be entered into before work commences, emphasising proper documentation and professional management by the service provider firm. The demands of the tool, die and mould making firms for various kinds of documentation such as progress reports and project implementation monitoring could be seen as a way to manage the heterogeneity of the Quality Management service and is consistent with the findings in the literature study (Lovelock & Wright, 1999:19; Zeithaml *et al.*, 1985:33).

Other important attributes are the track record and reputation of Quality Management service providers, and their membership of a business membership organisation. All these attributes demonstrate professional conduct by the service provider and attention to small details and proper knowledge management. Before the Quality Management service is implemented it is difficult to assess the value and impact of the service due to its intangibility and perishability, and therefore the tool, die and mould making firms are trying to find guarantees that the service will have the promised impact (Lovelock & Wright, 1999:19). This could explain why tool, die and mould making firms use signals such as a written contract, variety of service offerings, visibility of the service provider in the local or industry-specific media, and other signals of credibility to evaluate their purchasing options. This conclusion is consistent with the signals identified in the literature study that communicate good value, including quality, brand name, track record, marketing, association and experience of the provider (Riley, 2001; Spence, 2001:408; Akerlof, 1970:489).

Conversely, the least important attributes identified by the tool, die and mould making firms were identified as printed brochures and material, and a written quote from the service provider.

From the Quality Management service providers' perspective, a report on what was done and how it is working was deemed the most important attribute of Quality Management services. The Quality Management service providers rated the way that items are charged for must make sense to the customers as important, and that belonging to an industry association was also important. Frequent progress reports and well defined products and services were regarded as important too. From these findings it can be concluded that the service providers rate certain elements of the documentation of the service delivery as important, but then the Quality Management service is known for its intensity of documentation.

Conversely, the Quality Management service providers identified flexible service options and packages as the least important, followed by the definition of clear standards or modules for the service. This seems to deviate from the performance standards and attention to structured processes that make up the core of the Quality Management process.

9.3 CONCLUSIONS OF THE MARKET FAILURE ANALYSIS

The research instrument examined various latent constructs evaluating the performance of certain aspects of the Quality Management marketplace. Questions were designed to assess several latent constructs, each composed of various items that were carefully formulated to test for potential impediments to transactions between Quality Management service providers and tool, die and mould making firms. The results of the analysis of Section 2 of the questionnaire are discussed in Paragraph 8.6.

The main focus of the discussion of the research findings in Chapter 8 was directed at items that yielded a practically significant effect size ($d \geq 0.8$), as the variability between the two groups of respondents may indicate an impediment to transactions

in Quality Management services taking place. The identified impediments result in the Quality Management marketplace not performing optimally, a situation that is described as a market failure.

9.3.1 The flow of information in the marketplace

In the literature study, the importance that information should flow between the different actors in a given marketplace was discussed in Paragraph 3.7. Question 8 (information flows), Question 9 (adverse selection) and Question 10 (trust) tested different aspects of the information asymmetries that exist between market actors. This paragraph focuses mainly on the information flows in the marketplace.

The two groups of respondents had different opinions as to whether tool, die and mould making firms should employ in-house staff to perform Quality Management functions rather than use external providers. The Quality Management service providers on average agreed, whereas the tool, die and mould making firms did to a much lesser extent. Perhaps this response of the service providers can be attributed to the finding that the service providers expressed the view that the intense involvement of decision makers in recipient firms in the delivery of Quality Management services is a burden or impediment to transactions.

According to the results, the tool, die and mould making firms regarded the search and evaluative costs of finding a different or new Quality Management service provider as high. This is evident from the finding that the tool, die and mould making respondents believed that it was better to stick to their current service provider even though they were not entirely satisfied with the service they were receiving. Furthermore, the respondents indicated that although it was possible to find reliable Quality Management service providers in the marketplace, it required an intense effort due to the difficulty to distinguish between a good and bad service offering. This phenomenon is described by Akerlof (2001:368; 1970:489) as asymmetrical information which often results in the misallocation of resources due to inefficient decision making on the part of organisations or individuals, or the collapse of whole markets. The reason why tool, die and mould making firms retain their current

service providers is due to the phenomenon that repeat sales and reputation are two ways in which the effects of asymmetrical information on the marketplace can be reduced (Akerlof, 2001:368; Spence, 2001:408). The costs of finding and evaluating different offers in a marketplace is also referred to as search costs, and is the focus of the field of total cost economics (McMillan, 2002:44; Coase, 1991:715-716; 1937).

It was found that the use and impact of Quality Management services was well known in the market, although many respondents indicated that the information available through public resources were sometimes too generic to be of use. Publicly available information in particular was too generic for the Quality Management service providers, who indicated that they lacked access to topical or specialised information on Quality Management. In addition, the more specialised services such as metrology or business process management systems were not as well known in the marketplace.

9.3.2 The effect of incomplete and inaccurate information

The results discussed in Paragraph 8.6.2 show that on average the Quality Management service providers appeared to be more willing to hide information from the other transacting party, and that they were more willing to pretend to understand their customers rather than look silly. Conversely, the tool, die and mould making firms felt the opposite and indicated that they would reveal information and rather indicate when they did not understand their service provider. The tendency of Quality Management service providers to pretend to understand the requirements or situation of their customers might lead to tool, die and mould making firms selecting the wrong service providers. This situation of making sub-optimal decisions as a consequence of incomplete or imperfect information regarding either risks or quality is referred to as adverse selection (Riley, 2001:433; Philips, 1988).

Furthermore, the respondents recognised that it was important first to diagnose a business before implementing a Quality Management system. This is confirmed by the finding that the majority of the respondents felt that it was difficult to prioritise the areas of their business that required attention. However, in Question 9.1 the majority

of the tool, die and mould making firms did not seem to agree with the item that many problems in their firms were reinforcing and influencing each other. This could be interpreted to mean that many tool, die and mould making firms knew which areas of their business had to be improved, but that they found it difficult to prioritise the intervention areas and the starting point for the interventions.

9.3.3 The effect of a lack of trust in the marketplace

The results discussed in the preceding paragraph indicate that the Quality Management services providers appeared to be more willing to hide information from the other transacting party, and were also more willing to pretend that they understood the circumstances of their clients.

Even so, from the analysis of trust in the marketplace (see Paragraph 8.6.3) it became evident that the Quality Management service providers expected the other party to the transaction to be honest about their ability to transact in a mutually beneficial way. Additionally, the Quality Management service providers expressed the view that they had to hide their methods and techniques from their customers or they may not be needed any more, a statement that the tool, die and mould making firms did not agree with. It can be concluded that the Quality Management service providers expected the other party to a transaction to be trustworthy despite the inclination of the service providers not to behave in a trustworthy manner.

Moreover, this finding is supported by the fact that the tool, die and mould making firms felt strongly that Quality Management service providers who are bound by a code of conduct are more likely to get more business, an item that the majority of Quality Management service providers did not agree with.

One way to overcome the mistrust in the market place is through written contracts that specify timelines and budgets. The tool, die and mould making firms agreed with this idea slightly more than the Quality Management service providers.

A closer analysis of the items that yielded small effects in Paragraph 8.6.3 reveals that that service providers acknowledged that service providers often tried to sell services that were not needed to smaller firms. This confirms the finding that the poor behaviour of some service providers is causing damage (a negative externality) to other service providers (see Paragraph 9.3.4).

The findings suggest that there is generally a lot of mistrust in the Quality Management service marketplace. Despite the low levels of trust and trustworthiness displayed by some of the Quality Management service providers, it seems that both groups of respondents have found ways to deal with the lack of trust in the marketplace as transactions are taking place, although at a higher cost.

9.3.4 The effect of externalities on the marketplace

Externalities are outside forces that affect the ability or willingness of parties to transact with each other. The results of the test for externalities are described in Paragraph 8.6.4. On average the Quality Management service providers agreed to most of the items in Question 11, indicating that they were more affected by externalities than the tool, die and mould making firms who did not agree with as many items as the service providers. The tool, die and mould making firms did not have the same opinion as the service providers on many of the items in Question 11, most likely because their industry is more traditional and operates in a steady environment.

The Quality Management service providers appeared to be constrained by challenges of recruiting staff, a theme that surfaced again in the discussion about public goods in Question 15. The result is that Quality Management service providers resort to poaching staff from other firms or training staff in-house due to difficulties in training staff and recruiting people with the right qualifications in the marketplace. The difficulty in recruiting staff with sufficient qualifications or practical experience is a negative externality, and the tendency to poach experienced staff from competitors will further reinforce the underinvestment in formal skills development of staff.

In addition, the Quality Management service providers indicated that the behaviour of other service providers did affect their reputation negatively (see Paragraph 9.3.3). Thus the lack of trust in the marketplace can also be described as a negative externality.

The tool, die and mould making firms agreed that the more of their competitors used quality management services, the more competitive they would all become even if they did not use the service directly. This can be described as a positive externality.

A positive externality identified was that it is easy for Quality Management service providers to imitate what other service providers are doing without having to undergo a difficult learning process. However, the response to this item did yield a large standard deviation, indicating that for some service providers it was definitely easier to imitate their competitors than for others. Nonetheless, the dissemination of the latest trends and methods in the Quality Management landscape will be an important positive externality that will drive differentiation and the deepening of Quality Management services in the manufacturing sector. This kind of dissemination of the latest trends and methods is typically provided by public sector institutions as a public good (see Paragraph 9.3.8).

A final remark regarding externalities is that reports such as the FRIDGE report (2005:92) are supposed to create a positive external pressure on tool, die and mould making firms to increase their use of Quality Management and related services. Conversely, the majority of respondents indicated in Question 2 that their customers were not demanding that they use quality management services. Thus it can be concluded that the FRIDGE report on the poor usage of quality management services by tool, die and mould making firms has not yet had a positive external effect on the Quality Management service marketplace in the Nelson Mandela Bay area. Many tool, die and mould making firms are not even aware of the accusations contained in the FRIDGE report.

9.3.5 Indivisibilities and the inadequate expression of cost

Indivisibilities are described in Paragraph 3.7.6 as situations where the market could overcome a large cost barrier, but where the economies of scale and risks are large, resulting in underinvestment. Transaction costs are described in Paragraph 3.7.3 as a phenomenon related to indivisibilities which occur in situations where there are high entry barriers or transaction costs that inhibit transactions.

The Quality Management service providers believed that the intensity of the usage of the service might affect the willingness of firms to use the service. In the discussion on the characteristics of the Quality Management service (Paragraph 9.2.7) it was established that the senior decision makers in firms are in most cases intensely or partially involved in the usage of Quality Management services. This may be a barrier to transactions for smaller firms who cannot delegate the authority or responsibility for interaction with Quality Management service providers to management.

The tool, die and mould making respondents indicated that the upfront cost is not such a severe obstacle to using the service, although it takes a while for the impact of the service to be felt financially. The cost recovery time might be a deterrent to smaller tool, die and mould making firms, especially to those respondents who indicated that they were not making a profit in their business.

