

Exporters' information requirements:
The role of Competitive Intelligence in the
export promotion of extruders

Marié-Luce Kühn, MA

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ABSTRACT

Export-led growth is important for a number of reasons. At a macro-economic level, it can create profit, allowing a country to balance its finances and manage its debt. Export-led growth can also lead to higher productivity and job creation. At a micro-economic level, exports and export-led growth lead to higher competitiveness and business growth. From an exporter's perspective, however, participation in the global economy and export to new foreign markets bring with them the challenge of acquiring the required knowledge of an unknown market.

Relevant information gathered has to be subjected to analysis and interpretation before it can be applied to strategic business decisions regarding the company and its market. This study proposes that Competitive Intelligence (CI) be used as an instrument to determine the types of export information that exporters require, as it focuses on exporters' information requirements and enhances their competitiveness. The increasingly competitive business environment places increasing demands on Trade Promotion Organisations (TPOs) to make better use of resources available in order to tailor products and services to the needs of exporters. TPOs are amongst the main sources of information and export assistance for exporters. Other export information sources include publications and a variety of human sources. The assistance of TPOs can take the form of various export-promotion instruments, such as market research, trade fairs and business introductions. TPOs face various challenges, including that of scarce resources. Therefore, such resources must be utilised optimally and in order to achieve efficiency, Realistic Export Opportunities (REOs) need to be prioritised.

This study stresses the importance of export diversification and the export of manufactured goods. Export diversification brings its own challenges including the question of which products to promote

for export. The application of a Decision Support Model developed by Cuyvers *et al.* (1995:173) for South Africa identified a number of REOs. Amongst these was the export of South African-manufactured extruders to Tunisia. Against the background of the importance of export growth, the types of information that exporters use and the sources of such information were determined by means of a survey of extruder manufacturers, TPOs and users of extruders. With the export potential of extruders to Tunisia as an REO as focus, a market study was conducted using the case study research method.

Results of the survey indicate that the only type of information that extruder manufacturers as potential new exporters in South Africa seek on a continuous basis is competitor information, specifically pricing information. However, the findings indicate that this is not typically the type of information supplied by TPOs in South Africa. Furthermore there is no evidence that extruder manufacturers have processes in place to monitor markets and competitors, or to identify key types of information. Concerning the case study, it was found that there is indeed a potential market for extruders in Tunisia and that the industries in which extruders are typically used are significant and growing. It was however also found that there are high trade barriers and high market concentration. Therefore, in terms of an export-promotion strategy for TPOs, an offensive export-promotion strategy is proposed.

In terms of further research, this study points to a need for research of this nature to extend to the wider capital equipment industry. It is further recommended that market profiles of the markets that show the most potential for specific products produced and manufactured in South Africa as evident from the results of Rossouw, Steenkamp, Viviers and Cuyvers (2010) be compiled.

Keywords:

Types of information, exports, exporters, sources of information, Decision Support Model, Trade Promotion Organisations, trade-promotion strategy, trade promotion instruments, South Africa, Tunisia, extruders, extrusion, manufacturing sector

OPSOMMING

Uitvoergedrewe groei is belangrik om verskeie redes. Op 'n makro-vlak lei uitvoergedrewe groei tot 'n positiewe handelsbalans en stel dit 'n land in staat om skuld te bestuur. Uitvoergedrewe groei lei voorts tot hoër produktiwiteit en werkskepping. Op 'n mikro-vlak lei uitvoere tot hoër mededingendheid en sakegroei. Hierdie studie benadruk die belangrikheid van uitvoere en veral die belangrikheid van uitvoerdiversifikasie en die noodsaaklikheid van uitvoergroei van vervaardigde produkte. Vanuit 'n uitvoerdersoogpunt bied deelname aan die wêreld ekonomie en die toetreding tot nuwe onbekende markte groot uitdagings in terme van die tipes inligting wat benodig word (inligtingsbehoefte). Daarmee saam ervaar uitvoerbevorderingsorganisasies (UBOs) groter druk om beter gebruik te maak van beskikbare hulpbronne ten einde 'n gepaste inligtings- en uitvoerbevorderingsdiens aan uitvoerders van 'n land te bied.

Gepaste inligting wat ingesamel word moet ontleed en geïnterpreteer word alvorens dit in sakebesluite oor byvoorbeeld groei en nuwe markte aangewend kan word. Hierdie studie stel voor dat Mededingende Intelligensie (MI) as proses en instrument gebruik word om die belangrike tipes inligting wat uitvoerders benodig te bepaal. Mededingende Intelligensie verskaf fokus in terme van inligtingsbehoefte en verhoog 'n uitvoerder se mededingendheid. UBOs is onder die hoofbronne van uitvoerbystand aan uitvoerders. Ander bronne sluit publikasies en 'n verskeidenheid menslike bronne in. Ondersteuning van UBOs kan in die vorm van uitvoerbevorderingsinstrumente wees insluitende marknavorsing, handelsmissies en sakenetwerke. UBOs het egter sekere uitdagings insluitende beperkte hulpbronne. Derhalwe moet UBOs fokus op die bevordering van realistiese uitvoergeleentheid (RUG). Uitvoerdiversifikasie lei ook tot sekere uitdagings insluitende die vraag oor welke produkte vir uitvoer bevorder moet word. Dit is derhalwe belangrik om RUGs te prioritiseer. Die toepassing van 'n besluitnemingsmodel wat deur Cuyvers, De Pelsmacker, Rayp en Roozen (1995:173) ontwikkel is en op Suid-Afrika toegepas is in studies deur Rossouw,

Steenkamp, Viviers en Cuyvers (2010) het 'n aantal sodanige RUGs geïdentifiseer. Onder hierdie RUGs was die uitvoergeleentheid vir Suid-Afrikaansvervaardigde ekstrudeerders na Tunisië. Teen die agtergrond van die belang van uitvoergroei is die tipes inligting wat uitvoerders benodig sowel as die bronne van inligting bepaal deur middel van 'n ondersoek onder ekstrudeerdervervaardigers, UBOs en gebruikers van ekstrudeerders. Teen die agtergrond van die potensiaal van ekstrudeerderuitvoere na Tunisië as RUG, is 'n markstudie voorts gedoen deur 'n gevallestudiemetode te volg.

Resultate van die gevallestudie het aangetoon dat ekstrudeerdervervaardigers slegs een tipe inligting op 'n deurlopende grondslag soek en dit is mededingerinligting en meer spesifiek prysinligting van mededingers. Resultate het egter getoon dat dit nie die tipe inligting is wat UBOs aan uitvoerders beskikbaar stel nie. Resultate toon voorts dat sodanige uitvoerders geen proses het om inligtingsbehoefte te bepaal en dan die nodige inligting in te samel, te ontleed en te gebruik in strategiese besluitnemingsprosesse nie. Die gevallestudie het bevind dat daar inderdaad 'n uitvoergeleentheid vir ekstrudeerders na Tunisië is en dat die industriesektore waar ekstrudeerders tipies aangewend word, betekenisvol is ten opsigte van grootte en groei. Daar is egter bevind dat daar 'n redelike mate van markkonsentrasie is en dat marktoegang 'n uitdaging is. In terme van uitvoerbevordering is daar derhalwe aanbeveel dat UBOs in hierdie geval 'n offensiewe uitvoerbeleid moet volg. In terme van verdere navorsing wys hierdie studie op die behoefte aan soortgelyke navorsing in die wyer kapitale toerusting industrie. Daar is voorts aanbeveel dat markprofiele opgestel word van ander markte wat volgens Rossouw *et al.*, die hoogste potensiaal vir produkte wat in Suid-Afrika vervaardig is, toon.

Sleutelwoorde:

Tipes inligting, bronne, uitvoere, uitvoerders, uitvoerbevordering, uitvoerbevorderingstrategieë, instrumente, Suid-Afrika, Tunisië, ekstrudeerders, ekstrusieproses, regering, vervaardigingsektor, uitvoerbevorderingsorganisasies, offensiewe uitvoerstrategie, uitvoerdiversifikasie

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ABBREVIATIONS

| | |
|--------|--|
| AMU | Arab Maghreb Union |
| API | Agence de Promotion d'Industrie (Industry Promotion Agency, Tunisia) |
| CFAM | Centre for Advanced Manufacturing |
| CI | Competitive Intelligence |
| DSM | Decision Support Model |
| DTI | Department of Trade and Industry |
| FDI | Foreign Direct Investment |
| FTA | Free Trade Area / Agreement |
| GDP | Gross Domestic Product |
| GSP | Generalised System of Preferences |
| IDC | Industrial Development Corporation |
| IMF | International Monetary Fund |
| INS | Institut National de la Statistique (National Statistics Institute, Tunisia) |
| ITC | International Trade Centre |
| JBC | Joint Bilateral Commission |
| KIN | Key Intelligence Needs |
| MDIC | Ministry of Development, Industry and Foreign Trade, Tunisia |
| MOU | Memorandum of Understanding |
| NES | National Export Strategy |
| NTB | Non-tariff barrier |
| OECD | Organisation for Economic Co-operation and Development |
| REO | Realistic Export Opportunity |
| SACEEC | South African Capital Equipment Export Council |

| | |
|---------|--|
| SADC | Southern Africa Development Community |
| SARB | South African Reserve Bank |
| TISA | Trade and Investment South Africa |
| TPO | Trade Promotion Organisation |
| TIFA | Trade and Investment Framework Agreement |
| TRAINS | Trade Analysis and Information System |
| UNCTAD | United Nations Conference on Trade and Development |
| UNESCAP | United Nations Economic and Social Commission for Asia and the Pacific |
| WCO | World Customs Organisation |
| WEF | World Economic Forum |
| WFP | United Nations World Food Programme |
| WTPF | World Trade Point Federation |
| WTO | World Trade Organisation |

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CHAPTER 1: INTRODUCTION

1.1 BACKGROUND

The South African economy faces many challenges, including low economic growth, poverty and income inequality. Exacerbating this situation is the slow growth in export of manufactured goods especially, the continuing trade imbalance and the slow growth in the manufacturing sector. Another exacerbating factor is the current state of the global economy, which has remained under pressure due to globalisation, the recent financial crisis, fiscal adjustment, inflation targeting, poverty and other factors. In this context, one of the key aims of the South African government is to increase exports and specifically exports of the country's manufactured goods. In South Africa, export of manufactured products has increased since 1994 but insufficiently so to generate an export-led growth boom similar to that of East Asia and other dynamic emerging economies. Moreover, South African manufactured exports remain capital- and skill-intensive and South Africa has failed to diversify into new and fast-growing export sectors (Kaplan, 2003).

Exports are important, as they yield enhanced economic activity as a result of efficient allocation of resources that stimulates output growth in the economy as a whole. Exports also lead to an overall increase in growth, resulting from an increase in employment and income earned in both the domestic and foreign markets (Balassa, 1978:182; Cuyvers, De Pelsmacker, Rayp & Roozen, 1995). Additionally, exports earn foreign currency, which can be used to finance imports of intermediate goods, thereby enhancing capital formation and output growth (Esfahani & Munir, 2000).

The aim of growing exports however gives rise to new challenges to the South African government and South African exporters. For the government, on a macroeconomic level, the challenge concerns the content of export promotion policies to promote certain sectors and the pressure on

government's Trade Promotion Organisations (TPOs). The adoption of export promotion programmes by government has many objectives but ultimately serves to assist companies to gain a competitive advantage by acquiring experiential knowledge that enables them to reduce the risks and uncertainty that prevails in foreign markets (Viviers & Calof, 1999).

Governments have many different policies, programmes and activities to help develop competitive products and increase export sales. Governments can assist businesses in the private sector with a wide range of services, from providing information about current opportunities in the world market to giving specialised assistance for designing and implementing marketing programmes and sales campaigns abroad. These activities may be described as export promotion and are typically carried out by a TPO (Cuyvers *et al.*, 1995). The main objective of export promotion activities is to encourage increased sales of products that are currently available for export. All promotional efforts are based on existing production and aimed at increasing the value of foreign sales by a given target.

To a significant extent, export development can concentrate on product adaptation; that is, use of existing production capacity to manufacture new products when better markets are found for those products than for traditional products. Most developing countries make export promotion and development a priority in order to achieve economic development goals. Governments expect that sustained export promotion and development efforts will help earn additional foreign exchange needed to cover the cost of imports, solve balance of payments problems, help reduce the burden of increased foreign indebtedness and create additional employment for people (Cuyvers *et al.*, 1995). Export promotion and development activities should be carried out by specialised institutions devoted to this task. This makes the TPO a key actor, which receives support and relies on other specialised institutions. Governments establish TPOs to develop and implement the country's export promotion and development programmes. Trade Promotion Organisations

normally have a dual role: (a) to provide specialised support to the manufacturers of products for export; and (b) to serve as a catalyst for related services provided by other entities in the public and private sectors.

Export promotion strategies are part of trade promotion and should focus on company, industry, and national levels. At company level, a specific focus is required to drive the effort towards becoming exporters. At an industry level, export promotion strategies focus on increasing the export of existing products and developing new exportable products. These new products often originate from spin-offs or downstream activities from existing core industries. Industry councils or associations can play a major role by advising and working with the government or its designated trade body to develop export promotion strategies. These strategies should be based on comprehensive study of the export potential for select products. At a national level, the government sets the overall economic direction and trade development strategy. Establishing the export dimension of this strategy in terms of appropriate economic instruments and export promotion measures is critical to national export performance. Therefore, the design of relevant trade policies is key to a successful national export promotion programme (UNESCAP, 2001).

Seringhaus and Rosson (1990:3) state that governments are highly involved in export activities and that they allocate significant resources to assisting companies to start exporting and to assisting existing exporters to expand their foreign market operations. There is significant literature on the role of governments in export promotion and on the different approaches by governments in delivering export promotion services (Seringhaus & Rosson, 1990; Calderón, Fayós & Cervera, 2005; Hauswirth, 2006). The main aim of any government's export promotion activities is to increase international competitiveness of domestic companies (OECD, 1998:1). In turn the ability of companies to expand sales in international markets is key to industrial growth (OECD, 1998: 137).

Evidence that government involvement in the design of export promotion policy leads to export success is well-documented (Dunning, 1997; Pearson, 2007). This involvement is mainly in the form of the allocation of resources to trade promotion and differs in terms of the manner in which available resources are allocated and the extent to which they are used (Dunning, 1997). According to Cuyvers (1996) and Cuyvers (2004), TPOs often have to decide upon the manner in which to allocate available skills and resources to trade promotion. Owing to this, a need for a scientific basis to identify specific products or sectors for export promotion arose in order to inform the allocation of scarce resources mainly to such export potential. Cuyvers *et al.* (1995) argue that such product and market selectivity should be informed by an analysis of Realistic Export Opportunities (REOs).

At a micro-economic level, companies are motivated to export for several reasons. Initially the size of the domestic market may be too small for the company, resulting in it seeking larger foreign markets (Calof, 1994:120). Companies that export have higher average wage costs and produce more output per worker (Rankin, 2001). Furthermore, exports lead to the efficient allocation of resources, greater capacity utilisation, gains from economies of scale and technological advancements by the company due to competitive pressure in foreign markets (Helpman & Krugman, 1985). Participation in the global economy and export to new foreign markets however bring with them the challenge of obtaining knowledge of an unknown market. In order for such exporters to succeed, information on various topics is required, including macro-economic, competitor, and market and marketing information. This information is obtainable from various sources, such as TPOs, export councils, human sources and industry-specific publications. The current study seeks to examine the need to identify the export opportunities that have the potential to be successful at the macro-economic level and, at the micro level, the need to determine which types of information exporters require and which sources of information are available to them in

order to make strategic decisions regarding their expansion into the possible export markets. These two aspects must be compared in order to determine whether there is any gap or discrepancy between the needs and the supply of information for exporters. This chapter subsequently presents the problem statement of the problem under investigation, the research objectives, the research methodology and an outline of the chapters of the thesis.

1.2 PROBLEM STATEMENT

Historically, in South Africa, little consideration was given to export opportunities in new markets or opportunities for new products in existing markets (Erero, 2004; Gouws, 2005). A number of REOs were identified by Rossouw, Steenkamp, Viviers and Cuyvers (2010), which adapted the Decision Support Model (DSM) developed by Cuyvers *et al.* (1995) and Cuyvers (2004) to South African circumstances (Pearson, 2007). One of the products identified as having the highest number of export opportunities was machinery for specialised industries (see Pearson, 2007, for more detail.)

As South Africa's capital equipment industry has been identified by the Department of Trade and Industry (DTI, 2009) as an appropriate sector to target for growth due to the valuable contribution towards development that it can potentially make, a list of specialised machinery was compiled by the author. As extruders are manufactured in Potchefstroom and more specifically at the Centre for Advanced Manufacturing (CFAM) of the North-West University (NWU), the export promotion of this machinery product was identified as holding economic advantages for the city, the North West Province and the country. From the results of Rossouw *et al.* (2010), it is evident that the export of extruders as a product to Tunisia presents a REO. For this reason, this product–market combination was selected for the empirical study (see Chapter 6). The REO for extruders to Tunisia is categorised as a REO in a specific cell of a matrix that combines various categories of market characteristics and South African market share (for more detail on the filters of the DSM see

Section 3.4 and Table 3.1). Extruders to Tunisia fall in Cell 2, which represents a short- and long-term growth market for extruders and indicates that South African exported extruders have a negligibly small or no market share in Tunisia. The potential export value of South African extruders to Tunisia is US\$6,702,000 (see Annexure A), although South Africa currently does not export any extruders to Tunisia (Rossouw *et al.*, 2010).¹ Since Tunisia represents an REO for South African extruders and was identified by the DTI as a strategic trade partner of South Africa with links to both the Arab and European markets (see Section 6.3.5), Tunisia was select as the REO for investigation.

Therefore, the research questions of this study are to investigate the types of information required by exporters (including new exporters) in order to become successful exporters and determine what sources of information are available to and accessed by exporters with special reference to new exporters. The research questions are also to investigate which strategic actions new exporters of extruders need to take to execute the export opportunity identified in Tunisia as well as the desired export promotion strategies TPOs should follow to achieve export success of the capital equipment industry, with special reference to extruders to Tunisia.

1.3 RESEARCH OBJECTIVES

In order to answer the abovementioned research question, the primary research objectives of this study are:

- to provide a theoretical overview of the types of information that exporters require, the sources of this information, and the manner in which exporters access, gather and use such information (Chapter 2);

¹ A full list of other REOs for South Africa is available in Annexure B.

- to investigate the information requirements of extruder manufacturers as new exporters in order to become successful exporters (Chapter 5);
- to determine what sources of information are available to and accessed by exporters with special reference to new exporters (Chapter 5);
- to assess the information and services provided to manufacturers and exporters by South African TPOs, most notably the DTI and the South African Capital Equipment Export Council (SACEEC), including the identification of gaps between what is offered by TPOs and what information and services new exporters require (Chapter 5); and
- to introduce competitive intelligence (CI) as an instrument used by exporters to identify key intelligence requirements and thereafter gather and use the information required more efficiently and strategically in order to increase their exports (Chapter 2).

The secondary objectives of this study are:

- to conduct an in-depth market analysis on extruder exports to Tunisia, including recommended strategic actions for potential and existing exporters of extruders in order to execute on the identified export opportunities (Chapter 6);
- to provide guidelines in terms of the type of export promotion strategy that TPOs should follow in order to capitalise on the specific REO, namely the export of extruders to Tunisia (Chapter 6); and
- to provide recommendations on a comprehensive export promotion strategy for the capital equipment industry (Chapter 6).

1.4 RESEARCH METHODOLOGY

The research methodology entailed two main components, namely a literature review and an empirical study that involved a number of interviews. Detail on these components is provided in the

next sections.

1.4.1 Literature review

The literature review will provide an overview on the theory related to the importance of exports as a determinant of growth. It will discuss the importance of the exports of manufactured goods and the role of governments as TPOs in export assistance and promotion. The literature review will also provide a theoretical overview of the types of information that exporters require and the way they access, gather and use such information.

Furthermore, the various sources of information available to exporters and to TPOs in particular as sources of information will be described. Competitive Intelligence will be introduced as an instrument used by exporters to identify key types of information and gather and interpret such information for use in export decisions.

1.4.2 Empirical study

The empirical component of this study entailed two forms of descriptive research, namely a survey and a case study. The aims of the survey were to determine the types of information required by exporters of extruders and the sources of information that are available to extruder exporters, and to assess the degree in which exporters use CI as an instrument to enhance exports. The case study was used to explore the REO of extruder exports to Tunisia as identified by the DSM by means of an export market profile of extruders to Tunisia. The results of the empirical study will be presented in Chapters 5 and 6.

1.4.2.1 Survey design

The survey focused on South African manufacturers of extruders, the users of extruders (most notably manufacturers of food, feed, plastics and polymers and aluminium and metal products) and the two TPOs most concerned with the manufacturers and exporters of capital goods and by extension extruders, namely the DTI and the SACEEC. In order to participate in the study, respondents were required to manufacture extruders, or use extruders in manufacturing products, or be directly involved in export promotion activities aimed at exporting extruders (manufacturers of specialised machinery).

For the survey, personal and telephone interviews were conducted using semi-structured questionnaires of one type for manufacturers, one type for users and one type for TPOs that consisted mainly of closed questions. The users of extruders, leading role-players in each of the main industries in which extruders are used, were interviewed by telephone. Twenty-two interviews were conducted.

The data obtained from the interviews was transcribed and then analysed in order to gain an understanding of the export information needs, as well as sources of information of new exporters of extruders and the export information services for exporters available to such exporters. The data gathered was then qualitatively and quantitatively analysed. In this thesis, the collected data is organised according to the following four topics:

- the various types of information and the importance thereof;
- the sources of information and the importance and quality thereof;
- the export support services supplied by TPOs, in particular services that entail various types of export information; and
- the process whereby important information needs are determined, that is the manner in which

CI manifests in the information-seeking behaviour of extruder exporters.

Competitive drivers were used as indicators of information priorities. The results, findings and recommendations pertaining to the survey will be presented in Chapter 5.

1.4.2.2 Case study design

A case study was used to explore the REO of extruder exports to Tunisia as identified by the DSM. Firstly an overview of Tunisia as an export destination for South African extruder exports will be provided. Political, economic and social issues will be considered, as well as Tunisian TPOs. Importantly, in order to determine the market concentration in Tunisia, the focus was on key role-players in Tunisia, most notably extruder users, manufacturing competitors and TPOs. The analysis phase entailed collation and integration of all the data collected, which was followed by writing up the results and recommendations. The case study will be presented in Chapter 6.

1.5 CHAPTER OUTLINE

The thesis is structured in seven chapters. A brief outline of each of the remaining chapters follows below.

Chapter 2 will investigate the importance of exports and exporters' information requirements. The role of TPOs and their export promotion strategies and export promotion instruments will be discussed. This chapter will furthermore investigate the types and sources of information required by exporters. Finally, CI as an instrument to enhance exports will be described.

Chapter 3 will present background on the need for export diversification, specifically the need for

the export of manufactured goods. The need for prioritising REOs will be described and thereafter an overview of the capital equipment industry in South Africa will be provided. The focus will be on extruders, the extrusion process and the various uses of extruders.

Chapter 4 will present the research methodology. Two descriptive research designs will be described, namely the survey and case study.

Chapter 5 will present the results and findings of the survey. This chapter will demonstrate the relation or contrast between the results obtained and the literature and theory. This will be accomplished by linking the findings of the study to Chapter 2, which focuses on the types and sources of information for exporters and the role that CI plays in informing exporters' information needs. In addition, this chapter provides pertinent recommendations.

Chapter 6 will present the results of the case study. This case study focused on the export of South African manufactured extruders to Tunisia.

Chapter 7 will present a summary of the study and posit the most pertinent conclusions from the findings. Thereafter, recommendations for further study will be offered.

In the next chapter, the importance of exports and the types and sources of information required by exporters will be discussed. The role of CI for exporters will also be discussed.

CHAPTER 2: TYPES AND SOURCES OF INFORMATION AND THE ROLE OF COMPETITIVE INTELLIGENCE FOR EXPORTERS

2.1 INTRODUCTION

Information collection is an important part of the exporting process. Exporting has definite information requirements and thus sources of relevant information. Export information as a field considers what information is required, the way in which it is acquired, the sources and quality of information and the way in which interpreted information is applied in export decisions, amongst others.

This chapter firstly examines the importance of exports, exporters' need for information and the role of TPOs in export promotion by means of a literature overview. Secondly, it analyses the role of information and the types of information considered important by exporters and the sources consulted for gathering information. Thirdly, it investigates the value of TPOs as information source. Finally, this chapter considers the manner in which CI can be used by exporters as an instrument to assist them in identifying their information needs, collecting the type of information requiring from the available sources and eventually making strategic decisions based on the results of the CI process.

2.2 BACKGROUND

Exports play an important part in enhancing a country's competitiveness (Richardson, 1996; Richardson, 2000; Mbeki, 2008). This section will provide detail on the importance of exports, exporters' need for information and the role of trade promotion organisations in promoting exports.

2.2.1 The importance of exports

The benefits of exports for countries' competitiveness are well documented. Growing exports assist countries in maintaining their competitive position and furthering economic growth (Richardson, 2000; Yin, 2005; Nicita & Olarreaga, 2006; Nicita, 2008; Zepeda, Caliri, Canuto, Kassaja, Kiiru, Mattar, McKinley & Mermet, 2009).

Exports also assist in employment creation (and thereby increase aggregate demand for goods and services in the country). Increased exports help pay for imports, while compelling companies to be innovative and use the latest technology and management practices, which in turn increase productivity and competitiveness (Bernard & Jensen, 1999; Bernard & Jensen, 2001; Richardson, 2000). Exports make possible the benefits from trade, pay for the imports required in development, both directly and indirectly (Yin, 2005; Nicita & Olarreaga, 2006; Nicita, 2008).

Trade openness, which refers to the degrees to which countries or economies permit or have trade with other countries or economies (Yanikkaya, 2003), shifts goods to industries in which the economy has a comparative advantage, increasing efficiency. In developing countries, these industries are often intensive in unskilled labour; their expansion will create job opportunities and improve equality, and trade liberalisation opens the economy to greater inflows of foreign direct investment (FDI) and technology transfers (Denis & Depelteau, 1985; Zepeda *et al.*, 2009). However, the Carnegie Endowment for International Peace, the United Nations Development Programme (UNDP), and the Center of Concern (2009) said the widespread adoption of export-led growth since the mid-1980s has had mixed results. The majority of countries that have achieved and sustained rapid growth have made export promotion an important component of their economic policies, but a number of countries that follow export-led policies have experienced low growth

rates. This was caused by the limitations of overdependence on a narrow set of exports and markets (Ridwan, Alwang & Siegel, 1991; Hesse, 2008; Zepeda *et al.*, 2009). Low growth ultimately occurred mostly in countries that combined export-led growth with import substitution policies (Chu, 1994; Giles & Williams, 2000).

2.2.2 Exporters' need for information

All companies require information upon which to make informed business decisions. In the case of exporters, the importance of acquiring the correct information is even greater due to the complexities of exports (Denis & Depelteau, 1985).

It has long been recognised that relevant information or knowledge is critical to sound decision-making, which affects an exporter's competitiveness (Denis & Depelteau, 1985; Goodman, 1993; Souchon & Diamantopoulos, 1996). It has been found that a lack of knowledge is often a barrier to internationalisation of an exporter (Reid, 1984; Chetty & Blankenburg Holm, 2000). The export environment is politically, economically and socially complex and a lack of knowledge about these complexities increases uncertainty about the target market and possibly leads to lost opportunities (Douglas & Craig, 1983; Douglas & Craig, 1989).

Export information use is considered the extent to which research influences users' decision-making (Zaltman, Moorman & Deshpandé, 1992). Informed export decision-making is dependent on the availability and use of the right information and on using that information in sound export plans and decisions. Sound business decisions require that export managers are aware of their export information requirements and the information available to them. They also need to determine what information is not available and use information effectively (Zaltman & Moorman, 1988; Douglas & Craig, 1989; Menon & Varadarajan, 1992; Crick & Chaudhry, 1997; Crick &

Chaudhry, 2010).

An exporter's knowledge of its markets will lead to the creation of higher customer value and therefore marketing information processes as important to a company's efficacy (Williams, 2003).

In today's globalised and competitive business environment, exporters need to analyse and assess foreign markets (Craig & Douglas 2000). In order to accomplish this, the focused acquisition of information, sources of information and the application of information in an exporter's business decisions and marketing plans are most important (Craig & Douglas, 2000; Mohamad, Ahmed & Honeycutt, 2001).

Research has found that exporters that acquire and use export market research serve more global markets than non-users do (Diamantopoulos, Schlegelmilch & Allpress, 1990; Hart, Webb & Jones 1994; Leonidou, 1997). One explanation for this is that companies pursuing global markets search for additional sources of information (Cavusgil, 1984a). However, owing to the distinct characteristics of different countries and the nature of companies, the extent and amount of information required varies. A company's inclination to consult wider sources of information is also a function of its internationalisation stage (Cavusgil, 1984a). Exporters' needs for information also vary according to their export destinations (Bodur & Cavusgil 1985). As a result, companies employ a wide range of information sources to improve the likelihood of success in their export efforts.

In a competitive business environment in which much of the same information is equally available to companies, a key source of competitive advantage lies in the manner in which the information is applied (Zaltman & Moorman, 1988). As the number of companies participating in export activities increases, information regarding the international environment becomes critical to effectively

managing corporate ventures. Another complicating factor impacting on exports is the economic volatility in certain export markets. Decision support has therefore become important in monitoring competitive drivers in export markets and making appropriate management decisions (Richey & Myers, 2001). Souchon & Diamantopoulos (1996) and Williams (2003) however found that the majority of studies concerning export information focus on acquisition methods and sources of information rather than on how such information is used in important decisions on the market.

Results from research in the UK by Williams (2003) indicate that a shortage of marketing experience in smaller companies led to limited experience in using marketing research and export assistance and that there is limited ability in understanding and using the information gathered (Gibb & Scott, 1986). Many studies have been conducted into the use of export marketing information in small and medium-sized companies (SMEs) (Bijmolt & Zwart, 1994; Crick, Jones & Hart, 1994; Hart *et al.*, 1992; Hart, & TZOKAS, 1999; Leonidou & Adams-Florou, 1999; Yeoh, 2000; Julien & Ramangalahy, 2003; Voerman, 2003; Balabanis, Theodosiou & Katsikeas, 2004; Leonidou, 2004; Doole, Grimes, & Demack, 2006; Williams, 2006).

Souchon and Diamantopoulos (2000) distinguish three ways in which exporters use information, namely instrumental use, conceptual use and symbolic use. Instrumental use is defined as the direct use of research findings in decision-making. Conceptual use provides clarity that might lead to a clearer concept of a challenge and affect through processes and should be considered part of the same construct with the difference in the nature of their use namely immediate (instrumental) as opposed to further into the future (conceptual) (Rich, 1977). Symbolic use refers to the use of distorted information in achieving particular goals, for example justifying decisions already made or action already taken on the basis of instinct and is considered to be potentially detrimental (Menon & Varadarajan, 1992). Leonidou and Theodosiou (2004) confirm that proper information utilisation enhances the quality of export management decisions, while at the same time satisfying the

individual needs of decision-makers.

Access to and use of the right information is important for export success (Leonidou & Katsikeas, 1997; Mohamad *et al.*, 2001). This importance has been confirmed by the establishment of export assistance agencies in export-oriented nations that assist exporters in acquiring relevant trade information (Seringhaus 1987; Craig & Douglas 2000; Mohamad *et al.*, 2001). Many export-oriented countries have established special agencies and other export promotion associations to assist exporters in acquiring desired information about potential markets (Seringhaus, 1987; Barrett & Wilkinson, 1988; Wheeler, 1990:101–118; Cuyvers *et al.*, 1995; Craig & Douglas, 2000). These agencies focus on export development and export promotion.

Exporters' information needs and the sources of information that exporters use are influenced by their stage of export. The various stages of export and the way in which this influences information needs of exporters are subsequently discussed.

Previous research has found that companies pass through various stages as they develop their international activities before their foreign activities reach maturity (Johanson & Wiedersheim-Paul, 1975; Johanson & Vahlne, 1977; Cavusgil 1984b; Burton & Schlegelmilch 1987; Calof, 1993, Churchill & Lewis, 1983; Calof & Viviers, 1995; Silverman, Castaldi & Sengupta, 2002). In each successive stage, the types of assistance required changes (Silverman *et al.*, 2002). Various authors describe the stages of export. Churchill and Lewis (1983), applying this general approach to SME development, presented five stages of growth: inception, survival, growth, expansion and maturity. Calof, Viviers and Kroon (1996) describe three stages in a study of the export behaviour of South African SMEs: passive exporter, involved exporter and committed exporter. Similarly, Leonidou and Katsikeas (1996) conclude that export development entails three general phases: pre-engagement (primarily domestically involved companies), initial or beginner exporters and

advanced (regular exporters). Bilkey and Tesar (1977) and Czinkota and Johnston (1981) identified a six-stage model of the export development process, ranging from unwilling companies to larger experienced exporters. Bilkey and Tesar (1977) identified six export stage profiles in their research on Wisconsin manufacturers: (1) management is not interested in exporting; (2) the company fills unsolicited orders but does not actively pursue export markets; (3) the company's management actively explores exporting (passive exporter); (4) the company starts to experiment with exporting; (5) the company becomes an active exporter; and (6) the company becomes a committed exporter. Johanson and Wiedersheim-Paul (1975) found that exporting companies evolve through four stages: no regular export activities, exporting through independent representatives, establishment of a sales subsidiary and production in a foreign country. Reid (1981) presents the export process in general (export entry and expansion) as an adoption of innovation-type behaviour in five stages: (1) export awareness (opportunity recognition, arousal of need); (2) export intention (motivation and expectancy of export contribution); (3) export trial (own experience from limited export activity); (4) export evaluation (results from engaging in export); and (5) export acceptance (adoption or rejection of export).

Although the definition of stages may differ, attitudes and experiences are thought to bring about a new stage in the perception of export costs, risks and profits (Silverman *et al.*, 2002). Previous studies have demonstrated that companies in different stages of export development, as measured by export intensity, have different needs and decision considerations and that the types of assistance required changes in each successive stage (Bilkey & Tesar 1977; Czinkota & Johnson 1981; Silverman *et al.*, 2002). In their study, Silverman *et al.* (2002) found that a number of assistance needs clearly differ across stages. This is consistent with the findings of Moini (1998) and Kotabe and Czinkota (1992). Research by Silverman *et al.* (2002) found that moderate exporters in the environmental technology industry have the least interest in assistance programmes, while marginal and heavy exporters demonstrated more interest in assistance

programmes.