However, the search and evaluative costs seem to be a deterrent to many tool, die and mould making firms engaging with different service providers other than their existing service providers, even when they were not satisfied with the quality of service they were receiving. This confirms the research of Coase on the effect of search and evaluative costs on market actors that hinders transactions from taking place (Coase, 1991:715-716; 1937). Furthermore, the difficulty of comparing and evaluating the products and standards (search and evaluative costs) of different providers is also a deterrent to transactions (McMillan, 2002:44; Spence, 2001:407-409; Stigler, 1982b:1).

The Quality Management service providers believed that the Quality Management services they were providing was very expensive to tool, die and mould making firms in terms of user involvement, search time and involvement in delivery or implementation. Thus the service providers were aware of the high cost to their customers of finding and evaluating different service offerings. In addition, the service providers also found the search cost of finding suitable customers to be very high.

As a final point, the tool, die and mould making firms preferred Quality Management service providers who offer written quotes that clarify the benefit and impact of the service, while the service providers did not think that written quotes make much difference. However, the practice of providing such written quotes is a way of reducing the risks of transactions involving Quality Management services.

This reluctance to give written quotes is often followed by reluctance to provide written contracts that specify what must be done and when, and is further accompanied by unwillingness to submit detailed reports of what was done and how it is working at the end of the project. Thus a trend appears for Quality Management service providers to avoid various kinds of written documentation. While this may be in part due to the expressed concern by the Quality Management service providers that customers would no longer need them, it may also point to the lead experts in the service provider firms being overloaded, or that the importance of knowledge management is not yet recognised. Ultimately proper documentation reduces the risk for the client, and moreover proper documentation is central to the functioning of a total quality management solution.

From the perspective of Quality Management service providers, the costs of training or identifying suitable qualified staff is an obstacle to expanding their service offerings (see Paragraph 9.3.5). The respondents indicated that they expected the lead experts who provide the Quality Management services to be highly qualified and experienced in their field. Furthermore, these lead experts (or consultants) must be supported by professional staff and management systems. Such management systems include documentation, information technology and legal systems. These

are all factors that increase the costs of providing Quality Management services, and those firms that provide a full suite of professional Quality Management services (including professional documentation, administration and support staff) may be under pressure to reduce their costs in line with the costs of smaller service providers who do not offer similar professional services. This means that the incentive of high-quality product owners to distinguish themselves and the incentive of low-quality owners to imitate the signal so as to obscure the distinction is fairly clear (Riley, 2001; Spence, 2001:408; Akerlof, 1970:489) It is a kind of adverse selection that makes it very difficult for firms that want to differentiate their offerings to sustain themselves (Von Ungern-Sternberg & Von Weizsaecker, 1985).

9.3.6 Market failure caused by sub-optimal market structures such as monopolies

Sub-optimal market structures exist where there are concentrations of market power in the form of monopoly or oligopoly structures (see Paragraph 3.7.5). These sub-optimal market structures affect new market entry, market innovation, productivity improvement and value creation.

In the research findings discussed in Paragraph 8.6.6 no evidence could be found of formal monopolies or oligopolies affecting the performance of the market. However, there were indications that there was a lack of diversity in terms of the range of Quality Management service offerings or specialist skills of the service providers. The tool, die and mould making firms felt that a more diverse range of offerings is needed in the Quality Management service market, and that most Quality Management service providers offered very similar services. This seems like a contradiction, as the tool, die and mould making firms earlier complained that the search and evaluation costs of finding and comparing different service offerings were too high. Conversely, most Quality Management service providers believe that all their customers demanded very similar service offerings and that Quality Management service market met these demands.

A completely different cause of the tendency to compete mainly on price could be related to the role of public sector organisations such as the Small Enterprise Development Agency (SEDA) and the Council for Scientific and Industrial Research (CSIR) in diagnosing quality-related problems in manufacturing firms, and then inviting Quality Management services to bid to implement solutions. In these instances the Quality Management service providers do not have to diagnose the target firm, nor can they offer a custom solution. They are forced to compete on price, and only once they are contracted can they start to provide other solutions to the customers. This could be an explanation of the tendency for the different service providers to charge very similar fees for certain services.

In terms of barriers to entry to new Quality Management service providers through monopoly or oligopolistic behaviour by incumbent market actors, the results found that respondents did not believe that there were actors that influenced demand and supply in the marketplace. However, some respondents did indicate that there were people who were trying to prevent new service providers from entering the market, although this obstruction did not appear to be through any organised effort on the part of service providers. The results discussed earlier indicated that most tool, die and mould making firms were not interested in switching to new service providers, nor did they believe that younger, less experienced people could provide Quality Management services.

It can be concluded that there are no active or concerted efforts to keep new Quality Management service providers out of the marketplace. Many tool, die and mould making firms complained that the range of services in the Quality Management marketplace was not diverse or specialised enough, but this could simply be due to insufficient economies of scale, which does not make specialisation in a given topic or industry profitable within the Nelson Mandela Bay area.

9.3.7 Market failure caused by property rights and copyrights

Intellectual rights and copyrights are two variations of property rights. They allow investors to use their property rights to raise finance or to exchange, trade or transfer

them (Landes & Posner, 2003; McMillan, 2002: Chapter 2; De Soto, 2000). The tool, die and mould making firms indicated that they were able to use their assets as collateral to access finance. However, the Quality Management service providers indicated that they were not able to leverage their assets to access finance. Both De Soto (2000) and McMillan (2002) stress that the ability to use property to raise finance, or to exchange, trade or transfer property, is as important as ownership of property. Service firms often have problems with collateral, because they do not have plant and equipment as do manufacturing firms that can be used to secure loans.

Both the tool, die and mould making firms and the Quality Management service providers used various copyrights and patents to protect their intellectual assets or methods, but the service providers felt that there was a risk that their staff could use their methods to start rival firms. This was probably less of a concern for the tool, die and mould making firms, as the barriers to entry due to equipment costs were high enough to deter many of their staff members from becoming competitors.

Conversely, some Quality Management service providers felt that there were many copyrights and intellectual property rights that were preventing them from using certain methods and approaches to compete with rivals. However, Quality Management methods often have to comply with international or national standards which prescribe the methods and approaches to be used. Therefore service providers who are accredited or certified to provide or use certain known or recognised approaches (e.g. ISO) or methods do have access to these leading-edge methods, tools and approaches, and are in fact required to use them both internally and at customers.

9.3.8 The role of public and mixed goods in the marketplace

The role of public and mixed goods in the performance of markets is discussed in Paragraph 3.7.4. As stated in Paragraph 4.3.2, it was found that business services (such as Quality Management services) are often prone to market interference in the form of subsidies or direct competition with markets by the state. However, many

markets depend on public goods and mixed goods provided by the state, tertiary institutions, business membership organisations and other institutions to function properly.

Coase (1991, 1974a) and the Coase Theorem proponents such as Friedman and Stigler (Friedman, 2002; Stigler, 1989) argue that the purpose of state support for markets should be to reduce transaction costs. From the conclusions thus far it can be seen that there are many costs involved for actors in the Quality Management service market place to search, engage and transact with each other. This would indicate a failure by the providers of public goods to adequately support the market by reducing costs of finding transaction partners. The question that is raised is what role the public sector should play in reducing costs, and where their interventions should be aimed.

At the time of this research, there was a tendency by several public sector support agencies to subsidise the transaction costs of many tool, die and mould making firms (as well as other sectors) to use Quality Management services. This subsidisation may lead to service providers not being incentivised to reduce the cost of providing the service, or to increasing the value of the service through competition and innovation. Therefore the subsidies offered to many manufacturing firms might even be counterproductive. This is evident from the many firms that have used a Quality Management service once before, but not on an ongoing basis.

The results show that the Quality Management service providers agreed strongly that the information sources publicly available in the marketplace were too generic for their firms. In general, it seems that there are not enough public information sources available to the tool, die and mould making firms which provide in-depth information on Quality Management services. The current public information sources did not make it easier for tool, die and mould making firms to identify credible service providers whom they could contract, although they did have a preference for Quality Management service providers who specialised in their industry.

While the Quality Management advice or services rendered by the universities and other state-funded providers were perceived as a threat to some Quality Management service providers, the tool, die and mould making firms indicated that the value added of the commercial Quality Management service providers was much higher and outperformed the Quality Management services and advice rendered by publicly funded institutions. However, the respondents agreed that publicly funded agencies were often only sources of referrals and general information.

Generally, there was a feeling that the tertiary institutions were not adequately preparing job seekers with in-depth knowledge of Quality Management systems that especially affected the Quality Management service providers. In many countries the training and qualifications of employees is considered a public good that creates a positive externality for firms (Coase, 1991:718). Adler (2001:216) and Varian (2000:473) claim that even knowledge is a public good as it benefits the individual and the society. In the case of Quality Management in the Nelson Mandela Bay area, there appears to be under-provision of the education public good, leading to a negative externality for firms (See Paragraph 9.3.4 and Paragraph 3.7.7). This leads to inefficiency because the service providers are inclined to train their staff internally, which is not a socially optimal solution. While this may seem like a cost saving to firms and tertiary institutions, it also means that the knowledge exchange between firms and tertiary institutions is not working. Nelson claims (Nelson, 1995:175-177) that the ongoing interchange between universities, firms and market governance structures (the so-called triple helix of economic growth) are critical for the evolution of economies and industries. Furthermore, with the risk expressed by Quality Management service providers that their staff may use their own methods to start rival firms, it may create an incentive for the service providers to withhold certain aspects of the knowledge of Quality Management from their staff for fear of training up their own competition.

Both groups of respondents indicated that there were incentive schemes available to promote the use of Quality Management services, but the survey did not check whether respondents actually used these schemes.

Lastly, the tool, die and mould making firms felt that service providers who adhered to certain Quality Management schemes (such as ISO) delivered better services. This is consistent with the argument by proponents of international standards that global standards assist developing countries with technology transfer, levelling of playing fields and access to world markets (International Organization for Standardization (ISO), 2009b; ISO/IEC, 2009). This means that an internationally or nationally accredited Quality Management system provides a firm with access to recognised methods and processes of managing the activities in the firm. Thus service providers who are certified to international standards have access to better management systems and processes and are able to outperform their rivals who do not use these systems.

9.4 CONCLUSIONS OF THE MARKET DESIGN AND FUNCTION ANALYSIS

Section 3 of the questionnaire is more abstract and evaluates the overall performance of the Quality Management service marketplace in a holistic manner.

9.4.1 Total performance of the marketplace

In the final section of the questionnaire the total performance of the Quality Management service marketplace was evaluated by the tool, die and mould making firms and the Quality Management service providers. The results only yielded small effect sizes, indicating that there was a small variance in the responses by the two groups of respondents.

The first question in Section 3 consisted of six items based on the discussion in Paragraph 3.5.1 of the work of McMillan (2002:5) and Rodrik (2000:5-10) which tested the overall preconditions of a functioning market. It was found that the respondents believed that there was enough legal recourse to protect them if the other party to the transaction does not keep to the agreement.

For the Quality Management service providers, the information flows in the marketplace appeared to be more important than for the tool, die and mould making firms. This seems to contradict the finding that the service providers found the publicly available information to be too weak for their own use, or it may indicate that the Quality Management service providers are benefitting from the current information flows because their customers are able to reach them through the current systems.

On average, the respondents indicated that they could trust the other party, although the Quality Management service providers scored a slightly lower mean. If this result is considered together with the conclusions in Paragraph 9.3.3, then it is also the service providers who tend to be less trustworthy in their information sharing than the tool, die and mould making firms.

The respondents rated the competitiveness of the Quality Management service marketplace to be strong, and 80% confirmed that the supply of Quality Management services in the marketplace met with the demands of the tool, die and mould making firms. However it was previously mentioned that many tool, die and mould making firms desired a more diverse or specialised product offering in the marketplace.

When asked to rate the ability of transacting parties to protect their assets and copyrights, both parties rated the marketplace as being “strong”. However, it should be kept in mind that some Quality Management service providers also indicated that these same copyrights and intellectual rights were preventing them from competing in some instances.

9.4.2 Signals in the marketplace

One of the ways to improve the information flows in a market is through the strengthening of the signals in the marketplace (Riley, 2001, 1975). Signalling is the idea that one party (the agent) conveys some meaningful information about itself to another party (the principal).

The different signals used in the Quality Management marketplace to communicate good value were evaluated. Both groups of respondents identified price as the most important signal, with guarantees the second most important. Spence (2001:407-409) explains that products and services have become so sophisticated that the initial purchase price alone does not signal the costs of owning or maintaining a product (or service), thus increasing the costs to society even further. The tool, die and mould making firms indicated that the cost of searching for a new service provider was too high, and that in the Quality Management service marketplace it is almost impossible for a consumer to distinguish one service offering from another. In this situation where there are undetectable or imperfectly detectable quality differentials, the alignment of incentives is typically imperfect. This means that the incentive of high-quality product owners to distinguish themselves and the incentive of low-quality owners to imitate the signal so as to obscure the distinction is fairly clear (Riley, 2001; Spence, 2001:408; Akerlof, 1970:489).

However, in situations where price is the only signal used to determine the value of a product or service, there is a risk that through adverse selection, providers of cheaper low-quality services might drive from the market service providers who wish to provide high-quality or high-value services (Von Ungern-Sternberg & Von Weizsaecker, 1985). The risk of price being the main differentiator in the value of the Quality Management service is that it may lead to a trend where service providers try to lower their costs (leading to underinvestment) rather than to increasing their value through specialisation or differentiation. There are symptoms that already support this trend, namely that service providers prefer to train their staff in-house, and that many service providers are not advertising their services or attempting to differentiate their service offerings.

There was a small difference in the order of the two groups of respondents for the three least important signals of value. The Quality Management service providers ranked the last three items in the order *international associations*, then *brand names* and lastly *promotion*. The tool, die and mould making firms ranked *brand names*, then *international associations*, with *promotion* last. It was not established whether good value is best communicated through high or low prices, but it can be concluded

that price is important to both groups. Earlier it was ascertained that the price of Quality Management service was not an impediment to many of the tool, die and mould making firms.

A finding that cannot be explained is that *international associations* were ranked fourth by the tool, die and mould making firms and third by the Quality Management service providers, despite neither group being able to identify any international quality management actors in Question 3 of the questionnaire (see Paragraph 9.2.5). This is a strange finding, as those large auto manufacturers in the Nelson Mandela such as Volkswagen might insist that some of their critical suppliers and component manufacturers be exposed to international standards and measurement systems, as well as firm-specific solutions such as the *Verband der Automobilindustrie* (VDA).

Furthermore, the fact that *promotion* came last seems to be in contradiction with the findings discussed in Paragraph 9.2.3 and Paragraph 9.2.7, where it was found that the more visible Quality Management service providers did get more business from tool, die and mould making firms. The fact that promotion was ranked last could be one of the reasons why so few Quality Management service providers engaged in direct advertising and promotional services.

9.5 RECOMMENDATIONS RESULTING FROM THIS STUDY

Based on the findings of the study, the following recommendations have been formulated which are aimed at strengthening the performance of the Quality Management service marketplace in the Nelson Mandela Bay area. The recommendations are directed at the respective stakeholders of the tool, die and mould making sector and the Quality Management service market place.

The findings revealed many opportunities for firms and supporting institutions that interact with the Quality Management service market to improve their individual performances in the Quality Management service market. A characteristic of a marketplace is that most individual actors will make their own decentralised decisions that will work to their own benefit. Thus it can be assumed that firms will

incrementally work on their own performance if the opportunity arises or a customer demands it (Mankiw, 2003:88; Lindblom, 2001:265-266; Lindblom, 1995:685). However, in the marketplace there are several opportunities (or obstacles) that can only be addressed through coordination or collaboration between different actors, especially between the different institutions that govern and support the marketplace. Rodrik (2007a:13) explains that very often the costs or effort involved in coordination is too high, leading to a situation where new technologies, knowledge or ideas go underutilised. This is called a coordination failure and is related to both market failure and government failure.

Therefore the recommendations made below will focus mainly on those activities that will overcome coordination failures or costs, especially between different organisations. In the recommendations, specific organisations are identified that have to play a role in the strengthening of the Quality Management service marketplace, as well as the tool, die and mould making sector.

The organisations listed in the tables containing the activities are known to be involved in these two systems. There are other organisations, such as the Manufacturing Engineering and Related Services SETA (MERSETA), the services SETA, the Nelson Mandela Bay Metropolitan Municipality, the Eastern Cape provincial government and several other organisations that must be approached to become involved in the promotion of the Quality Management service marketplace and the strengthening of the tool, die and mould making sector in the Nelson Mandela Bay area.

9.5.1 Recommendations to the Tooling Association of South Africa

There are several themes that emerge from the findings that can be best addressed in a coordinated way by the tool, die and mould making industry. The Tooling Association of South Africa (TASA) is the formal business membership organisation that represents the interests of tool, die and mould making firms and is best positioned to take the lead in driving activities that are in the interests of its

members. There is a recently established TASA chapter in the Nelson Mandela Bay area that receives support from TASA at a national level.

The themes that emerge from the findings which require a coordinated effort to address are the following:

- The relationship between improved Quality Management practices, cost efficiency and increased competitiveness of firms is not clearly understood by tool, die and mould making firms and must be better promoted to the industry.
- The inferior reputation and competitiveness of the South African tool, die and mould making sector due to poor quality and lack of metrological standards when compared to other countries (FRIDGE, 2005:92).
- The tool, die and mould making respondents find it difficult to identify Quality Management service providers and to evaluate or differentiate between first class and poor Quality Management service offerings. Furthermore, it is difficult to identify service providers with sufficient experience in the manufacturing environment, or who are able to deliver a professional service.
- It is necessary for the tool, die and mould making sector better to express their needs and requirements to the Quality Management marketplace in order to shape the public support that is provided to tool, die and mould making firms; and to shape the supply of Quality Management service offerings available.

In addition, it was determined that the activities of the Tooling Association of South Africa (TASA) are unknown to some of the manufacturing sectors included in the sample. For the tool, die and mould making sector in the Nelson Mandela Bay area to become competitive, it must start to shape the institutional and industrial landscape around it (Porter, 2003; Porter, 1998a; Porter, 1998b; Nelson, 1995). This can be achieved through the active exploitation of the positive externalities created by the concentration of tool, die and mould making firms, the customers or industries that use their products (such as the automotive sector), and the attraction of supporting industries (such as technological institutions) and servicing industries (such as Quality Management service providers and equipment suppliers) in the Nelson Mandela Bay area. This means that an active approach to the development

of the tool, die and mould making cluster in the region is required through the application of development frameworks described in Paragraph 2.8, such as Systemic Competitiveness (Meyer-Stamer, 2005), or Porters Diamond (Porter, 2003; Porter, 1998a; Porter, 1998b), or regional innovation system frameworks (Cooke & Memedovic, 2003).

The benefits of an active cluster development strategy is that the tool, die and mould making industry will be able to attract talented individuals, supportive technological institutions, and specialised service industries that will all contribute to the increased competitiveness of the tool, die and mould making sector in the region. However, the TASA chapter should start by improving the local networking of tool, die and mould making firms, and strengthening the relationships between them and their strategic target sectors, supporting institutions and service providers.

The following practical activities are proposed to improve the performance of the Quality Management service marketplace that will impact on the competitiveness and performance of the tool, die and mould making firms in the Nelson Mandela Bay area. TASA should address these Quality Management-related issues in a way that will increase the awareness of the strategic role of tool, die and mould making firms in the rest of the manufacturing economy in the Nelson Mandela Bay area. Furthermore, the relationship between the competitiveness of tool, die and mould making firms and good Quality Management practices should be highlighted.

Activity 1: TASA should host a series of information sessions for tool, die and mould making firms to raise awareness of the importance of Quality Management issues that impact on the competitiveness of firms

Actions:

1. Organise at least one event targeted at TASA members and other manufacturing firms that will be used to raise the awareness of Quality Management as a business strategy and a means to improve the competitiveness of producers.
2. Invite experts to provide inputs on topics such as the role and function of metrological services, or different kinds of Quality Management systems and how they can reduce costs or increase the competitiveness of firms.
3. Large customers in the region should present their demands with regard to the quality and standards of their suppliers.

Outcome:

The importance of Quality Management in the competitiveness of tool, die and mould making firms will be raised. Underutilised services, such as metrological services are promoted. Furthermore, the expectations of important local buyers with regard to quality and standards, such as the automotive sector, are clearly articulated.

Responsible party: TASA Chapter in the Nelson Mandela Bay area in cooperation with the local SEDA office and other partners (TASA national and SABS)

Due date: 31 August 2009

Activity 2: Revisit and implement Programme 4 of TASA that deals with competitiveness, quality and benchmarking

Actions:

1. Revise Programme 4, taking into account the changing economic climate as well as the findings of this study. A framework such as the Systemic Competiveness framework proposed by Meyer-Stamer (2005) will provide an integrated approach to interventions aimed at strengthening the performance and innovation of the whole tool, die and mould making sector at meta, macro, meso and micro levels. The revised Programme 4 should also consider the Diamond of the tool, die and mould making sector, as well as the innovation system that affects the innovative behaviour of the firms in the sector.
2. Identify sources of funding that can support the implementation of the programme.
3. Launch and implement the programme with strategic partners.
4. While a national programme is important, the TASA chapter in the Nelson Mandela Bay area can also develop their own programme to improve the competitiveness of the tool, die and mould making sector in the region. This strategy should be supported and related to the national strategy.