According to Kedia and Chhokar (1986) significant impediments to export activity amongst the companies they studied (machinery manufacturers and food processors) vary according to the respective companies' stage in the export process. While information barriers dominate the decisions as to how and where to export, financial and marketing ones prevail once companies are already exporting. In addition to their analysis, a transition may occur from purely information barriers to financial and marketing ones. As a result, different educational and export-promotion programmes are required to address the needs of companies at different stages in the export process. Adequate supply information about exports is an important factor in completing the current stage in the export process (Weaver & Pak, 1990). This is confirmed by Leonidou (1995a), who revealed that limited information for locating and analysing foreign markets was the greatest impediment to export. Bell, Murray and Madden (1992) envisioned the accumulation of "exportise" by forming a contingent of skilled managers able to benefit from opportunities in international markets. Reid (1981) emphasises the importance of information processing in export behaviour. Sengupta, Castaldi and Silverman (2000) regard information items as external export barriers). Other studies also found information needs to be the primary barriers (Howard & Herremans, 1988; Yiprak, 1985).

TPOs play an important role in export promotion and they are the typical providers of export support. Export promotion activities are usually carried out by a government TPO and agencies (Van Aarde & Viviers, 2007). These organisations and agencies must formulate, approve and implement policies that promote and develop exports (Cuyvers *et al.*, 1995). In the next section, the role of TPOs in terms of export promotion is discussed.

2.2.3 Role of trade promotion organisations

One of the main tasks of a TPO is responding to information needs of exporters in the various stages of export (see Section 2.2.21.)

Owing to the importance of growing the country's export base, it is important that government and public institutions perform export promotion as a matter of priority by gathering relevant information and processing and distributing such information through various channels (Cuyvers *et al.*, 1995). Trade Promotion Organisations normally have a dual role, namely to provide specialised support to the manufacturers of products for export and to serve as a catalyst for related services provided by other entities in the public and private sectors. Their role in export promotion traditionally entails providing services to exporters (Cuyvers *et al.*, 1995; ITC, 2005; World Bank, 2006; Van Aarde & Viviers, 2007). However, in many exporting countries, public and private export promotion institutions face a double allocation problem, that is the manner in which to allocate their scarce resources to activities in various export markets and the manner in which to allocate the resources to alternative export promotion instruments (Cuyvers *et al.*, 1995).

One of the main functions of a TPO is designing export promotion strategies that are tailored and focused, and concerns the TPO's strategy for promoting the exports of a specific product in a specific market (country or region), using appropriate and available export promotion instruments, and taking into account the characteristics of that market and the exporting country's competitive position in that market (Rossouw *et al.*, 2010; Cuyvers, 2010). Besides designing export promotion strategies (see Section 2.2.3.2), the service offering of trade promotion organisations includes providing information to exporters on market potential and on relevant trade barriers, creating awareness amongst exporters of REOs, offering exporters exposure in foreign markets, creating awareness of the product nationally and in the foreign market, organising product–market-focused

seminars and enabling selected exporters to participate in general trade missions and local/regional trade fairs, and offering financial support for local press campaigns (ITC, 2005; Van Aarde & Viviers, 2007; DTI, 2010a).

Training services include teaching exporters to their risk when selling in the international market and teaching them to sustain the market and ensure long-term growth in the international market. Furthermore, TPOs serve to promote the country, its sectors, companies, products and services (country image and branding) and assist exporters in concluding business deals (through traditional promotion services such as fairs, mission and pavilions (Cuyvers *et al.*, 1995; Alvarez & Crespi, 2000; ITC, 2005; Brewer, 2009). In the next section, detail on a TPOs' function of designing export promotion strategies is discussed.

2.2.3.1 The export promotion strategies of Trade Promotion Organisations

An export promotion strategy concerns a TPO's strategy for promoting the exports of a specific product in a specific market (Rossouw *et al.*, 2010; Cuyvers, 2010). Export promotion strategies can be offensive or defensive and the nature thereof will inform the TPO's decision regarding the types of export promotion instruments that will be used. According to Reinicke (1998) an offensive export strategy is a form of offensive intervention that includes subsidies, industry deregulation, lowering of taxes and attractive export insurance guarantees. Offensive intervention entails countries becoming global competitors that "create an environment conducive to companies expanding, or lobby for other countries on behalf of their national companies in support of export strategies" (Reinicke, 1998:78). Conversely, a defensive intervention concerns protecting a country's industry and could include putting in place protectionist measures (Reinicke, 1998:78; Hauser & Shugan, 2008).

Export promotion strategies of TPOs therefore entail the TPO developing export promotion activities for a given product in a given market, similar to the export promotion strategy of a company but using different instruments. Designing an appropriate export promotion strategy for a given product in a given market involves close co-operation between the government and companies. It is therefore necessary to identify all public and private stakeholders involved and for these stakeholders to cooperate in achieving export success. This cooperation extends further in the sense that a TPO's strategy can be informed to a certain degree by company input (Cuyvers, 2010).

Export promotion strategies should focus activities at company, industry, and national levels (Spence, 1997; Calderón, Fayós & Cervera, 2005; Van Aarde & Viviers, 2007; Gil, Llorca, & Serrano, 2008). At company level, knowledge of the current status of export promotion of the product in general and in the target market (list of activities and instruments used by the organisations involved in the export promotion of the product) is required, as well as knowledge of the current status of export promotion of the product. At industry level, there are two kinds of export dimensions to consider, namely increasing the export of existing products and developing new exportable products. Industry councils or associations can play a major role by advising and working with the government or its designated trade body to develop export strategies. At a national level, government sets the overall economic direction and trade development strategy. Establishing the export dimension of this strategy in terms of appropriate economic instruments and export promotion measures is critical to national export performance. Therefore, the design of relevant trade policies is key to a successful export promotion programme (Calderón *et al.*, 2005; Gil *et al.*, 2008).

Export promotion programmes employ a number of export promotion instruments ranging from export subsidies to creating network opportunities for exporters. These instruments are

subsequently discussed.

2.2.3.2 Export promotion instruments

Various export promotion instruments are available to TPOs to deliver these services, including export subsidies, development co-operation and inter-state credits, public information gathering and dissemination, market research and consultancy services, workshops and seminars, matchmaking between exporters and foreign importers, lobbying on official level and participation in trade fairs and exhibitions and missions to foreign markets, export training and technical assistance, and exporter capacity assessment (Cuyvers *et al.*, 1995; Cuyvers, 1996; Kinnucan, Xiao & Yu, 2000; Alvarez & Crespi, 2000). Past research has demonstrated that the type of instrument or instruments selected should be adapted to the stage of export of an exporter or potential exporter.

Bilkey (1978) suggests that for maximum success, export stimulation and assistance programmes should be tailored to the export development position of the companies to be stimulated. He argues that export assistance programmes that are formulated in terms of the export internationalisation process will encourage experienced exporters to increase exports by devaluating the currency and by removing perceived obstacles to export and encourage non-exporters to begin exporting by being provided with export orders and with managerial assistance (such as export extension programmes and export consulting services). Such programmes will also encourage companies that have not attempted exports to explore the feasibility of exporting by programmes promoting the attractiveness of exports (trade association meetings, advertising, public meetings) and through international education within schools (such as foreign-language training, student exchange abroad and international business education (Bilkey, 1978).

Welch and Wiedersheim-Paul (1979) suggest that no one set of export promotion instruments will

necessarily be appropriate to each stage of development. Any uniform incentive scheme will have a varying impact, depending on a company's particular stage of development. In order to obtain maximum expansion in exports and number of exporters, different policies need to be devised that reflect the differences in operative forces in the export decision process. Encouragement and support of the learning process within the company through greater direct involvement of outside assistance are particularly important. This approach places less stress on financial incentives and more on information handling capacity and international attitudes, amongst others.

Silverman *et al.* (2002) found that companies without export experience have a wide range of information needs in order to overcome external barriers. External barriers to exports have been reported by researchers in other industries (Bauerschmidt, Sullivan & Gillespie, 1985). According to Silverman *et al.* (2002) companies that want to export need information about the procedures associated with selling in foreign markets and information on the most viable export market opportunities. They also want information about the types of export assistance that are available. The process of obtaining relevant information can also be complex, time-consuming and costly and these companies may not be aware of the availability of government organisations that can assist them in accessing the information they require. By providing information sessions and programmes, such barriers can be effectively addressed (Silverman *et al.*, 2002).

According to Moini (1998), several studies into export stimulation programmes have demonstrated that smaller-sized companies in particular could benefit from export assistance programmes. Companies in one stage of this development process may have different needs and interests to be met by government assistance programmes to companies in another stage (Moini, 1998). His study specifically examines government assistance programmes designed to stimulate export activity amongst manufacturing SMEs and addresses some recurring questions regarding the impact of these programmes on the export activity of companies and their performance.

Exporters' need for various types of information was discussed in 2.2. The next section will discuss in more detail the various types of information that exporters and potential exporters need.

2.3 TYPES OF INFORMATION

Based upon existing studies, the types of information exporters perceive to be important and the sources consulted also depend upon such factors as organisational characteristics and the availability of resources (Walters, 1983; Makinen, 1986; Wood & Goolsby 1987). The extent of export experience has a direct influence on the types of information exporters perceive to be important and the sources consulted (Walters, 1983; Makinen, 1986; Woods & Goolsby, 1987; Mohamad *et al.*, 2001).

Broadly, types of information can be categorised into a number of distinct categories. In a study of US exporters, Woods and Goolsby (1987) distinguished amongst six types of information used by US exporters: political information, economic information (its effect on lifestyles), macroeconomic information relating to market potential, export restrictions (tariff, non-tariff, and transportation barriers), and legal information.

In terms of the importance of the various types of information, exporters ranked market information and export restrictions as most important. Literature on the types of information used by UK exporters revealed a similar pattern. Market feasibility information (market competition, buyers' preferences and price trends), adaptation information (product and other marketing adaptation issues), and background information (such as social, political, and economic background, transport infrastructure, and government assistance) were rated as important types of information (Hart *et al.* 1994; Williams, 2003; Cavusgil, 1984a). British exporters identified three important types of

information, including market feasibility information (market competition, buyers' preferences and price trends), adaptation information (product and other marketing adaptation issues), and background information (such as social, political, and economic background, transport infrastructure, and government assistance; Hart *et al.*, 1994; Wright, Pickton & Callow, 2002). Competitor information was identified as an additional type of information by Klein (2000).

Based on these findings, seven types of information were selected for study. They are subsequently discussed: macro-economic information, political information, regulatory information, market information, export marketing information, competitor information, and information on market-access barriers.

2.3.1 Macro-economic information

Types of macro information that are required by exporters include broad background on economic conditions in the target market and relevant economic indicators. Other types of macro-economic information are information on potential investors (names of companies in the particular field that may be open to investment opportunities) and venture capital companies that are active in the industry. Furthermore, information on the infrastructure in the target market (distribution, logistics and storage roads, financial, rail, sea and airports) is important (Klein, 2000; Toften & Rustad, 2005).

2.3.2 Political information

Another type of information required by exporters concerns political risk information. Political risk represents an important hidden transaction cost that reduces international trade (Moser, Nestmann & Wedow, 2004). This type of political information includes information on political stability in the

target market and security-related information, including security of investment, people and interests. Political information also concerns the types of assistance that governments offer to exporters.

2.3.3 Legal/regulatory information

Legal/regulatory information concerns all aspects of the legalities of trade. Typically, information is required on standards approvals and licenses required to sell the products in the target export market, labour issues, issues regarding starting a business, regulations on local shareholding, taxes and general information on the judiciary (Woods & Goolsby, 1987).

2.3.4 Market information

Market information is concerned mainly with customers (buyer preferences, lifestyles and culture); market attractiveness and potential; market feasibility and price levels of products; product and other marketing adaptation issues (advertising and promotions). Such information enable companies to compute potential initial and future revenues, and better understand their likelihood of satisfying customers (Leonidou & Katsiakes, 1997; Woods & Robertson, 2000). Knowledge regarding the appropriateness of exporting a particular product to a particular market is a prerequisite for successful export ventures (World Bank, 2006).

In an empirical study on the information behaviour of 80 exporters based in Cyprus, Leonidou and Adams-Florou (1999) found that information on foreign customers was the most influential overall, followed by product aspects, market preference, and pricing issues. Woods and Goolsby (1987) found that Malaysian exporters believe that information on market conditions is important, supporting previous studies in information behaviour studies of exporters. This is confirmed by

(Hart *et al.*, 1994) that added information on the price level of products as essential for companies venturing abroad. Other empirical studies confirm that exporting companies rely on information related to the characteristics of the foreign market, the customers, the competitors and their products, product prices, advertising and promotions (Julien & Ramangalahy, 2003).

2.3.5 Export marketing information

Export marketing involves preparing and selling an offering that will entice the foreign buyer and customer. This offering is a product that is offered at a certain price and that is distributed to the foreign customer. The offering is promoted to the buyer using certain communication or promotion channels (Deshpandé & Zaltman, 1982). Types of information are product, price, and distribution and promotion information (Woods & Goolsby, 1987). In particular, the types of information required concern export marketing channels; finding and using export agents; finding and attending trade fairs, exhibitions and outward bound missions; financial assistance for export marketing; information on the culture and business practices in the target country; and information on trade agreements (Woods & Goolsby, 1987; Kohli & Jaworski, 1990).

The importance of marketing information to support business decisions is widely recognised in both domestic and international contexts (Deshpandé & Zaltman, 1982; Elbasher & Nicholls, 1983; Kohli & Jaworski, 1990; Leonidou 1995b). The types of marketing research information used by companies have been covered by Koksai (2008), Souchon and Diamantopoulos (1996), and Leonidou and Theodosiou (2004), amongst others. These types focus on satisfying customer needs for a profit (Hart & Jones, 2004). Types of information such as distance, import duties payable, logistical and documentation information are important from an export marketing perspective.

The two main functions of export marketing research are to assess the suitability of a market for entry and to assess the various means of entry and distribution (Hart *et al.*, 1994). Export marketing information reduces risk and uncertainty and monitors changes in demand patterns, supply sources, competitive activities and a host of other factors that affect business decisions.

Export marketing information also relates to cultural differences in the target market and the manner in which custom and tradition, language, literacy and symbolism can affect the manner in which products are marketed in the target market (Elbashier & Nicholls, 1983; Leonidou 1995a). Information gathered on these issues informs decisions regarding the nature of market presence (sales office, partnerships with local companies for an independent sales office), purchasing a local company in the target country, agencies, and direct sales to the target customers (Klein, 2000).

2.3.6 Competitor information

In order to assess market concentration in an export market, it is important for exporters to gain knowledge on various players in that market, including competitors. The types of competitor information are multiple and commence with listing all competitors and then identifying key competitors (Klein, 2000). The types of information required include product and pricing information, information on growth and marketing strategies, information on strengths and weaknesses, information on competitors' customers and information on competitor capabilities. In this regard, locations, channels, dealers, agents, direct, wholesalers, distributors, in-house sales force are important types of information.

Copies of printed materials of the competitors (brochures/technical data sheets) and information on other exporters operating in the same market are also useful (Klein, 2000).

2.3.7 Information on market-access barriers

A study by Leonidou and Katsiakes (1997) found that market potential information and export restrictions are the two most important types of information sought by exporters in all industries. Information on trade barriers and non-tariff barriers (NTBs) is also deemed important. Non-tariff barriers are government measures other than tariffs that restrict trade flows (Heritage Foundation, 2010). NTBs cover a range of measures from health and safety measures to a range of regulations associated with trade, including logistics costs and customs and administration procedures (Sandrey, 2003). Other restrictions or barriers to trade include transport barriers (Klein, 2000). More detail on each of the types of information discussed in 2.3 is presented in Table 2.1.

2.3.9 Summary

The types of information required by exporters that have emerged from the literature can be summarised according to seven broad categories (see Table 2.1). These broad themes will form the basis of interviews with exporters, the results of which will be presented in Chapter 5.

Table 2.1: Types of information

| |
|---|
| Macro-economic information |
| <ul style="list-style-type: none">• Background on economic conditions, economic indicators information• Potential investors (names of companies in the particular field that may be open to investment opportunities, venture capital companies that are active in the industry)• Infrastructure (financial, roads, rail, sea and airports) |
| Political information |
| <ul style="list-style-type: none">• Government assistance, political stability• Security matters |

Legal/regulatory information

- Standards approvals and licenses required to sell the products in the target export market
- Labour issues
- Issues regarding starting a business, regulations on local shareholding, taxes
- Legal system

Market information

Market attractiveness/feasibility as indicated by the ranking of market potential, customer information (buyer preferences, lifestyles and culture) and price levels of products, product and other marketing adaptation issues (advertising and promotions):

- Typical profit margins for similar products
- Market trends regarding growth or decline in the market
- Technology trends
- Number of potential customers
- Size of the market or markets (value and volume)
- Percentage of imports in relation to the total market
- Key countries exporting to the target country in this market
- List and description of all potential marketing channels
- Geographic areas with high concentrations of potential customers
- Market dynamics: key drivers and challenges including delivery times, level and type of service expected
- If the proposed product is unique, how is the problem it solves handled currently?
- Issues of importance to customers when purchasing the particular product/assessment of satisfaction with current supplier or the product and price trends
- Customer culture: Attitude of buyers to imported products in this market and factors that encourage buyers to switch suppliers
- Expected credit and payment terms

| |
|--|
| Export marketing information |
| <ul style="list-style-type: none"> • Marketing or strategic partner • Market presence: independent sales office, partnership with a local company for an independent sales office, purchase a local company in the target country, agencies, direct sales to target customers • Trade exhibitions and conferences • Trade associations and their recent and service offering, e.g. publications • Advertising and PR agencies |
| Competitor information |
| <ul style="list-style-type: none"> • Identification of key competitors and profiles on each including key indicators • Competitor strengths and weaknesses • Competitor pricing • Competitor customers: positioning, segmentation, prices offered • Competitor marketing strategy and where they advertise: trade show participation • Competitor distribution: locations, channels (dealers, agents, direct, wholesalers, distributors, in-house sales force) • Copies of printed materials of the competitors (brochures/technical data sheets) • Other exporters operating in the same market |
| Information on market-access restrictions |
| <ul style="list-style-type: none"> • Tariff and non-tariff barriers • Transport barriers • Barriers of entry |

2.4 SOURCES OF EXPORT INFORMATION

2.4.1 Types of sources

Various types of sources are accessed by exporters and they differ according to the type of exporter, the extent of export experience (stage of export), and the type of industry and ownership status (Woods & Goolsby, 1987) (see Section 2.2.2.1). Crick and Chaudhry (1997) argue that there is empirical evidence concerning the perceived usefulness of sources of export information and the

types of information required by companies.

Information collection is an important part of the export process (McAuley, 1993). Once the types of information required have been identified, the sources of such information need to be identified. Companies acquire their information from a variety of different sources. Exporters can find information from both secondary and primary sources. The type of information sought largely determines the source that will be consulted to provide the required information. The extent of export experience also has a direct influence on the sources consulted (Walters, 1983; Makinen, 1986; Woods & Goolsby, 1987; Mohamad *et al.*, 2001).

Exporters selling into the global market and seeking to grow their exports search for additional sources of information and are more successful in entering and growing markets than exporters that do not acquire and use information are (Cavusgil, 1984; Diamantopoulos *et al.*, 1990; Hart *et al.*, 1994). Research by McAuley (1993) shows that while all companies required similar information when exporting, it appears that different sources of information are used based on the length of export experience of the exporter. Collecting relevant export information however does not guarantee effective use of such information (Glazer, Stickel & Winer, 1992). A potentially detrimental factor to effective decision-making is information overload. Diamantopoulos and Souchon (1999; 1996) state that export decision-making becomes more difficult as the amount of information available and gathered becomes too much to process.

In a study of Malaysian exporters, Woods and Goolsby (1987) found that in general, they most frequently consulted their relevant industry association, followed by business publications, and the country's trade promotion organisation, Malaysian Export Promotion Centre. Other leading sources of information consulted were local banks and their financial sources.

Various other empirical studies have revealed that there are a number of main categories of sources or most frequently used sources (see Table 2.2). These are related to foreign markets and distribution including customers, agents, retailers and marketing companies and sources related to supply interfaces, include banking, insurance and finance institutions. Other frequently used sources are institutions (government offices); electronic sources (subscription databases, the Internet); company employees, partners and networks; and industry sources, including other companies, industry analysts and experts, and specialist journals (Woods & Goolsby, 1987; Hart *et al.*, 1992; Julien & Ramangalahy, 2003).

With regard to the latter, Leonidou and Adams-Florou (1999) found that exporters rely on personal rather than impersonal sources. Klein (2000) emphasises the need to utilise human sources of information that go beyond the Internet and other published data. Many of the key types of information required by exporters can not be found on the Internet and are only accessible through networking and interviews with a range of human sources, including industry experts, distributors, representatives, marketers, end users or consumers and competitors. The use of personal sources amongst smaller exporters is well-documented, as is their often ad hoc approach to marketing research (Scalse & Goffee, 1980; Seringhaus, 1993; Walters, 1993).

Empirical research has demonstrated that the selection of and cooperation with human sources is an important competence for exporting companies (Keng & Jiuan, 1989, DeNoble, Castaldi & Moliver, 1989; Cavusgil & Knight, 1997; Julien & Ramangalahy, 2003). Business linkages such as networks, joint ventures and partnerships play an important role in increasing the probability of the export activities of small companies and the latter should encourage intermediaries to assist not only with networks, but also with international market intelligence (Gumede & Rasmussen, 2002).

Table 2.2: Main source categories

| |
|--|
| Government departments: trade and industry, foreign relations/affairs, finance/central banks |
| Trade associations |
| Industry associations |
| Trade publications, subscription databases, specialist journals |
| Competitor websites and brochures |
| Financial institutions: banks, insurers, export credit insurance |
| Human sources: customers; agents; retailers and marketing companies; company employees, partners and networks; and industry sources, including other companies, industry analysts and experts, and specialist journals |

Source: Compiled by the author

The broad categories of sources form the basis of topics investigated in the interviews with extruder manufacturers, the results of which will be discussed in Chapter 5.

2.4.2 Quality of sources

In research that explored the perceived attributes of export information quality provided by export assistance sources, Toften and Rustad (2005) conclude that the quality of information gathered from various sources is an important aspect to assess.

Aspects that are important in this regard are reliability (the provision of information in accordance with an agreed deadline), credibility (truthfulness) and the ability to understand and serve individual needs (Toften and Rustad (2005).

In the next section, CI for exports is discussed and in particular, the way in which CI could assist exporters in identifying and sourcing the information they require.

2.5 COMPETITIVE INTELLIGENCE FOR EXPORTERS

De Oliveira and Vieira (2006) argue that companies that intend exporting or that endeavour to grow their export often lack the tools to help them in decision support. There is a basic understanding that CI is a focused and comprehensive approach to information that helps companies gain a better understanding of their business environment, including competitors, suppliers, customers and regulatory matters (Gilad, 1996:4; Rouach & Santi, 2001; De Oliveira & Vieira, 2006). It also helps exporters to focus on these issues. Competitive Intelligence is therefore suggested as a process that could assist companies in obtaining the information they require.

Given the priority REOs and the most recent results on REOs of South Africa (Rossouw *et al.*, 2010), the manner in which CI could be applied to assist the particular product sectors in gaining detailed knowledge about market opportunities becomes pertinent. One of the better-known and often-quoted working definitions of CI is provided by the Society of Competitive Intelligence Professionals (SCIP) that defines it as “the legal and ethical collection, analysis and dissemination of information regarding the competitive environment, and the capabilities, vulnerabilities and intentions of business competitors.” In a broader sense, CI is the process by which to reduce managerial decision uncertainty (Fuld, 1995). Competitive Intelligence can also be described as interpreted information of interest to management regarding the present and future environment in which the business operates. It is therefore primarily a management tool that can be used by any companies or organisation including exporters and TPOs. It has the potential to affect a company’s competitiveness (Gilad & Gilad, 1986; Gilad, Gordon & Sudit, 1995; Calof & Viviers, 1995; Klein, 2000; Sawka, 2005).

Competitive Intelligence is the activity of tracking the total competitive environment, including competitors, customers and economic and regulatory matters (Bernhardt, 2002; Correia, 2003). In

essence, CI is meaningful, actionable information on competitors and other industry forces delivered to decision-makers in support of strategic planning (Bernhardt, 2002; Sawka, 2005). The main aim of CI is to improve tactical and strategic decision-making through superior understanding of the competitive environment (Correia, 2003). Competitive Intelligence should be distinguished from competitor information gathering in that the latter lacks analysis and interpretation (Correia, 2003). Competitor information may include news briefs and competitor profiles but without context, lacks meaningful insights that would support decision-making.

Competitive Intelligence is neither unethical nor illegal. Prescott (2006) however warns that while the ethical practice of CI is imperative to the legitimacy of the discipline, all definitions of ethics are a cultural, not a legal, construct. Companies that have an effective CI capability need not resort to unethical methods of information collection. Ethical CI is reinforced not only in the ethical code of the SCIP, but also in its publication *Navigating through the Gray Zone* (Fehring & Hohhof, 2006.)

2.5.1 Advantage of Competitive Intelligence for exporters

The advantages of using the process of CI in order to identify key information requirements is well documented. Without relevant intelligence, companies are unlikely to gain and sustain a competitive advantage (Gilad & Gilad, 1985; Calof & Breakspear, 1999). The benefits of CI include improved insight into competitors, accurate market predictions and accurate monitoring of trends with significant impact on a company's future (Fuld, 1995). Competitive Intelligence development can be categorised according to three distinct stages (see Table 2.3).

Table 2.3: Stages of Competitive Intelligence development

| | |
|-------------|--|
| Early stage | More fact than analysis; little useful communication, mostly competitor profiles and baseline industry assessments; little direct access to management; mostly secondary sources and use of consultants; basic analysis techniques; and small network of internal and external human sources; 12 to 18 months |
| Mid-level | More strategic-type of analysis and a focus on early warning, SWOT analysis and value-chain analysis; putting an early warning alert service in place; growing human source network; better access to top management, advanced analysis and networking capacity in place; full-time personnel; 18 months to 4 years from start |
| World class | Forward-looking strategic analyses delivered; early warning capability (of threats and opportunities); advanced analysis technique, e.g. competitor response modeling and war gaming; CI continuous input in management decisions; extensive human source network; skills focused on analysis; full-time personnel; 4 years from start |

Source: Outward Insights (2003)

2.5.2 The Competitive Intelligence cycle

Competitive Intelligence is not a once-off function, but a continuous process in a company. It must be present in all of the functions of business of the organisation and, not only in an area, division or unit. Kahaner (1996:23) recommends that the companies structure a formal programme of CI internally. Various other researchers (Gilad, 1996; Calof & Miller, 1997; Calof & Breakspear, 1999; Elizondo & Glitman, 2003) describe CI as involving a cycle or process of various phases or action steps that should follow on one another, without any of the phases being overlooked. During these sequential phases, raw information is accessed, gathered, transmitted, evaluated, analysed and made available as finished intelligence for decision-makers to use business planning and action.

By applying the CI process in each of the activity areas, the key information or intelligence requirements of exporters in each of these sectors can be determined. Thereafter all the relevant

information will be gathered on areas such as the market, customers, competitors, competitor products, the regulatory and institutional environment, and relevant competitive forces.

This information, once gathered, is then analysed and interpreted against the background of export opportunities and threats that potentially exist for each sector in the identified markets (Calof & Dishman, 2003; De Oliveira & Vieira, 2006). The practice of CI therefore is a business process that involves defined components (Correia, 2003). Each phase is essential and employs established techniques that are applied to specific questions or issues.

Calof and Breakspear (1999) identified six key activity areas or constructs that collectively form the CI model. These constructs were confirmed and expanded upon in a later study by Saayman, De Pelsmacker, Viviers, Cuyvers, Muller and Jegers (2004) and is subsequently discussed.

2.5.2.1 Planning and focus

Competitive Intelligence is not concerned with simply collecting all information but focusing on issues of highest importance to senior management (Gilad, 2001; Herring, 1998). For exporters these Key Intelligence Needs (KIN) are typically the types of information they require to successfully export. In this phase resources are allocated for the CI project or process, and the purpose and result of the findings is established. Klein (2000) states that many resources are invested by exporters worldwide in determining their business intelligence needs. He argues that although products differ from each other for the most part, intelligence needs for new companies and their products are quite similar. For exporters, meticulous attention to compiling a list of types of information required is a key element in a business strategy designed for the company's success in export markets (Klein, 2000; Elizondo & Glitman, 2004).

2.5.2.2 Collection

It is during this phase that information is collected from a variety of sources for examination during the CI process. Information is collected from a variety of different sources and using various acquisition methods including environmental scanning (Aguilar, 1967; Lenz & Engledow, 1986a; 1986b). Other subjects related to the collection phase are the information source and information usage (Menon & Varadarajan, 1992; Garvin, 1993; Maltz & Kohli, 1996). For exporters, systematic secondary and primary intelligence collection using various means of collection is a key element in a business strategy designed for the company's success in export markets (Klein, 2000; Elizondo & Glitman, 2004). Information acquisition refers to the way in which relevant information is acquired, the sources are accessed, and this information flows from the supplier to the user (Souchon & Diamantopoulos, 1997).

Marketing research and market intelligence as collection methods can entail all aspects of information collection (Kohli & Jaworski, 1990) because export marketing sources often overlap (Diamantopoulos & Souchon, 1999; Williams, 2003). The distinction amongst export marketing intelligence, export marketing research and export market assistance is less distinct in smaller companies (Williams, 2003).

2.5.2.3 Analysis

Many practitioners believe that this is the phase in which intelligence is created; that is, information is converted into actionable intelligence on which strategic and tactical decisions may be based (Gilad & Gilad, 1985; 1986; Kahaner, 1996; Calof & Miller, 1997; Herring, 1998). Much work has been done in the areas of competitive analysis, environmental analysis and competitive theory (Porter, 1980).

Toften and Olsen (2003) suggest that for exporters export market knowledge may provide a deeper understanding of the relationships between export market information use and export performance. Typical outcomes of the intelligence analysis area for exporters are competitor profiles, product analyses and distributor intelligence.

2.5.2.4 Communication

The results of the CI process or project need to be communicated to those with the authority and responsibility to act on the findings. Crawford and Sobel (1982) theoretically proposed the transfer of strategic information in 1982. Corollaries to this include the study of marketing knowledge within the company (Menon & Varadarajan, 1992; Moorman, 1995) and knowledge dissemination (see Huber, 1990; Garvin, 1993; Kahaner, 1996; Hurley, Thomas & Hult, 1998).

2.5.2.5 Process and structure

Competitive Intelligence requires appropriate policies, procedures and a formal (or informal) infrastructure so that employees may contribute effectively to the CI system and gain the benefits from the CI process. There is much support for a formal structure and a systematic approach to CI (Porter, 1980; Gilad & Gilad, 1985; 1986; Ghoshal & Kim, 1986; Ghoshal & Westney, 2006).

2.5.2.6 Organisational awareness and culture

In order for CI to flourish in a company and for the discipline to be implemented and used optimally, there needs to be an appropriate organisational awareness of CI and a culture of competitiveness. There has been support for this awareness/culture construct in the area of market orientation (see

Ghoshal & Kim, 1986; Ghoshal & Westney, 1991; Pole, Madsen & Dishman, 2000; Slater & Narver, 2000). Although decision-makers are the drivers and primary users of CI, Kahaner intimates that information gathering should be the concern of all the company's personnel (Kahaner, 1996). Without proper awareness and attitudes that favour both intelligence and information sharing, it is difficult to develop intelligence within a company.

2.5.2.7 Skills requirements

Saayman *et al.* (2004) found that having the right skills mix is an imperative for effective CI for exporters. The process of information gathering often leads to concerns regarding information overload and the quality of information. Information overload is exacerbated by a shortage of skills, particularly in smaller companies, for making sense of and using the information gathered. This shortage often leads to ad hoc information collection when required and decision-making based more on gut feel than interpreted information (Calof, 1994). According to Williams (2003), in contrast to Diamantopoulos and Souchon's findings (1999), an oversupply rather than an undersupply of relevant important information creates difficulties. This finding is supported by Siriginidi (1996), who found that there is a need to train information specialists to reduce the information gap between information needs and sources of information.

2.5.2.8 Summary

Section 2.5 has described the CI process and the advantages of CI for exporters. Access to information is required by all companies but especially by exporters. Having the capability to determine the types of information required and then accessing and acquiring the right types of information is advantageous for exporters. The way in which CI can be used to assist exporters will be illustrated in Chapter 6.

2.6 CONCLUSION

This chapter has examined the role of information in enhancing exports and the importance of exports for South Africa. It has also highlighted that exporters have a range of information needs and an abundance of information at their disposal. Various types and sources of information that are deemed important to exporters have been described. Competitive Intelligence and the use of CI as a means to identify these key types of information or KINs have also been described.

This chapter has explained the assistance that CI can offer to exporters. Owing to the scarcity of resources for trade promotion, it is important to identify and promote REOs. Trade Promotion Organisations, in cooperation with companies, should therefore focus on providing the correct export promotion instruments as part of an appropriate export promotion strategy.

In the next chapter, an overview of the importance of the exports of manufactured goods and the capital equipment sector, under which extruders are categorised, will be provided. Extruders and the extrusion process will be described in detail.

CHAPTER 3: THE EXTRUDER INDUSTRY IN SOUTH AFRICA

3.1 INTRODUCTION

From Chapter 2, it is clear that exporters require certain types of information from a variety of different sources in order to export successfully. The focus of this chapter is to identify the information requirements and sources of information important for exporters. As this study focuses on the export promotion of extruders to Tunisia, this chapter provides an overview of the need for export diversification, the importance of the growth of manufactured exports, the capital equipment industry in South Africa and specifically the identification of Tunisia as an REO using a DSM.

This chapter has furthermore a specific focus on twin-screw extruders, explaining their function and application specifically in the food-processing, feed, plastics, and mechanical and metal works industries, as well as application in powder coating and compounding. A brief description is provided of the extruder manufacturing industry in South Africa and relevant TPOs. This chapter also considers the larger capital equipment industry and key stakeholders in the extruder industry in South Africa, namely extruder manufacturers, manufacturers of extruder parts or components, users of extruders, and relevant TPOs.

3.2 THE NEED FOR EXPORT DIVERSIFICATION

One of South Africa's main priorities is to enhance and maintain economic growth. The South African government is seeking to achieve this by implementing export-led growth policies (DTI, 2006). According to Zepeda *et al.* (2009) most countries that secure economic growth do so by emphasising export promotion as a key component of economic policy. Those countries that have

not achieved satisfactory economic growth blame a lack of export diversification and an over dependence on a narrow set of exports and markets.

South African exports are still largely resource-based and the country has failed to diversify into new and fast-growing export sectors. Existing empirical research identifies three features of South African export performance during the 1990s:

- South African manufacturing exports are relatively capital- or technology-intensive relative to other developing countries (Tsikata, 1999; Allenye & Subramanian, 2001).
- South African manufacturing exports are becoming increasingly capital- and skill-intensive (Bell & Cattaneo, 1997; Edwards, 2003; Edwards & Schoer, 2001).
- South African export growth during the 1990s is poor relative to other dynamic emerging economies and few exports are concentrated in new products (Edwards & Schoer, 2001; Alves & Kaplan, 2004; Van Seventer & Gibson, 2004).

According to the South African Treasury (Treasury), South Africa is strong in base metal and minerals exports, but its performance is weak in the exports of manufactured goods (Treasury, 2007). Manufacturers need to take more advantage of international trade opportunities. South Africa's export performance in manufactured exports is "inconsistent and weak" (Treasury, 2009). Former Deputy President Phumzile Mlambo-Ngcuka (2007) warned that South Africa's economic growth would not be sustainable if it continued to be driven by exports of raw materials and that South Africa cannot rely on exports of raw materials and consumption of imported goods.

For South Africa, it is therefore important to diversify exports. Export diversification results in higher Gross Domestic Product (GDP) growth and employment and results in substantial increase in exports (Naudé & Rossouw, 2008). If South Africa wants to move towards a high-value, high-income, export-led economy, it must diversify its traditional export basket (Naudé & Rossouw,

2008). Niche products, namely the kinds of products for which countries are willing to pay a premium, will enable South African manufacturers to compete in the global economy. Furthermore, if value-added goods constitute a greater proportion of total exports, South African exporters will be less vulnerable to external risks (Case, 2008; Naudé & Rossouw, 2008).

3.3 EXPORT OF MANUFACTURED GOODS

In 2008, South Africa's real annual GDP growth was 3.7 per cent but it decreased by 1,8 per cent in 2009. The main contributors to the decrease in economic activity in 2009 were the manufacturing industry (contributing -1,8 percentage points), the mining and quarrying industry (contributing -0,4 of a percentage point) and the wholesale, retail, motor trade and accommodation industries (contributing -0,3 of a percentage point; SARB, 2010).

As the GDP rates reflect, the manufacturing sector, in particular, was negatively affected (SARB, 2009; OECD, 2008). With global demand contracting, the volume of exports also contracted as was the case with South Africa towards the end of 2009. At the same time, the prices of most export commodities declined and import volumes receded in the same period owing to the sharp decline in the international price of oil (SARB, 2009). The resulting lower import values led to a narrowing of the deficit on the current account of the balance of payments to less than 6 per cent of GDP (SARB, 2009).

South Africa's exports of manufactured goods rose to US\$38 billion in 2008, a 111 per cent increase compared with 2002 (WTO, 2009). The share of manufactured products as a proportion of total exports however decreased from 61,7 per cent in 2002 to 51,5 per cent in 2008. Machinery and transport equipment were the main exports amongst manufactured goods, followed by iron and steel, while primary products accounted for 48,2 per cent of total exports in 2008, up from 38,2 per

cent in 2002. However, the South African manufacturing sector faced a number of output challenges. According to the Treasury (2009), some of the problems include the electricity crisis in the first quarter of 2008 and the decline in global and household demand.

The solution to commodity dependence and declining commodity prices would be to promote diversification prospects into dynamic markets and to increase domestic productive capacity. This will earn export revenue to pay for rising capital imports (Treasury, 2007). Another solution would be to strengthen institutional support to enable entrepreneurs to improve their competitiveness and to diversify into dynamic markets (Steenkamp, 2004). In this regard, the next section examines the DSM as a means to direct export promotion resources in order to yield optimal results.

3.4 PRIORITISING REALISTIC EXPORT OPPORTUNITIES: THE USE OF A DECISION SUPPORT MODEL

Naudé and Rossouw (2008) state that export diversification is preferable over export specialisation. It is however not practical to promote all products exported owing to challenges related to the allocation of resources. In many exporting economies, resources are scarce and often export promotion institutions, both public and private, face a double allocation problem (Cuyvers *et al.*, 1995). The trade promotion strategies of the DTI and other TPOs therefore have to focus on those products that have the highest probability of succeeding and that offer REOs. In South Africa, the allocation of resources to export promotion activities in the past has relied on historic export trends (Gouws, 2005; Erero, 2004). This resulted in little consideration for export opportunities in new markets or opportunities for new products in existing markets. The apportionment of resources for export promotion activities did not have a scientific justification (TISA, 2005:47). This led the DTI, as the TPO in South Africa, to express the need for a scientific study on REOs in products and markets.

This study would enable decision-makers to justify the allocation of public resources to promote products with the highest potential earnings (Erero, 2004). A DSM designed by Cuyvers was applied to the South African economy in a study by Pearson (2007) to identify high priority products with high export potential in new and existing markets. The model for South Africa was based on the DSM developed for Belgium and Thailand (Cuyvers *et al.*, 1995, Cuyvers, 1996, Cuyvers, 2004). It was adapted to suit South African circumstances by adjusting the filters of the model. Subsequent to Pearson (2007), refinement of the DSM was done, which resulted in the 2010 results based on HS six-digit data (Rossouw *et al.*, 2010).

In brief, the DSM consists of a sequential filtering process using four filters to eliminate countries and products with lower export potential. In filter one, the macro-economic environment of the trading partner is considered. Indicators such as country risk ratings, GDP (GDP per capita), and GDP growth (GDP per capita growth) play a role in the selection process. In filter two, import market growth in the short and long term, and relative market size, are considered for each country-product combination. In filter three, the Herfindahl–Hirschman Index gives an indication of the market concentration of the importing countries and barriers to entry. In filter four, REOs identified in the previous filters are classified. The classification of the REOs identified in the previous filters was done by calculating South Africa's relative market importance for each country-product combination and combining this with the categorisation in filter two.

After the application and adaptation of the DSM for South Africa using the International Trade Centre (ITC) Comtrade HS six-digit data, 66,250 REOs or product–market combinations were identified (Rossouw *et al.*, 2010). These REOs were classified into 20 cells according to the market characteristics of these opportunities (see Table 3.1). The top 20 REOs for South Africa are listed in Annexure B.

Table 3.1: Classification of South Africa's REOs according to relative market position and market characteristics (number of REOs)

| | SA market share relatively small or none | SA market share small | SA market share high | SA market share relatively high | Total |
|---|--|-----------------------|----------------------|---------------------------------|--------|
| Large product market | Cell 1 6 180 | Cell 6 431 | Cell 11 77 | Cell 16 88 | 6 776 |
| Growing product market (ST and LT) | Cell 2 38 731 | Cell 7 1 446 | Cell 12 184 | Cell 17 708 | 41 069 |
| Large, growing product market (ST) | Cell 3 4 679 | Cell 8 316 | Cell 13 52 | Cell 18 43 | 5 090 |
| Large, growing product market (LT) | Cell 4 3 164 | Cell 9 194 | Cell 14 28 | Cell 19 30 | 3 416 |
| Large, growing product market (ST and LT) | Cell 5 9 130 | Cell 10 596 | Cell 15 118 | Cell 20 55 | 9 899 |
| Total | 61 884 (54 493 = new markets / SA exports the product but not to the country concerned) | 2 983 | 459 | 924 | 66 250 |

ST= short term

LT = long term

Source: Rossouw *et al.* (2010)

In Table 3.2, the US\$ values of South Africa's REOs in the various cells are given. The specific product–market combination on which this study is focused is extruders to Tunisia, which falls in cell 2, classified as a growing product market in the short and long term and a market in which South Africa's share is negligibly small, the value of all the REOs is about US\$415 million.

Because of the fact that extruders are manufactured in Potchefstroom and more specifically at the CFAM, it was decided to investigate this product (see also Section 1.2). The DSM furthermore indicated that the export of extruders as a product to Tunisia presents an REO. Therefore, the potential export of extruders to Tunisia will be further explored in Chapter 6.

Table 3.2: Value of South Africa's REOs according to relative market position and market characteristics (in thousands of US\$)

| | SA market share relatively small or none (US\$) | SA market share small (US\$) | SA market share high (US\$) | SA market share relatively high (US\$) | Total (US\$) |
|---|---|------------------------------|-----------------------------|--|---------------|
| Large product market | Cell 1 403 977 058 | Cell 6 37 241 972 | Cell 11 7 207 697 | Cell 16 5 088 586 | 453 515 313 |
| Growing product market (ST and LT) | Cell 2 415 988 852 | Cell 7 79 138 734 | Cell 12 51 204 027 | Cell 17 1 751 568 | 548 083 181 |
| Large, growing product market (ST) | Cell 3 272 549 221 | Cell 8 23 355 514 | Cell 13 3 126 317 | Cell 18 2 043 604 | 301 074 656 |
| Large, growing product market (LT) | Cell 4 107 306 874 | Cell 9 19 854 902 | Cell 14 1 251 128 | Cell 19 497 986 | 128 910 890 |
| Large, growing product market (ST and LT) | Cell 5 514 320 324 | Cell 10 30 770 293 | Cell 15 11 521 829 | Cell 20 1 601 436 | 558 213 882 |
| Total | 1 714 142 329 | 109 361 415 | 74 310 998 | 10 983 180 | 1 989 797 922 |

Source: Rossouw *et al.* (2010)

Data classification for products used in the DSM was done according to the Harmonised Commodity Description and Coding System (HS code). This classification is an international numerical product nomenclature developed by the World Customs Organisation (WCO), which organises products in a logical and legal structure for the collection of customs duty and international trade statistics (WCO, 2008). The HS is used by almost all countries in the world and

covers 98 per cent of the classification of merchandise in international trade (Camacho & Freudenberg, 2008:64–66). Headings under the HS are standardised internationally up to six digits and these consist of the HS two-digit level (chapter or sector of the product), HS four-digit level (sub-sectors) and HS six-digit level (product) (WCO, 2008; Camacho & Freudenberg, 2008:65). Deeper classification of products can be up to the HS twelve-digit level, which is known as National Tariff Lines (ITC, 2008). These codes are not harmonised amongst countries and are subject to each country's decision to classify products beyond the HS six-digit level and are thus country specific. The first six digits of the HS number attached to any commodity are fixed by international agreement. Additional digits, sub-dividing the commodity further, may be specified differently between countries (ITC, 2008).

The HS product-specific data were used in this study because of the above-mentioned attributes, and also because governments, the private sector, international organisations and customs authorities use the HS classification extensively as compared with the Standard International Trade Classification (SITC). The results of this study will therefore be more beneficial to the various stakeholders if product-specific information is provided.

In the next section, extruders and the industry under which they are categorised namely the capital equipment industry, will be discussed in more detail. As mentioned earlier in this paragraph, extruders are manufactured in Potchefstroom and the DSM indicated that the export of extruders as a product to Tunisia presents an REO.

3.5 THE CAPITAL EQUIPMENT INDUSTRY IN SOUTH AFRICA

The capital equipment industry involve other sectors, making it difficult to define exactly. The South African DTI defines capital equipment as follows: "Capital equipment is an intermediary sector that

manufactures and supplies components (such as materials handling, environmental control, manufacturing process, drilling digging earthmoving) and/or complete plants in the following customer groups: mining, agriculture, construction, other processing industries (such as machine tools, tooling, pressure vessels, cyclones, pumps and valves) as well as utilities. It is complimented by the capital equipment services sector which provides the design and construction portion of the provision of solutions” (Beyers, 2009).

Entrepreneur (2010) defines capital equipment as “equipment that you use to manufacture a product, provide a service or use to sell, store and deliver merchandise. This equipment has an extended life so that it is properly regarded as a fixed asset”. Capital equipment refers to all equipment of a capital nature for which at least 25 per cent is manufactured value added in South Africa. This includes manufacturers, key customer groupings, key suppliers and other role-players.

Trade and Investment South Africa (TISA, 2009) defines capital equipment as an intermediary industry that falls between manufacturers and assemblers because it deals with components or parts of equipment that are used in conjunction with raw, partly beneficiated materials and/or components, in order to provide fully or partly beneficiated outputs. The capital equipment industry entails highly capital-intensive manufacturing and is in the business of building high-cost, mechanised equipment. This industry also manufactures equipment used by other industries (downstream) in their process of productive activity. Historically, the capital equipment industry grew as an upstream supply industry for the mining industry.

3.5.1 Overview of the capital equipment industry

The capital equipment industry exports goods worth on average more than R16 billion per annum (see Figure 3.1). In 2008 the total exports of this industry was R24 billion. It is expected to grow

rapidly as South African exporters increasingly supply for international projects, especially in the mining, processing and agricultural sectors. Europe (36 per cent), the Southern Africa Development Community (SADC; 26 per cent), North America (12 per cent) and the Pacific Rim (10 per cent) are the largest export markets for South African capital equipment (Beyers, 2009; SACEEC, 2009).

Exports grew steadily over the period 1993 to 2008, but in 2009 there was a sharp decline in export sales. In 2009, South Africa's capital equipment industry followed the downward trend of the weakening passenger car and truck markets due to the global economic downturn and the capital equipment industry was the worst affected (Jammie, 2009). Figure 3.1 illustrates the export sales figures in the capital equipment industry since 1993.

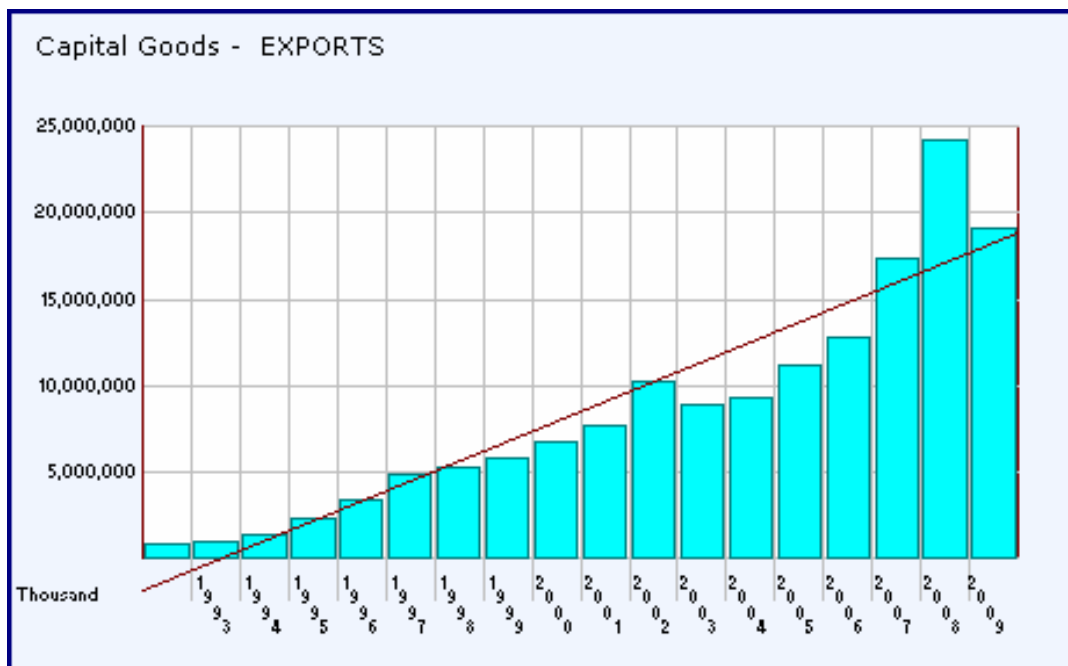


Figure 3.1: Capital equipment export sales figures since 1993 (R'000)

Source: Beyers (2009) and Barnard (2009)

The decline of the mining industry with the fall of the gold price in the late 1990s also had a negative effect on the capital industry's growth because it had remained heavily dependent on mining for growth. The negative effect manifested itself in lower market demand and loss of jobs. Market liberalisation has led to the neutralisation of the benefits of operating in a highly protected industrial environment. South Africa's re-integration into the global economy after 1994 led to a new and different competitive landscape for the manufacturing sector of South Africa. Characteristics of this new landscape included opportunities that were unlocked by an export oriented economic policy but this required the sector to become internationally competitive which in turn meant that production costs, among others, had to be managed downward (Sephiti, 2002).

Typical markets for capital equipment include the construction, agriculture, government, plant hire, industrial, mining and quarry markets, with products such as bulldozers, telehandlers and excavators and tractor loader backhoes. Another factor that affects sales is that similar to the car and truck markets, yellow metal product (for example, excavators) customers are struggling to secure financing from financiers (NHC, 2009). A growth stimulus has been the South African government announcement of a R787 billion budget expansion for infrastructure in 2009 (Treasury, 2009).

In 2009, the South African Presidency categorised the capital equipment industry as part of its Distressed Industry Programme, as identified in the National Economic Development and Labour Council framework agreement through which assistance to a number of struggling local industries, including the clothing and textiles, automotives, transport equipment and metal fabrication industries, are considered (BUSA, 2009). Role-players in the industry expected the South African capital equipment industry to shed 10 per cent of its workforce in 2009 (NHC, 2009). South Africa's capital equipment industry, the National Union of Metalworkers of South Africa and the Steel and Engineering Industries Federation of South Africa with the DTI have a particular focus on providing

assistance to the “yellow metal market” (DTI, 2009). The sector is considering development finance institutions, such as the Industrial Development Corporation (IDC) to provide it with affordable finance. This is also to be extended to component suppliers in the industry, and to customers. In general, the IDC has made R6 billion available over a period of two years since April 2009 in order to assist firms across a broad range of sectors that find themselves in distress as a result of the economic crisis (Beyers, 2009).

To date, the IDC has approved loans to 11 companies, to the value of R644 million and is evaluating another 49 applications (IDC, 2009). Business and labour lodged an application with the International Trade Administration Commission for possible tariff increases on products with substantial potential for the creation or retention of decent jobs and recapturing of domestic market share. Measures to strengthen enforcement are being considered, in relation to products that do not meet mandatory safety standards, particularly in respect of electrical and other inputs in the building industry (DTI, 2009).

Leaders in the capital equipment industry are Bell Equipment (with John Deere as a shareholder); New Holland Construction; High Power Equipment Africa; Eqstra, an integrated leasing and capital equipment group; and Barloworld (Caterpillar, Hyster, Ingersoll Rand, Dezzi, Bitelli, Perkins Diesel Engines and Boart Longyear) (SACEEC, 2009). Those in the capital equipment industry face a number of challenges and need to take cognisance of the drivers of their industry. These challenges and drivers are subsequently discussed.

3.5.2 Challenges and drivers in the capital equipment industry

The capital equipment industry has identified a number challenges and competitive drivers that impact on the industry (SACEEC 2009). These challenges and drivers are now briefly discussed.

3.5.2.1 Skills shortage

One of the main challenges facing companies in the capital equipment industry is the skills shortage in the industry. Role-players have responded to this challenge by establishing their own technical training academies to train apprentices, developing technicians, and, moreover, to train equipment operators in order to curb the skills shortage prevalent in the construction and mining industries.

The TPO that focuses on the capital equipment industry is the SACEEC. The SACEEC has determined that although labour rates are lower in South Africa compared with other countries that are regarded as South Africa's traditional competitors, productivity is markedly lower than the competition. While rates and productivity effectively offset each other, there is a quality shortfall that must be addressed through training and development. Poor skills, training, attitude (management and employee), a lack of economies of scale and ineffective production techniques result in poor quality of products and high reject rates (SACEEC, 2009).

3.5.2.2 Customer satisfaction and support

According to the SACEEC (Rhombert, 2009), players in this industry place strong emphasis on after-sales service, establishing service centres throughout the country to provide customers with local component availability and services in order to bring components and services as close to customers as possible. A 24-hour service for customers is the requirement of the industry (SACEEC, 2009). Leading players develop after-sales service plans in order to distinguish themselves from competition. This includes always having the correct components available on a 24-hour basis, coupled with well-trained technicians, who are accessible to the customer.

3.5.2.3 Interest rates and currency fluctuations

Rising interest rates and the weakening currency threaten to slow the demand for new equipment. Furthermore, leaders in the capital equipment industry claim that they continue to operate at a disadvantage compared with their competitors who enjoy supply-side support measures from their governments. The fluctuation of the currency also has an impact on the import cost of raw material, including steel. Until the early 1990s, the price of steel in South Africa was below average. A global overcapacity situation has since seen the average international prices dropping, placing South Africa in an above-average price position. While market dynamics have forced international steel manufacturers to drive down their costs in real terms, the depreciating Rand has enabled steel manufacturers to operate less efficiently and yet still remain relatively competitive in Dollar terms (DTI, 2009). The appreciation of the Rand in 2010 was however detrimental for exports. Although electricity, largely generated by Eskom, was amongst the cheapest available anywhere in the world until recently, the sharp rise in tariffs will negatively affect the extrusion sector. Low electricity cost has been instrumental in the establishment of sizeable ferro-alloy, stainless steel and aluminium beneficiation industries.

3.5.2.4 Competitive labour rates

While South Africa has first-world infrastructure and institutions, its labour rates are comparable to developing countries. The SACEEC has determined that labour rates are lower in South Africa compared with other countries that are regarded as South Africa's traditional competitors, most notably developed countries (SACEEC, 2009). The industry's labour rates can therefore be regarded as competitive. Average labour cost to the employer within the capital equipment industry is categorised in Table 3.3.

Table 3.3: Labour cost categories

| Activity | Technician | Manager |
|----------------|----------------|------------------|
| Basic | R4,50 per hour | R1,700 per month |
| Pension | 7,5% | 7,5% |
| Medical | 15% | 15% |
| Car allowance | 10% | 17,5% |
| Food allowance | 7,5% | N/a |

Source: DTI (2009)

3.5.2.5 Financing cost

In comparison with its major competitors, the South Africa capital equipment industry faces high financing costs. Real interest rates are high, which significantly reduces the ability of local manufacturers to invest in fixed capital and finance expansions that require working capital. The current supply-side measures provided by the government do not yet favour the capital equipment industry or manufacturing sector, and are uncompetitive in comparison with countries like China, India and South Korea (SACEEC, 2009). Through partnership with a state-financing organisation, such as the IDC, companies can access loans or equity at preferential rates. The IDC will consider the provision of ordinary and preference share capital in some instances and, as far as practical, it endeavours to tailor facilities to suit the applicant's requirements. IDC finance is available to large and small projects within South Africa and the SADC.

3.5.2.6 Logistics

Transport costs from the inland production areas to the coast are competitive in comparison with developed countries, but the port authority in South African levies high port charges. Moreover, the

poor shipping service rendered at South African ports increases costs and reduces reliability (SACEEC, 2009).

3.5.2.7 Legislation and regulations

Legislative and regulatory challenges pertinent to the capital equipment industry are the entrenchment of human and workers' rights, product liability, and the more sophisticated trade restrictions in trading partners, reduced trade restrictions in South Africa and the preferences for previously disadvantaged individuals. Furthermore, Black Economic Empowerment (BEE) is an important issue. Key factors in this regard include the Constitution, Employment Equity, occupational safety, anti-dumping legislation, NTBs, the removal of forex control and new tender regulations (SACEEC, 2009). Regarding environmental issues, two of the key challenges are achieving environmentally acceptable industrial practices and manufacturing recyclable products. In this regard, the ISO 1400 "dirty countries" tariffs are pertinent (DTI, 2009).

It is possible to view these challenges also as opportunities. The EU's Generalised System of Preferences (GSP) provides additional trade preferences if core international labour and environmental conventions are applied. The GSP is a trade arrangement through which the EU provides preferential access to the EU market to 176 developing countries and territories, in the form of reduced tariffs for their goods on over 6,200 tariff lines, when entering the EU market. There is no expectation or requirement that this access be reciprocated. It is implemented by an EU Council Regulation applicable for a period of three years at a time (see Section 3.5.3.9).

The primary objective of the GSP is to contribute to the reduction of poverty and the promotion of sustainable development and good governance. Preferential tariff rates, when exporting to the EU market, enable developing countries to participate more fully in international trade and generate

additional export revenue to support them in developing industry and jobs and reducing poverty. The EU adopted a regulation in 2008, applying a new GSP scheme for the period from 1 January 2009 to 31 December 2011 (European Commission, 2010).

3.5.2.8 Technology

Industry challenges with regard to technology include exploring new and alternative technologies, the need for improved precision and intelligence in machine control, as well as sophisticated design packages that deliver more accurate and safer modelling and therefore more efficient use of materials. Alternative materials result in new applications. Incremental change and new technologies in terms of mining and processing have driven these challenges (SACEEC, 2009).

3.5.2.9 Trade preferences

South Africa has entered into preferential agreements with the US, EU and sub-Saharan countries. These agreements confer generous trade benefits. Under the Africa Growth and Opportunity Act, the US extends GSP benefits to South Africa and other sub-Saharan countries for more than 1800 additional items beyond the standard GSP list of 4600 items. A trade, development, and cooperation agreement containing a Free Trade Agreement (FTA) came into effect between South Africa and the EU on 1 January 2000. Under the FTA, the EU is committed to the full liberalisation of 95 per cent of South African imports over a ten-year transitional period, while South Africa is to liberalise 86 per cent of EU imports over a twelve-year transitional period.

The GSP is extended to South Africa by all EU countries, allowing South African exporters to gain preferential access to their markets. Generalised System of Preferences countries include Austria, Belgium, Canada, the Canary Islands, the Czech Republic, Denmark, Finland, France, Germany,

Greece, Hungary, Ireland, Italy, Japan, Luxemburg, Martinique, the Netherlands, Norway, Portugal, Reunion, Spain, Sweden, Switzerland, the UK and the US (see also Sections 6.3.3.1 and 6.3.5.1).

The SADC trade protocol, which came into effect in September 2000, provides for the phasing down of tariffs of eleven of the fourteen SADC member countries. The participating member countries are from the sub-Saharan region, but exclude SADC members Angola, the Democratic Republic of Congo and Seychelles. This trade bloc has a combined population of 135 million. The participating member countries hoped to establish a free trade area by the year 2004.

Finally, under the present Southern Africa Customs Union agreement, participating member countries South Africa, Botswana, Lesotho, Namibia and Swaziland have abolished internal tariff barriers. The main change introduced in the new agreement pertains to revenue sharing.

3.5.3 Capital equipment industry priorities

The capital equipment industry has determined that the development of exports to Africa should be the priority focus (SACEEC, 2009). This decision was based on Africa's command of the most expenditure on mineral exploration and the restriction of many cluster members through parent company policy and/or agency agreements from trading elsewhere in the world. The SACEEC also found that cluster members have considerable experience of African conditions and that members of the export association have a geographic advantage over its competitors when dealing with Africa and in the case of certain competitors, even in dealing with South America. Amongst the opportunities in Africa are mining activities, infrastructural development, food production and agriculture, civils and construction, the utilities industry (gas, electricity and water) and the process manufacturing industry.

According to the SACEEC, the value of known projects in the process manufacturing industry exceeds R40 billion in the SADC alone and it is the largest industry in this region and the largest importer. Competition in this industry is driven mainly by technology (SACEEC, 2009). One of the most prominent users of extruders in South Africa, Petzetakis Africa (plastics extrusion) predicts a positive outlook for the plastics and polymers industry in Africa and by definition this augurs well for the extruder exporters. Besides infrastructure development potential in Africa, there are also many minerals and resources to be explored (Petzetakis, 2007; see Chapter 6 for a detailed analysis of the export potential of extruders to Tunisia).

3.5.4 Trade Promotion Organisations for capital equipment

There are mainly two TPOs relevant to manufacturers of capital equipment and specifically extruders in South Africa, namely the SACEEC and the DTI. These TPOs are discussed in the following sections.

3.5.4.1 The South African Capital Equipment Export Council

The SACEEC (formerly known as the Capital Equipment Export Council) was the first export council to launch in 1999 following recommendations made in the cluster reports of the DTI in 1998 (DTI, 2009). The SACEEC represents companies in the business of manufacturing equipment of a fixed capital nature.

The SACEEC is the mandated platform for the capital equipment industry to consult with government on the policies and legal framework needed to foster growth and productivity in the capital equipment industry. The SACEEC organises, amongst others, inward-buying missions and its mandate is to promote mining and capital equipment buying internationally (SACEEC, 2009).

The promotion of local products in the international marketplace forms the driving force behind the activities of the SACEEC.

The SACEEC promotes local manufacturers in the international capital equipment market, and one of the primary ways this is accomplished is taking companies to targeted global markets and displaying their goods or services either at exhibitions or through trade missions (Rhomborg, 2009; SACEEC, 2009). Specifically, the role of the SACEEC is to identify foreign markets for South African capital equipment exporters and to market South Africa to capital equipment dealers, manufacturers and investors globally. The latter action is directed at attracting investment into the South African capital equipment industry.

The SACEEC works closely with government, since it is a public-private sector partnership. It ensures that the right policies are implemented for the industry to operate optimally. The SACEEC has 160 members. These members contribute an estimated 75 per cent to the total value of exports in the capital equipment industry (see Section 3.5.2). According to the Managing Director of the SACEEC, Sybil Rhomborg, several members export goods worth close to R1 billion (Rhomborg, 2009). All the members of the SACEEC are active exporters (Rhomborg, 2009). There is no South African extruder manufacturer amongst the SACEEC's 160 active capital equipment exporter members (Rhomborg, 2009).

3.5.4.2 The Department of Trade and Industry

The DTI has an Export Promotion Directorate responsible for developing and promoting South African manufactured goods and services. At present, the DTI has a total of twenty industry export councils (of which the SACEEC is one), nine industry associations and three joint action groups. Many export-orientated firms, in various industries, have organised themselves into these industry

export councils in partnership with the DTI to redress the global market place as a collective force. South African exporters that have organised themselves into the export councils select certain target markets and set export targets that they seek to achieve annually (DTI, 2009). The DTI provides financial support to some of the export councils' activities. Executives appointed by the exporting firms serve these export councils. The export council structure has also been given a forum to redress all obstacles and proposals that may affect exporters' ability to export successfully. This takes the form of a National Export Advisory Council, chaired by the Minister of Trade and Industry. Its quarterly meetings are attended by the executives of the various councils.

3.5.5 Capital equipment industry structure

The South African capital equipment industry is categorised under the broader manufacturing industry (Sector Industrial Code 3) and with sub Sector Industrial Code (SIC) 35 (StatsSA, 1993). StatsSA (1993) defines the SIC as “a classification of economic activities of industries. An industry consists of establishments engaged in the same or a closely related kind of economic activity based mainly on the principal class of goods produced or services rendered. The term industry is used in the widest sense to cover all economic activity from the primary industries of agriculture, forestry, fishing and mining to the rendering of social, recreational, cultural and personal services.”

The DTI divides the capital equipment industry into four sub-industries that have five areas of activity. The four sub-industries are fabricated metal products, general and special purpose machinery, electrical machinery and apparatus, and transport equipment. The five main areas of activity are mining, agriculture, building and construction, other process industries and utilities (Beyers, 2009; Rhomberg, 2009). The capital equipment services industry offers the following services to the areas of activity mentioned above (Beyers, 2009): materials handling; environmental control; refining/manufacturing process; drilling, digging and cutting; earthmoving; design and project management; construction; and finance (see Table 3.4). Extruders are

classified as “other process industries” and are described in more detail in the following section.

Table 3.4: Customer group segments under capital equipment and services to each segment

| Services | Mining | Agriculture | Civils and construction | Other process industries | Utilities |
|---------------------------------------|--|--|--|---|---|
| Materials handling | Rocks and ores and slurry | Timber and crops handling | Earthmoving crantage conveying | Raw materials, conveyors, pumps, screens, cranes | Consumables conveyors, pumps, screens, cranes |
| Environmental control | Waste disposal ventilation cooling and water heating | Tunnels, hot houses, irrigation, pumps | Waste disposal ventilation, air-conditioning and water heating | Filters, dust control, toxic materials, heat exchanges | Filters, dust control, toxic materials, heat exchangers |
| Refining/manufacturing process | Crushing, screening, pumping and refining | Sorting, grading, washing, drying and freezing | Erection and finishing | Belt scrapers, extruders , crushers, screens, kilns, cyclones, oil refining, tooling | Utility-specific, Pebble Bed Modular Reactor (PBMR) and conventional coal-fire power stations |
| Drilling, digging and cutting | Exploration, blasting and potholes | Potholes, trenches, holes, irrigation and blasting | Potholes, foundations, blasting and trenches | Process and design studies, procurement, engineering and project management | Potholes, trenches, holes and blasting |

| | | | | | |
|--------------------------------------|---|---|---|---|---|
| Design and project management | Exploration, site evaluation studies, engineering and project management | Climatic and soil analysis, site evaluation studies, engineering and project management | Site evaluation studies, engineering and project management | Process and design studies, procurement, engineering and project management | Procurement, engineering, and project management |
| Construction | Shaft sinking, tunnelling development and stoping, overburden removal, blasting and ore/waste removal | Excavation, piling, slab laying, brickwork | Piling, foundation laying, slip forming, building and finishing | Prefabrication, plumbing, electrical and bricklaying | Site clearance, foundation laying, fabrication, electrical and plumbing |
| Finance | Project finance and working capital | Project finance and working capital | Working capital | Project finance and working capital | Project finance and working capital |

Source: DTI (2009)

3.6 EXTRUDERS

An extruder is a machine for producing continuous lengths or forms of various products. Its components are a tubular barrel, a turning screw, ram or plunger within the barrel; a hopper at one end from which the material to be extruded is fed to the screw, ram or plunger and a die at the opposite end for shaping the extruded mass. The basic operation of an extruder is described by Rauwendaal (1998) as being a process of pushing material through a die to achieve a certain shape.

Various types of products can be extruded, including plastics and polymers and food and metals. The advantages of using an extruder are multiple and include adaptability (changing minor ingredients to produce a large quantity of products); energy efficiency (operate at a low moisture content with little drying required after extrusion); high quality of products (owing to the short exposure time to heat, nutrients in the food are better preserved); low cost in terms of raw material, labour and capital investment required during the extrusion process; and high productivity (owing to the continuous nature of the extrusion process (Van Niekerk, 2009).

Extruders vary by four major characteristics namely the type of drive and load, the position of the press and the movement of the extrusion relative to the ram (Rauwendaal, 2001). The characteristics determine the type of extruder. The various types of extruders will subsequently be discussed.

3.6.1 Types of extruders

Extruders are divided into three general types, namely single-screw, twin-screw and multiple-screw. Each type has several variations (Encyclopaedia Britannica, 2009; Harper, 1981, Oberg, Jones, McCauley, Horton, Heald, Ryffel & Hussain, 2004), advantages and disadvantages (see Figure 3.2). Twin-screw extruders are the most popular of the various types of extruders and are used in the production, compounding and processing of plastics, rubber and foodstuffs (Kohlgrüber, 2007).

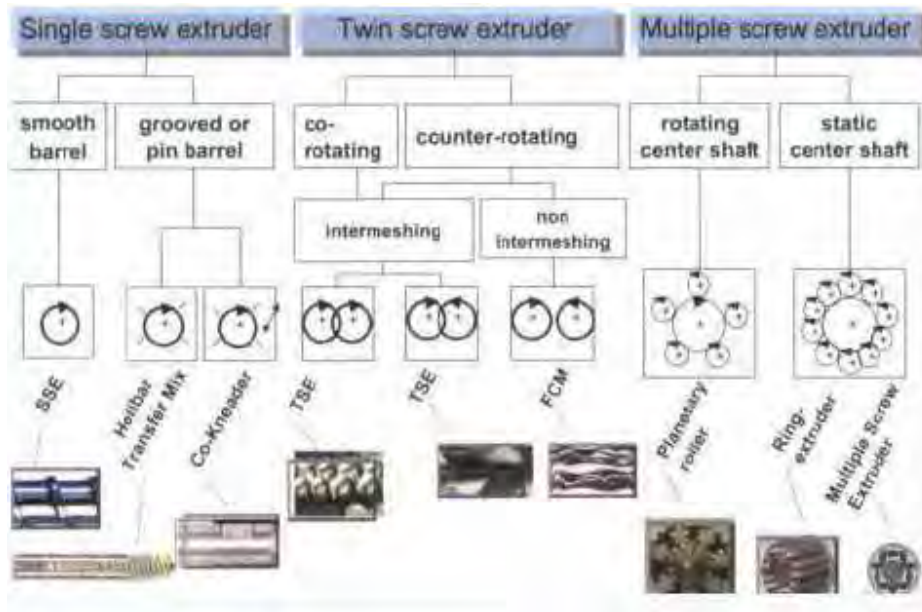


Figure 3.2: Types of extruders

Source: Kohlgrüber (2007)

Inside an extruder, a number of basic process functions are performed that include feeding, melting, mixing, venting, and developing die and localised pressure. The motor facilitates the extrusion process through the rotation of the screw or screws that transfers energy into the mix or extrudate (Steiner, 2003:19).