Outcome:

A strategic programme to improve firm-level competitiveness through activities such as better quality management, inter-firm benchmarking and clustering activities will result in an improvement in the performance of the manufacturing sector. An integrated strategy that addresses the different layers of systemic competitiveness will strengthen the competitiveness of the tool, die and mould making sector.

Responsible party: TASA national executive and board members in cooperation with TASA provincial chapter and TASA chapter in Nelson Mandela Bay

Due date: Complete revision of Programme 4 by February 2010

Activity 3: TASA in the Nelson Mandela Bay area should create a directory of Quality Management service providers who are experienced in the manufacturing environment or specialised topics

Actions:

1. In cooperation with SEDA identify the different Quality Management service providers in the area.
2. Collect the following information from service providers: name of firm, areas of expertise, profile of lead experts, international and national accreditation; and manufacturing sector experience.
3. Advertising revenue or sponsorships could be used to cover the design and production costs.

Outcome:

A directory with the relevant information will reduce the costs of tool, die and mould making firms of identifying the relevant Quality Management service providers in the area. It will furthermore allow for a distinction to be made between generic Quality Management service providers, and those service providers with manufacturing or other specialised experience.

Responsible party: TASA Chapter in Nelson Mandela Bay area in cooperation with the local SEDA office

Due date: 30 September 2009, with annual updates

Activity 4: TASA and leading tool, die and mould making firms should establish a forum for communication between the manufacturing sector and the Quality Management service marketplace in the region

Actions:

1. Invite the Quality Management service providers to meet with the TASA Nelson Mandela Bay chapter board to discuss the findings of this study.
2. Engage with the service providers to establish whether it is feasible to establish a business membership organisation for service providers in the region (see Activity 7). Another option would be to allow the service providers to join TASA as a sub-chapter.
3. Develop a joint agenda for the promotion of the performance and usage of Quality Management services to tool, die and mould making firms in the area
4. Start campaigning for the improvement of professional standards by Quality Management service providers, such as the development of a code of conduct or a referral system

Outcome:

The Quality Management service providers and institutions become more visible to TASA members and search costs are lowered for all parties. The Quality Management service marketplace becomes better organised in the region. Joint actions or programmes can be implemented to strengthen the supply, demand and performance of Quality Management services in the region.

Responsible party: TASA Chapter in Nelson Mandela Bay area in cooperation with TASA national. Organisations to be engaged with include SANAS, the SABS, SAQI, NMISA, NPI, the CSIR, AICD, ACTS & NMMU and the Tshumisano Trust

Due date: Initiate by 30 September 2009 with ongoing implementation

Activity 5: TASA in the Nelson Mandela Bay area should form a partnership with public sector organisations that are supporting the promotion of competitiveness of the tool, die and mould making industry in the Eastern Cape province and campaign for more focused industrial advice

Actions:

1. Invite public sector support organisations to a meeting where they can present their support activities to the tool, die and mould making industry.
2. Agree on the areas where cooperation and networking between different supporting and technological institutions can be strengthened (the revised Programme 4 of TASA could be used as a guideline) and formulate proposed action plans.
3. Strategies to strengthen the networking and cluster effects of tool, die and mould making firms should be designed and implemented
4. Implement action plans to strengthen the institutional support that is available to the tool, die and mould making sector through agencies such as SEDA and others

Outcome:

The institutional and technological landscape that supports the tool, die and mould making sector is better coordinated and networked, assisting the local tool, die and mould making sector to achieve a competitive advantage.

The firm-level industrial advice support that is available to manufacturing enterprises in the Nelson Mandela Bay area is improved.

Responsible party: TASA Chapter in Nelson Mandela Bay area in cooperation with TASA national, SEDA, Eastern Cape Development Corporation (ECDC) and the Industrial Development Corporation (IDC)

Due date: 27 November 2009

9.5.2 Recommendations to the Quality Management service providers

There are many findings that are revealed by this study that can provide inputs for individual Quality Management service providers on ways to improve the value and attractiveness of their Quality Management service offerings to their customers. For instance, a Quality Management service provider may use the results of the findings to develop a standard contract to use with potential customers, or to change the way they differentiate their service offering from those of their competitors.

However, the recommendations to the Quality Management service providers as a group are more complex than the recommendations that are valuable to individual firms. For instance, who should take the lead in establishing a more formal network structure, or who should take the lead in approaching the University to improve the Quality Management curriculum?

The following recommendations are made to the Quality Management service providers as a group in the Nelson Mandela Bay area.

Activity 6: Quality Management services providers should establish a formal business membership organisation or network for Quality Management service providers in the region

Actions:

1. Identify Quality Management service providers who would be willing to take the lead in establishing a formal network.
2. Identify supporting institutions and anchor customers that can help to formally establish an organisation that represents the interests of Quality Management service providers.
3. Identify priority areas (such as skills development) and develop actions plans to engage with relevant stakeholders to promote the interests of Quality Management service providers.
4. Identify ways to increase the professional standard and quality of the delivery of Quality Management services offered.

Outcome:

The Quality Management service providers become more visible and formally organised in the area. Furthermore, critical issues, such as skills development, can be pursued in a collective way. Lastly, the standard of quality management services is raised, and the professional conduct of service providers is promoted.

Responsible party: Leading Quality Management service providers in cooperation with SEDA, TASA and the Automotive Industry Development Centre (AIDC)

Due date: 28 February 2010

Activity 7: Quality Management service providers with manufacturing experience should create a differentiated profile in order to signal higher value and experience to the Quality Management market place

Actions:

1. Quality Management service providers should advertise their differentiated services in manufacturing-specific media, through paid-for advertisements or editorial content.
2. Service providers should become accredited in national or international Quality Management programmes, especially those that are relevant for the manufacturing environment as a way of differentiating them from less committed or less professional Quality Management service providers who are not investing in their firms.

Outcome:

Quality Management service providers who are able to distinguish themselves from more generic service providers are able to deliver manufacturing or industry-specific Quality Management solutions to the different kinds of tool, die and mould making firms.

Responsible party: Individual Quality Management service providers in cooperation with TASA

Due date: 30 November 2009

Activity 8: Quality Management service providers should strive to continually increase their level of professionalism and competitiveness

Actions:

1. For established Quality Management service providers it is important to continually strengthen their professional conduct and to work harder at differentiating their service quality from low-quality providers. For new Quality Management service providers there may be opportunities to compete based on some of the weaknesses or complacencies of existing firms.
2. Service providers who have strict codes of conduct, who offer written contracts, and who provide proper knowledge management services to customers will be able to attract more business.
3. Quality Management service providers who innovate in terms of service cost, payment options, flexible service offers, or new service offerings may be able to gain new manufacturing customers.

Outcome:

Service providers who are able to improve their service offering, especially the finer issues such as documentation and knowledge management may be able to make it easier for customers to engage with them. Furthermore, innovative services that lower the entry costs for smaller firms may be able to capture an under-served section in the market.

Responsible party: Quality Management service providers

Due date: August 2009 and ongoing

9.5.3 Recommendations to the supporting institutions of the Quality Management marketplace

The research findings revealed many areas where institutions supporting the Quality Management service marketplace can play a role to improve its performance in the Nelson Mandela Bay area. Although the general information available in the marketplace seems to be useful, there are several references made to a shortage of industry-specific or topical knowledge sources. Furthermore, the costs of finding a suitable or experienced service provider and comparing service offerings are too high.

In the literature study the role and importance of market supporting institutions were discussed, and it was found that:

- the role of institutions in a marketplace is to govern the market place (McMillan, 2002:14; Rodrik, 2000:5-10);
- institutions should strive to reduce the cost of transactions in the market place (Friedman, 2002; Spence, 2001:407-409; Coase, 1991:715-716; Stigler, 1989);
- knowledge, information and education should be considered public goods that create positive externalities that should be provided by support institutions to strengthen the functioning of markets (te Velde & Morrissey, 2005; Varian, 2005:130; Adler, 2001:216; Fligstein, 2001; Varian, 2000:473);
- the interaction between the different supporting institutions and industry is critical in the evolution of economic growth and the regional innovation system (Fagerberg & Verspagen, 2007; Cooke & Memedovic, 2006); and
- market supporting institutions play an important role in stimulating competition and innovation in the market place (McMillan, 2002:34; McMillan & Woodruff, 2002:154; Vickers, 1995:1).

From the research results it was determined that:

- Although there are many publicly accessible resources on Quality Management services, many information sources were generic and not specialised enough to be of use to expert users and Quality Management service providers.
- Some Quality Management service providers perceived that they were competing with publicly provided Quality Management services, although the tool, die and mould making firms evaluated the private sector offering as more valuable than the public sector service offers.
- Public subsidies and grants were often directed at subsidising the cost of the service to smaller firms (demand stimulation), and not towards incentivising innovation and cost reduction by the service providers (supply stimulation). This undermines the pressure on Quality Management service providers to innovate, develop new products and compete for new customers or underserved markets.
- Many tool, die and mould making firms were not aware of the FRIDGE report (2005) and the findings about the poor perception of the Quality Management and metrological standards of South African tool, die and mould making firms.

The recommendations on the following pages were formulated to address some of these issues.

This study did not provide an in-depth analysis of the innovation systems and other factors that affect the competitive performance of the tool, die and mould making industry, and only looked at the effect of Quality Management. Further research into the knowledge flows in the tool, die and mould making sector, and specifically the innovation system that affects the performance of the sector in the Nelson Mandela Bay area is needed. The Tshumisano Trust will be undertaking an assessment of the national innovation system affecting the tool, die and mould making sector and the role of the Institutes for Advanced Technology in the second half of 2009. The findings from this study will inform the assessment.

Activity 9: Identify ways to strengthen the information flows and knowledge transfer in the Quality Management service market place

Actions:

1. Identify existing sources of information on Quality Management and determine how the content can be enriched. This should include the information systems that connect the providers of Quality Management systems with potential users of Quality Management services.
2. Identify gaps in the public information and knowledge systems and decide which institution should fill the gaps. Give specific attention to information sources that will equip Quality Management service providers and experts to do their jobs better.
3. Promote the use of the information resources by both the tool, die and mould making sector and Quality Management service providers.

Outcome:

The publicly available resources on Quality Management services are expanded, and the content is enriched. Both service providers and service users have access to more specialised information that strengthens the knowledge of Quality Management services in the marketplace. This creates positive externalities for Quality Management service providers as well as tool, die and mould making firms (and the rest of society)

Responsible party: Institutions interested in the promotion of the Quality Management service market place, for instance SEDA, the SABS, AIDC and the SAQI.