3.6.1.1 Single-screw extruders

In single-screw extruders, the transport mechanism is based on frictional and viscous forces in the solids transport zone. Single-screw extrusion is therefore dependent on the frictional and viscous properties of the material being processed and in turn transport is affected by the difference in friction between the material and the screw as compared with the difference in friction between the material and the barrel wall (Mollan, 2003:1).

White (1990) describes single-screw extruders as those extruders that “generate the required pressure to force the product through the die.” They rely on drag to develop die pressure, which causes the single-screw extruder to be classified as a drag flow device rather than a positive displacement pump.

Single-screw extruders are less efficient than twin-screw extruders in terms of processing but they are simpler mechanically and less expensive and can therefore provide high productivity-to-cost ratios (see Figure 3.3). Their disadvantage as compared with twin-screw extruders however is that in single-screw extruders materials have a shorter residence time than in twin-screw extruders, while the melting process is more stable. Furthermore, smaller-sized equipment is required to achieve an equivalent output (Mollan, 2003:216).

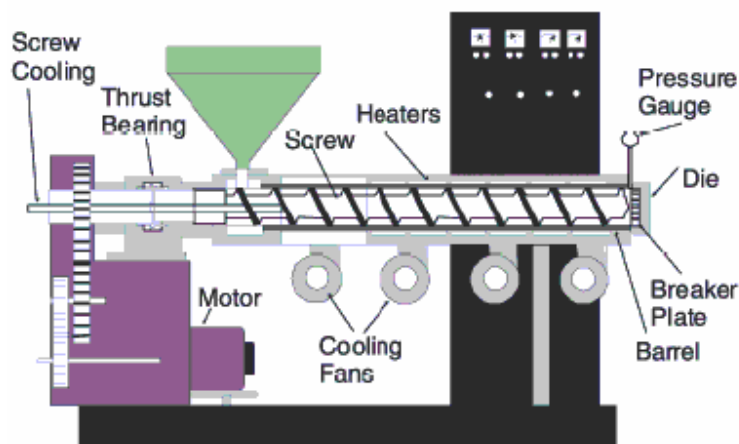


Figure 3.3: Single-screw extruder

Source: Giles, Eldridge and Wagner (2005)

3.6.1.2 Multiple-screw extruders

A multiple-screw extruder has a central feed screw meshing with two or more outer screws

uniformly spaced around the circumference of the central screw. Its outer screws have a mean thread diameter equal to a mean thread diameter of the central screw divided by the number of outer screws. Multiple-screw extruders typically contain as many as four screws. A typical four-screw extruder is a two-stage machine in which the twin-screw plasticating section feeds into a twin-screw discharge section situated below it (Cheremisinoff, 2001:178).

3.6.1.3 Twin-crew extruders

Twin-screw extruders were developed as an improvement upon single-screw extruders (see Figures 3.4 and 3.5). The use of twin-screws imposes different conditions on all zones of the extruder from the transfer of the material from the hopper to the screw down to the metered pumping zone. Material transport in a twin-screw extruder depends on the specific configuration of the screws, but generally the process material is prevented from rotating with the screw because of the opposing screw. This is regarded as a significant advantage over single-screw extruders that can have a detrimental effect on the material rotating with the screw and not being conveyed forward in an efficient manner (Mollan, 2003:7).



Figure 3.4: Twin-screw extruder

Source: ThomasNet (2009a)



Figure 3.5: Twin-screw food extruder

Source: CFAM (2009)

Twin-screw extruders use two screws arranged side-by-side and this allows for a number of configurations to be obtained. They can rotate in the same direction or in opposite directions (counter-rotation and co-rotation). Both designs have the processing advantages of positive conveying and effective mixing as compared with single-screw extruders. The co-rotating configuration is more popular because the product quality and output are more continuous, there is less wear on the barrel components, and they are more flexible in terms of producing a wider variety of products (Rauwendaal, 2001).

The enhancements and advantages of twin-screw extruders are numerous, for example they can handle oily, wet and viscous materials that slip in a single-screw extruder. Twin-screw extruders also have a positive pumping action that has reduced pulsating at the die and there is less wear on the smaller components of the extruder. Twin-screw extruders also allow for a larger range of particle size to be used (Riaz, 2000). Furthermore, the twin-screw extruder is self-cleaning owing to the screws meshing into one another and the quality of the end-product is easily reproduced (Van Niekerk, 2009). Twin-screw extruders also have various savings benefits in terms of start-up and shut-down times that save on money, time and resources. They are therefore more energy-efficient than single-screw extruders are.

3.6.2 Extruder components

An extruder or extrusion line consists of various components and the manufacturing, supply and services of these components is in itself a lucrative industry. An extruder generally has a delivery system or feed zone that transports the material and a die system that forms the material into the required shape. There are various types of extruders that have a common feature, namely forcing the extrudate from a wide cross-section through the restriction of the die by means of a process

that starts with entry into the die. The various types of extruders all force the extrudate from a wide cross-section through the restriction of the die. The force required and the characteristics of the extrudate are dependent on the properties of the extrudate, the design of the die and the rate at which the material is forced through the die (Rauwendaal, 2001).

There are many different variations of extrusion equipment. They vary by four major characteristics namely:

- the movement of the extrusion with relation to the ram;²
- the position of the press, either vertical or horizontal;
- the type of drive, either hydraulic or mechanical; and
- the type of load applied, either conventional (variable) or hydrostatic.

Different types and sizes of extruders are used depending on the job requirements. The size of the extruder is described by the screw or barrel diameter (commonly ranging from 15 to 250 mm) and by the barrel length-to-diameter ratio (Plastics.com, 2010).

In general, an extrusion system or extrusion line has several components:

- feed hoppers and mechanisms for dosing the desired percentage of the polymer and other ingredients;
- an extruder to melt and mix the polymer and other ingredients;
- a melt filtration system for removing contaminants;
- an adapter to connect the extruder to the die;
- a die for forming the molten polymer into the desired shape;
- a cooling mechanism (air ring, water bath and others) to freeze the molten polymer into the final shape; and

² If the die is held stationary and the ram moves towards the die, this is termed *direct extrusion*. If the ram is held stationary and the die moves towards the ram, this is termed *indirect extrusion*

- a puller to pull the polymer out of the die and through the cooling mechanism.

The core of an extruder is the extruder screw that consists of a feeding zone, a mixing zone and a metering zone. Figure 3.6 illustrates a polymer extrusion single-screw extruder depicting the barrel and the various zones termed solids conveying, melting and melt pumping zones.

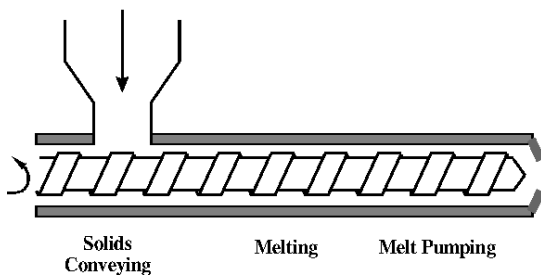


Figure 3.6: Illustration of polymer extrusion single-screw extruder

Source: PolymerProcessing.com (2010)

The casing in which the screw turns is termed the barrel, of which there are two types, namely a bi-metallic barrel and a solid or clamshell barrel (see Figures 3.7 and 3.8). A bi-metallic barrel can handle higher processing pressures than a clamshell barrel can (Van Niekerk, 2009).



Figure 3.7: Bi-metallic barrel

Source: ThomasNet (2009a)



Figure 3.8: Clamshell barrel

Source: Baker Perkins (2009)

An extruder also has barrel heating and cooling components built into the barrel. Heating can be achieved by electrical heaters (Rauwendaal, 1998:5–10, 30–32). Cooling the barrel is achieved by running cold water through ports in the barrel (see Figure 3.9).

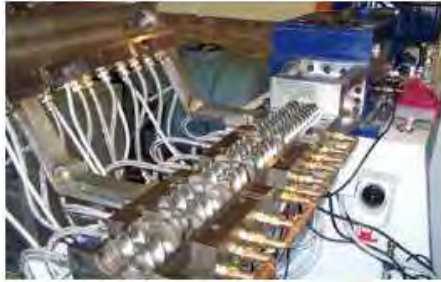


Figure 3.9: Screws and barrel in twin-screw extruder

Source: CFAM (2009)

The final component of an extruder is the die. The die is placed at the exit of the extruder where the product is discharged and they are designed to be restrictive in order to increase barrel fill, residence time and energy input (Huber, 1989). Figures 3.10 and 3.11 illustrate two types of extruder dies.



Figure 3.10: Foam sheet extruder die

Source: Battenfeld (2009)



Figure 3.11: Polymer extruder die

Source: StaMixCo (2009)

In the extrusion process, the cutter type depends on the type of product extruded. Figure 3.12 illustrates a cutter used to cut smaller products such as hoses, pipes and profiles with a diagonal cut.

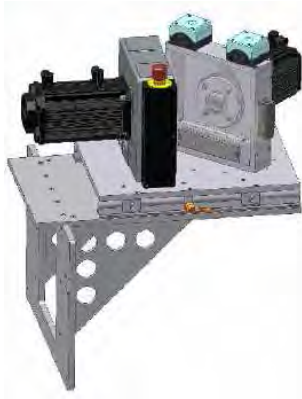


Figure 3.12: Die and cutter

Source: Ankele (2009)

Finally, an extruder also has dry feeders to feed the extruder. There are volumetric and gravimetric feeders (Mercier, Linko & Harper, 1998). The feeder is located above the feeding section in the barrel above the feed zone in order to feed raw material into the feed hopper (see Figure 3.13).



Figure 3.13: Extruder feeder and hopper

Source: Kneader Machinery (2009)

3.6.3 The extrusion process

Extrusion is a continuous or semi-continuous process of forming a raw material into a uniform shape by forcing it through a die under controlled conditions. Such a shape or product is delivered at high throughput rates (Newton, 2006; Wikipedia, 2009a). A die is a device for cutting out, forming or stamping material. Material comes in different shapes, sizes, and types depending on the use of the finished product (Rauwendaal, 1998). Extrusion can also be defined as the shaping by force of material through a specially designed opening most often after previous heating of the material. The main advantage of this process over other manufacturing processes is its ability to create complex cross-sections and work materials that are brittle. It also forms components with a good surface finish (Oberg *et al.*, 2004).

The first extrusion process was patented in 1797 by Joseph Bramah. He used the process to manufacture lead pipes. The process was refined in 1820 when Thomas Burr constructed the first hydraulic powered press and in 1894, Alexander Dick expanded the extrusion process to copper and brass alloys (Wikipedia, 2009a).

Extrusion may be continuous (theoretically producing indefinitely long material) or semi-continuous (producing many pieces). The extrusion process can be done with hot or cold material (Oberg, *et al.*, 2004). Commonly extruded materials include metals (including aluminium, lead, tin and copper), plastics and polymers (chips and pellets), ceramics (including play dough and terracotta), and foodstuffs (including pastas, breakfast cereals, grains and ready-to eat snacks; Rauwendaal, 2001). Extrusion also has application in pet food and pharmaceuticals. Some chemotherapy drugs are also produced in this manner.

The extrusion process begins by heating the stock material, which is then loaded into the container

in the press. A dummy block is placed behind it where the ram then presses on the material to push it out of the die. Afterwards the extrusion is stretched in order to straighten it. If better properties are required, then it may be heat treated or cold worked. This can be done by means of direct extrusion (forward extrusion), indirect extrusion (backward extrusion), or hydrostatic extrusion where the billet is completely surrounded by a pressurised liquid, except where the billet contacts the die (Wikipedia, 2009a). The extrusion process can be conducted hot, cold or warm. This will be subsequently be explained.

3.6.3.1 Hot extrusion

Hot extrusion is conducted at an elevated temperature to keep the material from work hardening and to make it easier to push the material through the die. The disadvantage of this process is its cost for machinery and its maintenance, although the tooling cost is kept low because the same dies can be reused. Hot extrusions work best when the material needs to stay soft to make it through the die without breaking, for example glass, candy and certain types of rubber (Newton, 2006:1712; Wikipedia, 2009a).

3.6.3.2 Cold extrusion

Cold extrusion is conducted at room temperature or near room temperature. The advantages of this over hot extrusion, are the lack of oxidation, higher strength due to cold working, closer tolerances, good surface finish, and fast extrusion speeds if the material is subject to hot shortness. Materials that are commonly cold extruded include lead, tin, aluminium, copper, zirconium, titanium, molybdenum, beryllium, vanadium, niobium and steel.

In addition, cold extrusion allows for the manufacture of intricate profiles. Examples of products produced by this process are collapsible tubes, fire extinguisher cases, shock absorber cylinders,

automotive pistons and gear blanks (Newton, 2006:1712; Wikipedia, 2009a).

3.6.3.3 Warm extrusion

Warm extrusion is conducted above room temperature, but below the re-crystallisation temperature of the material. The temperature ranges from 426 to 982°C. Warm extrusion holds an advantage to cold extrusion because it reduces the pressure that must be applied to the material and increases steel ductility (Wikipedia, 2009a).

3.6.4 Extruder applications

Extruders, whether single-, twin-, or multiple-screw, are used to form and shape a variety of materials through the process of extrusion. Riaz (2000:82) mentions a number of these. In the plastics and polymers industry, thermoplastics, thermosets and elastomers are extruded products, while in the food and feed industries, breads, cereals, feed diets, pasta, snacks, confections, meats, starches and many others are dependent on extrusion. The pharmaceutical industry and the metal and ceramics industries also use extrusion. Owing to the need in Africa for infrastructure development and food security, market opportunities are present in food, feed, and plastics and polymers and compounding applications (Petzetakis, 2007; CFAM, 2009).

In Chapter 6, in which the results of the case study of extruder exports to Tunisia will be presented, the various Tunisian industries in which extruders are used will be described in more detail. These industries are the food-processing, feed, plastics and polymers, and mechanical and metal works industries (see Section 6.4.3).

3.6.4.1 Food extrusion

Extrusion is particularly applicable to food processing. Extrusion cooking produces a wide range of finished products from inexpensive raw materials with minimum processing time. Most cereals can be extruded and cereal-based products, such as breads, cakes, cookies, crackers and breakfast cereals can be processed by extrusion. Textured vegetable proteins are a proven commercial success, and published reports emphasising the health benefits of soy protein have added to this popularity. The growing functional foods industry is becoming increasingly interested in adding textured soy protein to its products (CFAM, 2009).

The food extrusion process entails pushing the material through an opening of desired size with a screw extruder. Food extrusion is primarily used in cereals and grains such as pastas, breakfast cereals, ready dough and ready-to-eat snacks. Snacks, using new, controllable extrusion processes, can now be made with a crisp outer layer and a soft inner layer. Other foods such as certain types of meat and purees have all been extruded (Harper, 1981; Riaz, 2000; Guy, 2001). Extrusion is also used with grains such as wheat, maize and rice. In the feed industry, it is used for processing floating and slow-sinking feed.

Extrusion cooking is a particularly useful process for the production of instant infant flours, as it allows gelatinisation and partial dextrinisation of starch, as well as reduction of the activity of some anti-nutritional factors. With the addition of roasted soybean flour, sugar, milk powder, vitamins and minerals, this blend can provide nutritious instant flour usable as complementary food for infants and young children (Mouquet, Salvignol, Van Hoan, Monvois & Trèche, 2003).

There are however some challenges to the growth in extruder use of which the most serious is that existing extrusion equipment is not suited to the context of developing countries, as it requires

considerable financial investment and production capacity (minimum 300 kg/h) is too high (Mouquet *et al.*, 2003). A complete twin-screw extruder line is valued at more than R1.5 million. There is a market for low-cost, nutritious food, as well as a commercial market. According to the Extrusion Technology Programme at the Texas A&M University (TAMU, 2004), consumers are buying snacks in greater variety and quantity than ever, and extrusion technology produces almost all of them. Snacks are one of the fastest-growing segments of the food industry and, for years, extrusion has been a mainstay of producing new and creative products.

Another application of extruders in Africa could be the stimulation of small companies. Temu and Temu (2009) published a case study of a small entrepreneur in Tanzania that had built a business supplying highly nutritious soy, sorghum and bean flours to the local market, targeting pregnant women, the aged and those living with HIV/AIDS. The entrepreneur also supplied her flour to refugee camps in Tanzania, but owing to new food safety regulations that came into effect for food-aid products in 2001, she was no longer able to compete and lost market share to large suppliers. She sought advice from FOODNET, a regional USAID marketing and enterprise network and was assisted in purchasing an extruder. FOODNET also linked her with entrepreneurs from the region who helped her to develop an appropriate business plan. The extruder enabled her to greatly increase her volume of production and to produce products that met the most stringent international standards for food safety and hygiene. She now produces higher value products that are available in most supermarkets across Tanzania. She has also been awarded contracts from the United Nations High Commission for Refugees to supply UNIMIX to a refugee camp, thus moving Tanzania closer to meeting its own food security needs rather than importing all food aid. She has progressed and now blends locally available crops such as sorghum, cassava, millet and beans to make high value nutritional products for making breakfast and *ugali* (a local porridge). Two of her UNIMIX products have already been certified by the Tanzania Bureau of Standards and the United Nations World Food Programme (WFP; Temu & Temu, 2009). Her company meanwhile has grown

and is now registered as PowerFood Industries Ltd.

High-tech, appropriate products for niche markets, suitable to be manufactured using a customised, modern twin-screw extruder, include the following potential product/process categories (CFAM, 2009):³

- pet food, including extruded, floating or suspended pellets as aquatic and pond feeds for trout, carp, cat-fish, Koi, tropical fish;
- Corn-Soy-Blend with cereals and legumes for UN or WFP in addition to complementary or weaning/infant foods;
- extruded/expelled oilseeds into crude oil and partially defatted cakes/granules/flour;
- bio-reactor or bio-extruder with enzymes to obtain high density grain products;
- extruded composite cereals, such as wheat, sorghum, cassava, barley, rice, peanuts, millet (*mahangu*), peas/beans, sweet potatoes and green banana/plantain;
- extruded, texturised soybean proteins (textured vegetable proteins, soy-mince);
- extruded pasta from composite cereal flours;
- protein-enriched snacks and breakfast cereal flakes (extruded/rolled/toasted);
- extruded cereal substrates for ethanol fermentation and extruded ethanol by-products;
- intermediate-extruded, meat/muscle-based analogues, such as American jerky;
- high-moisture extrusion cooking of restructured/processed, whole-muscle meat alternatives or textured, vegetarian (soy-based) meat analogues;
- biodegradable (edible) extruded starch plus polymers as packaging films;
- extrusion cooking of breading to coat nuggets of chicken, fish, cutlets and oriental foods;
- co-extrusion of multi-layered, multi-component snacks simultaneously; and
- vegetable proteins.

³ This list was compiled by CFAM following a literature review of approximately 200 printed and electronic scientific articles and patents.

3.6.4.2 Plastic and polymers extrusion

Plastics and polymers extrusion is a high volume manufacturing process in which raw plastic material is melted and formed into a continuous profile (Wikipedia, 2009b; Encyclopaedia Britannica, 2009). Plastic extrusion is a process that pushes heated plastic through a die to form the finished product. First, plastic pellets are placed through a feeder termed a *hopper* after which they enter the barrel. Then the screw extruder pushes the pellets through the barrel while melting it. A screen pack reinforced by a breaker plate removes any contaminants and then the screw pushes the material through the die where the finished product is formed. Next, the product is cooled, usually by means of a water bath. Materials created by plastic extrusion include wire insulation, PVC pipes and tubes (Hensen, 1997; Levy & Carley, 2001).

Plastic extrusion produces items such as pipe and tubing, weather stripping, window frames, adhesive tape and wire insulation. In the extrusion of plastics, raw thermoplastic material in the form of small beads or resin is gravity fed from a top mounted hopper into the barrel of the extruder. Additives such as colourants and ultra violet (UV) inhibitors (in either liquid or pellet form) are often used and can be mixed into the resin prior to being fed through the hopper (Rauwendaal, 2001). There are many geometrical possibilities for extrusion as a method to process plastics. Simple round pipes and square shapes are common. More complex shapes, such as tracks and profiles, are also commonly produced by extrusion moulding (Wikipedia, 2009b).

The market for extruded plastics and polymers is significant in especially the packaging industry. Other industries that use extruded plastics and polymers include the building and construction, furniture and homeware, automotive and transport, electrical and electronics, pharmaceutical, mechanical engineering, and the toys and leisure industries (Malikane, Roberts & Sikhweni, 2000).

3.6.4.3 Metal extrusion

Through extrusion, long straight metal components can be produced. The cross-sections that can be produced vary, such as solid, round, rectangular, L-shapes, T-shapes and tubes. Extrusion is done by squeezing metal in a closed cavity through a tool, known as a die, using either a mechanical or hydraulic press (Wikipedia, 2009a; eFunda, 2009).

Examples of metals that can be extruded are lead, tin, aluminium alloys, copper, titanium, molybdenum, magnesium, zinc, vanadium and steel. Metals can be cold or hot extruded. Cold metal extrusion can be used on tin, lead, aluminium and many other metals. Hot extrusion requires the metal to be heated before it passes through the die. The heat of the metal should be above half the melting temperature of the metal. Examples of products created by hot extrusion are car and aircraft components, metal pipes, and trim parts used in automotive and construction applications, window frame members, railings and aircraft structural components (Wikipedia, 2009a; eFunda, 2009).

3.6.4.4 Ceramic extrusion

Extrusion can be used for shaping ceramics. Ceramics can be either hot or cold extruded. The mixture is placed into a barrel and forced through a die, as with plastic and metal extrusion (Händle, 2007). Ceramics that are created from extrusion include pipes, bricks and other items and can be formed into shapes via extrusion.

Terracotta extrusion is used to produce pipes. Many modern bricks are also manufactured using a brick extrusion process (Wikipedia, 2009a). Most ceramic bodies are extruded in the cold state. It

is often necessary to cool the compound in the extruder because the heat generated by shearing and friction could cause the plasticity to deteriorate and/or the extrusion additives to gel. Thermoplastic extrusion involving mixtures of ceramics and plastics have also become popular (Händle, 2007; Richerson, 1996).

3.6.4.5 Pharmaceutical extrusion

Extrusion through so-called polymeric filters is used to manufacture suspensions of transfectosomes for use in pharmaceutical products (Wikipedia, 2009b). The most important application of extrusion in the pharmaceutical industry is in the preparation of granules of uniform size, shape and density, containing one or more drugs (Swarbrick & Boylan, 1992; McGinity, Repka, Koleng & Zhang, 2006:203).

3.6.5 Extruder manufacturers in South Africa

A survey of extruder manufacturers in South Africa revealed that there is only one extruder manufacturer that manufactures complete extruder plants, while three foreign extruder manufacturers have a limited capacity in South Africa to manufacture certain extruder components for clients in South Africa (CFAM, 2009; Bühler, 2009). The manufacturers and users of extruders are supported in the local industry by manufacturers and service providers that manufacture components and/or are involved in maintenance and upgrading activities.

The high cost of the imported extruders has been a main barrier for extrusion in the South African or African market. Therefore, the use of extrusion has remained within large companies and mainly multinationals (CFAM, 2008). In the following section, the manufacturing capability of the South African manufacturer and three foreign manufacturers is discussed. These manufacturers were

interviewed, the results of which will be presented in Chapter 5.

3.6.5.1 Centre for Advanced Manufacturing

Since the late 1990s, CFAM, based in Potchefstroom, has developed its own range of twin-screw co-rotating extruders that are used in the following industries: food extrusion, feed extrusion, plastics and polymers extrusion, powder coating and compounding, amongst others (CFAM, 2008). The CFAM provides users of extruders with various services that include a single-solution package (extrusion plant and a suite of products). It also manufactures and installs commissioned extruder plants to enable the user to produce high quality products according to the specifications from the start (Grobler, 2008).

To date CFAM has mainly targeted the established extrusion market, thereby focusing on clients that are familiar with extrusion and its applications. According to CFAM, a number of multinational companies have standardised use of the CFAM extruders, while previously they made use only of imported extruders, mainly from Europe (Grobler, 2008; Grobler, 2009). The Centre for Advanced Manufacturing's tailored extrusion technologies has led to new opportunities for medium-sized companies or producers of crops to be able to afford extruders to add value to their products.

3.6.5.2 Foreign extruder manufacturers in South Africa

Bühler South Africa, Wenger and Baker Perkins are three foreign extruder manufacturers present in South Africa that manufacture components for extruders and thus have limited manufacturing capacity. These components are manufactured exclusively for use with their own brand of extruder (Bühler, 2009). Their manufacturing in South Africa is focused on providing a degree of local support to users of extruders.

Bühler South Africa for example supplies plants, equipment and process expertise to the food-processing, chemical-process engineering and die-casting industries in South Africa (Bühler, 2009). The company's South African operation services approximately thirteen markets in sub-Saharan Africa, and has a large operation spread across two sites in Wadeville and Cresta, Johannesburg. It does not manufacture extruders in South Africa; however, it manufactures components and it services some Africa operations from South Africa as base.

Bühler South Africa is a subsidiary of the Swiss-based Bühler engineering group and specialises in food and feed extruders. The Bühler group employs 6,100 people worldwide and 140 in South Africa. Bühler operates in South Africa, Botswana, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Swaziland, Zambia and Zimbabwe. Bühler South Africa has engineered and manufactured maize and wheat mills, with a total installed capacity of 1.5 million tons a year, accounting for over 60 per cent of all flour produced in South Africa. The majority of components sold by Bühler is manufactured at its Honeydew factory. The company maintains a large stock of most spare and wear components for its range of equipment, and components not available are flown into South Africa from Bühler plants elsewhere to ensure the shortest possible downtimes at customers' plants (Bühler, 2009). In addition to manufacturing new components, the company is also able to completely overhaul customers' extruders. The company also offers consulting services regarding plant requirements and layout.

Wenger and Baker Perkins have a more limited manufacturing capacity in South Africa and outsource the larger part of manufacturing to South African suppliers of generic components (Wenger, 2009; Baker Perkins, 2010). Baker Perkins has been in South Africa since 1947. It had a large engineering and components department to provide support services, as well as a shipping and invoicing division. Baker Perkins South Africa also operated in the various neighbouring

countries without having a physical presence there. The early 1970s saw a dramatic rise in the production of biscuits in the country. During the first five years of the 1970s, Baker Perkins' plant capacity doubled. During the 1970s, the bread industry also underwent a period of growth. At a time when the cost of imports rose, local manufacture emerged. Baker Perkins gave local manufacturing greater prominence in the 1980s. The low point for Baker Perkins South Africa came in 1983 when the baking industry was depressed and plant orders declined. Baker Perkins Limited also underwent changes when in 1985 Baker Perkins Bakery Ltd, Peterborough, assumed responsibility for bakery machinery activity in South Africa from Baker Perkins Pty, Australia. However, Baker Perkins lost its competitive advantage and decided to dispose of the group's investments in South Africa. It however still has a limited components manufacturing and repair unit (Baker Perkins, 2010). Amongst its many clients in South Africa is Albany Biscuits (a subsidiary of Tiger Brands).

US-based Wenger's extruders in South Africa and elsewhere are mainly used in the feed production industry, for example pet-food and fish-feed pelletising. For fish feed, Wenger extruders produce a full range of feeds for both fresh and salt water species with products that range in pellet sizes from 0.6 to 50mm.

3.6.5.3 Other extruder manufacturers present in South Africa

Besides CFAM and the limited manufacturing capacity of three foreign extruder manufacturers are present in South Africa, there are no other extruder manufacturers in South Africa. However, a number of leading extruder manufacturers are represented in South Africa through agencies, importers and distributors.⁴

⁴ See Annexure C for a list of twin-screw manufacturers and agents and also some that are directly imported by extruder users.

Users in the past have said that local agents and/or distributors of internationally manufactured extruders place too high a margin on imported extruders and that it is more feasible to deal with and order directly from the manufacturer. Some users of extruders directly import an extruder rather than use an agent. Some extruder manufacturers such as Baker Perkins have an online catalogue of components for twin-screw extruders available at all times (Baker Perkins, 2009).

3.7 CONCLUSION

In this chapter, the importance of export diversification and broadening the export base of manufactured goods has been detailed. It was found that for a variety of reasons, the manufacturing sector and the export of manufactured goods is under pressure to become more competitive. There is a need to grow the exports of manufactured goods. From the DSM study (Rossouw *et al.*, 2010), extruders were identified as a product with export potential to Tunisia.

Extruders, the extrusion process and the various applications of extruders have been described. Furthermore, local extruder manufacturing capacity has been discussed and international manufacturers reviewed.

It was found that there is only one manufacturer present in South Africa, although a number of foreign extruder manufacturers have a presence in South Africa, of which three have limited extruder component manufacturing capacity.

This chapter has examined extruders and extruder processes, as well as various applications of extruders in the production of food, feed, plastics and polymers, and material compounds.

In the next chapter, the two research techniques that were used for the empirical part of this study namely the survey and the case study, will be described.

CHAPTER 4: METHODOLOGY

4.1 INTRODUCTION

Chapter 2 provided a theoretical discussion of information requirements, sources of information and the role of CI. In the chapter, Competitive Intelligence was described as an instrument for collecting and analysing export data in order to make strategic decisions. In Chapter 3, the need for growing the exports of manufactured goods was analysed. The capital equipment industry was also discussed in this chapter.

In this chapter, the methodology of the empirical component of this study is described. The two research techniques, a survey and a case study, used in collecting data are described. In Section 4.2, the research process and method is described. Thereafter, the survey and case study techniques are discussed in Sections 4.2.3.1 and 4.2.3.2 respectively.

4.2 QUALITATIVE RESEARCH

In this section qualitative research in general as well as the two qualitative research methods that were applied for this study will be described.

4.2.1 Background to qualitative research

Hoepfl (1994 and 1997) states that qualitative research uses a “naturalistic approach that seeks to understand phenomena in context-specific settings.” Qualitative research, broadly defined, means “any kind of research that produces findings not arrived at by means of statistical procedures or

other means of quantification" (Strauss & Corbin, 1990:17). Qualitative analysis results in a different type of knowledge to that of quantitative inquiry. While quantitative researchers seek causal determination, prediction, and generalisation of findings, qualitative researchers seek instead clarity, understanding and extrapolation to similar situations. Qualitative research seeks meaning and contributes to theory development through inductive reasoning. It achieves meaning by considering all aspects of a particular phenomenon to find interrelationships and establish the manner in which they form a whole (Henning, 2004:80–100).

In qualitative analysis, the researcher sorts and sifts information, searching for types, classes, sequences, processes and patterns or wholes. The aim of this process is to assemble or reconstruct the data in a meaningful or comprehensible fashion (Jorgensen, 1989:107). It does not rely solely on statistics or numbers to inform its findings.

Qualitative research methods differ from quantitative research methods primarily in their analytical objectives, the types of questions they pose, the types of data collection instruments they use, the forms of data they produce and the degree of flexibility built into the study method (Denzin & Lincoln, 2000). Amongst the valid reasons for conducting qualitative research are preferences or experience of the researcher (suited for this type of work) and the nature of the research problem (Strauss & Corbin, 1990). Quantitative and qualitative research methods are most often associated with deductive and inductive approaches, respectively. In qualitative research, narrative description and constant comparison are used in order to find meaning in the specific populations or situations investigated. As a result, quantitative research is viewed as a method that seeks to demonstrate causal relationships under controlled conditions. Conversely, qualitative research is viewed as a method that seeks improved understanding of some particular, natural (uncontrolled) phenomenon (Holman, 1993; Babbie, 1992).

4.2.2 Qualitative research process

Literature indicates a largely generic process that is followed when research is conducted. The research process entails the following phases: the development of the research questions and objectives, the gathering of data using various collection tools, the analysis of the data, and the presentation of the findings and recommendations (Shaw, 1999, Denzin & Lincoln, 2005, Flick, 2006). The researcher's starting point is theoretical knowledge derived from literature or previous empirical findings. The research process followed for this study entailed the following steps: the development of the research questions and objectives, selecting the research methodology, data collection, data analysis and interpretation, validation of results and presentation of results and recommendations.

4.2.3 Research methods

The main function of the research method is to explain the manner in which the research questions (as formulated in 1.2) will be answered. According to Cooper and Schindler (2001:771), research method indicates the type of study to be undertaken in order to address the research questions. The research method is influenced by available resources, whether the research should be qualitative or quantitative, whether data is to be collected in a structured manner and whether an intensive study of a small sample may be more effective than a less intensive study of a large sample (Phillips, 1990:19–37).

For purposes of this study, a qualitative research approach was followed. There are mainly three qualitative research methods (Chadwick, Bahr & Albrecht, 1984:100), namely surveys, case studies and observations. For this study, both a survey (structured or unstructured interviews and questionnaire approach) and a case study were selected as most suitable in terms of the research

objectives and the available resources. These methods are subsequently described with regard to the research objectives (as formulated in 1.3).

4.2.3.1 Survey research method

This section described the survey research method that was used for the empirical part of this study. Personal and telephone interviews using a questionnaire were conducted to gather the required information.

4.2.3.1.1 Interviews using a questionnaire

A survey research method using interviews was used to study the export information needs and sources of information used by extruder manufacturers. A survey design using interviews is regarded as a popular method of data gathering for qualitative research (Chadwick *et al.*, 1984:100). Interviews are likely the most widely employed method in qualitative research. Interviewing is a basic mode of inquiry (Hoepfl, 1997). The main task in interviewing is to understand the meaning of what the respondents say (Kvale, 1996). Interviews are particularly useful for gaining the story behind a participant's experiences, as the interviewer can pursue in-depth information regarding the topic concerned. Interviews may be useful as follow-up with certain respondents to questionnaires, for example to further investigate their responses (McNamara, 1999).

An interview involves posing context-specific questions in order to obtain data from select individuals in order to address the research questions. There are three types of interviews namely telephone interviews, personal or face-to-face interviews and self-administered inquiry, for example mail surveys (Trochim, 2006). Patton (1990) discusses three types of qualitative interviewing: (1)

informal, conversational interviews; (2) semi-structured interviews; and (3) standardised, open-ended interviews using an interview guide.

In a personal interview, the interviewer works directly with the respondent. Unlike the situation with mail surveys, the interviewer has the opportunity to probe or ask follow-up questions. Interviews are also generally easier for the respondent, especially if what is sought are opinions or impressions. Interviews however have the disadvantage of being resource intensive (Trochim, 2006). Furthermore, results can be affected adversely by the interviewer if he / she changes the way in which questions are asked (Cooper & Schindler, 2001:300).

For the survey, data was collected by means of personal and telephone interviews using questionnaires, with three groups of respondents, namely extruder manufacturers, users of extruders and TPOs that provide export-promotion services to exporters in the capital equipment industry (DTI and SACEEC). Users of extruders were interviewed to collect data on industry drivers and challenges, as well as product application of extruders.

An interview guide or questionnaire was used for the interviews. A questionnaire is a list of questions or general topics that the interviewer wants to explore during each interview. Questionnaires ensure good use of limited interview time, they make interviewing multiple subjects more systematic and comprehensive, and they help to keep interactions focused (Hoepfl, 1997). In keeping with the flexible nature of qualitative research methods, questionnaires can be modified over time to focus attention on areas of particular importance, or to exclude questions the researcher has found to be unproductive for the goals of the research (Lofland & Lofland, 1984). For this study, three semi-structured questionnaires or interview guides were used (see Annexures D, E and F for the three questionnaires).

A semi-structured or structured interview questionnaire will generally have a combination of structured (closed) and unstructured (open) questions (Trochim, 2006). Questions with closed (fixed) response categories are more easily quantified. Open questions provide no structure for the answer and should therefore be focused to elicit the kind of information the researcher hopes to elicit. Their use was therefore limited in this study. Closed and scaled questions were rather used. Closed questions offer many advantages in time and money. By restricting the answer set, it is easy to calculate percentages and other complex statistical data over the whole group or over any subgroup of participants. Closed questions also make it easier to track opinion over time by administering the same questionnaire to different but similar participant groups at regular intervals (Trochim, 2006; Edwards, 2010).

Types of closed questions include the following (Trochim, 2006):

- Multiple-choice questions: This type of question has a simple answer, usually a name, frequency, or quantity, which is the kind of information these questions are good at obtaining.
- Binary questions: These are good for obtaining factual information that falls into the yes-no, true-false category of answer.
- Scaled-response questions: These consist of a list of alternative responses that increase or decrease in intensity in an ordered fashion. These kinds of questions can be further defined as balanced, unbalanced, and rating and ranking.
- Unscaled response or open-ended questions.

The three questionnaires that were used to gather data in this survey included certain questions requiring fixed responses (closed questions), Likert-scale questions and open-ended questions. Likert-scale questions allowed the collection of numerical data. Furthermore, they encourage participation because the questions are quick and easy to answer, allow the results to be revealed immediately, and stimulate respondents' thinking with regard to subsequent participation at the

qualitative level. The open-ended questions allowed the respondents to reveal their insights.

The three questionnaires were designed following the process described by Hunt, Sparkman and Wilcox (1982). This process has the following steps: (1) determine the information that is sought; (2) select the types of questionnaire and method of administration; (3) determine the content of individual questions; (4) choose the form of response to each question; (5) determine the number of questions and question sequence; (6) revise where necessary; and (7) pre-test the questionnaire and revise again if necessary.

In the first step, the questionnaires sought to elicit from the respondents the types of information required by exporters in general and required by extruder exporters, as identified in the literature (see 2.3), as well as the sources of information used by extruder manufacturers and the use of CI by extruder manufacturers (see 2.4 and 2.5). In the second step, semi-structured questionnaires of mainly closed questions were selected as the best means of eliciting the required information, for administering through personal and telephone interviews. In the third step, the content of the questions was developed against the background of the research questions and objectives (see 1.2 and 1.3). In the fourth step, multiple-choice and scaled questions were selected as the types of closed questions for the questionnaire.

In the fifth step, the number of questions or the length of the questionnaire was decided upon. The questionnaires for the extruder manufacturers and TPOs were longer than the questionnaire for users of extruder (see Section 5.3 for more detail on the types and number of each type of question).

In the sixth step, the questions were revised four times prior to the commencement of the interviews. In the seventh step, the fourth revision was effected following Pienaar's⁵ quality testing of the three questionnaires for clarity (to avoid potential ambiguity of the questions) and leading questions (to prevent questions from forcing the direction of the respondent's answer or implying a preferred answer). A number of changes were suggested that centred on the quantitative nature of the questions. Suggestions were also made regarding the length and sequence of questions, the nature of the questions and the biographical questions. The suggestions were incorporated in the questionnaires and added to the overall quality of the questionnaires. These three questionnaires are subsequently described.

4.2.3.1.2 Questionnaire for extruder manufacturers

The first questionnaire was used for the interview with extruder manufacturers (see Annexure D). This questionnaire was developed using the results of the literature review on the types and sources of information that extruders need and use, and an overview of CI as a tool to enhance exports. The questionnaire consisted of twenty-nine questions, structured as follows:

- company characteristics (questions 1 to 5);
- Likert-scale questions (questions 8, 9, 15, 16 and 21); and
- specific questions on CI practices (questions 18 to 21 and 22 to 26).

The questionnaire consisted of two parts. Part one posed questions regarding the company interviewed and consisted of five closed questions related to the products that the company exports, the destination of its exports, its number of employees in South Africa and the percentage of sales that is exported. Part two of the questionnaire posed a number of Likert-scale questions and a number of semi-structured questions. For question 8 of the Likert-scale questions,

⁵ Prof. J. Pienaar, Research Director of the Faculty of Economic and Management Sciences at the North-West University (Potchefstroom Campus).

respondents had to indicate the degree to which they regard certain types of information as very important or not important (with 1 equal to not important and 5 equal to very important). For question 9, the respondents had to indicate the degree to which they regard certain types of competitor information as very important or not important (with 1 equal to not important and 5 equal to very important).

For question 15, the respondents had to indicate their first source of information when seeking information on the competitive environment or a new export market. Each of these sources had to then be ranked according to frequency (weekly, monthly and ad hoc), as well as accuracy and reliability. In question 16, the respondents had to indicate the degree to which they regard the sources of information available to them as very important or not important (with 1 equal to not important and 5 equal to very important).

There were also a number of closed questions regarding the types of industries in which extruder manufacturers sell their product, the drivers of their industry, areas of competition, types of information they currently receive and whether they have implemented a process to monitor markets and the competition. Other closed questions related to information-gathering methods.

For question 21, regarding the main uses of CI in the company, the respondents had to indicate the extent to which they use CI (with 1 equal to not used and 5 equal to mostly used). The CI questions (questions 18 to 26) attempted to extract information on the practice of CI in the companies interviewed: a CI capability, the duration of CI activity, the stage of their CI capability (early, mid-level and world class stage), their uses of CI, whether they train information specialists and what these specialists focus on, whether there is a CI culture in place, whether there is a CI database available, and whether the results of the CI process are communicated.

4.2.3.1.3 Questionnaire for Trade Promotion Organisations

The second questionnaire was used for the interview with TPOs (see Annexure E.) The questionnaire was developed using the results of the literature review on the role of TPOs as sources of information and export assistance. The questionnaire consisted of fourteen questions, structured as follows:

- organisation characteristics;
- Likert-scale questions (questions 8 and 9);
- closed questions; and
- open-ended questions.

The questionnaire consisted of two parts. Part one posed questions regarding the TPO interviewed, its number of members, its years of existence and the types of services it offers. The last question (question 3) was a closed question with the respondents required to indicate yes or no to a number of options.

Part two of the questionnaire contained two Likert-scale questions (question 8 and 9), as well as a number of open and closed questions. For question 8 of the Likert-scale questions, respondents had to indicate the degree to which they regard certain sources of information that they use in order to deliver export-promotion services to exporters, including types of information, as very important or not important (with 1 equal to not important and 5 equal to very important). Options provided included internal personnel, published sources, own documents, electronic databases and personal contacts outside the TPO. Respondents were also able to indicate that they do not use a type of source at all. For question 9, respondents had to indicate the quality (with 1 equal to low quality and 5 equal to high quality) of the various types of competitor information that they provide.

There were also a number of closed questions regarding the means of communication with their members (for example, meetings and e-mails), the number of extruder manufacturers they are aware of, whether they provide information on African countries and other information sources that exporters access. One open-ended question queried industry drivers and challenges (question 10).

4.2.3.1.3 Questionnaire for extruder users

The third questionnaire was used for the interview with extruder users (see Annexure F.) The purpose was mainly to ensure reliability and validity of data gathered from interviews with extruder manufacturers and TPOs, respectively. In total, the questionnaire consisted of eleven questions. The questions were structured as follows:

- company characteristics (questions 1 and 2);
- closed questions; and
- open questions.

The questionnaire consisted of two parts. Part one posed questions regarding the company, the type of business it operates (question 1; a closed question) and the products it manufactures using an extruder (question 2; open question).

Part two of the questionnaire focused on the company's business with regard to its use of an extruder. The nine questions of part two consisted of closed and open questions. The questions sought answers on the type and number of extruders the company uses, the way in which the company acquired the extruder(s), the factors the company considered when buying the extruder(s), and the need for components and after sales services (questions 6 to 8). Question 9

was an open question that sought respondents' views on the industry challenges the company faces.

4.2.3.1.4 Sampling method

Researchers almost always have to work with a sample of subjects rather than the full population under study. According to Wimmer and Dominick (2006:88), the likelihood of investigating the entire population is usually remote. The aim of a sampling method is to minimise the gap between the values obtained from the sample and those prevalent in the population. In order to generalise from the sample to the population, the sample must be representative of the population. The safest way to ensure that it is representative is to use a random selection procedure. Random sampling (every unit has an equal chance of selection) is a probability sampling technique that involves the use of randomisation. Other probability sampling techniques are stratified random sampling (the population is divided into strata, then samples randomly selected from each stratum), systematic random sampling (every n -th unit is systematically selected from the list of n units), cluster (area) random sampling (population is divided into clusters, clusters randomly sampled, then all units within selected clusters sampled) and multistage random sampling (random sampling methods are hierarchically combined) (Trochim, 2006).

Non-probability sampling does not involve the use of randomisation. Therefore, to be considered representative, non-probability sampling methods cannot rely on the theory of probability (random theory). Purposive and accidental, haphazard, or convenience sampling can be used to gain a representative sample relying on other techniques than randomisation. Non-probability sampling techniques include accidental, haphazard, or convenience sampling (units are sampled according to what is accidentally, haphazardly or conveniently available), purposive sampling (units from a pre-specified group are purposively sought out and sampled), modal instance sampling (mode is

the 'most common' occurrence; units prototypical of a predefined group are sampled), expert or judgemental sampling (units identified as having particularly high quality of information are sampled), proportional and non-proportional quota sampling (sampling continues until exact proportions of certain types of units are obtained, or until sufficient units in several different categories are obtained), heterogeneity sampling (opposite of modal sampling; units from throughout spectrum of responses are intentionally sampled) and snowball sampling (initial unit(s) are sampled, and these units then identify more units to sampled, and so on) (Trochim, 2006). Judgemental sampling is an acceptable method of sampling for special situations using the judgement and expertise of the researcher to select units that are typical of the population. This sampling method attempts to represent a specific portion of the population and involves selecting respondents because they are representative of the population (Dillon, Madden & Firtle, 1993:134, 229).

In sociology and statistics research, snowball sampling is a technique for developing a research sample in which existing study subjects recruit future subjects from amongst their acquaintances. Thus, the sample group appears to grow like a rolling snowball. As the sample builds up, sufficient data is gathered to be useful for research in order to reach data saturation. This sampling technique is often used in hidden populations that are difficult for researchers to access or assess (Goodman, 1961).

As sample members are not selected from a sampling frame, snowball samples are subject to numerous biases (Goodman, 1961; Salganik & Heckathorn, 2004). It was widely believed that it is impossible to make unbiased estimates from snowball samples, but a variation of snowball sampling termed *respondent-driven sampling* has been shown to allow researchers to make asymptotically unbiased estimates from snowball samples under certain conditions. Snowball sampling and respondent-driven sampling also allows researchers to make estimates about the

social network connecting the hidden population (Streeton, Cooke & Campbell, 2004).

Two sampling techniques were used for this study, namely judgemental sampling and snowball sampling. The samples for this study are regarded as satisfactory and representative of extruder manufacturers, TPOs and users of extruders.

The population and sample for the survey were extruder manufacturers, extruder users and TPOs. The selection of the target population was informed by the problem statement (see Section 1.2). Respondents included in the survey had to comply with one of three criteria: (1) they must be manufacturers of extruders and/or extruder components, or be exporters of extruders and/or extruder components, or have exported in the past; or (2) they must be users of extruders; or (3) they must be directly involved in export promotion of capital equipment or specialised machinery. Each sample is discussed in more detail in the following sections.

Regarding extruder manufacturers, four were selected from the target population of all extruder manufacturers and exporters in South Africa. They represent the only South African extruder manufacturer, namely CFAM, as well as international extruder manufacturers that have a presence in South Africa in the form of an office or a representative. Although there are other international extruder manufacturers that export to South Africa, these firms have no presence in South Africa in the form of offices or representatives.

Judgemental sampling and snowballing techniques were applied to select the respondents from extruder users as target population. For this, an initial Internet search was conducted of prominent users of extruders by visiting their websites and the websites of related industry bodies. An initial list of potential respondents was drafted. By applying snowballing as a sampling technique, this list was tested with industry experts. In addition, two persons from the DTI and the managing directors

of the Plastics Federation of South Africa were contacted to provide names of leading extruder users for purposes of interviewing them. From them, additional respondents were identified. Fifteen users of extruders in four industries, in which extruders are used to produce and manufacture products, were selected. These four industries are the food-processing, feed, plastics, and mechanical and metal works industries.

Regarding the third sample namely TPOs, the two main TPOs that are particularly relevant to extruders and the capital equipment industry were included. These two TPOs are the DTI and the SACEEC. The purpose of interviewing these TPOs was to determine the types of information and export promotion support they provide to extruder manufacturers and exporters in the capital equipment industry. A summary of the samples is presented in Table 4.1.

Table 4.1: Description of samples

| Category | Number | Description |
|---|---------------|--|
| Extruder manufacturers | 4 | Total population |
| Users of extruders (manufacturers of food, feed, plastics and polymers, and metals) | 15 | Sample of most prominent extruder users in four industries |
| TPOs | 2 | Total population |
| Total interviews | 22 | |

4.2.3.1.5 Data collection

The data collection process focused on depth rather than scope of data. This implies that the researcher aimed at providing an in-depth description of the nature of the information-seeking patterns of extruder exporters and information services available to extruder exporters in South

Africa. The questionnaires designed to elicit this information and described in 4.2.3.1.1 were administered by means of personal interviews (with extruder manufacturers and the TPOs) and telephone interviews (for the users of extruders).

For the personal interviews, the respondents were contacted telephonically to determine their willingness to participate in the study and to determine whether indeed they would be suitable respondents with sufficient industry and sector knowledge to aid the study. All potential participants were found to be suitable for the objectives of the study and willing to participate.

For the telephone interviews, the respondents were also initially telephoned to determine their willingness to participate in the study and to determine whether they would be suitable respondents with sufficient industry and sector knowledge. In this case too, all potential participants were found to be suitable for the objectives of the study and willing to participate.

The initial telephone contact with respondents selected for personal interviews was followed up by an e-mail to each respondent, explaining the purpose of the interview and the study's objectives. Furthermore, a supporting letter from the promoter, providing legitimacy to the request, and a covering letter by the researcher, explaining the purpose of the interview, were provided to respondents (see Annexures G and H for the supporting letter and covering letter, respectively).

For this study, written notes and a tape recorder were selected as the methods to record the interviews. The use of a tape recorder can be a sensitive matter. Patton advise the use of a tape recorder as "indispensable" (1990:348), while Lincoln and Guba advise against a tape recorder, except in unusual cases (1985:241), as the use could be intrusive. The use of recordings offers the advantage of capturing data more accurately than written notes might, and can make it easier for the researcher to focus on the interview. For this study, the permission of the respondents was first

sought before recordings were made. In all cases, permission was granted.

The answers of each respondent were recorded in the presence of each respondent. The answers were recorded accurately and no attempt was made to summarise the responses. This was done to further ensure accuracy as described by Babbie and Mouton (2001:253). The researcher also ensured accuracy of data by taking notes of key points made during the interview. These notes supported the transcription of the recorded interviews.

4.2.3.1.6 Data analysis

Following data collection, the next step in the research process, analysis and interpretation of the data, was conducted. In conducting the analysis, the process for qualitative data analysis was followed. Bogdan and Biklen (1982:145) define *qualitative data analysis* as "working with data, organising it, breaking it into manageable units, synthesising it, searching for patterns, discovering what is important and what is to be learned, and deciding what you will tell others".

Inductive analysis of data is most pervasive in qualitative research. This means that the critical themes emerge from the data (Patton, 1990; Hoepfl, 1997). Qualitative analysis requires some creativity to place the raw data into logical, meaningful categories; to examine them in a holistic fashion; and to find a way to communicate this interpretation to others. Data analysis implies sifting and organising the large quantities of information contained in field notes and interview transcripts. The mechanics of handling large quantities of qualitative data often entails physically sorting and storing slips of paper.

Analysis begins with identification of the themes emerging from the raw data, a process referred to as *open coding* (Strauss & Corbin, 1990). During open coding, the researcher must identify and

tentatively name the conceptual categories into which the phenomena observed will be grouped. The goal is to create descriptive, multidimensional categories that form a preliminary framework for analysis. Words, phrases or events that appear to be similar can be grouped into the same category. These categories may be gradually modified or replaced during the subsequent stages of analysis that follow. For this study, the analysis involved qualitative analysis of data such as words (from the interviews) and quantitative analysis of numerical data. Finally, the researcher must translate the conceptual model into a narrative research report. For this study, data was analysed according to what is recommended by Weideman and Fitzgerald (2008), Strauss and Corbin (1990:57) and Simpson and Tuson (1995). The data analysis for this survey involved analysing and interpreting the differences and similarities in the responses of extruder manufacturers and users and TPOs in South Africa. The results of this analysis will be reported in Chapter 5.

4.2.3.1.7 Validity of the survey

The main issue of credibility in a survey is the relationship between the data obtained from interviews and the categories for describing the ways in which people experience the areas covered in the questionnaires. The researcher has to demonstrate a way to describe similarities and differences that should be supported by the data from transcriptions. If a survey or questionnaire has questionable validity, any conclusions drawn from it should be considered sceptically.

There are many different ways of establishing validity, including member-checking, interviewer corroboration, peer debriefing, prolonged engagement, negative case analysis, auditability, confirmability, bracketing, and balance. Most of these methods are extensively described by Lincoln and Guba (1985). The general types of validity are internal validity and external validity.

Internal validity examines the extent to which the survey or questionnaire measures the sample; that is, it checks whether the respondents are representative of the sample. External validity examines the extent to which the data obtained can be generalised to other samples; that is, it checks whether the sample is representative of the population (Trochim, 2006; Texas State Auditor's Office, 1995; Lincoln & Guba, 1985). Amongst the threats to validity are weak links between attitude, behaviour and perception; response bias for various reasons mentioned in Trochim (2006), the Texas State Auditor's Office, (1995) and, Lincoln and Guba (1985).

In order to ensure validity of the questions for this study, the following steps were taken. A high response rate was sought for the sample. For the three groups of respondents, a 100 per cent response rate was achieved. Furthermore, the response scales were expanded to five in order to provide a better sample of the question. The questionnaires were also submitted for quality review to the Director of Research at the NWU. Descriptive validity was achieved by transcribing the data that was gathered. Furthermore, the interviews were recorded to further ensure validity (in the case of the personal interviews).

4.2.3.1.8 Ethics of the survey

In order to address the ethical concerns of the study, the following process was followed: the interviews were conducted by the researcher personally. No identifying information was required from respondents. The respondents were informed prior to the interviews that their participation was voluntary, that information provided would be treated with strictest of confidence and that they could withdraw from the study at any stage without any detriment to themselves. From an ethical perspective, the interviews constituted a survey taken verbally and there was no identifying information in the questionnaire (Pienaar, 2009a).

The following paragraph was read at the start of each interview: “The survey you have received is interested in studying the information needs and use of extruder exporters. You have been selected to participate in the survey due to your activity in the extruder manufacturing industry in South Africa/capital equipment industry in South Africa. By completing this survey you agree that the information you provide may be used for research purposes. You are free to decide not to participate or complete the survey, or withdraw at any time, although your data cannot be replaced by anyone else’s. The survey is however completed anonymously, and we as researchers will have no way of connecting the information you provide to you personally. Even so, the researcher undertakes to keep the individual information provided herein confidential, not to let it out of her possession, and to analyse results only at the group level” (Pienaar, 2009b).

Respondents were informed that the survey was related to a study into the information needs of extruder exporters in order to enhance export promotion. Each participant was informed of the manner in which they were selected and that by completing the survey, they agreed to the information provided being used for research purposes. Participants were also informed that the survey was completed anonymously and that there would be no connection between the information and the provider of the information. Respondents were assured that the researcher would keep the information provided confidential and analyse results only in terms of the populations represented, namely manufacturers of extruders, users of extruders and TPOs, and not in terms of the individual.

4.2.3.1.9 Reliability of the survey

Reliability is often downplayed during audits/evaluations owing to the cost and difficulty of measuring it if a survey or questionnaire is not expected to be used again (Texas State Auditor's Office, 1995). Although reliability and validity are treated separately in quantitative studies, these

terms are not viewed separately in qualitative research. Instead, terminology that encompasses both, such as credibility, transferability, and trustworthiness is used (Golafshani, 2003).

Trochim (2006) describes different types of reliability and methods for establishing them. Test-retest reliability is the administering of the same instrument to the same sample within a period during which the issue is not likely to change, often 30 to 90 days. Alternate form reliability entails using a highly similar instrument with the same sample and checking correlations amongst responses to similar items. Content validity is vital for this to work. Split half reliability refers to obtaining good correlations amongst responses to half of the questions on an objective with the responses to the other half of the questions on the same objective, for which questions constituting the two halves must be as alike as possible. Internal consistency reliability entails variation in responses to a given item, similar to variation in a composite score for a given objective, and is tested via the Cronbach Alpha Test (Cronbach, 1975).

In order to ensure reliability in qualitative research, examination of trustworthiness is crucial. Seale (1999) and Golafshani (2003) state that the trustworthiness of a research report lies at the “heart of issues conventionally discussed as validity and reliability” (Seale, 1999: 266). Data sets always have a degree of error that needs to be limited in order to ensure that the data provides an accurate reflection of the truth (Litwin, 1996).

There are two components to error, namely random error and measurement error. Random error is unpredictable and occurs in all research. It is caused by, amongst others, the sampling technique used. The larger and more representative the sample is, the smaller the incidence of random error will be (Litwin, 1996).

Reliability of this study was assured by the researcher ensuring that respondents' answers were

accurately recorded. In addition, the researcher had the opportunity to probe and ask follow-up questions and test assumptions. Moreover, the researcher is well trained in this technique, further adding to the reliability of the data.

In the preceding sections, the first research technique that was used was discussed. The next section describes the case study as the second research technique used.

4.2.3.2 Case study

The term *case study* has multiple meanings. It can be used to describe a unit of analysis (for example, a case study of a particular organisation) or to describe a research method. The discussion here concerns the use of the case study as a research method.

Case study research is the most common qualitative method used in information systems (Yin 2003a; 2003b; Walsham & Waema, 1994; Ryan & Russell, 2000:769–802). Amongst numerous definitions in the literature, Hartley (2004:323) for instance, states that case study research "consists of a detailed investigation, often with data collected over a period of time, of phenomena, within their context," that aims "to provide an analysis of the context and processes which illuminate the theoretical issues being studied". In this respect, it is important to note that case studies have an important function in generating hypotheses and building theory (Eisenhart, 1989; Hartley, 1994:211; 2004:325).

Gravetter and Forzano (2009) describe the case study method as a study of a single individual for the purpose of obtaining a description of the individual. The description is typically prepared as a report that contains detail on the observations and experiences during the research process.

Yin (2003a:13–14) provides the following definition: "A case study is an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident. The case study inquiry copes with the technically distinctive situation in which there will be many more variables of interest than data points, and as one result relies on multiple sources of evidence, with data needing to converge in a triangulating fashion, and as another result benefits from the prior development of theoretical propositions to guide data collection and analysis".

Given this definition it is important to note that a case study is not a methodological choice but a choice of what is to be studied (Stake, 2000:435; Yin, 2003b). A number of methods may be used – either qualitative, quantitative or both. Kohlbacher (2006) states that case studies are widely used in organisational studies and across the social sciences, and there is some suggestion that the case study method is increasingly being used and with a growing confidence as a rigorous research strategy in its own right (Hartley, 1994:208; 2004:323). This is supported by Stake (1995; Stake, 2000: 435; Yin, 2003b), who suggests that case studies have become "one of the most common ways to do qualitative research".

The case study research method was selected for the investigation of Tunisia as a realistic export destination for extruders from South Africa, with Tunisia as an export destination for extruders as the object of the study.

4.2.3.2.1 Case study questions

Hartley (2004) identifies the following five components of research design as especially important for case studies: a study's questions; its propositions, if any; its unit(s) of analysis; the logic linking of the data to the propositions; and the criteria for interpreting the findings. Literature on the case

study research method describes cases as being deviant or extreme, critical, convenience, politically significant, and so on (Creswell, 1998; Miles & Huberman, 1994).

The case selection was based on the results of a study aimed at identifying the REOs for South Africa. The results indicated that Tunisia offers a realistic market opportunity for extruders exported from South Africa. It is described as a market with short- and long-term export growth but one in which South Africa has no current exports of extruders. The case study can therefore be described as economically important (see 2.2.1 and 3.4).

4.2.3.2.2 Data collection

According to Yin (2005), there are six possible sources of data for case studies: documents, archival records, interviews, direct observation, participant observation, and physical artefacts. Case studies do not imply the use of a particular type of evidence and they can be done using either qualitative or quantitative evidence (or both; Eisenhart, 1989:534–535; Yin, 1989). Nevertheless, while quantitative data often appears in case studies, qualitative data usually predominates (Patton, 2002). Three principles need to be followed (Yin, 2005; Gillham, 2000): use of multiple sources of evidence, creation of a case study database and maintaining a chain of evidence. Data for case studies can be gathered either from one primary source (for example, oral interviews, journals or essays) or from multiple sources such as focus groups. There are some specialised forms of qualitative research that rely solely on analysis of documents. Such documents might include official records, letters, newspaper accounts, diaries and reports, as well as the published data used in a review of literature.

For the case study undertaken in this study, the researcher used only published sources of information. The Internet offered main entry to such publications, particularly websites concerning

export promotion in Tunisia. Other publications used were publications by the World Bank, the Heritage Foundation, the International Monetary Fund (IMF), the South African DTI and the Department of International Relations. Websites of manufacturers of extruders, users of extruders and trade exhibition organisers were also trawled for relevant information. Results from the DSM (as described in Section 3.4) and inputs by officials from the DTI also informed the case study.

4.2.3.2.3 Data analysis

Case study data analysis generally involves an iterative, spiralling, or cyclical process that progresses from more general to more specific observations (Palys, 1997; Silverman, 2000, Yin, 2005; Kohlbacher, 2006). The data analysis process that was followed descriptive or interpretative in nature and is described in Kohlbacher (2006), Hartley (1994) and Yin (2005:109) and started informally during interviews or observations and continued during transcription, when recurring themes, patterns, and categories became evident. The results of the case study will be reported in the form of an extensive narrative in Chapter 6.

4.2.3.2.4 Validity of the case study

It has been claimed that case studies lack rigour and reliability and that they do not address the issue of generalisability in contrast to quantitative methods (Hartley, 1994:208). In response to this, Yin (1993:33–35; 1994:11–15) states that case studies are generalisable to theoretical propositions and not to populations. In this sense, the case study (Chapter 6) does not represent a sample of a target population, and in conducting the case study the goal is to generalise theories (analytical generalisation) and not to enumerate frequencies (statistical generalisation). For purposes of this study, the case study is of particular importance, as the recommended export promotion strategy for extruders to Tunisia is also applicable to other products that fall in the same cell of the DSM

results (see Section 3.5 and Annexures A and M). A generalisation of the developed export promotion strategy is therefore possible. In order to enhance validity, the findings were checked with the DTI. In addition, the analysis of data was interpreted with regard to the existing literature and the study's findings were examined with regard to the findings reported in the literature to determine consistency.

4.3 CONCLUSION

In this chapter, the research method for the empirical component of the study was described. This chapter focused on the broader terms of research planning and method of the two research methods used, namely the survey method and the case study method. The processes followed for the survey and case study respectively were described in detail and aspects such as reliability and validity were also described.

The results of the survey conducted as the first part of the empirical research process, as detailed in this chapter, will be reported in Chapter 5. The results of the case study conducted as the second part of the empirical research process, as detailed in this chapter, will be reported in Chapter 6.

CHAPTER 5: RESULTS FROM INTERVIEWS

5.1 INTRODUCTION

The study's research methodology was described in Chapter 4. The first part of the methodology entailed a survey research method. This method was used to determine the types and sources of information required by extruder exporters as described in the literature review presented in Chapter 2. The method was also used to assess the CI capabilities of extruder manufacturers.

The results of this survey are presented in this chapter. Firstly, the results of the types of information deemed important by extruder manufacturers is presented. This is followed by the results of the sources of information for extruder manufacturers and TPOs. Finally, the manner in which extruder manufacturers use CI against the background of the competitive drivers of the industry, as described in Chapter 3 and informed by the extruder users, is described.

5.2 RESULTS OF INTERVIEWS WITH EXTRUDER MANUFACTURERS

In this section, the results of the interviews with extruder manufacturers will be presented. The results pertain to the types of information according to their importance, the types of competitor information and the types of information sought. Other results that will be presented are results on information gathering methods, sources of information, the frequency and quality of information and finally, the results on the CI questions.

5.2.1 Types of information according to importance

In Section 2.4, the types of information that exporters typically require were described. In Section 2.5.2.7, it was observed that there is often a mismatch between information needs and the availability of such information. The type of information is varied and differs according to the type of exporter, the extent of export experience, and the type of industry and ownership status, company characteristics and the availability of resources (see Section 2.3). The distinct categories of types of information were given as competitor information, market information, marketing information, political information, legal and regulatory information, macro-economic information and information on trade restrictions (see Section 2.3). These categories were used to frame the questions in the questionnaires for the interviews with extruder manufacturers and TPOs.

The four extruder manufacturers (one is South African and three are extruder manufacturers that export to South Africa and that have direct representation in South Africa) were asked a Likert-scale question in which they had to rate (1 equal to not important and 5 equal to very important) the types of information they regarded as important. Respondents indicated that competitor information, information on trade restrictions (trade barriers) and market and marketing information are the most important types of information, while the types of information they deemed least important were political, legal and regulatory, and macro-economic information (see Figure 5.1)

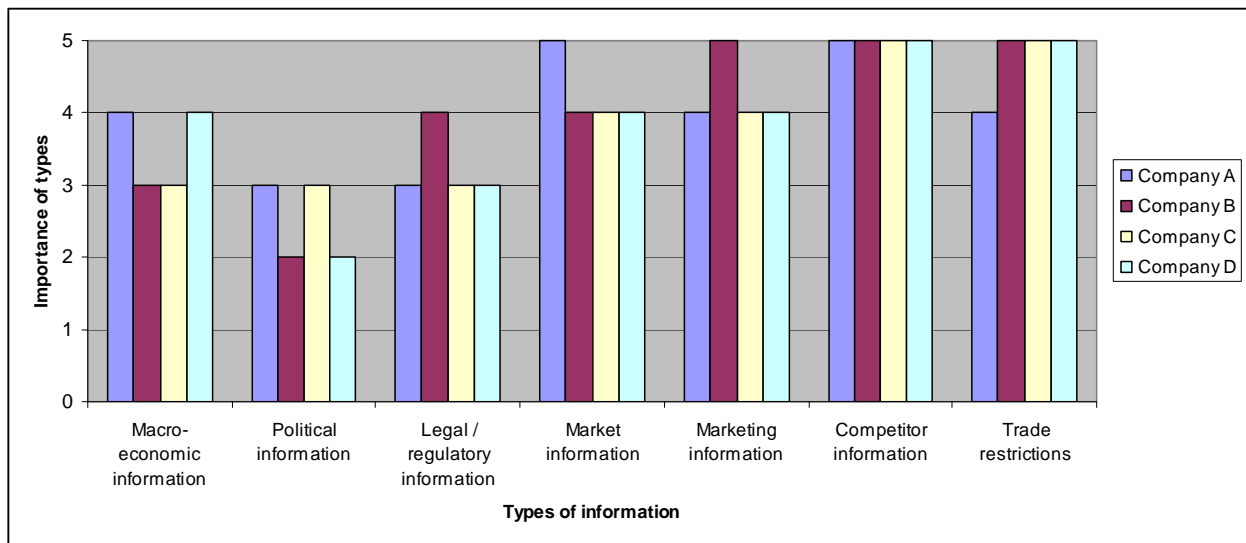


Figure 5.1: Types of information and the importance of each

Source: Compiled by the author

Extruder manufacturers' responses that they regard market and marketing information, competitor information and information on trade restrictions (trade barriers) as the most important types of information that they sought are similar to what the literature indicates as relevant types of information. Regarding competitor information in particular, respondents indicated that they regarded information on manufacturing costs, pricing and competitive strategies as most important (see also Section 5.4.3 on competitive drivers).

5.2.2 Types of competitor information according to importance

The extruder manufacturers were also asked about the types of information they regard as important and all answered that competitor pricing information is most important. Information on manufacturing costs and competitive strategies were also deemed very important. The importance of the types of competitor information is summarised as follows in Figure 5.2 (1 equal to not important and 5 equal to very important).

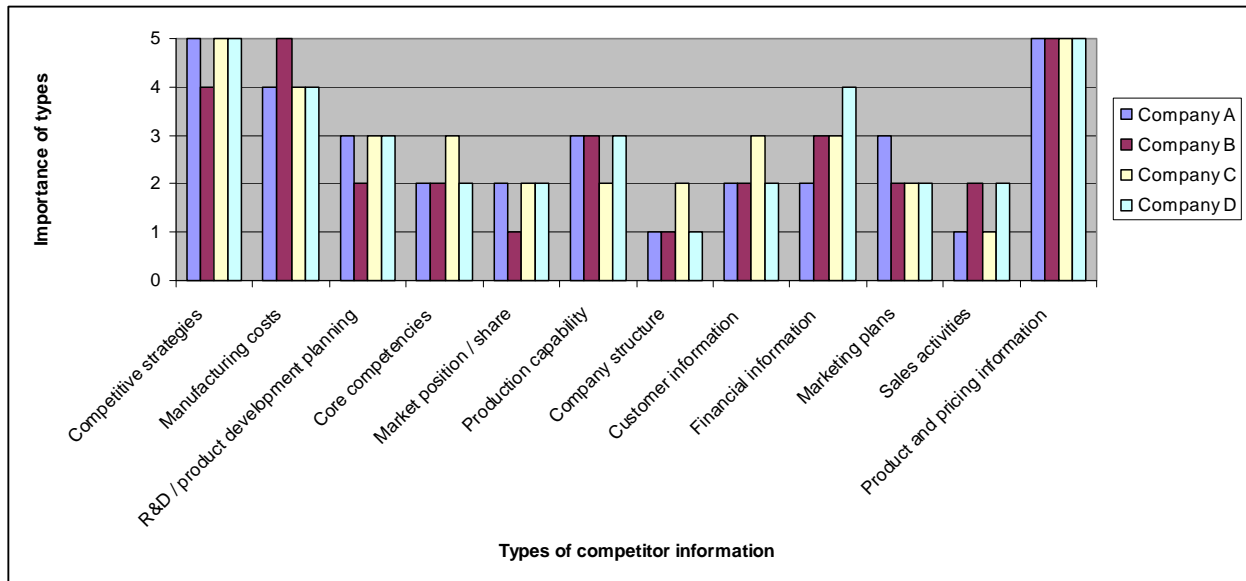


Figure 5.2: Types of competitor information and the importance of each

Source: Compiled by the author

5.2.3 Types of information currently sought

In addition to the types of information respondents deemed important (see Figure 5.1), information on the types of information respondents currently sought was also investigated. All four respondents said they currently sought macro-economic and market information. Two sought marketing information and political information. One sought information on its competitors. None of the respondents currently sought legal and regulatory information, and information on trade restrictions. Detail of the various responses are summarised in Table 5.1.