Due Date: 31 August 2009 and ongoing

Activity 10: Identify ways to reduce the transaction costs in the Quality Management marketplace through the stimulation of competitiveness and innovation

Actions:

1. Identify ways that Quality Management service providers can compete and innovate to address underserved segments of the tool, die and mould making sector, especially to provide cost-effective yet valuable services to smaller firms.
2. Work with business advisors, universities and other business support structures to provide targeted support to Quality Management service providers and to improve knowledge flows.
3. Identify public organisations that typically issue vouchers and grants and involve them in the campaign to direct their attention to reducing, and not subsidising, transactions in Quality Management services.

Outcome:

Rather than subsidising the costs of recipient firms to use Quality Management services, the innovative behaviour of Quality Management service providers is unleashed to service business areas and firms that were previously underserved by Quality Management services. By increased competition, service providers are forced to constantly reduce the transaction costs of and increase the value and economic impact of their service offerings.

Responsible party: SEDA should take the lead, supported by other organisations interested in the promotion of Quality Management services

Due date: 30 November 2009 and ongoing

Activity 11: Promote the use of Quality Management services and metrological services to tool, die and mould making firms as a means to increase their competitiveness and to reduce costs

Actions:

1. Communicate the findings regarding the quality and metrological standards of South Africa contained in the FRIDGE report (2005:92) to the tool, die and mould making firms. This message must also be directed at Quality Management service providers, the universities and business support centres that advise firms on ways to increase their competitiveness or profitability.
2. Arrange a dialogue between the tool, die and mould making sector and certain customer markets that are affected by the quality and standards in the tool, die and mould making sector.
3. Raise the awareness of the cost, efficiency and competitive benefits of using Quality Management services and related services such as metrology or business process management services.
4. Treat information regarding the competitiveness of the tool, die and mould making sector, and the benefits of using Quality Management services as a public good. The emphasis is not only on accreditation or certification of firms to standards, but the adoption of a total quality management approach to business strategy and competitiveness.

Outcome:

More firms start using Quality Management solutions as a means to raise their competitiveness and to reduce their operating costs, creating positive external effects. Due to increased awareness of the demands regarding quality and standards of target sectors, the tool, die and mould making firms change their behaviour. Business support centres and Quality Management service providers also change their motivation for recommending Quality Management services to manufacturing clients, providing more focused public goods that benefit more of society.

Responsible party: SEDA, the SABS, NMISA, AIDC and others

Due date: 30 September 2009 and ongoing

Activity 12: The Nelson Mandela Metropolitan University (NMMU) should, through its different schools, develop and host training for Quality Management professionals that spans business management, the production environment and engineering disciplines

Actions:

1. Assess the different trainings needs expressed by Quality Management service providers and some of the tool, die and mould making firms.
2. Determine whether there are existing courses or training providers that are already offering courses.
3. In cooperation with industry, run a training programme on Quality Management.

Outcome:

By using an interdisciplinary approach to Quality Management capacity building, the University can increase its value added to the manufacturing sector in the region, adding to the increased competitiveness of the local industries. This is a high-impact public good that diffuses technical knowledge into industry and leads to increased competitiveness and use of knowledge in industry.

Responsible party: NMMU

Due date: 31 July 2010

Activity 13: Tshumisano should use the research findings to strengthen its programmes that support the development of the tooling and related industries

Actions:

1. A process is currently under way by Tshumisano to strengthen the competitiveness of the tooling sector through an assessment of the innovation system in the national tooling sector, as well as ongoing improvements to the innovation system and systemic competitiveness frameworks of the metal casting and foundry sector, as well as the product design and rapid prototyping sectors.
2. *The findings of this study should be used to strengthen the various interventions in support of the tool, die and mould making sector.*
3. Tshumisano should investigate the possibility of conducting a proper appraisal of the innovation system of the tool, die and mould making sector in the Nelson Mandela Bay area to determine how the innovation system can be strengthened with the area to promote the competitiveness of the manufacturing sector.

Outcome:

The different programmes in support of the tool, die and mould making sector can be strengthened by the results of this study. Furthermore, the results provide important insights into the issues that tool, die and mould making firms are confronted with. Tshumisano and its partners can play a valuable role in the coordination between different actors involved in the tool, die and mould making as well as the Quality Management marketplace.

Responsible party: Tshumisano Trust and the Automotive Component Technology Station (Nelson Mandela Bay), Metal Casting Technology Station (Johannesburg), Product Design Technology Station and Rapid Prototyping Centre (Bloemfontein), Institutes for Advanced tooling and other partners such as TASA, the South African Institute for Foundrymen (SAIF) and the Automotive Industry Development Centre (AIDC).

Due date: 30 October 2009

Activity 14: The Nelson Mandela Metropolitan University (NMMU) business school should develop and host a training course on service marketing aimed at Quality Management service providers

Actions:

1. Suitable literature should be identified such as the handbook of Zeithaml *et al.* (2008) or Lovelock and Wright (2002), and a course on the unique challenges and opportunities in service marketing should be developed. This could either be a short course or a subject in another course.
2. The content should also consider service firms as small businesses and entrepreneurs, and must deal with certain small business issues and entrepreneurial topics, such as profitability, resource management and service business management.

Outcome:

Service providers who operate small firms gain important knowledge of the unique challenges facing service firms. At the same time some business and entrepreneurship skills are improved. A focused course on service marketing will be ground breaking in South Africa and may lead to more universities starting specialised courses on service marketing

Responsible party: NMMU

Due date: 30 June 2010

9.6 CRITICAL EVALUATION OF THE STUDY

It is necessary to critically evaluate the objectives that were formulated at the outset of this study.

The primary objective of this research was to identify the determinants of market failure that affect the more efficient provision and consumption of quality management-related services and the tool, die and mould making industry within the Nelson Mandela Bay area. The outcome of the study was formulated at the start of the process as providing recommendations on how some of the market failures can be addressed by either improving the design of the marketplace, or through interventions targeted to address specific causes of market failure. With the completion of Chapter 9 of this study, this outcome was achieved.

In order to achieve the primary objective, several secondary objectives were formulated. Each of the secondary objectives are presented and evaluated accordingly.

The first secondary objective was to gain insight into the nature of business services and their relationship with the rest of the economy. This objective was achieved with the completion of the literature study discussed in Chapter 2.

The second secondary objective, was to gain insight into how markets function, and more specifically how market failure affects market performance. This objective was achieved in Chapter 3, which presents the results of a literature study on the role and functioning of markets.

The third secondary objective was to examine recent developments in developing or improving market systems undertaken by donors, governments and academia. The literature study presented in Chapter 4 achieves this objective.

The fourth secondary objective was to determine the quality management service functions and their relationship to the tool, die and mould making industry. The objective was achieved through the completion of Chapter 5 which presents a literature study on quality management and standards, and through Chapter 6 which provides background information on the tool, die and mould making industry.

The fifth secondary objective, to identify the items that could be used to determine whether a market is performing, was achieved by using the insights gained from the literature review to formulate the items that comprise the latent constructs in Section 2 and Section 3 of the questionnaire.

The sixth secondary objective was achieved through the development of a questionnaire based on the literature review that could assess the performance of the Quality Management service marketplace from the perspective of the tool, die and mould making industry and Quality Management service providers. The research process described in Chapter 7 provides details on the development of the final research instrument that was administered to 71 tool, die and mould making firms and 15 Quality Management service providers in the Nelson Mandela Bay area.

The seventh secondary objective required the results of the survey to be analysed to determine whether the market design or functioning of Quality Management services can be improved in any way so as to improve the performance of the quality management services market. This was identified as the eighth objective, which was achieved in Chapter 8 where the research findings were discussed.

The eighth secondary objective was to make practical recommendations to the different stakeholders on how the Quality Management service marketplace can be stimulated and supported which would lead to an improvement in usage by tool, die and mould making firms. This was achieved with the recommendations described earlier in this chapter.

The last secondary objective was to offer recommendations for using the questionnaire as a diagnostic instrument. This was achieved through the

recommendations made in the Paragraph 9.7, and therefore this sub-objective is also considered as achieved.

9.7 RECOMMENDATIONS FOR FUTURE RESEARCH

This study makes a contribution to the body of knowledge of approaches used to improve the performance of markets for business services such as Quality Management services used by tool, die and mould making firms. This study, however, only identified and assessed some of the determinants of market failure and market functioning within the context of the Quality Management service marketplace within the Nelson Mandela area. More comprehensive research is still needed to clarify the underlying dimensions of and relationships between different kinds of market failures, and how the interrelationships between different market places affect the performance of a specific market.

In this study, the correlation coefficients between various items measuring a latent construct were calculated, with the discussion focusing on the items that yielded strong relationships. However, the existing data could be used to strengthen the design of future research instruments that may focus more on the relationships between items.

The nature of the study is exploratory, and due to the fact that relatively low-level statistical analysis was performed on the data, it is recommended that more advanced statistical procedures for scale validation, such as exploratory factor analysis and structural equation modelling, be utilised in future studies.

Concerning the use of the research instrument to diagnose the performance of other service market places, the following advice is offered:

- The first part of Section 1 that deals with firm and industry performance could be shortened. In cases where a thorough diagnosis of the competitive pressures on the different market actors is available, Question 1 may be reduced to only those items that are not typically considered using a diagnostic instrument such as Porter's Diamond.

- The second part of Section 1 (Question 2 to Question 6) is important for identifying the awareness, characteristics and attributes of the service being diagnosed.
- Question 8 to Question 15 form the core of the research instrument and investigate the presence of symptoms that indicate impediments to transactions between the two actors. Although it would be tempting to combine Question 8, Question 9 and Question 10 in a future updated version of the questionnaire, researchers should be careful because several symptoms of market failure can be associated with different kinds of market failure. Hence the requirement to test several of the symptoms of market failures from different points of view.
- In Question 16 the signals that communicate good value of Quality Management services are ranked by the respondents, and provide an important insight into the way that communication takes place in the marketplace. For the purpose of this study, five signals were used that were identified in the literature dealing with signal theory. It may be possible to identify additional signals that are used in different societies and in different product or service markets.
- From the research findings it can be seen that the abstract evaluation of the marketplace in Question 17 may appear to contradict the impediments identified in the different latent constructs of the market failures. However, this question is still useful as it provides a logical structure to arrange the findings and to investigate the relationships between the different market failures.

Overall, the most important future improvement to the research instrument would be to develop the depth of statistical analysis that can be applied to the research as discussed earlier in this paragraph. For instance, developing the questionnaire to be more statistically reliable and valid will advance the scientific knowledge of market failure and market functioning. Although the number of items could possibly be reduced, this must be done with great care in order not to overlook certain symptoms of market failures that may be present.

9.8 SUMMARY

In this chapter conclusions were made based on the research findings presented in Chapter 8, and are discussed in the same order that was used in the previous chapter.