Table 5.1: Types of information sought

| | Company A | Company B | Company C | Company D |
|------------------------------|-----------|-----------|-----------|-----------|
| Macro-economic information | Yes | Yes | Yes | Yes |
| Market information | Yes | Yes | Yes | Yes |
| Marketing information | No | No | Yes | Yes |
| Political information | No | Yes | Yes | No |
| Competitor information | No | Yes | No | No |
| Legal/regulatory information | No | No | No | No |
| Trade restrictions | No | No | No | No |

Source: Compiled by the author

5.2.4 Information gathering method

Extruder manufacturers were asked what method they use to gather information. Although the extruder manufacturers indicated the types of information described in Section 2.3 as important, they did not gather such information routinely. Gathering of such information only occurred on an ad hoc basis when such information was required.

In the interview, extruder manufacturers were given three basic options from which to select, namely a formal systematic method of gathering relevant information, accessing TPOs and an informal ad hoc method of gathering relevant information. All four respondents indicated that they use an ad hoc research method to gather relevant information. None had a formal systematic method of gathering information and none accessed the TPOs as a means of gathering information. Furthermore, none of the respondents had a process implemented for monitoring markets and competitors (see Table 5.2). Therefore, they were also unable to provide data on the questions pertaining to CI in their companies.

Table 5.2: Information-gathering methods of extruder manufacturers

| Method | Company A | Company B | Company C | Company D |
|--|-----------|-----------|-----------|-----------|
| Formal systematic method | No | No | No | No |
| Informal ad hoc method | Yes | Yes | Yes | Yes |
| Process implemented to monitor markets and the competition | No | No | No | No |

Source: Compiled by the author

5.2.5 Sources of information

In Section 2.4.1, it was observed that companies acquire information from a variety of different sources and that exporters selling into the global market search for additional sources of information, and are more successful in entering and growing markets than exporters that do not acquire and use information. The type of information sought largely determines the source that will be consulted to provide the required information.

Respondents were asked which sources of information they use when they require information on their competitive environment or a possible new export market, about the nature of the information from those sources, about the reliability of the information and the frequency with which they receive such information.

Various empirical studies have revealed that most frequently used sources are those related to foreign markets and distribution, including customers, agents, retailers and marketing companies. This was found to be the case with the extruder manufacturers that were interviewed, and is supported by empirical research that has demonstrated that the selection of and cooperation with human sources is an important competence for exporting companies (Section 2.4.1).

The respondents also observed that most often they would ask their own employees for the required information. None of the respondents made use of the TPOs as sources of information because the information most often and urgently sought (market and competitor information) is not provided by these organisations. Detail of sources of information used is summarised in Table 5.3.

Table 5.3: Sources of information

| Sources of information | Company A | Company B | Company C | Company D |
|--|-----------|-----------|-----------|-----------|
| Company employees | Yes | Yes | Yes | Yes |
| DTI | No | No | No | No |
| SACEEC | No | No | No | No |
| Research and consulting companies | Yes | No | No | Yes |
| Personal contacts outside company | Yes | Yes | Yes | No |
| Published sources (e.g. books, annual reports) | Yes | Yes | Yes | Yes |
| External databases | Yes | Yes | Yes | Yes |

Source: Compiled by the author

5.2.6 Types of information from each source

The types of information sought by the respondents were matched to the sources of information for each type. Employees and personal contact outside the company form the main source of market and competitor information for all the respondents. Published sources and external databases are used to gather macro-economic information.

With regard to the TPOs, it was found that the TPOs to a large degree offer the macro-economic information and other general information that exporters might require, such as general market and marketing information, trade information and legal and regulatory information. Yet the most

required competitor information, such as pricing, customer information, and information on the most effective manner in which to gain entry to a foreign market, and more detailed market information, such as size, is not provided by TPOs. For such information, exporters rely on consultants, external research and own research. Detail of the types of information received from each source is summarised in Table 5.4.

Table 5.4: Types of information from various sources

| Sources of information | Types of information | | | |
|--|---|--|---|---|
| | Company A | Company B | Company C | Company D |
| Company employees | Market information, competitor information | Market information, competitor information | Market information, competitor information, marketing information | Market information, competitor information, marketing information |
| DTI | None | None | None | None |
| SACEEC | None | None | None | None |
| Research and consulting companies | Market information, marketing information | Market information, marketing information, political information | Market information, marketing information, political information | Market information, marketing information |
| Personal contacts outside company | Market information (trends, products) | Market information (trends, products), | Market information (products) | Market information (trends |
| Published sources (e.g. books, annual reports) | Macro-economic information | Macro-economic information, competitor information | Macro-economic information | Macro-economic information |
| External databases | Macro-economic information, political information | Macro-economic information, political information | Macro-economic information, political information | Macro-economic information, political information |

Source: Compiled by the author

5.2.7 Frequency of information

Respondents were asked about the frequency with which they used the various sources of information to gather the types of information that they require. As none of them used the DTI or

the SACEEC as sources of information, these two sources were not assessed. Respondents indicated an ad hoc frequency on all but one of the sources of information. Only in terms of published sources do respondents receive regular information in the form of weekly or monthly reports and publications. Detail of the frequency of information is summarised in Table 5.5.

Table 5.5: Frequency of information

| Sources of information | Company A | Company B | Company C | Company D |
|--|--------------------|-------------------|--------------------|--------------------|
| Company employees | Ad hoc | Ad hoc | Ad hoc | Ad hoc |
| DTI | N/a | N/a | N/a | N/a |
| SACEEC | N/a | N/a | N/a | N/a |
| Research and consulting companies | Ad hoc | N/a | N/a | Ad hoc |
| Personal contacts outside company | Ad hoc | Ad hoc | Ad hoc | N/a |
| Published sources (e.g. books, annual reports) | Weekly, monthly | Weekly monthly | Weekly, monthly | Weekly, monthly |
| External databases | Ad hoc | Ad hoc | Ad hoc | N/a |

Source: Compiled by the author

5.2.8 Quality of information

Information quality of sources is also an important aspect to assess. Information should be assessed in terms of reliability, responsiveness, assurance and empathy (Section 2.4.2). A Likert-scale question was asked in which respondents had to rate on a scale of 1 to 5 (1 equal to low quality and 5 equal to high quality) the quality of information that they receive from the various sources that they use. The DTI and SACEEC as sources of information were not rated, as none of the respondents indicated that they use the TPOs as sources of information (see Figure 5.3). External databases were rated as the highest quality along with published sources. Company employees and personal contacts were rated slightly lower in terms of the quality of information that they provide. Detail of the quality of information provided by sources is summarised in Figure 5.3.

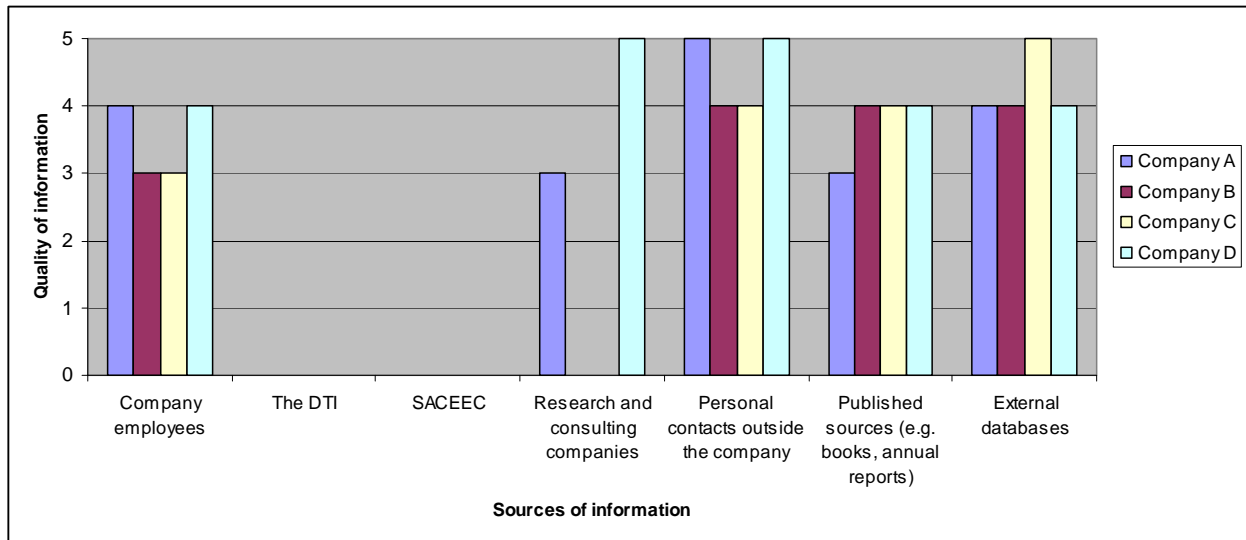


Figure 5.3: Quality of information from various sources

Source: Compiled by the author

5.2.9 Importance of sources

The companies were asked to rank the sources of information according to importance on a Likert scale (1 equal to not important and 5 equal to very important). The companies rated human sources of information as most important.

Traditional TPOs namely the DTI and the SACEEC were not regarded as important sources of information. Respondents were not asked in this question to indicate which sources they currently use. The results of this question are presented in Figure 5.4.

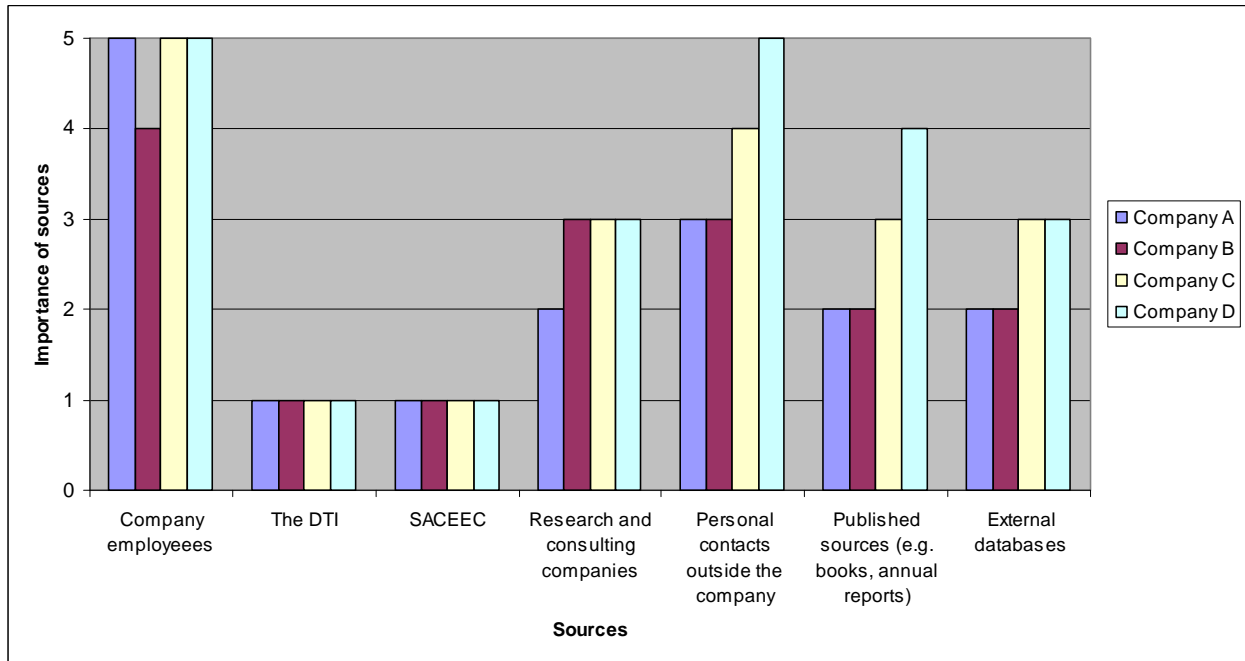


Figure 5.4: Importance of sources

Source: Compiled by the author

5.2.10 Competitive Intelligence questions

Questions that were asked on the CI capabilities yielded the same answer from all respondents, namely that none of the extruder manufacturers that were interviewed had any CI capability in place that is a formal systematic method of gathering, interpreting and using relevant information. Having no CI capability in place meant that they could not respond to questions regarding the category of CI process that they have in place (see Section 2.5.1). They could also not answer what they use the CI results for, for example product and market development, research and development, marketing positioning, pricing, sales tactics, and marketing and advertising. None of the respondents employed information specialists and did not provide any specialist information management training to develop skills in this regard. Having no formal CI in place, means there is no coordinated, systematic collection of information by company employees. Furthermore, none of

the respondents used the TPOs as a source of relevant information. All four respondents indicated that they use an ad hoc research method for gathering relevant information and that this information is not stored in a database for later use or reference (Section 5.3.8).

5.3 RESULTS OF INTERVIEWS WITH TRADE PROMOTION ORGANISATIONS

Two TPOs were interviewed, namely the DTI and the SACCEEC. The aim of the interviews was to determine what services the TPOs offer to extruder manufacturers and other role-players that make use of TPO services, the manner in which these services are rendered, and the types and quality of information they provide to exporters.

5.3.1 Services offered to extruder exporters

The services offered by the TPOs in South Africa (see Table 5.6) were compared with the services identified in the literature as required by exporters. The DTI and SACCEEC indicated that they provide the services mentioned in Table 5.6 to exporters in the capital equipment industry of which extruder manufacturers are part. In addition, both the DTI and the SACCEEC offer trade policy development, as it could potentially lead to market development and export growth.

Neither TPO had knowledge of or had as member an extruder manufacturer or extruder exporter in South Africa. These TPOs were therefore unable to provide any information pertaining to the size of the extruder industry in South Africa, the number of extruder manufacturers in South Africa or the number of manufacturers that export extruders, indicating a mismatch between the suppliers and users of export assistance.

Table 5.6: TPO services to exporters in the capital equipment industry

| |
|---|
| Identification of markets with potential export opportunities |
| Identification and facilitation of the removal of obstacles that impede export growth |
| Matching of potential exporters with foreign buyers |
| Export marketing and incentive assistance |
| Development of exporters (e.g. business skills, export skills) |
| Provision of information on export markets |
| Provision of training and education services |
| Provision of a forum for, assistance to and services to industry associations and members (DTI) |
| Provision of an information service (publications etc.) |
| Provision of information on policy development |

Source: Compiled by the author

5.3.2 Communication of services to extruder exporters

Respondents were asked a closed question on the manner in which services they offered are communicated. Table 5.7 lists the various means of communication. The SACEEC stated that most of its communication with its members is by means of e-mail, communicating mainly industry-related information. Other means of communicating with members were meetings and briefings, and publications. The SACEEC added that it did not use a newsletter as a means of communication, as its resources are too limited to provide this kind of service.

Table 5.7: Means of communication

| |
|----------------------------|
| Meetings/briefings |
| Published information |
| Internet (website/e-mails) |
| Other |

Source: Compiled by the author

5.3.3 Competitive drivers

The TPOs were asked to provide information on the competitive drivers in the capital equipment industry. The purpose of these questions was to confirm the information requirements of new extruder exporters. The respondents were asked to rate five drivers according to importance on a Likert scale (1 equal to not important and 5 equal to very important). These drivers were identified from the literature and described in Section 3.5.2.

The responses differed between the two respondents. The SACEEC regarded price, quality, service, environment issues and skills as more important drivers, while the DTI regarded strength of promotion, quality and financing issues as more important drivers. Both TPOs indicated that size and governance issues are the least important of the competitive drivers. The importance of competitive drivers is presented in Figure 5.5.

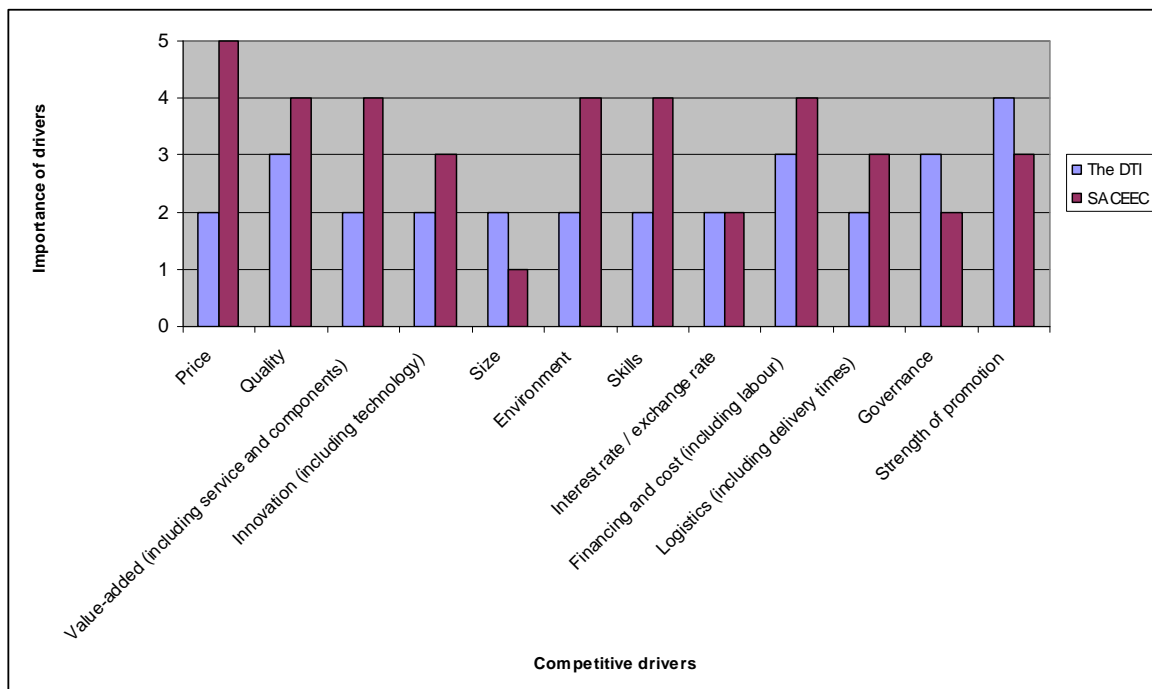


Figure 5.5: Competitive drivers

Source: Compiled by the author

5.3.4 Types of information offered to exporters

The types of information offered by the SACEEC and the DTI differ slightly (see Table 5.8). The DTI results show a similar pattern to the SACEEC, although the respondents indicated that the DTI does not study the competitiveness of export sectors and they felt uncomfortable in expressing opinion in this regard. Both respondents provide information on African countries. The types of information offered are summarised in Table 5.8.

Table 5.8: Types of information offered to extruder exporters

| Types of information required | Offered by SACEEC | Offered by DTI |
|--|-------------------|----------------|
| Macro-economic information | Yes | Yes |
| <ul style="list-style-type: none"> • Background on economic conditions, economic indicators information • Potential investor information (names of companies in the particular field that may be open to investment opportunities, venture capital companies that are active in the industry) • Infrastructure (financial, roads, rail, sea and airports) | | |
| Political information | Yes | Yes |
| <ul style="list-style-type: none"> • Government assistance, political stability • Information on security matters | | |
| Legal/regulatory information | Yes | Yes |
| <ul style="list-style-type: none"> • Standards approvals and licenses required to sell the products in the target export market • Labour issues • Issues regarding starting a business, regulations on local shareholding, taxes <p>Information on the legal system</p> | | |
| Market information | Yes | Yes |
| <p>Market attractiveness/feasibility as indicated by the ranking of market potential, customer information (buyer preferences, lifestyles and culture) and price levels of products, product and other marketing adaptation issues (advertising and promotions)</p> | | |
| Export marketing information | Yes | Yes |

| Types of information required | Offered by SACEEC | Offered by DTI |
|--|-----------------------------------|-----------------------------------|
| <ul style="list-style-type: none"> • Marketing or strategic partner • Information on market presence: independent sales office, partnership with a local company for an independent sales office, purchase a local company in the target country, agencies, direct sales to target customers • Information on trade exhibitions and conferences • Information on trade associations and their recent and service offering, e.g. publications • Advertising and PR agencies | | |
| Competitor information | Yes, but to limited degree | Yes, but to limited degree |
| <ul style="list-style-type: none"> • Identification of key competitors and profiles on each including key indicators • Information on strengths and weaknesses • Competitor pricing information • Competitor customer information: positioning, segmentation, prices offered • Competitor marketing strategy and where they advertise: trade show participation • Competitor distribution information: locations, channels (dealers, agents, direct, wholesalers, distributors, in-house sales force) • Copies of printed materials of the competitors (brochures/technical data sheets) • Information on other exporters operating in the same market | | |
| Information on market access restrictions | Yes | Yes |
| <ul style="list-style-type: none"> • Tariff and non-tariff barriers • Transport barriers • Barriers of entry | | |

Source: Compiled by the author

The SACEEC also offers arranging financing, a type of information that was not mentioned in the literature and is not offered by the DTI. Regarding the types of competitor information required by exporters (as presented in Table 5.2), the TPOs responded that neither provides any of the competitor information required by exporters. Again, this points to the mismatch between what new exporters require and what is offered by the TPOs, which is consistent with the literature that there is often a mismatch between information needs and sources of information (see Section 2.5.2.7).

5.4 RESULTS OF INTERVIEWS WITH EXTRUDER USERS

The purpose of the interviews with the users of extruders was mainly to ensure reliability and validity of data gathered from interviews with extruder manufacturers and TPOs, respectively. The users' opinion on drivers and challenges were sought. Fifteen extruder users in South Africa were telephonically interviewed using a semi-structured questionnaire (see Annexure F) of mostly closed questions. They were selected from four industries, namely the food-processing, feed, plastics, and mechanical and metal works industries.

All respondents said that they import the extruders that they use from extruder manufacturers in the USA, Italy, Switzerland, Germany and France and that they either import directly or use representatives of agents of these manufacturers based in South Africa. None of the users that were interviewed were aware of the existence of a South African extruder manufacturer/exporter. Extruder users were asked a number of questions, the results of which are described in the following sections.

5.4.1 Competitive drivers identified by extruder users

Respondents were asked which competitive drivers they regard as important in the industries they function in and to rank these drivers according to importance on a Likert scale (1 equal to not important and 5 equal to very important). These drivers were identified in the literature and described in Section 3.5.2.

Quality was rated by respondents as a more important consideration than price because production is dependent on the extruder and down-time is detrimental to production. Quality and services are

therefore regarded as important drivers. Owing to the significant capital investment cost of extruders, it is only larger users that can afford more than one extrusion line. Other factors that are considered when buying an extruder include capacity (size) and value-added services. The importance of drivers is presented in Figure 5.6.

The main drivers that were identified by users of twin-screw extruders in the food-processing, plastics and polymers industries were the following: ensuring continued production, the availability of components and technical support, and the ability and capacity to expand despite high input costs (extruders are expensive).

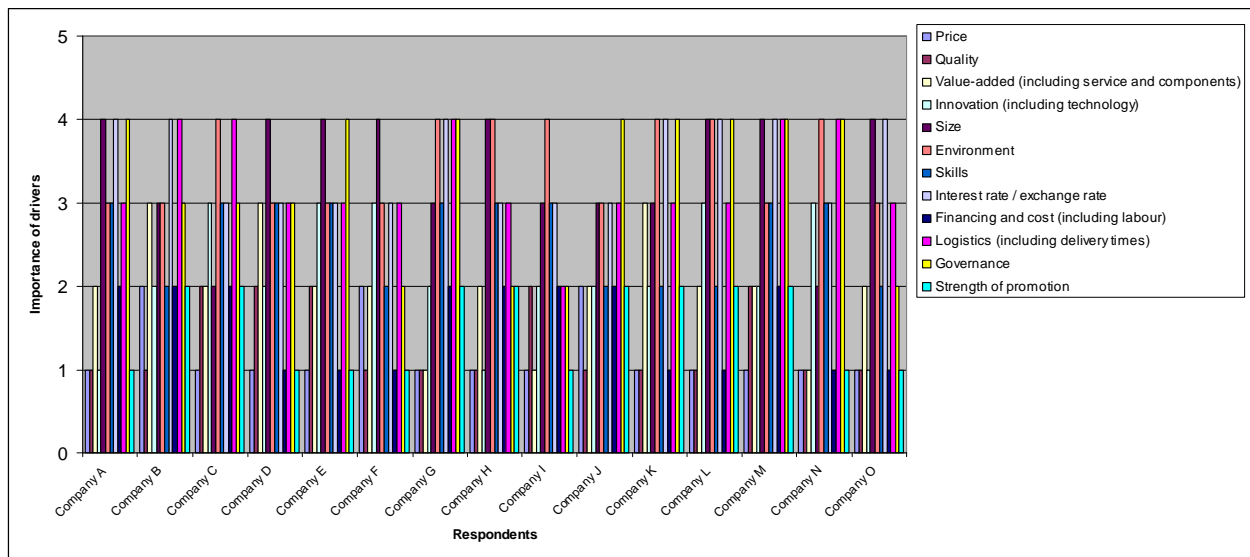


Figure 5.6: Users' ranking of relevant competitive drivers

Source: Compiled by the author

5.5 RECOMMENDATIONS

In this section, the recommendations pertaining to the types of information required by exporters, sources of information used by exporters, CI and export services offered by TPOs versus services required by exporters will be presented.

5.5.1 Recommendations pertaining to types of information

It has been stated that through a study of the types of information required by exporters and the existing sources of information available to specific exporters, an assessment would be made of the types of information and sources of information available to extruder exporters. In Section 2.3, the types of information were described, and the sources of information accessed by exporters were described in Section 2.4. In the interviews, exporter manufacturers and TPOs were asked which information they require and which information they provide, respectively. Recommendations to extruder manufacturers and TPOs based on the results of the interviews are presented below.

5.5.1.1 Recommendations to exporters

With regard to types of information, the following recommendation is made. By applying the CI model's first step, namely planning and focus, extruder manufacturers can determine the KIN of the company. The types of information described in Section 2.3 cover the broad spectrum of types of information but each company should include detail in terms of each type. This might include listing key competitors, deciding the detail of the information required on each competitor, and deciding the detail of the information required on the export market. Extruder manufacturers can consider the competitive drivers identified for their industry (see Section 5.5.1) indicators for the types of information that they need to acquire.

5.5.1.2 Recommendations to Trade Promotion Organisations

As mentioned in the section above, the types of information required by extruder exporters are largely similar to what TPOs offer. The discrepancies are to be found in the detail of types of

information, for example although TPOs offer certain types of competitor information, they do not provide the detail required by extruder exporters (see Sections 5.3.5 and 5.3.6). This confirms findings in the literature on the mismatch between information needs and the availability of required information from TPOs (see Section 2.5.2.7). In order to improve alignment of information needs with the information provided by TPOs, the following is recommended:

- The TPO could compare the list of the types of information required by exporters in general with a list of types of information that the TPO offers. Differences between these are likely to provide an indication of gaps in the information offering to exporters. An assessment can be made on the possibility of adding the lacking types of information to the current offering or directing the exporters to sources that might provide those types of information. The existing gaps were indicated in the results of interviews with extruder manufacturers (see Sections 5.3.5 and 5.3.6).
- The TPO could adjust the information offering according to the stage of export of an exporter (see Sections 2.2.2.1 and 2.4.1), as this will affect the type of information that is required. A new exporter such as CFAM will require information on potential export markets and the process of entering such markets, including locating and analysing foreign markets and barriers to export to a specific market.
- The TPO could arrange an information forum with relevant stakeholders to assess information needs in order to improve alignment across all stakeholders.

5.5.2 Recommendations on sources of information

Based on the results of the interviews with extruder manufacturers and TPOs on questions pertaining to sources of information (see Sections 5.3.10 and 5.4.1, respectively), it was found that

many human sources and published sources are accessed to acquire various types of information. Although TPOs were not used as sources by extruder manufacturers, TPOs did not know of any extruder manufacturers in South African and did not provide any specific information service to the latter. From the literature review on sources of information (see Section 2.4), it is known which sources are in general used for information for exporters. Based on this, recommendations are made in the subsequent sections.

5.5.2.1 Recommendations to new exporters

As it was found that the South African extruder manufacturer was not familiar with exports, these recommendations can be also relevant to other first time exporters. Amongst major findings was that extruder manufacturers place their main emphasis on informal contacts as a basis for information gathering. As sources of information, customers (external) and sales people (internal) emerged as being of particular importance. The respondents also indicated that they were satisfied that the information they receive is of sufficient quality. Based on these findings, the following is recommended to extruder manufacturers:

- Extruder manufacturers could draw up a list of current sources of information, matching each to the types of information they can provide. The quality of information that is received from the various sources could be indicated on this list.
- Extruder manufacturers could list sources of information that are not currently accessed and determine the types of information they could provide.
- Extruder manufacturers could assess the resources that would be required to access certain sources of information, for example the expense involved in subscription fees for certain publications.

- Extruder manufacturers could familiarise themselves with the types of information and export services offered by the two TPOs.
- Extruder manufacturers could ensure that a process is in place to test information that is received from the various sources (published and human sources) for all aspects of quality.

5.5.2.2 Recommendations to Trade Promotion Organisations

As the South African extruder manufacturer does not yet export, the key finding made regarding TPOs as sources of information is that the extruder manufacturers interviewed are uninformed with regard to the existence of the TPOs and/or the types of information and services offered by the TPOs. Therefore, they did not use the TPOs as sources for the types of information they required or sought. Against this background and because TPOs are important potential sources of information, the following is recommended to TPOs, in order to ensure that their services become known to manufacturers:

- The TPO could arrange an information session during which the TPO can make known to its members or interested parties the types of information that it offers, whether for free or at a fee. This would provide an opportunity to address the gaps that exist between the information needs of new and other exporters and the sources of such information (as indicated in Sections 5.3.5 and 5.3.6).
- The TPO could assess the types of information required and sought by members and assess whether the TPO as source can provide any of the lacking types of information.
- The TPO could ensure that the information that is provided to members is of sufficient quality

and reliability. This means that the various sources of such information should also be assessed for credibility and reliability.

5.5.3 Recommendations on Competitive Intelligence

A number of recommendations regarding CI are made based on the results of the questions asked during the interviews with extruder manufacturers. These recommendations are presented in the following sections.

5.5.3.1 Recommendations to exporters or potential exporters

Companies accumulate certain knowledge and expertise by integrating and incorporating certain types of information that has been processed, interpreted and applied. The literature describes the importance of committing to systematically generating, disseminating and responding to export market information to ensure success in export markets (Section 2.5.2). In this regard, the following is recommended to exporters or potential exporters:

- Exporters or potential exporters could determine the company's needs in terms of CI.
- Exporters or potential exporters could appoint a person internally, if the resources allow, or external expertise to provide assistance in leading the investigation into CI as a tool to enhance exports.
- Exporters or potential exporters could determine the top five KIN in order to inform export decisions by means of the CI process. They could use the knowledge of competitive drivers in the industry as key input into the planning and focus stage of the CI process, which

provides the guidelines for the types of information sought by exporters and the importance of the various types of information. The most important types of information or KIN receive priority attention to more generic types of information. The literature identified a number of competitive drivers in the extruder industry (Section 3.5.2). They could also take cognisance of the drivers and challenges relevant to the users of extruders, as this would provide an indication of the challenges faced by such users and point to areas of possible cooperation for mutual benefit.

- Exporters or potential exporters could list the sources of information available to the company that could be accessed to provide the types of information required. Such a list could include comments on which sources could provide which types of information and on the quality of information.
- Exporters or potential exporters could gather the required information from a variety of published and human sources using a mix of secondary and primary gathering tools. In Section 2.2.2, it was mentioned that the use of information has traditionally been linked to export performance of new and experienced exporters in that it mediated the relationship between information acquisition and performance.
- Exporters or potential exporters could dedicate a resource to analysing and interpreting information against the background of the company's strategy intent and capacity, and communicate the intelligence to the decision-makers in the company. These decision-makers should then be able to make a clear, informed decisions regarding exports.
- Exporters or potential exporters could ensure that the process and structure for CI is in place, for example a dedicated database for the key types of information required by exporters, the

required skills, for example an analyst and/or CI manager, and a network of sources that could be accessed when required.

- Exporters or potential exporters could list the key competitors in the industry, and develop and maintain detailed competitor profiles on each of the competitors. Typical types of information that exporters require regarding competitors are listed in Section 2.3.7. Accurate information is pertinent for completing export marketing plans and for making strategic business decisions in dynamic environments.

5.5.3.2 Recommendations to Trade Promotion Organisations

Against the background of the lack of CI capabilities in extruder manufacturers and newcomers to exports, the following is recommended to TPOs:

- TPOs could create a forum through which capital equipment industry knowledge can be shared. This would serve, amongst others, to inform the extruder manufacturer of the drivers and challenges in the industry, which in turn will inform decisions on KINs.
- TPOs could perform focused research on the extruder industry in South Africa and globally as a service to extruder manufacturers. It should however be preceded by a needs analysis amongst extruder manufacturers that should point to focus areas in the research.
- TPOs could provide a proactive research service in the form of a regular news brief that informs subscribers of trends, opportunities and threats in the particular market. Typical topics could cover the industries in which the users of extruders operate as well as actions by extruder manufacturers and relevant technologies.

Although the DTI and the SACEEC indicated that they do not provide competitor information, they could provide open-source information on extruder manufacturers' actions and initiatives elsewhere without passing on sensitive information from one competitor to another competitor.

5.5.4 Recommendations on export services offered versus services required

Based on the results of the interviews with extruder manufacturers and the two TPOs in South Africa, recommendations can be made to extruder manufacturers and the relevant TPOs. These recommendations are presented below.

5.5.4.1 Recommendations to extruder manufacturers

The following is recommended to extruder manufacturers:

- The extruder manufacturer could register as an exporter.
- The extruder manufacturer could become a member of the SACEEC to benefit from the various services offered.
- The extruder manufacturer could contact the DTI to arrange meetings with officials that are specialists on the capital equipment export industry.
- The extruder manufacturer could obtain information on export-promotion activities and services offered by the TPOs, including training and tradeshow and outbound trade missions.