The term market failure does not imply that a market has completely failed. It means that markets are not organising production or goods allocation efficiently (Oxford Reference Online, 2009a; Colin, 2003:125; Mankiw, 2003:11). Overall, the respondents in this study indicated that the Quality Management service marketplace was functioning, and that demand was being met with supply. Thus at an abstract level the market seems to be performing adequately. However, the research results identified many areas where there was large variability in the opinions of the two groups of respondents that indicate possible impediments to transactions in Quality Management services.

The areas where the Quality Management market place is underperforming due to the way that information flows in the marketplace can be briefly summarised as follows:

- there is evidence of asymmetrical information in the marketplace, with uneven access to less generic information;
- many service providers are not using effective marketing strategies to inform, educate and reach potential customers, but rather passively depend on publicly funded institutions to connect them with their target market;
- there is a risk of adverse selection due to Quality Management service providers withholding certain information from prospective and current customers (which is also a negative externality);
- another cause of adverse selection could be that price is identified by both groups of respondents as the main signal of good value;
- the trust levels in the markets are low, which is partially due to bad behaviour by some service providers, as well as a reluctance by some service providers to provide detailed documentation such as written quotes, written contracts, progress reports and final evaluations of work done; and

- the search, evaluative and transaction costs are very high, resulting in many tool, die and mould making firms rather staying with their existing Quality Management service providers even if they are not entirely satisfied with them. This tendency is reinforced by the fact that it takes a while for the service offering to show results, which may be undermined by switching service providers.

There are several negative externalities that are affecting the performance of the Quality Management service marketplace, of which the two most prominent are:

- there is an insufficient supply of knowledge workers with suitable tertiary qualifications in the Quality Management service marketplace. This seems to be caused by a lack of available or suitable training programmes at universities, as well as underinvestment in capacity building by the Quality Management service providers.
- the unprofessional or untrustworthy behaviour of some Quality Management service providers is negatively affecting the local Quality Management service marketplace.

A positive externality that stands out is that it is relatively easy for Quality Management service providers and tool, die and mould making firms to imitate Quality Management solutions that work elsewhere in the marketplace.

The entry barriers to using Quality Management services appear to be fairly small for tool, die and mould making firms, although the intensity of involvement of senior decision makers in searching for a suitable service provider and implementing a Quality Management programme may be a barrier to smaller tool, die and mould making firms. The Quality Management service providers are also constrained by the intensity of providing the service placed on their lead experts, whom the respondents felt should have more than five years' experience in delivering Quality Management services to industry. However, it was found that the barriers to entry as a Quality Management service provider are low for people with sufficient knowledge and experience.

From the results it seems that there are no formal sub-optimal market structures operating in the Quality Management service market, although the respondents indicated that most of the Quality Management service providers did provide very similar services. It was mentioned by some respondents that there were actors who were trying to prevent new service providers from entering the market, but the source of this resistance was not identified.

With regard to the effect of copyrights and intellectual rights in the marketplace, it was determined that:

- Some of the Quality Management service providers are constrained by copyrights and intellectual rights on certain methods and approaches to quality management. However, service providers who are accredited or certified to implement national and international quality management solutions should not experience this problem, as they gain access to toolkits, manuals and a wealth of information that can be used.
- Tool, die and mould making firms indicated a strong preference for service providers that are accredited to official national or international bodies.
- Several Quality Management service providers faced the risk that their staff might use their methods and approaches to start rival firms.

The only way to overcome the effect of copyrights and intellectual rights on Quality Management service providers is through:

- continuous product or service innovation to stay ahead of potential competitors; and
- the accreditation of the Quality Management service provider with national or international bodies, as this provides some barrier to new and younger firms that can be overcome by incumbent service providers, and simultaneously provides the service provider with methods and approaches that can be used to advise or guide customers who want to become certified or accredited.

The assessment of the role of public and mixed goods in support of the Quality Management service marketplace found that in general the information sources provided by the public sector were useful at a generic level, but that they lacked

depth in sub-sector or issue-specific material. This was especially the case for the Quality Management service providers, who found it difficult to stay abreast of the latest developments and experiences using public information sources.

In addition, the service providers perceived a threat from publicly subsidised Quality Management services provided by universities and other state-funded organisations. The respondents indicated that they did not believe the state was doing enough to promote the performance and usage of Quality Management services through the marketplace. Furthermore, public sector subsidies were used to lower the cost of using Quality Management services, rather than stimulating innovation by Quality Management service providers. Public agencies such as SEDA and others not only broker deals between tool, die and mould making firms, they even diagnose manufacturing firms and then require service providers to compete for the business of implementing Quality Management solutions based on price. This not only reduces the incentive for Quality Management service providers to advertise or canvass their own customers, it places emphasis on price as the main signal of good value, driving providers of differentiated or high-quality services away from small manufacturing firms whom often depend on state-subsidised or even state-provided services.

The overall conclusion is that the Quality Management service market is working, but that there are many impediments that can be addressed that will further increase the performance of the Quality Management service market. Addressing some of the impediments and the recommendations provided by this study should have a direct impact on the Quality Management service marketplace, as well as on industries such as the tool, die and mould making industry which are served by the Quality Management sector. This should have a positive impact on the performance of the tool, die and mould making industry. Recommendations were made to the Tooling Association of South Africa, Quality Management service providers and supporting institutions that govern and support the Quality Management service marketplace.

To conclude this investigation, the study was evaluated against the objectives set at the beginning, and recommendations for future research were made.

ANNEXURE 1 QUESTIONNAIRE

This annexure contains the questions that were used during the survey. The questionnaire is formatted slightly differently from the layout used during the interview, mainly because the interviewer also used flashcards to remind the respondent of important instructions. The pre-interview information, such as setting up the interview and introducing the purpose of the research is also not contained in this version. The original questionnaire is available upon request.

SECTION 1: FIRM AND INDUSTRY PERFORMANCE

Question 1: Perceptions of firms and industry performance

I am going to read out a number of statements. For each of these statements, could you please indicate by either selecting true (T) or False (F) to indicate how you feel your company/firm is performing on the relevant issues? There are also some general questions. Please also indicate with a T or F what your opinion is of these. Indicate whether the following statements are TRUE or FALSE, according to your experience and knowledge

Q	Statement	TRUE	FALSE
1	My company is making optimal use of its equipment	-1	-2
2	Small firms are able to provide quality products and services	-1	-2
3	It is easy to find new suppliers locally	-1	-2
4	It is easy to find new customers locally	-1	-2
5	Belonging to a business association helps to identify new suppliers and customers	-1	-2
6	It requires very high skills and qualifications to run a service business	-1	-2
7	The industry I belong to is well organised	-1	-2
8	The industry I belong to is benefiting from the adoption of new technology	-1	-2
9	Globalisation has forced me to become more competitive	-1	-2
10	Commercial service providers have assisted my business to become more	-1	-2
11	It is risky to do business with small firms as suppliers or customers	-1	-2
12	It is possible to find staff with the right skills in the marketplace	-1	-2
13	The costs of running my business has increased dramatically in the last few years	-1	-2
14	I'm making a profit in my business	-1	-2
15	I understand the financial statements of my business	-1	-2
16	The local tertiary institutions are able to provide people with the skills needed in my	-1	-2
17	My business depends on one customer for more than 50% of its business	-1	-2

Question 2: Awareness, knowledge, previous and current usage

Q2.a). I am going to read a list of services. Please tell me which of these you are aware of?
 Q2.b). Which of these would you say you have a fair amount of knowledge on?
 Q2.c). Which of these services have you ever used, whether internally within your firm or from an external provider?
 Q2.d). You mentioned that you made use of (Service mentioned in Q.2c) – Which of these services are you using now?

		2.a Aware	2b Know	2c Ever Use	2d Use Currently
1	Quality Management Services	-1	-1	-1	-1
2	Metrology Services	-2	-2	-2	-2
3	Environmental Management Systems	-3	-3	-3	-3
4	Occupation Health and Safety	-4	-4	-4	-4
5	Business Process Management Systems	-5	-5	-5	-5

Question 2.e: Source of awareness test

Q2.e) You mentioned that you know the (Response in Q.2b) quite well. Which source on the card best describes how you became aware of this/these service(s)? CAN BE MORE THAN ONE RESPONSE

		Mainstream Media	Industry specific media	Business Centre support	Business Chamber / industry association	Advertisement	Service provider	Sales Rep / direct marketing	Family / friends	Input Supplier	Customer	Other
1	Quality Management Services	1	2	3	4	5	6	7	8	9	10	11
2	Metrology Services	1	2	3	4	5	6	7	8	9	10	11
3	Environmental Management Systems	1	2	3	4	5	6	7	8	9	10	11
4	Occupation Health and Safety	1	2	3	4	5	6	7	8	9	10	11
5	Business Process Management Systems	1	2	3	4	5	6	7	8	9	10	11

Question 2.f: Main source of awareness

Q2.f). REFER BACK TO Q.2e), FOR EACH SERVICE WHERE AWARENESS WAS OBTAINED THROUGH ONE OR OTHER SOURCE, ASK:
 You mentioned that you obtained your awareness of the service ... (each service mentioned in Q.2b), from ... (source of awareness in Q.2e).
 Which ONE of this/these source(s) do you believe you gained most of your knowledge from for each service?

ONLY SELECT ONE SOURCE FOR EACH SERVICE		Copy from 2b	Mainstream Media	Industry specific media	Business support Centre	Business Chamber / industry association	Advertisement	Service provider	Sales Rep / direct marketing	Family / friends	Input Supplier	Customer	Other
1	Quality Management Services	1	1	2	3	4	5	6	7	8	9	10	11
2	Metrology Services	2	1	2	3	4	5	6	7	8	9	10	11
3	Environmental Management Systems	3	1	2	3	4	5	6	7	8	9	10	11
4	Occupation Health and Safety	4	1	2	3	4	5	6	7	8	9	10	11
5	Business Process Management Systems	5	1	2	3	4	5	6	7	8	9	10	11

Question 2.g: Interaction with the service

Q.2.g) REFER TO Q.2.c and/or Q.2.d). IF RESPONDENT USES QUALITY MANAGEMENT SERVICES, ASK:
 You mentioned that you have in the past, or now use Quality Management services. Which of the following statements best describe your interaction with this service?