- The extruder manufacturer could communicate the types of information required to the TPOs in order to assess whether these are indeed offered by the TPOs. It could also plan with the TPOs to obtain the types of information not offered by the TPOs or which the TPOs offer to a limited extent.
- The extruder manufacturer could determine whether the DTI would conduct or sponsor focused research on the extruder export market.
- The extruder manufacturer could conduct in-depth market and marketing research on REOs as indicated by the DSM. (Such an example will be presented in Chapter 6.)
- The extruder manufacturer could register a need for and participate in trade missions.
- The extruder manufacturer could gather information on industry conferences and determine whether the TPOs could assist in attendance of such conferences. Such conferences are typically attended by extruder manufacturers, users of extruders and other stakeholders.
- The extruder manufacturer could register a need for an industry forum through which relevant information exchange and networking can take place.

5.5.4.2 Recommendations for Trade Promotion Organisations

The two TPOs that were interviewed, namely the DTI and the SACEEC, offered a list of the export services that they offer, as well as the manner in which these export services are rendered. The DTI and SACEEC indicated that they provide the services mentioned in Section 2.3 to exporters in the

capital equipment industry, of which extruders are part. In addition, both the SACEEC and the DTI offer trade policy development as a service, as it leads to market development and export growth. The types of information that are offered were listed in 2.3.

Based on comparison of the export services offered with the types of information required by extruder manufacturers, the following is recommended to the TPOs:

- As it was found that neither TPO had knowledge of or had as member an extruder manufacturer or exporter in South Africa, it was deduced that this might be a reflection of a lack of exposure of the TPOs amongst extruder manufacturers and a lack of completeness of the database of players in the capital equipment industry. Therefore, it is recommended that this problem might be overcome by organising an information drive to promote the SACEEC as an industry and export-promotion body at relevant forums. The DTI could be a convenor and organiser of such forums.
- An information session and research project can be launched that is specifically focused on the extruder industry in South African and globally. Neither TPO interviewed had any knowledge of an extruder as a specialised machine, or extruder manufacturers and the extruder industry and market. The TPOs did however have limited knowledge of uses of extruders. Users of extruders should be included in such an information session and research project. The information session could be an effective manner in which the KINs of the different stakeholders in the extruder and capital equipment industries could be determined and there could be a focus on identifying drivers and challenges that are relevant to exports in particular.
- TPOs could use such information sessions and research to tailor export-promotion strategies

or export marketing assistance to extruder manufacturers in particular. Other manufacturers that do not yet export could also be invited. This could enhance export performance, expand foreign market shares, and increase current and potential extruder exporting companies' level of competitiveness. Specific actions that are recommended include stimulating companies' interest in exporting by hosting seminars, and export counselling and export mentoring programmes for potential exporters. This presupposes, however, that reliable and credible information about the export process and information about the export of extruders in particular is available. Other types of information that could be made available to extruder manufacturer include export financing, export insurance, training programmes and market study support.

- It was found that current trade promotion activities by South African TPOs do not take into consideration new export opportunities in new markets or opportunities for new products in existing markets. In order to overcome this challenge, TPOs could consider using the results of the DSM and the results from the case study that will be presented in Chapter 6 to launch in-depth studies into the export potential of extruders to other identified markets.
- Focused export training to South Africa extruder manufacturers could be considered. This is a service offered by the DTI but not the SACEEEC. The training offered however is generic.
- Trade Promotion Organisations could actively recruit extruder manufacturers, as well as other capital equipment manufacturers, to become members and market the TPOs' services amongst both South African and foreign extruder manufacturers.
- A lack of or limited communication might be the cause of the lack of knowledge of extruder manufacturers present in South Africa. The most effective means of communicating with

extruder manufacturers and other role-players in the capital equipment industry in South Africa could be by means of regular meetings. At present, the SACEEC cites a lack of resources as a challenge to communicating effectively. The DTI might be able to render assistance and support in this regard.

- The export services of Trade Promotion Organisations should ideally be tailored according to the various stages of export of its clients (exporters). As was discussed in Sections 2.2.2.1 and 2.2.3, export assistance programmes should be tailored to the export development stage of the target companies. No one policy will necessarily be appropriate to each stage of development and the TPOs should offer assistance with regard to encouraging and supporting the export maturing process within new or beginner exporters. The approach must place emphasis on financial incentives, information handling capacity and knowledge on international markets.
- Trade Promotion Organisations could consider introducing advanced industry topics to non-exporters, such as information on partners and distribution possibilities.

5.6 CONCLUSION

In this chapter, the results regarding types of information, sources of information and the use of CI with regard to optimising exports through information were presented. Results on the manner in which CI could assist exporters in focusing on key issues and effectively gathering, analysing and applying information regarding these issues were presented. This chapter also provides recommendations pertaining to the above-mentioned aspects.

It is clear that there is a mismatch between the extruder manufacturers and the TPOs in South

Africa. The main reason for this is that the TPOs are not familiar with the extruder manufacturers in South Africa and are unaware of any REO regarding extruders; similarly, the manufacturers are not familiar with the TPOs. The DSM results are relevant to this, as if the relevant TPOs are familiar with the products that offer REOs, they could proactively communicate with the manufacturers of these REO products.

The second research method used in this study was the case study. The results and recommendations of the case study will be presented in Chapter 6

CHAPTER 6: THE SOUTH AFRICAN EXPORT POTENTIAL OF EXTRUDERS TO TUNISIA

6.1 INTRODUCTION

In Chapter 5, the results of the survey that involved interviews with extruder manufacturers and users as well as with TPOs were presented. Based on these results, a number of recommendations were made. In this chapter, a case study of Tunisia as a potential market for extruders exported from South Africa, as revealed by the application of the DSM to South Africa (see Section 3.4) will be presented.

The aims of the case study were to collect the information required by exporters of extruders as described in Section 2.3 and, given one of the KINs of an extruder manufacturer, to develop an in-depth market analysis of Tunisia as an REO. This KIN, namely to promote exports into new markets, was identified by means of interviews with the extruder manufacturers in South Africa (see Section 5.3.1). The results and recommendations of the case study regarding the export potential of extruders to Tunisia are presented in this chapter, with extruder manufacturers and TPOs in South Africa as audience.

6.2 BACKGROUND

According to the DSM, Tunisia can be classified in cell 2 of the REOs of South Africa. This cell indicates that exports of extruders to Tunisia is an REO although it has a negligibly small current market share while there is good prospect of growth in the short and long term (see Section 3.5 for more detail on the DSM methodology and results). In this regard, a general overview of the Tunisian economy and international trade of Tunisia is subsequently provided. Although imports

are not the focus of the study, the inclusion of imports provides relevant background on the general conditions in Tunisia from an exporter's viewpoint.

6.3 OVERVIEW OF THE TUNISIAN ECONOMY

The Tunisian economy is one of the most diversified and competitive economies in the Middle Eastern and North African region. Diversification in agriculture, industry and tourism has made the economy more resilient to economic and climate fluctuations (ITC, 2010a). Tunisia's GDP in 2009 is estimated at US\$83.55 billion, while GDP real growth was estimated at 0,7 per cent, down from 4,4 per cent in 2008. The decline is due to economic contraction and slowing of import demand in Europe, Tunisia's largest export market. Key economic indicators are summarised in Table 6.1.

Table 6.1: Summary of key indicators for Tunisia for 2007, 2008 and 2009

| GDP (purchasing power parity) | | |
|---|-------------------|-------------------|
| 2009 est. | 2008 est. | 2007 est. |
| US\$83.55 billion | US\$82.96 billion | US\$79.47 billion |
| GDP (official exchange rate) | | |
| US\$39 57 billion est. | | |
| GDP real growth rate | | |
| 0.7% | 4.4% | 6.6% |
| GDP per capita | | |
| US\$8,000 | US\$8,000 | US\$7,700 |
| Inflation rate (consumer prices) | | |
| 5.0% | 3.1% | 4.6% |

Source: World Bank (2010a)

The Tunisian economy is also undergoing significant liberalisation, and successes in this regard has earned the Tunisian government praise from the IMF for its "remarkable growth rates" and "growing diversification" (IMF, 2010). Recent major achievements include poverty reduction,

enhancing the status of women in employment and social life of the country generally, and the early introduction of new advanced technologies such as the Internet. Tunisia has pursued structural reforms to maintain a prudent macro-economic framework, liberalise domestic prices and controls, and reduce the public sector's role in economic activity. Regulation is more efficient and streamlined. Property rights are largely respected, although the executive branch is the supreme arbiter. Tunisia has been able to keep its fiscal deficits relatively low.

Tunisia's score of 58,9 on the Heritage Foundation and World Bank 2010 Index of Economic Freedom reflects its successes in this regard. Its ranking makes the Tunisian economy the 95th most free of 179 economies in the Index of Economic Freedom of the Heritage Foundation and World Bank (Heritage Foundation, 2010). Its score is one point higher than in 2009, reflecting improved scores in half of the ten economic freedoms. Tunisia is ranked 12th out of seventeen countries on the same index in the Middle Eastern and North African region, and its overall score is just below the world average. Its score however still classifies the economy as "mostly unfree" despite measures being taken to liberalise the economy and make it more investor-friendly. These aspects are discussed in more detail in Section 6.4.3.4 with regard to market-access and access barriers of extruders into Tunisia. Tunisia's performance in the relevant areas of economic freedom as measured by the Index of Economic Freedom is reflected in Table 6.2.

Despite these reforms, however, a number of institutional challenges remain to be addressed. Tunisia scores low in trade freedom and investment freedom. Protectionist investment policies and cumbersome bureaucracy stifle a more stable inflow of foreign investment. The financial sector and judiciary are subject to political influence, and corruption remains significant (Heritage Foundation, 2010).

Table 6.2: Index of economic freedoms of Tunisia

| Score | Criteria | Average | Detail |
|-------|---------------------|---------|--|
| 80.2 | Business freedom | 64.6 | Starting a business takes 11 days, compared with the world average of 35 days. Obtaining a business license takes much less than the world average of 218 days, but costs are fairly high. Bankruptcy proceedings are easy and straightforward. |
| 53.5 | Trade freedom | 74.2 | Tunisia's weighted average tariff rate was 18.3 per cent in 2006. Import restrictions, some prohibitively high tariffs, import taxes and fees, import licensing requirements, export-promotion programmes and inconsistent customs administration add to the cost of trade. Ten points were deducted from Tunisia's trade freedom score to account for NTBs. |
| 74.4 | Fiscal freedom | 75.4 | Tunisia has a relatively high income tax and a moderate corporate tax. The top income tax rate is 35 per cent, and the top corporate tax rate is 30 per cent. A special tax scheme applies to financial institutions and the hydrocarbons sector. Other taxes include a value-added tax, a property transfer tax, an inheritance tax, and a vehicle tax. In the last year of assessment, overall tax revenue as a percentage of GDP was 20.9 per cent. |
| 78.5 | Government spending | 65.0 | Total government expenditure, including consumption and transfer payments, is relatively low. In the last year of assessment, government spending equalled 26.8 per cent of GDP. The state-owned mobile and fixed-line telephone company is slated for sale to a French telecommunications company |
| 76.5 | Monetary freedom | 70.6 | Inflation has been moderate, averaging 4.5 per cent between 2006 and 2008. The government can set prices for subsidised goods and influences prices through regulation, subsidies, and state-owned utilities and companies. Ten points were deducted from Tunisia's monetary freedom score to account for policies that distort domestic prices. |

| Score | Criteria | Average | Detail |
|-------|--------------------|---------|---|
| 35.0 | Investment freedom | 49.0 | Tunisia restricts foreign investment in some sectors to minimise the impact on domestic competitors. Investments in non-tourism onshore companies with a capital share larger than 49 per cent require government authorisation. In general, domestic trading can be carried out only by a company in which the majority of the share capital is held by Tunisians and management is Tunisian. Bureaucratic procedures are cumbersome and inconsistent, the ability to retain foreign labour is restricted, and the courts are susceptible to political pressure. Residents and non-residents may hold foreign exchange accounts, subject to restrictions and approval. There are some restrictions on capital transactions, payments, and transfers. Foreigners may not own agricultural land. |
| 30.0 | Financial freedom | 48.5 | Financial supervision and regulation have been brought up to international standards, but the financial sector remains underdeveloped. The government maintains control of the three largest banks. Despite some recent progress in reducing non-performing loans, they still account for over 15 per cent of total loans. Five banks control around 70 per cent of deposits. Since 2005, the government has made progress in privatising and consolidating a number of banks, but it remains the controlling shareholder in half of Tunisia's 20 banks. State-mandated lending and the legal difficulty of settling with debtors have hurt financial development. Capital markets are small and dominated by government securities. The stock exchange, which has been managed by the government-run Financial Market Council, has become more active with increased foreign participation and about companies firms listed. |
| 50.0 | Property rights | 43.8 | The executive branch is the supreme arbiter of events in the cabinet, government, judiciary and military. Commercial cases take a long time to resolve, and legal procedures are complex. Tunisia's intellectual property rights law is designed to meet the WTO's Trade-Related Aspects of Intellectual Property Rights minimum standards. Customs agents do not investigate copyright violations without a complaint by the copyright holder. Pirated print, audio, and video media products are sold openly. Illegal copying of software, CDs, and DVDs is widespread. |

| Score | Criteria | Average | Detail |
|-------|-------------------------|---------|--|
| 44.0 | Freedom from corruption | 40.5 | Corruption is perceived as significant. Tunisia ranks 62 nd out of 179 countries in Transparency International's Corruption Perceptions Index for 2008. Corruption is less pervasive than in neighbouring countries. Unfair practices and corruption amongst prospective local partners reportedly can delay or block specific investment proposals, and cronyism and influence peddling can affect investment decisions. |
| 67.4 | Labour freedom | 62.1 | Tunisia's labour regulations are relatively rigid. The non-salary cost of employing a worker is high, and dismissing an employee is difficult. |

Source: Heritage Foundation (2010)

Structural economic reforms have helped the country to raise economic growth, and have allowed the government to increase the prosperity and social welfare of the population. About 7,4 per cent of the population lives below the poverty line. The distribution of family income according to the Gini index was 40 in 2005, down from 41,7 in 1995.⁶

The manufacturing industry, producing largely for export, is the driver of Tunisia's economic growth and a major source of foreign currency revenue, accounting for about 69 per cent of exports. Labour-intensive plants, historically producing textiles and, more recently, automobile components, create much-needed jobs.

Textiles and mechanical and electrical equipment sales are the primary sources of foreign currency revenue, but both industries are currently under pressure due to the international economic crisis.

⁶ The Gini index measures the extent to which the distribution of income amongst individuals or households within an economy deviates from a perfectly equal distribution. A Lorenz curve plots the cumulative percentages of total income received against the cumulative number of recipients, starting with the poorest individual or household. The Gini index measures the area between the Lorenz curve and a hypothetical line of absolute equality, expressed as a percentage of the maximum area under the line. Thus, a Gini index of 0 represents perfect equality, while an index of 100 implies perfect inequality (World Bank, 2010b).

Tourism is the next largest source of foreign currency revenue. Approximately seven million tourists visited Tunisia in 2008, earning nearly US\$2.7 billion in convertible currency. The agricultural sector plays a major role in Tunisia and employs approximately one fifth of the population. The sector accounts for nearly 10,5 per cent of GDP and constitutes approximately 9,1 per cent of exports. In 2008, Tunisia exported nearly US\$1.7 billion in agricultural products, mainly olive oil, seafood, dates and citrus. The GDP composition by sector is summarised in Table 6.3.

Table 6.3: Gross Domestic Product composition by sector in Tunisia, 2009

| GDP composition by sector in 2009 | | |
|-----------------------------------|---------------|----------|
| Agriculture | Manufacturing | Services |
| 11.1% | 34.9% | 54.0% |

Source: World Bank (2010b)

Employment creation and the quest to remain competitive internationally are key challenges for Tunisia. These challenges concern in particular the capacity of the economy to adapt itself to the opening of the Tunisian market to competition with Europe since January 2008. The unemployment rate was 15,7 per cent in 2009, up from 14,1 per cent in 2008. Tunisia needs to reach even higher growth levels to create sufficient employment opportunities for the high number of unemployed and the growing population of university graduates.

Other challenges facing the Tunisian economy include the continued privatisation of industry, liberalising the investment code to increase foreign investment, improving government efficiency, reducing the trade deficit, and reducing socio-economic disparities in the impoverished South and West (World Bank, 2009).

As extruders are particularly relevant to the manufacturing sector, an assessment of Tunisia's manufacturing sector is subsequently highlighted.

6.3.1 Overview of the manufacturing sector

Tunisia's manufacturing sector consists of 5,624 companies that have ten or more employees. Of these, 2,717 are companies that produce exclusively for export. Industrial companies with ten or more employees account for the employment of 478,608 persons. Most of the companies are in the food-processing and textiles and clothing industries (see Table 6.4).

Table 6.4: Number and distribution of larger companies per industry in Tunisia

| Industry | Exclusively for export* | Partially for export | Total | % |
|---|-------------------------|----------------------|--------------|------------|
| Food processing | 164 | 869 | 1 033 | 18 |
| Building materials, ceramics and glass | 28 | 399 | 427 | 8 |
| Mechanical and metal works | 163 | 411 | 574 | 10 |
| Electrical and electronics | 219 | 128 | 347 | 6 |
| Chemical (not including plastic industries) | 36 | 201 | 237 | 4 |
| Textiles and clothing | 1 752 | 343 | 2 095 | 37 |
| Wood, cork and furniture | 30 | 164 | 194 | 3 |
| Leather and shoes | 213 | 84 | 297 | 5 |
| Diverse | 112 | 308 | 420 | 7 |
| Total | 2 717 | 2 907 | 5 624 | 100 |

Source: API (2009)

In 2008, the production value of the manufacturing sector reached TND39.8 million,⁷ compared with TND25.8 million in 2004, representing average annual growth of 11 per cent for the period (see Figure 6.1).

⁷ Tunisian Dinars: TND100 equals US\$70.80 as at 4 April 2010 (Exchange Rates, 2010).

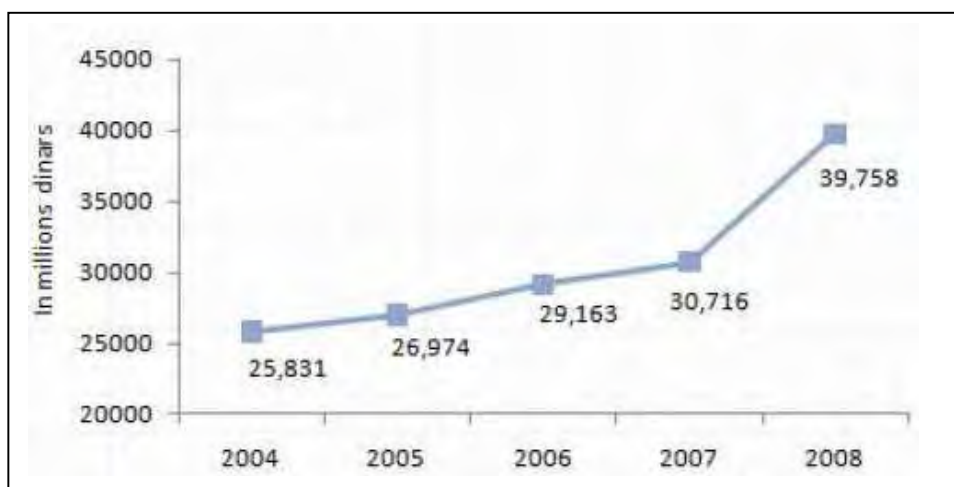


Figure 6.1: Growth in production in the Tunisian manufacturing sector, 2004 to 2008 (at current prices)

Source: API (2009)

The total number of companies with foreign participation is 1,944. Of these, 1,652 are companies that produce exclusively for export (see Table 6.5). France's involvement in the food-processing and textiles industries is important, while other foreign participation, including Italy and Germany, is also most prevalent in these two sectors.

Table 6.5: Companies with foreign participation in Tunisia per industry, 2009

| Industry | Countries | | | | |
|--|-----------|-------|---------|---------|-------|
| | France | Italy | Germany | Belgium | Other |
| Food processing | 36 | 33 | 3 | 2 | 48 |
| Building materials, ceramics and glass | 17 | 22 | 2 | 1 | 28 |
| Mechanical and metal works | 96 | 52 | 3 | 4 | 42 |
| Electrical and electronics | 91 | 59 | 41 | 1 | 61 |
| Chemical | 39 | 13 | 4 | 3 | 25 |
| Textiles and clothing | 394 | 255 | 87 | 113 | 217 |
| Wood, cork and furniture | 18 | 8 | 4 | 3 | 12 |

| Industry | Countries | | | | |
|-------------------|------------|------------|------------|------------|------------|
| | France | Italy | Germany | Belgium | Other |
| Leather and shoes | 42 | 82 | 7 | 6 | 29 |
| Diverse | 66 | 35 | 9 | 6 | 49 |
| Total | 799 | 559 | 160 | 139 | 511 |

Note: A company may be counted more than once.

Source: API (2009)

Figure 6.2 indicates that France has the most partnerships with Tunisian companies followed by Italy and Germany. This indicates that European countries and companies have a strong presence in Tunisia. This might be viewed as an access barrier from the point of view of South African exporters (for more detail see Section 6.3.4.4).

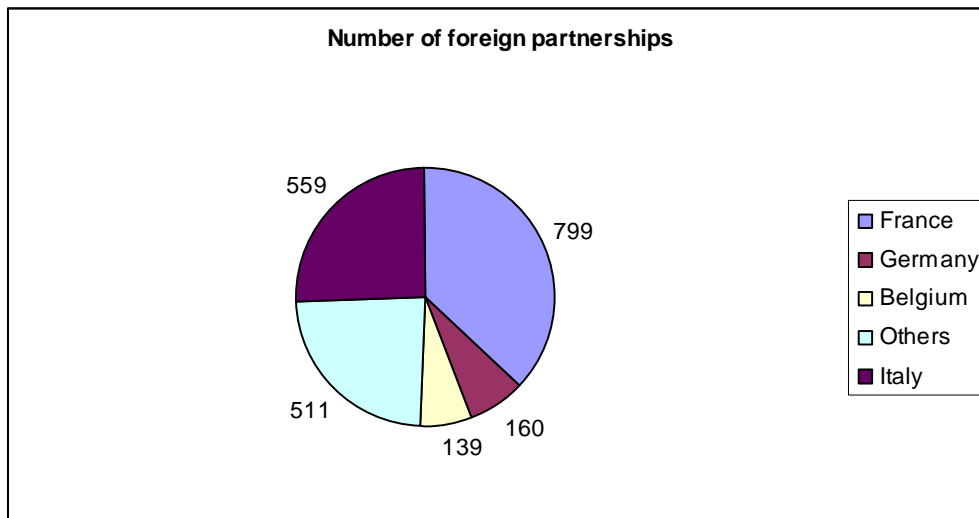


Figure 6.2: Breakdown of foreign partnerships with Tunisian companies by country, 2009

Source: API (2009)

6.3.2 International trade

Tunisia's geo-strategic position on the Mediterranean favours the country's industrial and trade mobility with its trading partners. Tunisia's main trading partners are countries in the Middle East, North Africa and the EU. Tunisia as a trading country is regarded as traditionally an open market.

As a member of the World Trade Organisation (WTO) and publicly committed to a free trade policy and export-led growth, Tunisia is applying its policy to liberalise its economy and has signed various trade agreements. It has signed numerous preferential agreements including those with the EU, the USA and South Africa (DTI, 2010), and has been a member of the General Agreement on Tariffs and Trade since 1990. Tunisia has also been a member of the WTO since 1995. The trade agreements are subsequently discussed.

6.3.2.1 Trade agreements

Tunisia's strongest ties are with the EU. These were reinforced by Tunisia's association agreement with the EU in January 2008, which created a free trade area for industrial products in January 2008. The EU association agreement is supported by significant European funding to support the Tunisian economy through the transition period to an open market. Over 3,600 Tunisian companies have taken part in the "Mise à Niveau" programme⁸ so far. Tunisia's association agreement with the EU bars non-EU countries from certain major tenders receiving EU financing.

Other trade agreements of significance include the Trade and Investment Framework Agreement (TIFA) with the USA (which will later become a FTA) and commercial ties with the United Arab Emirates (UAE). The TIFA aims to assist US companies in gaining access to the Tunisian market.

⁸ In 1995, Tunisia, in an effort to integrate its economy into the global economy, initiated a program to strengthen the competitiveness of its industries. This programme is called "Programme de Mise à Niveau".

Follow-on TIFA Councils were held in October 2003, June 2005, and March 2008. Ties with the UAE were strengthened in 2006 with the announcement of plans by several Dubai-based companies to invest approximately US\$20 billion in real estate, tourism, and commerce in Tunisia over the next few years (World Bank, 2010b).

Tunisia is a member of the Arab Maghreb Union (AMU), a Free Trade Area (FTA) comprising Tunisia, Algeria, Morocco, Mauritania and Libya. The purpose of the AMU is the consolidation of relations that bind the member states and their people and protect their rights; the free movement of persons, services, goods and capital amongst member states; the adoption of a common policy to ensure industrial, agricultural, commercial and social development of members. The ultimate aim is to establish a Maghreb economic union among the five member states (AMU, 2010). Tunisia is also a signatory to several bilateral and multilateral trade agreements within the AMU, including the Agadir Agreement. This agreement, a framework for a potential FTA with Egypt, Jordan, and Morocco, will create a potential market of over 100 million people (AMU, 2010).

6.3.2.2 Exports

For Tunisia, the main challenges in foreign trade are the manner in which to diversify exports by destination and by product; increase current market shares and open new markets; open the borders to competition, while mastering the consequences of tariff dismantling; address the persisting trade deficit; and promote export of services (ITC, 2010a). In 2007 and 2008, Tunisia showed a trade balance deficit because of the rise in oil prices. However, the deficit decreased in 2009 to US\$-1.191 billion (2009 estimates). This figure is a slight improvement on the 2008 figure of US\$-1.667 billion. Over 70 per cent of Tunisia's foreign trade is with the EU. In 2009, total Tunisian imports were US\$17.37 billion (US\$23.23 billion in 2008) and exports totalled US\$19.3 billion (see Table 6.6).

Table 6.6: Tunisia's international trade indicators in 2008 and 2009

| Indicator | 2009 (US\$) | 2008 (US\$) |
|---------------------------------------|----------------------------|---------------------------|
| Current account balance | -1.191 billion (2009 est.) | -1.67 billion (2008 est.) |
| Exports | 13.39 billion (2009 est.) | 19.22 billion (2008 est.) |
| Imports | 17.37 billion (2009 est.) | 23.23 billion (2008 est.) |
| Reserves of foreign exchange and gold | 8.35 billion (31 Dec) | 8.853 billion (31 Dec) |
| Foreign debt | 18.11 billion (31 Dec) | 20.1 billion (31 Dec) |
| Stock of FDI at home | 30.79 billion (31 Dec) | 28.67 billion (31 Dec) |
| Stock of FDI abroad | 177 million (31 Dec) | 162 million (31 Dec) |
| Exchange rates TND per US\$ | 1.3492 (2009) | 1.211 (2008) |

Source: ITC (2010b)

Tunisia's main export commodities include mainly clothing, semi-finished goods and textiles, agricultural products, mechanical goods, phosphates and chemicals, hydrocarbons, and electrical equipment. Tunisia's main export partners are France (28.3 per cent), Italy (17.9 per cent), Germany (9.6 per cent), Libya (5.8 per cent) and Spain (5 per cent) (DTI, 2010a).

In terms of export in the manufacturing industries, data from the Institut National De La Statistique (INS, 2009) indicates that the value of exports in the manufacturing sector increased from a level of TND10.02 million in 2004 to a level of TND18.60 million in 2008 (see Figure 6.3).

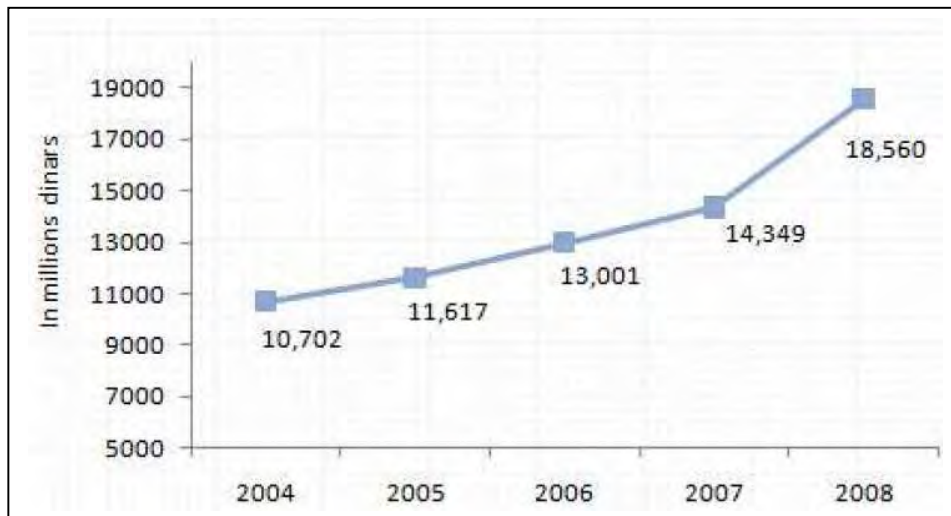


Figure 6.3: Growth in exports in the Tunisian manufacturing sector, 2004 to 2008

Source: INS (2009)

In terms of the breakdown of exports per sector in the manufacturing industry, Figure 6.4 illustrates that the clothing and textiles, electric and electronics and chemical industries are the three leading industries.

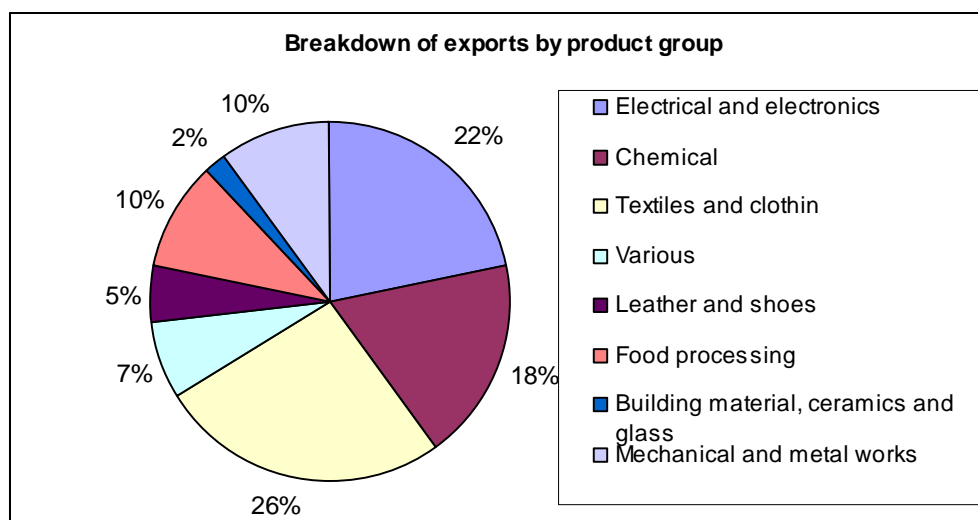


Figure 6.4: Breakdown of Tunisian exports by product group, 2008

Source: INS (2009)

6.3.2.3 Imports

Tunisia's main import commodities are textiles, machinery and equipment, hydrocarbons, chemicals, and foodstuffs and these are mainly imported from France (21.5 per cent), Italy (19.3 per cent), Germany (9 per cent), Libya (4.6 per cent) and Spain (4.5 per cent; DTI, 2010a). In terms of the imports in the manufacturing industries, data from the INS (2009) indicates that imports increased from TND13.410 million in 2004 to TND21.342 million in 2008 (see Figure 6.5).

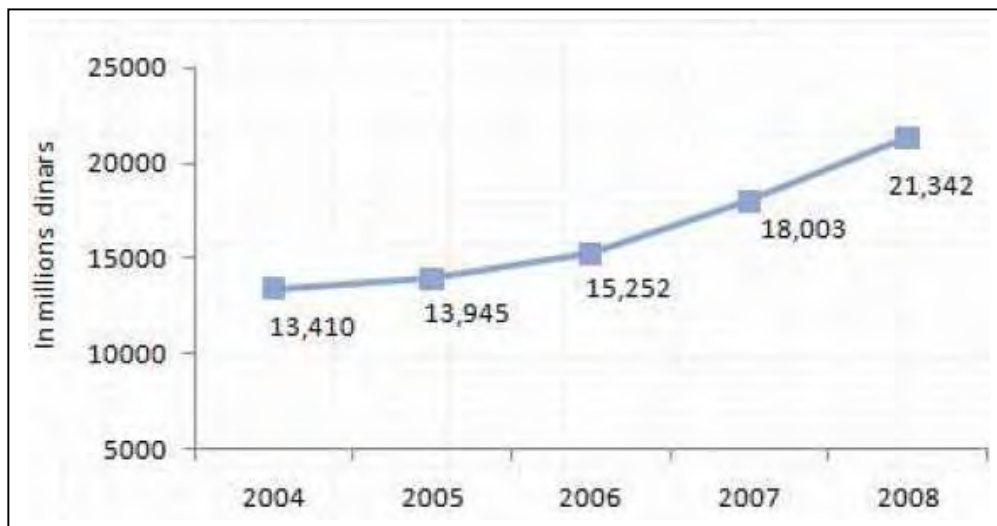


Figure 6.5: Growth in imports in the Tunisian manufacturing sector, 2004 to 2008

Source: INS (2009)

Regarding the breakdown of imports per sector in the manufacturing industry, Figure 6.6 illustrates that the mechanical and metal works, clothing and textiles, and electric and electronics industries are the three leading industries.

In Section 6.4.2.3.2, certain industries are investigated as potential users or importers of extruders. These are the food-processing, plastics, and mechanical and metal works industries. Plastic

products are used in a variety of industries, while the food-processing and mechanical and metal works industries.