	Statement	
1	We have/had an internal division in the company that handles(d) every aspect of quality	-1
2	We have/had an internal division that handles(d) most of the functions of quality	-2
3	I use outside suppliers of quality management services all the time	-3
4	I use outside suppliers of quality management services some of the time	-4
5	Other, specify	-5

Question 3: Actors in the Quality Management marketplace

Q3.a). Which companies, organisations, or affiliations do you know of that influence, guide or support the Quality Management Service market? **SPONTANEOUS. DO NOT PROMPT. RECORD BELOW UNDER Q.3.a**

Q3.b). Which of these companies, organisations, or affiliations do you know of that influence, guide or support the Quality Management Service market? **RECORD BELOW UNDER Q.3b**

Q3c). You mentioned that you know of (Response in Q3b), for each one, could you tell me whether you know someone at this company? **RECORD ONLY THOSE COMPANIES WHERE SOMEONE IS KNOWN. RECORD BELOW UNDER Q.3c.**

Q3d). You mentioned that you knew of (Response in Q3b), which of these companies/ organisations/ affiliations have you ever interacted with? **RECORD ONLY THOSE COMPANIES WHERE INTERACTION HAS TAKEN PLACE. RECORD BELOW UNDER Q3d.**

		Aware of (Spont)	Aware of (Aided)	Know someone	Interact with
		Q3.a	Q3.b	Q3.c	Q3.d
1	Tertiary institutions that provides training or information on Quality Management	-1	-1	-1	-1
2	SANAS – South African National Accreditation Service	-2	-2	-2	-2
3	SEDA (Small Enterprise Development Agency)	-3	-3	-3	-3
4	SABS – South African Bureau of Standards	-4	-4	-4	-4
5	National Productivity Institute	-5	-5	-5	-5
6	Implementation Consultants	-6	-6	-6	-6
7	Certification agencies	-7	-7	-7	-7
8	Other South African Actors:	-8	-8	-8	-8
9	Other International institutions:, PLEASE SPECIFY	-9	-9	-9	-9

Question 4: Reasons for using the Quality Management service

I am going to read out a number of statements that may describe why Quality Management is used in a company. As I read them, please tell me whether the statements is true in your case (True) or not (False).		TRUE	FALSE
4.1	This service helps firms that are not performing so well	-1	-2
4.2	This service helps firms to grow their business	-1	-2
4.3	My business requires this on a frequent basis for its normal operations	-1	-2
4.4	Firms need quality management services for specific projects from time to	-1	-2
4.5	Customers and suppliers demand that I use this service	-1	-2
4.6	This service assists firms to be more competitive	-1	-2
4.7	This service improves the profitability of my firm	-1	-2
4.8	This service assists my firm to better market itself to new and existing customers	-1	-2

Question 5: Service characteristics

5.1	How is this service delivered mostly?	Electronic	Telephonic	QM service provider goes to TDM firm	Printed material	TDM firm goes to the QM service provider
		-1	-2	-3	-4	-5
5.2	How often is the service of the service provider needed?	Daily	Weekly	Monthly	Yearly	Less frequently
		-1	-2	-3	-4	-5
5.3	How involved is the user in the delivery of this service?	Not so involved	Partially involved /Partially not involved	Intensely involved		
		-1	-2	-3		
5.4	What are the intangible benefits that this service provides?	Peace of mind	Cost savings	Quality and standards	Management insight	Competitive edge
		-1	-2	-3	-4	-5
5.5	How is the impact of the service rated?	A task is completed	Certain problems are solved	Skills of staff are upgraded	Systems work better	Profit increased
		-1	-2	-3	-4	-5
5.6	How is good value determined	On speed of delivery	On variety of options	On quality of the service	On price	On impact
		-1	-2	-3	-4	-5

Question 6: Important attributes of Quality Management Services

Q6) I am going to read out certain issues that people have said are either more or less important with regard to Quality Management services. Please tell me, using the Show Card as a guide, how important, or not, each of these issues is to you.		Not very important			Neutral			Very Important
6.1	Receiving a written quote from the service provider	1	2	3	4	5	6	7
6.2	Flexible service options / packages at different prices	1	2	3	4	5	6	7
6.3	Different payment options for a service is important	1	2	3	4	5	6	7
6.4	A written contract before work starts	1	2	3	4	5	6	7
6.5	Performance criteria for the service	1	2	3	4	5	6	7
6.6	Project management of intervention	1	2	3	4	5	6	7
6.7	Frequent reports on progress	1	2	3	4	5	6	7
6.8	Well defined product/service options	1	2	3	4	5	6	7
6.9	Monitoring of progress of implementation	1	2	3	4	5	6	7
6.10	A report on what was done and how it is now working	1	2	3	4	5	6	7
6.11	Printed invoice explaining the various items charged for	1	2	3	4	5	6	7
6.12	Impact measurement of the intervention	1	2	3	4	5	6	7
6.13	The good reputation of the service provider	1	2	3	4	5	6	7
6.14	The age of the business providing the service	1	2	3	4	5	6	7
6.15	The professionalism of the support staff	1	2	3	4	5	6	7
6.16	The track record of the service provider	1	2	3	4	5	6	7
6.17	That the service provider provides brochures and printed material	1	2	3	4	5	6	7
6.18	That the customer is educated on the use of the service	1	2	3	4	5	6	7
6.19	That the service provider advertises in industry or local media	1	2	3	4	5	6	7
6.20	That the service provider belongs to an industry association	1	2	3	4	5	6	7
6.21	That the service consumer understands how the service is charged for	1	2	3	4	5	6	7
6.22	That a certificate of compliance or proof of service competence is issued	1	2	3	4	5	6	7
6.23	Defining clear standards or modules for this service	1	2	3	4	5	6	7
6.24	It is possible to compare the service offerings of different service	1	2	3	4	5	6	7
6.25	The way Quality Management Services are charged for makes sense	1	2	3	4	5	6	7
6.26	Can people with less than 5 years' experience provide this service?	1	2	3	4	5	6	7
6.27	This service is very dependent on the experience of the lead expert in the service firm	1	2	3	4	5	6	7

Question 7: Service Dependence open question

Q.7 Please could you describe in detail to me which other services, if any, that Quality Management services depend on in your firm? In other words, what services or systems have to be in place to ensure that Quality Management services are really useful to you? **FULL PROBE**
Can you think of any other services that Quality Management Services are dependent on in your firm? Is there any other systems and services that need to be in place before QMS can be useful?

SECTION 2: MARKET FAILURE ANALYSIS

Question 8: Information in the marketplace

Think of the transaction between demand (service consumption) and supply (service provision) as a transaction taking place between 2 parties in a marketplace while answering these questions. Use your perspective as a participant in this transaction. <i>I am going to read out certain scenarios regarding information in the marketplace regarding Quality Management services. Please tell me, using Show Card 5 as a guide, how strongly, or not, you agree with each scenario from your own scenario.</i>		Strongly disagree	1	2	3	4	5	6	7	Strongly agree
1	I have chosen a quality-related service offering before which did not have the impact I intended in my business	1	2	3	4	5	6	7		
2	It is difficult to distinguish between a good service offering and a poor offering in the marketplace.	1	2	3	4	5	6	7		
3	It is easier for service consumers to use their current service provider than to switch to a new service provider	1	2	3	4	5	6	7		
4	It is better for a business to employ in-house staff than to pay for external service providers	1	2	3	4	5	6	7		
5	The use and impact of this quality management service are well known in the marketplace	1	2	3	4	5	6	7		
6	Most firms in my industry know of quality management services and their benefits	1	2	3	4	5	6	7		
7	It is possible to find reliable service providers in the current market.	1	2	3	4	5	6	7		

Question 9: Incomplete and inaccurate information

<p>Again, looking at the transactions between a Quality Management service provider and a service consumer; but this time, could we look at the accuracy and completeness of the information? Answer these questions from your perspective.</p> <p><i>I am going to read out certain scenarios regarding incomplete and inaccurate information in the market place regarding Quality Management services. Please tell me, using the show card as a guide, how strongly or not you agree with each scenario from your own perspective.</i></p>		Strongly disagree			Neither			Strongly agree
1	Many problems in my business are related and are reinforce each other.	1	2	3	4	5	6	7
2	It has happened that the full benefit of a Quality Management related service did not materialise because of other problems in my business.	1	2	3	4	5	6	7
3	Small firms can often not answer all the questions that service providers ask about the business.	1	2	3	4	5	6	7
4	It is necessary sometimes to pretend to understand the other party in this kind of transaction – otherwise I look stupid	1	2	3	4	5	6	7
5	I have to inflate my business performance and figures so as not to scare off the other party from entering into a contract	1	2	3	4	5	6	7
6	I hide information from the other party because I do not want to reveal how much I need them.	1	2	3	4	5	6	7
7	It is important that a business is first properly diagnosed by the service provider before a service is provided	1	2	3	4	5	6	7
8	It is difficult to prioritise the areas of my business that need attention.	1	2	3	4	5	6	7
9	I always check up on the referrals of the other party before transacting	1	2	3	4	5	6	7

Question 10 Trust in the marketplace

Again, looking at the transactions between a Quality Management service provider and a service consumer; This time look at the accuracy and completeness of information <i>I am going to read certain scenarios regarding incomplete and inaccurate information in the Quality Management service market place. Please use the scale to indicate how much you agree or disagree with each statement, using the show card as your guide. Please answer from your own perspective.</i>		Strongly disagree			Neither			Strongly agree
1	There is a risk that the other party to this transaction could share my business secrets with my competitors	1	2	3	4	5	6	7
2	Service providers must hide their techniques and methods from their customers, otherwise they will not be needed any more	1	2	3	4	5	6	7
3	I trust the trading partners to be honest about their ability to transact in a mutually beneficial way	1	2	3	4	5	6	7
4	I would prefer it if the other party signed a confidentiality agreement.	1	2	3	4	5	6	7
5	Service providers that are bound by a code of conduct are more likely to get more business	1	2	3	4	5	6	7
6	Service providers can be trusted to provide the right solutions to small firms	1	2	3	4	5	6	7
7	Service providers that offer written contracts with timelines and budgets get more business.	1	2	3	4	5	6	7
8	Service providers often attempt to sell firms services that they do not need	1	2	3	4	5	6	7

Question 11: Externalities

Very often there are external influences on your ability to transact with a certain service provider. We would like to get a better idea or analysis of these forces. <i>I am going to read out certain scenarios that may describe the external issues that can influence Quality Management service providers and the users/purchasers of these services. Please tell me, using the show card as a guide, how strongly you agree or disagree with each scenario from your own perspective.</i>		Strongly disagree			Neither			Strongly agree
1	When other firms use this service my firm also benefits even if I do not use it myself (indirect benefit)	1	2	3	4	5	6	7
2	Staff that interact intensively with these service providers are developed and become more valuable	1	2	3	4	5	6	7
3	It is more beneficial to train staff internally (on the job) than to send them on formal training	1	2	3	4	5	6	7
4	It is cheaper to poach experienced staff members than to train them internally	1	2	3	4	5	6	7
5	It is possible to imitate what other firms are doing without having to undergo a difficult learning process	1	2	3	4	5	6	7
6	The behaviour of other firms in this marketplace impacts on my firm negatively	1	2	3	4	5	6	7
7	The more firms in my industry that use this service, the more competitive we all become	1	2	3	4	5	6	7

Question 12: Indivisibilities and transaction costs

This section will look at the barriers to using or providing a Quality Management related service, and the costs of transacting. <i>I am going to read certain statements that people have said may or may not describe the barriers to using Quality Management related services. Please tell me, using the show card as a guide, how strongly you agree or disagree with each scenario from your own perspective.</i>		Strongly disagree			Neither				Strongly agree
1	The duration to recover the cost of using quality management services determines whether firms use it.	1	2	3	4	5	6	7	
2	Without the right equipment a firm cannot benefit from this service.	1	2	3	4	5	6	7	
3	Using the service takes too much time and energy of the business owner or senior manager	1	2	3	4	5	6	7	
4	Only an expert with high qualifications can provide this service	1	2	3	4	5	6	7	
5	Firms prefer to buy from service providers that offer customised solutions with different payment options	1	2	3	4	5	6	7	
6	If I could afford a better service provider I would switch immediately	1	2	3	4	5	6	7	
7	The cost of learning to use this service is high	1	2	3	4	5	6	7	
8	The cost of providing this service is high	1	2	3	4	5	6	7	
9	A written quote helps to clarify what the impact and requirements of a service are	1	2	3	4	5	6	7	
10	It takes a while to get the full benefit of this service	1	2	3	4	5	6	7	
11	It is very time consuming for me to find reliable transacting partners for this service	1	2	3	4	5	6	7	
12	Many smaller firms do not have enough cash flow to use this service frequently	1	2	3	4	5	6	7	

Question 13: Sub optimal market structures

This section will look at the ability of some firms to dominate the provision or consumption of service. The diversity of offerings will also be tested. <i>I am going to read out certain statements that may or may not describe the type of environment in which Quality Management services may operate. Please tell me, using the show card as a guide, how strongly you agree or disagree with each scenario from your own perspective.</i>		Strongly disagree			Neither				Strongly agree
1	In this market there are only a few players who influence what is provided and what is used	1	2	3	4	5	6	7	
2	There are people that are preventing new service providers from entering the market	1	2	3	4	5	6	7	
3	There are many service providers to choose from	1	2	3	4	5	6	7	
4	All service providers sell more or less the same services	1	2	3	4	5	6	7	
5	All customers demand more or less the same services from their service providers	1	2	3	4	5	6	7	
6	There is a need for more diverse service offerings in this market	1	2	3	4	5	6	7	

Question 14: Intellectual and property rights

This section will look at how your firm is protected by the use of intellectual and other property rights. How your property rights can be used will also be tested. <i>I am going to read out certain statements that may or may not describe how your firm/company is protected by the use of intellectual or property rights. Please tell me, using the show card as a guide, how strongly you agree or disagree with each scenario from your own perspective</i>		Strongly disagree			Neither			Strongly agree
1	My firm has assets that can be used for collateral in order to access finance	1	2	3	4	5	6	7
2	My firm uses patents and copyright laws to protect its assets	1	2	3	4	5	6	7
3	There are patents and intellectual property rights that prevent my firm from expanding or competing	1	2	3	4	5	6	7
4	There is a possibility that my staff can use my methods and approaches to start a rival firm despite intellectual and property rights and copyrights	1	2	3	4	5	6	7

Question 15: The role of public and mixed goods

<p>This section will look at how the services offered by public agencies, publicly funded/subsidised services, chambers of commerce, Non-governmental Organisations (NGO's) and Business Members Organisations influence the Quality Management Services marketplace. Answer these questions from your perspective.</p> <p><i>I am going to read out certain statements that may or may not describe how (quality management) services are offered by public agencies, public organisations and public affiliations. Please tell me, using the show card as a guide, how strongly you agree or disagree with each scenario from your own perspective</i></p>		Strongly disagree			Neither			Strongly agree
1	There is at least one public information source that I use to stay up to date with the latest Quality Management products and services for my business.	1	2	3	4	5	6	7
2	Current information sources in the QMS marketplace are too generic for my business	1	2	3	4	5	6	7
3	I know of at least one incentive scheme or support programme for my industry that is useful that promotes the use of better quality	1	2	3	4	5	6	7
4	The government is adequately promoting the growth and performance of the Quality Management Services Market	1	2	3	4	5	6	7
5	The Quality Management advice provided by a university, business advice centre or local government is useful to my firm	1	2	3	4	5	6	7
6	Small firms cannot really become more competitive if they depend on the generic services of government sponsored agencies	1	2	3	4	5	6	7
7	Chambers of commerce and industry associations play an important role in connecting QM service providers and firms	1	2	3	4	5	6	7
8	The professional body representing the QMS industry can assist me with general information on the service	1	2	3	4	5	6	7
9	There are websites and other media available that assist me to identify and contract relevant QM service providers	1	2	3	4	5	6	7
10	Service providers that adhere to certain Quality Management standards such as ISO, etc. provide better service	1	2	3	4	5	6	7
11	The public or subsidised agencies provide goods of a similar value at a lower price than private sector service providers	1	2	3	4	5	6	7
12	The needs of my industry are promoted to QM service providers adequately	1	2	3	4	5	6	7
13	Quality Management Service providers that specialise in my industry provide me with better services	1	2	3	4	5	6	7
14	Tertiary institutes play an important role in the Quality Management Service marketplace by providing relevant skills and information	1	2	3	4	5	6	7

SECTION 3: MARKET DESIGN AND FUNCTIONING

This section deals with how the market is designed and how it functions. Please respond from your own perspective as a participant in the market.

Question 16: Total performance of the marketplace

I am going to read out certain statements that could describe the total performance in the market place. Please tell me how strong or weak you believe these areas to be. If you are not sure, feel free to use the Neutral/Not sure option.		Very weak	Weak	Neutral	Strong	Very strong
1	Legal recourse in case another party does not keep to the agreement	1	2	3	4	5
2	The way information flows in the marketplace between the various players	1	2	3	4	5
3	The ability of service providers and service consumers to trust each other	1	2	3	4	5
4	The competitiveness of the Quality Management Service marketplace	1	2	3	4	5
5	The ability of the transacting parties to protect their assets and copyrights	1	2	3	4	5
6	In this market demand is met by supply	TRUE		FALSE		
		1		2		

Question 17: Market signals in the QM marketplace

I am going to read out certain statements regarding market signals in the Quality Management service market that could describe how good value is communicated in the QMS marketplace. Please rank each of these issues from 1 (most important) to 5 (least important). Answer this question from your perspective on the service market. Please note that each statement can only have a unique RANKING.

Item		RANK
1	Through the price of the service	
2	Through the promotional activities of the firm	
3	Through the guarantees provided by a QM service provider	
4	Through the brand name or brand value of the QM service provider	
5	Through international associations of the service provider	

Question 18: Open question

Is there anything that you feel is important to mention with regard to Quality Management services that we may not have discussed so far? Can you describe this to me in a little more detail? FULL PROBE

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Question 19: Biographical information and corporate structure

6	Firm age	YEARS						
7	Organisation type	Company Closed Corporation (Private) or	Company (Public)	Government or State owned Agency	Non Governmental Organisation Not for Profit or	Industry Association, Chamber	Tertiary Research Institution or	Other
		-1	-2	-3	-4	-5	-6	-7
8	Your main function	Business Owner	Senior Decision maker	Consultant	Academic	Enterprise Development Expert	Procurement Manager	Technical Expert / Specialist
		-1	-2	-3	-4	-5	-6	-7
9	Highest academic qualification.	Lower than Matric or Senior Certificate	Matric or Senior Certificate	Certificate	Diploma (Technical college or Technicon)	University degree	Post Graduate degree	Other
		-1	-2	-3	-4	-5	-6	-7
10	Number of employees	1-4	5-10	11-25	26-50	51-100	101-200	200+
		-1	-2	-3	-4	-5	-6	-7
11	Estimated turnover of the business per year?	<R1m	R1-2.5m	>R2.5-10m	>R10-50m	>R50-100m	>R100m	
		-1	-2	-3	-4	-5	-6	-7
12	Estimated percentage of foreign earnings of the business?	Less than 10%	10-25%	26-40%	41-50%	51—65%	66-80%	>81%
		-1	-2	-3	-4	-5	-6	-7
13	Who are your main competitors?	Local firms	Regional firms	National firms	Firms in other countries	Foreign firms with local	I'm not sure	
		-1	-2	-3	-4	-5	-6	

The next question is for classification purposes. Could you please indicate what the percentage of black ownership of your company is? If you are not sure, select the *not sure* option.

15	% of black ownership	None	>10%	25%	50%	75%	100%

Which of the following statements apply to you?

Your company belongs to a tool, die and mould association?	1
Your company belongs to the tool, die and mould sector?	2
None of these	3
other, please state	4

The last item was to select the industry classification of the firm from Table 7.4.

ANNEXURE 2 ADDITIONAL DATA TABLES

The table below list the original ranking of the signals by the two groups of respondents in Question 17 of the Questionnaire (see Question 17 in Annexure 1).

TDM firms					
Rank position	Price	Promotion	Guarantees	Brand name	International associations
1 st	38	7	5	8	13
2 nd	9	4	41	12	4
3 rd	10	24	16	8	11
4 th	3	12	6	28	20
5 th	10	23	2	14	22
QM SP					
Rank position	Price	Promotion	Guarantees	Brand name	International associations
1 st	5	1	3	2	4
2 nd	3	3	5	2	2
3 rd	3	5	3	4	0
4 th	3	1	1	4	6
5 th	1	5	3	3	3

The numbers in this table represent the actual number of times each of the five signals were ranked in a given position, thus price was ranked first 38 times by the tool, die and mould firms.

Next it was necessary to apply the scores to each ranking as described in Table 8.30. For each 1st place ranking five points were awarded, with 2nd = 4, 3rd = 3, 4th = 2 and last place = 1 point. The scores were multiplied to the number of times each item was ranked first to last. The results are presented in the next tables.

TDM firms						
Rank position	Price	Promotion	Guarantees	Brand name	International associations	Total points
1 st	190.0	35.0	25.0	40.0	65.0	355.0
2 nd	36.0	16.0	164.0	48.0	16.0	280.0
3 rd	30.0	72.0	48.0	24.0	33.0	207.0
4 th	6.0	24.0	12.0	56.0	40.0	138.0
5 th	10.0	23	2	14	22	71.0
Column total	272.0	170.0	251.0	182.0	176.0	1051.0
% of total points	25.88%	16.18%	23.88%	17.32%	16.75%	100%
For each 1 st place ranking 5 points were awarded, with 2 nd position receiving 4 points and so on						
QM SP						
Rank position	Price	Promotion	Guarantees	Brand name	International associations	Total points
1 st	25	5	15	10	20	75
2 nd	12	12	20	8	8	60
3 rd	9	15	9	12	0	45
4 th	6	2	2	8	12	30
5 th	1	5	3	3	3	15
Column total	53	39	49	41	43	225
% of total points	23.56%	17.33%	21.78%	18.22%	19.11%	100%
For each 1 st place ranking 5 points were awarded, with 2 nd position receiving 4 points and so on						

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