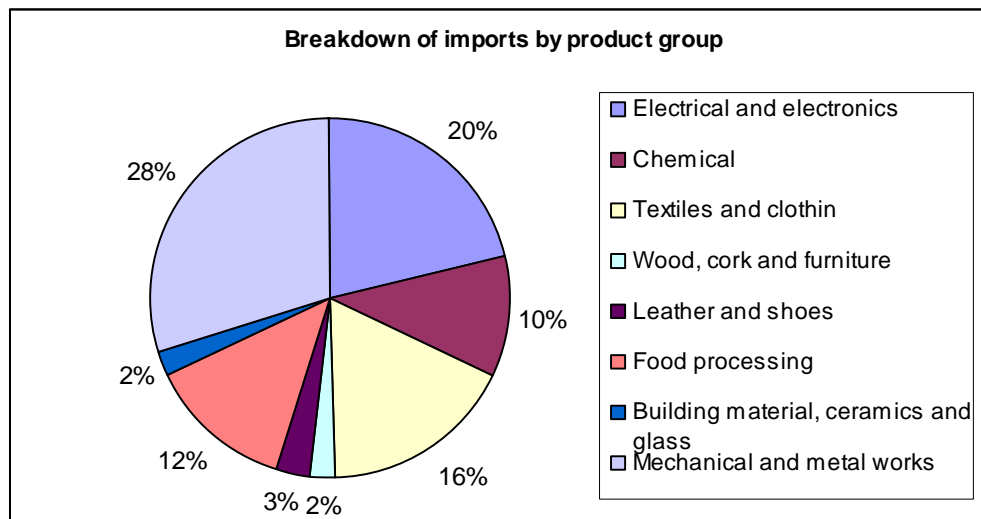


Figure 6.6: Breakdown of imports to Tunisia by product group, 2008

Source: INS (2009)

6.3.2.4 Trade Promotion Organisations in Tunisia

There are various TPOs in Tunisia (a list of TPOs in Tunisia is provided in Annexure I). They consist of mostly public organisations that provide information and services related to exports, including information on national and regional foreign trade regulations, information on shipping and other transport facilities, information on manufacturers, exporters and importers, national production and foreign trade statistics, and assistance to foreign companies in terms of joint ventures. Information on marketing strategies and trade events/participation in trade fairs is also provided. These types of information correlate with the types of information required by exporters as described in Section 2.3 and confirmed in Section 5.2.1 and 5.2.2.

There is also a trade point in Tunisia. The Tunis Trade Point is a member of the World Trade Point Federation (WTPF), an international non-governmental organisation founded in 2000. Tunis Trade Point aims to support Tunisian companies in developing their business internationally. It falls under the supervision of the Ministry of Commerce and Handicrafts and is located in the Tunisian Export Exchange (WTPF, 2010).

6.3.3 International trade environment

According to the World Bank and the US Commercial Service (2010), accessing the Tunisian market can be a challenge for countries that are not part of the EU or do not have close ties with Mediterranean, Middle Eastern and North African countries in particular. Tunisia as a former French protectorate maintains close ties with Europe and especially France. The World Bank's assessment of the Tunisian market as difficult to access for countries that are not part of the EU (Section 6.3.2) is confirmed by the large number of EU companies involved in partnerships with Tunisian companies in Tunisia.

6.3.3.1 Trade challenges

The Tunisian government's investment promotion authority has established a generous package of incentives for foreign investors. However, as indicated in Table 6.2, companies that plan to invest in offshore or export-oriented operations in Tunisia face a number of obstacles in light of the status of Tunisia's economic freedoms. It is particularly challenging to enter the Tunisian services sector (US Department of State, 2009). Unless the company is working on a project actively solicited by the Tunisian government or is closely associated with one of the country's well-connected business groups, the process can be complicated. Currently, a new law regulating the services sector is being drafted. This law will regulate distribution channels and establish a framework for

commercial franchising. The US Commercial Service (2010) advises companies trading in Tunisia to obtain written confirmation from the Tunisian authorities of any exceptional conditions granted to a particular trade or investment operation and to visit Tunisia prior to entering into a business relationship with a local partner.

Other challenges to foreign companies trading with Tunisia include the perceived cumbersome Tunisian bureaucracy; a regulatory environment that lacks coherence and consistency; the decision-making process that can lack transparency and be at odds with the government's official 'transparent' pro-business stance; and the considerable price advantage enjoyed by imports from the EU over other countries' products. Since 2008, many EU products have been exempt from import duties. The EU and many European countries offer attractive financing terms for trade. Tunisian companies are familiar with these opportunities but are generally unfamiliar with financing opportunities available when purchasing goods from other countries.

Tunisian law prohibits the export of currency as payment for imports before documents are presented to the bank confirming that the merchandise has entered the country. This is usually in the form of Tunisian customs authority documents. Exporters have used confirmed, irrevocable letters of credit and letters of credit authorising payment against documents in past transactions. Exporters are also advised to verify with Tunisia's Central Bank (Banque Centrale de Tunisie) whether they are permitted to receive payment in foreign currency for services to customers resident in Tunisia.

6.3.3.2 Trade and investment climate

Tunisia attracts about US\$750 million in Foreign Direct Investment (FDI) annually, two thirds of which comes from Europe. However, in 2006, FDI flow rose to US\$3.522 billion (of which

US\$2.377 billion came from the 35 per cent participation of TECOM-DIG in Tunisie Telecom), making the UAE contribution approximately 68 per cent of total FDI. In 2007 and 2008, total FDI flows reached US\$1.617 billion and US\$2.561 billion (IMF, 2010), respectively.

Tunisia as an investment prospect was also boosted by the most recent Africa Competitiveness Report (WEF, 2009) that revealed Tunisia as one of Africa's leading innovators together with Kenya and South Africa. The World Economic Forum (WEF) in its World and Africa Competitiveness reports scores and ranks countries according to the twelve pillars of competitiveness. These pillars are institutions, infrastructure, macro-economic stability, health and education, higher education and training, goods market efficiency, labour market efficiency, financial market sophistication, technological readiness, business sophistication and innovation (WEF, 2009). Tunisia is the continent's most competitive country at 36 (overall), followed by South Africa at 45.

The Tunisian government has set ambitious objectives in terms of economic policy measures and targets in the eleventh and the twelfth development plans covering the period 2007 to 2016. Amongst other objectives, it aspires to improve the integration of the Tunisian economy in the international economy by widening the base of the export and improving the competitiveness of the Tunisian exporting firms. It intends to promote a restructuring of exports in the sense of an improved equilibrium amongst different sectors. In this context, the Tunisian government intends giving priority to increasing the share of Tunisian exports of services, mechanical and electrical equipment, agricultural business and handicrafts.

Tunisia raised the total tax rate for businesses by 3,7 percentage points through an increase in social security taxes of 0,6 percentage points and an increase of 3,1 percentage points for abandoning accelerated depreciation. Introduction of electronic filing may shorten tax payment compliance times and will affect payments. Expansion of the country's electronic single platform

will allow Tunisian traders to quickly file all documents required to clear their cargo online, and the system has reduced processing delays by two days. Furthermore, Tunisia strengthened investor protection by requiring greater corporate disclosure (World Bank, 2010a).

With regard to trade tariffs, according to the World Trade Organisation (2010) the average tariff applied by Tunisia for all products is 20,65 per cent. The average tariff applied for agricultural products is 54,35 per cent, while the average tariff applied for industrial products is 16,37 per cent. A market-access initiative is one of the key initiatives identified by the New Partnership for Africa's Development (NEPAD), a vision and strategic framework for Africa's renewal (NEPAD, 2010). The New Partnership for Africa's Development aims to address issues such as peace and security, good economic, political and corporate governance, and to make the continent an attractive destination for foreign investment. The market-access initiative covers market-access issues such as diversification of production, agriculture, mining, manufacturing, tourism, services, promoting the private sector, promoting African exports, and the removal of NTBs (see 6.3.4.4).

There are indications of Tunisia creating a more attractive investment climate. Tunisia's association agreement with the EU is the first such agreement between the EU and a Mediterranean country. The removal or easing of trade barriers is also a standing item on the agenda of the Joint Bilateral Commission (JBC) between Tunisia and South African, which meets on regular basis. This might augur well for non-EU countries such as South African to export to Tunisia. The ease of import into Tunisia is subsequently discussed.

6.3.3.3 Market concentration

Market or seller concentration is a function of the number of companies and their respective shares of the total production (alternatively, total capacity or total reserves) in a market and concerns the

distribution of production within a market. As a business tool, market concentration is useful because it reflects the degree of competition in the market (Weiss, 1989).

A high-level investigation to determine whether there are any extruder manufacturers in Tunisia revealed that a number of large extruder manufacturers already sell into the Tunisian market in especially the food-processing, plastics and mechanical and metal works industries (listed in Annexure L). This presence is either in the form of representatives and agents or by means of regional offices. According to the DSM results (Rossouw *et al.*, 2010), the market concentration for extruders in Tunisia is above the average market concentration for extruders in all countries and is therefore relatively high (see also Section 6.17).

It was furthermore determined that there is no extrusion manufacturing capacity in Tunisia and that all extruders that are used in local industries are imported. The various sectors that are typically targeted by extruder manufacturers, that is the food-processing, feed, plastics and polymers, and mechanical and metal works (especially aluminium) industries, are strong in Tunisia and growing at an above GDP growth rate. This means that the market potential for extruders is also growing (see also Section 6.4.2.3.2).

6.3.3.4 Market-access barriers

In terms of South Africa's exports of extruders to Tunisia, the *ad valorem* equivalent tariff is 0 per cent (ITC, 2010a). According to the Trade Analysis and Information System (TRAINS) data set in the UNCTAD Handbook of Statistics (2009), there are no recorded NTBs for the exports of South African extruders to Tunisia.

Although Section 6.3.4.2 described a number of factors that increase Tunisia's investment

attractiveness, there are a number of factors that negatively affect market access in Tunisia. In terms of market access, an assessment was made of the ease of trade with and conducting business in Tunisia. This was also discussed in Section 6.3.4.2, in which the Tunisian international trade environment was described.

According to the World Bank (2009) import restrictions, some prohibitively high tariffs, import taxes and fees, import licensing requirements, export-promotion programmes, and inconsistent customs administration add to the cost of trade with Tunisia. A value-added tax also adds to the local price of imported goods. The Tunisian government still retains control over certain strategic sectors of the economy (finance, hydrocarbons, aviation, electricity and gas distribution, and water resources). Despite this, as a founding member of the WTO, Tunisia is publicly committed to a free trade regime and export-led growth (WTO, 2010) (see Section 6.3.3.1 for more detail on Tunisia's trade agreements). According to data from the World Bank (2010c), Tunisia is continuing efforts to reform the economy and is becoming more accessible as a market.

Tunisia also has a relatively high income tax and a moderate corporate tax. The top income tax rate is 35 per cent and the top corporate tax rate is 30 per cent. A special tax scheme applies to financial institutions (INS, 2010).

Inflation has been moderate, averaging 4.5 per cent between 2006 and 2008. The government can set prices for subsidised goods and influences prices through regulation, subsidies, and state-owned utilities and companies. In terms of its assessment of Tunisia's market access, the World Bank deducted ten points from Tunisia's monetary freedom score to account for policies that distort domestic prices (World Bank, 2010b).

Tunisia restricts foreign investment in some sectors to minimise the impact on domestic

competitors through screening. Investments in non-tourism onshore companies with a capital share larger than 49 per cent require government authorisation. In general, domestic trading can be carried out only by a company in which the majority of the share capital is held by Tunisians and where the management is Tunisian.

Financial supervision and regulation have been raised to international standards, but the financial sector remains underdeveloped (World Bank, 2010a). The government maintains control of the three largest banks. Despite some recent progress in reducing non-performing loans, these non-performing loans still account for over 15 per cent of total loans. Five banks control around 70 per cent of deposits. The government has made progress in privatising and consolidating a number of banks, but it remains the controlling shareholder in half of Tunisia's twenty banks.

Corruption is perceived as significant. Tunisia ranks 62nd out of 179 countries in Transparency International's Corruption Perceptions Index for 2008. Corruption is less pervasive than in neighbouring countries. Unfair practices and corruption amongst prospective local partners reportedly can delay or block specific investment proposals, and cronyism and influence peddling can affect investment decisions (Transparency International, 2009). Tunisia's labour regulations are relatively rigid. The non-salary cost of employing a worker is high, and dismissing an employee is difficult.

The World Bank deducted ten points from Tunisia's trade freedom score to account for NTBs (Heritage Foundation, 2010). Non-tariff barriers are government measures other than tariffs that restrict trade flows (World Bank, 2010a). This covers a range of measures from health and safety measures through to the suite of regulations associated with trade and general matters, such as transport costs and customs and administration procedures that may not be directly under the control of governments but under its influence (Sandrey, 2003). Overall, Tunisia ranked 40th out of

183 economies for trading across borders in the World Bank's Doing Business Index (2010a) (see Figure 6.7). This ranking is based on three sub-indicators (World Bank, 2010a):

- i. documents required by customs and other agencies;
- ii. document preparation, custom clearance and technical control, port and terminal handling and inland transport and handling; and
- iii. cost per twenty-foot container, no bribes and tariffs included.

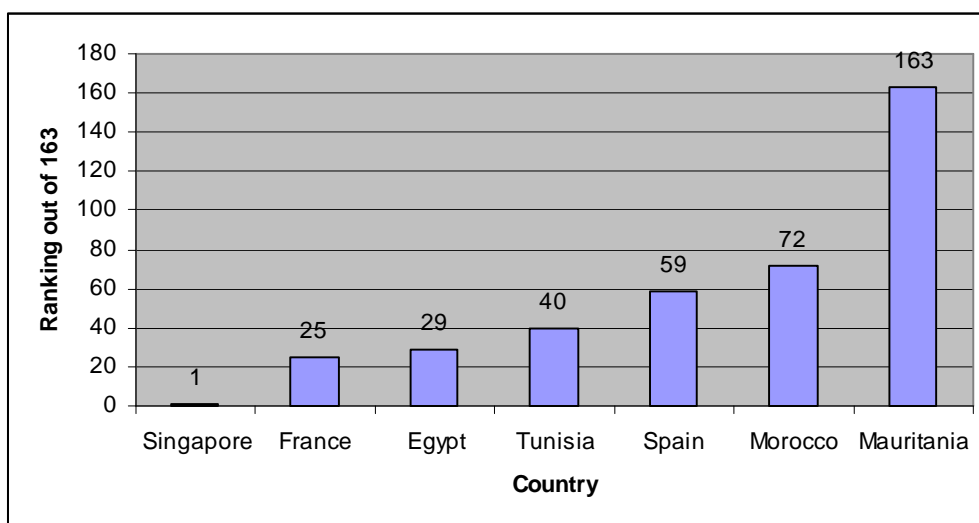


Figure 6.7: Tunisia ranking: Trading across borders

Source: World Bank, 2010a

In the next section, the import and export procedures are discussed in more detail with a focus on documentation and duration of the import and export processes respectively.

6.3.3.4.1 Import procedures

Regarding Tunisia's import procedure, it takes thirteen days to prepare import documentation, while customs clearance and technical control takes three days. Ports and terminal handling takes three days, while inland transportation and handling adds a further two days to the process (World Bank,

2010a). In total, import procedures take twenty-one days (see Table 6.7).

Table 6.7: Tunisian import procedures and duration

| Import procedures | Duration (days) |
|---|-----------------|
| Documents preparation | 13 |
| Customs clearance and technical control | 3 |
| Ports and terminal handling | 3 |
| Inland transportation and handling | 2 |
| Total | 21 |

Source: World Bank (2010a)

In comparison with other Middle Eastern and North African countries, however, Tunisia requires fewer documents to import, namely seven compared with 7.4 in the case of other countries in the Middle East and North Africa (see Figure 6.8).

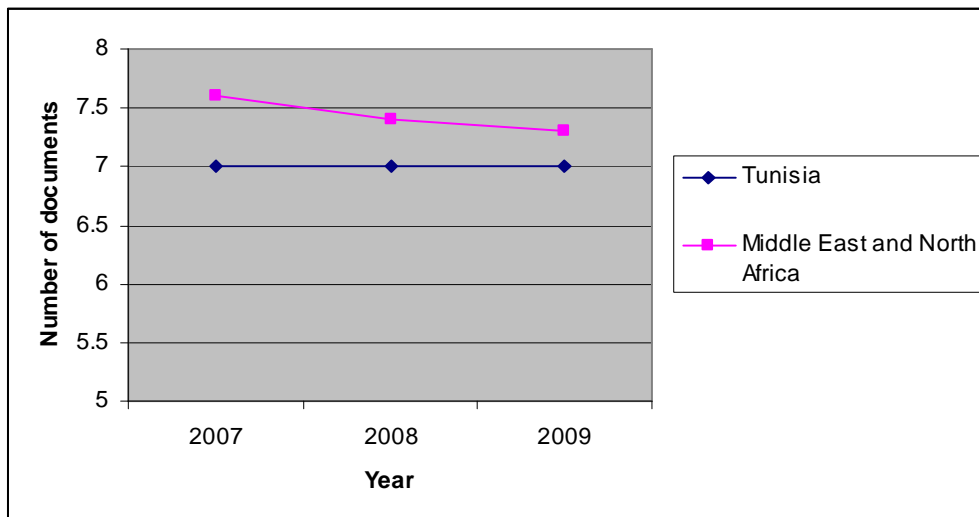


Figure 6.8: Number of import documents: Tunisia versus Middle East and North Africa

Source: World Bank (2010a)

Table 6.8 lists the documents required for imports as described by the World Bank (2010a).

Table 6.8: Types of documents required for imports in Tunisia

| |
|---------------------------------------|
| Bill of lading |
| Certificate of origin |
| Terminal handling receipts |
| Commercial invoice |
| Foreign exchange authorisation |
| Technical standard/health certificate |

Source: World Bank (2010a)

In comparison with other Middle East and North Africa countries, it takes a shorter time to import from Tunisia, namely just over twenty days compared with twenty-six days in the Middle East and North Africa (see Figure 6.9). Improved efficiencies have led to a decrease in the time it takes to export from Tunisia.

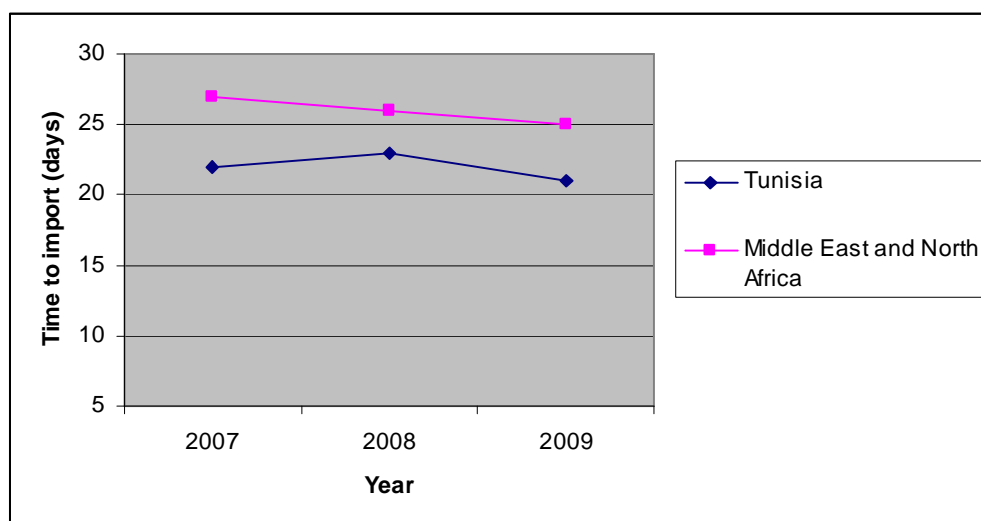


Figure 6.9: Time to import (days): Tunisia versus Middle East and North Africa

Source: World Bank (2010a)

6.3.3.4.2 Export procedures

Although not specifically applicable to South Africa's exports to Tunisia, the export procedures are discussed as background information. According to the World Bank (2010a), it takes nine days to prepare export documentation in Tunisia, while customs clearance and technical control takes two days. Ports and terminal handling takes two days, while inland transportation and handling adds a further two days to the process (World Bank, 2010a). In total, export procedures take fifteen days (see Table 6.9).

Table 6.9: Tunisian export procedures and duration

| Export procedures | Duration (days) |
|---|------------------------|
| Documents preparation | 9 |
| Customs clearance and technical control | 2 |
| Ports and terminal handling | 2 |
| Inland transportation and handling | 2 |
| Total | 15 |

Source: World Bank (2010a)

In comparison with other Middle Eastern and North African countries, however, Tunisia required fewer documents to exports, namely five compared with 6.5 in other Middle East and North African countries (see Figure 6.10).

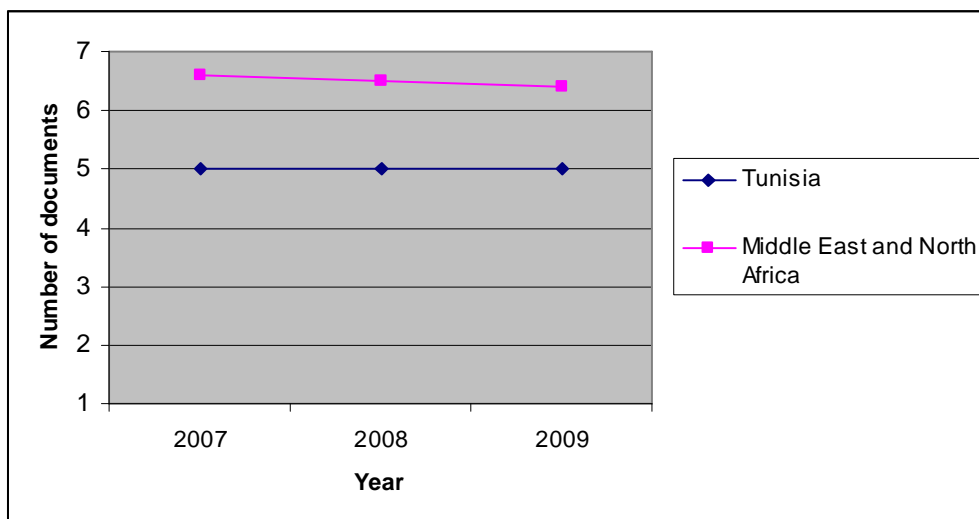


Figure 6.10: Number of export documents: Tunisia versus Middle East and North Africa

Source: World Bank (2010a)

Table 6.10 lists the types of documents required for export to Tunisia:

Table 6.10: Types of documents required for exports

| |
|---------------------------------------|
| Bill of lading |
| Commercial invoice |
| Customs export declaration |
| Certificate of origin |
| Technical standard/health certificate |

Source: World Bank (2010a)

In comparison with other Middle Eastern and North African countries, it takes a shorter time to export from Tunisia namely fifteen days compared with twenty-two days in the Middle East and North Africa (see Figure 6.11).

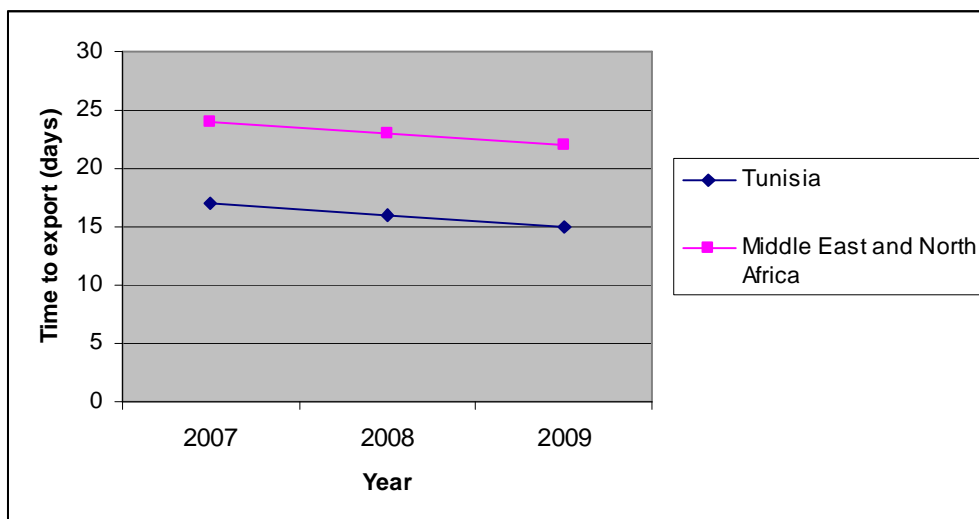


Figure 6.11: Time to export (days): Tunisia versus Middle East and North Africa

Source: World Bank (2010a)

In comparison with other Middle Eastern and North African countries, it was also cheaper to export from Tunisia, namely US\$800 per container compared with just over US\$1,000 per container in Middle East and North Africa (see Figure 6.12).

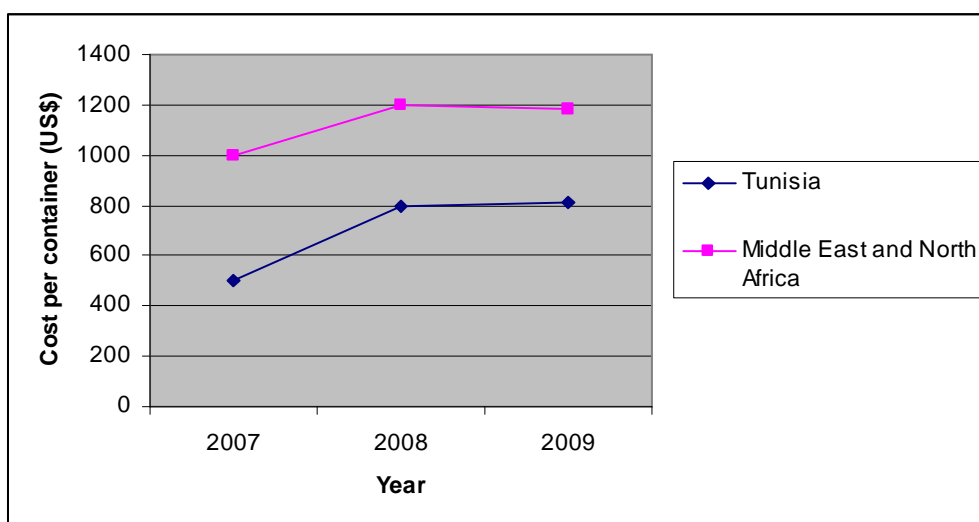


Figure 6.12 Cost to export (US\$ per container): Tunisia versus Middle East and North Africa

Source: World Bank (2010a)

6.3.3.5 Conclusion

In summary, the international trade environment in Tunisia poses certain challenges for importers, and especially importers that are not part of the EU (see Section 6.3.4.1). Although there are certain positive factors relating to Tunisia as an investment promotion (Section 6.3.4.2) and export destination (such as that it is cheaper to import into Tunisia than into other Middle Eastern and North African countries) and there are no *ad valorem* tariffs on imports of extruders, Tunisia still faces a number of market-access barriers as described in Section 6.3.4.3. Importers of products such as extruders should take cognisance of these market-access barriers. The next section provides an overview of trade relations between South African and Tunisia.

6.3.4 South Africa–Tunisia trade relations

Trade relations between South African and Tunisia have strengthened since 1994. Tunisia is a strategic trade partner of South African with links to both the Arab and the EU markets. During a visit to Tunisia in April 2010, the South African ambassador to Tunisia said the visit "will provide an opportunity for South Africa and Tunisia to revive and strengthen existing trade relations and explore areas of further co-operation" (DFA, 2010). An Office of South African Interest was established in Tunis in 1993. After the elections in 1994, relations were formalised with an agreement to elevate the status of the Office of South African Interest to that of an embassy (DFA, 2010).

Political and economic relationships between South Africa and Tunisia were further strengthened in 1996 when the inaugural session of the JBC between South Africa and Tunisia was held in Tunis (DTI, 2010b). The South Africa–Tunisia JBC meets regularly at ministerial level. During the five

JBC meetings that have thus far been held between the two countries, more than twenty agreements have been signed. Issues typically discussed between the two countries include cooperation in the fields of trade and industry, arts and culture, science and technology, health, and information and communications technology. These also include defence, energy, agriculture, education and employment.

A South African–Tunisian Business Forum was established in 2001 as part of the JBC between South Africa and Tunisia. The aim of the Forum is to increase the volume of trade between the two countries and establish mutually beneficial business relations.

6.3.4.1 Trade agreements

Various trade and other agreements are in force including a programme of co-operation on public health and medical services, arts and culture and a Memorandum of Understanding (MOU) on employment. Agreements also exist between the Johannesburg Chamber of Commerce and Tunisia Chamber of Commerce, and between the Tshwane Trade Point and the Tunis Trade Point (see detail on the Tunis Chamber of Commerce and the Tunis Trade Point in Annexure I). Furthermore, a MOU was entered into between the national chambers of commerce in 2004.

Other agreements in force include an agreement on the abolition of visa requirements for the holders of diplomatic and official or special passports, a programme of cooperation in the field of sport, a MOU on technical co-operation between the National Institute of Normalisation and Industrial Property of Tunisia and the South African Bureau of Standards, and a MOU between the JSE Security Exchange and the Tunisia Stock Exchange (Bourse de Valeurs Mobilières de Tunis).

South Africa's commercial relations with Tunisia should be viewed in a regional context, with South

Africa using Tunisia as a platform to reach the North African market (DTI, 2009). The Tunisian government is also supportive of issues that are important to both Africa and the African Renaissance. Tunisia is one of the fifteen core countries of the NEPAD and is therefore an important partner within North Africa and francophone Africa. This is an important consideration in terms of South Africa's exports of extruders to Tunisia.

Tunisia's association agreement with the EU eliminates customs tariffs and other trade barriers on manufactured goods from the EU. The USA and Tunisia signed a TIFA in October 2002 and follow-up TIFA Council meetings were held in October 2003, June 2005, and March 2008. Although TIFAs can serve as precursor agreements leading to bilateral FTAs, little progress has been made towards generating the necessary reforms required to engender an FTA.

6.3.4.2 Trade flows

Since official relations between the countries have been established, there has been a marked increase in volume of trade from R4.8 million in 1993 to more than R130 million in 2009. South Africa exports mostly manufactured vehicles and chemical products to Tunisia, and it imports mostly textiles, appliances and electrical equipment from Tunisia (DTI, 2010a). Exports to Tunisia increased from R66.9 million in 2006 to R83.4 million in 2009.

Exports show an annual growth of 1.1 per cent, and Tunisia is South Africa's 108th largest export destination (see Table 6.11). To place in context, China and Japan are South Africa's largest export destinations, with exports worth R48.6 billion and R33.9 billion in 2009, respectively.

Table 6.11: Growth in South Africa's exports to the world

| Country | Import (R'000) | | | | | | Rank | | Proportion 2010 | Annual growth | |
|--------------|----------------|-----------|------------|------------|------------|------------|------|------|-----------------|---------------|-----------|
| | Feb. 2010 | 2010 | 2009 | 2008 | 2007 | 2006 | 2010 | 2009 | %Total | Cum. % | 2010-2009 |
| 1. China | 3 793 709 | 7 327 930 | 48 686 325 | 34 414 870 | 24 501 423 | 13 647 742 | 1 | 1 | 10,7% | 10,7 | -9,7% |
| 2. Japan | 2 690 102 | 5 850 408 | 33 974 651 | 65 634 553 | 50 109 199 | 40 916 689 | 2 | 3 | 8,5% | 19,2 | 3,3% |
| 3. USA | 2 681 112 | 5 746 598 | 41 317 574 | 65 562 802 | 52 071 869 | 40 405 414 | 3 | 2 | 8,4% | 27,6 | -16,5% |
| 4. Germany | 3 023 282 | 5 652 179 | 32 456 864 | 45 949 727 | 34 064 713 | 26 368 579 | 4 | 4 | 8,2% | 35,8 | 4,5% |
| 5. UK | 1 723 111 | 4 446 772 | 25 350 209 | 39 732 366 | 34 362 668 | 31 432 873 | 5 | 5 | 6,5% | 42,3 | 5,2% |
| 108. Tunisia | 7 091 | 14 049 | 83 414 | 133 293 | 111 010 | 66 999 | 108 | 112 | 0,0% | 99,6 | 1,1% |

Source: DTI (2010b)

South African imports from Tunisia however decreased from R197.8 million in 2008 to R46.6 million in 2009 (DTI, 2010a). Tunisia is the 84th largest exporter to South Africa (see Table 6.12). To place in context, China and Germany are the largest exporters to South Africa, with exports worth R70.8 billion and R63.2 billion in 2009, respectively (see also Annexure K.)

Table 6.12: Growth in South Africa's imports from the world

| Country | Import (R'000) | | | | | | Rank | | Proportion 2010 | Annual growth | |
|-----------------|----------------|------------|------------|------------|------------|------------|------|------|-----------------|---------------|-----------|
| | Feb. 2010 | 2010 | 2009 | 2008 | 2007 | 2006 | 2010 | 2009 | %Total | Cum. % | 2010-2009 |
| 1. China | 5 568 367 | 11 624 308 | 70 809 455 | 82 431 041 | 60 298 345 | 46 718 798 | 1 | 1 | 13,6% | 13,6 | -1,5% |
| 2. Germany | 5 489 934 | 11 007 606 | 63 256 336 | 82 699 571 | 65 620 967 | 57 844 240 | 2 | 2 | 12,9% | 26,4 | 4,4% |
| 3. USA | 2 894 113 | 5 671 802 | 41 583 951 | 59 881 568 | 43 155 143 | 35 176 906 | 3 | 3 | 6,6% | 33,1 | -18,2% |
| 4. Japan | 2 220 344 | 3 974 963 | 26 321 616 | 40 590 650 | 36 978 079 | 30 261 109 | 4 | 5 | 4,6% | 37,7 | -9,4% |
| 5. Saudi Arabia | 2 407 070 | 3 861 071 | 26 650 919 | 45 957 543 | 25 383 070 | 24 544 792 | 5 | 4 | 4,5% | 42,2 | -13,1% |
| 84. Tunisia | 11 384 | 14 007 | 46 663 | 197 862 | 74 362 | 82 437 | 84 | 98 | 0,0% | 99,8 | 80,1% |

Source: DTI (2010b)

Overall, the trade balance between South African and Tunisia remains skewed in favour of South Africa (see Table 6.13). The potential exists for trade volumes and interactions between the countries to be increased further.

Table 6.13: South Africa – Tunisia trade balance

| Country | Trade balance (R'000) | | | | | | Rank | |
|---------|-----------------------|------|--------|---------|--------|---------|------|------|
| | Feb 2010 | 2010 | 2009 | 2008 | 2007 | 2006 | 2010 | 2009 |
| Tunisia | -4 294 | 42 | 36 751 | -64 569 | 36 647 | -15 438 | 121 | 76 |

Source: DTI (2010b)

The exports of extruders from South Africa could contribute to improving the volumes of trade between South African and Tunisia. In the following section, Tunisia as a potential market for extruders is discussed.

6.4 TUNISIA AS A POTENTIAL MARKET FOR EXTRUDERS

Trade data sourced from the ITC TradeMap (2010b) reveals Tunisia's import figures on extruders. All extruders used in Tunisia are imported and some of the largest international extruder manufacturers are present in or sell into the Tunisian market (see Annexure J.) This is indicative of the potential market for extruders. A further indicator of market potential is the strong food-processing, plastics and especially aluminium extrusion industries present in Tunisia (see Sections 6.3.2 and 6.3.4.1, respectively). These are typical industries in which extruders are used.

6.4.1 World trade for extruders

Trade data indicate that Tunisia is an importer of extruders from, amongst others, leading extruder-

exporting countries such as Germany, Italy and France. It however does not import any extruders from South Africa.

6.4.1.1 Imports of extruders

The import figures globally of extruders (classified under HS 847720: Extruders for working rubber or plastics nes) for 2008 are reflected in Table 6.14. Imports showed an annual growth in the period of 2004 to 2008 of 18 per cent. The total value of imports of extruders globally in 2008 was US\$2.999.321.000, with the Russian Federation, China, India and the USA the five top importers of extruders, as reflected in Table 6.14.⁹ The world's average unit value per extruder in 2008 was US\$20,569.

Table 6.14: Top five importing countries globally of product HS 847720, 2008 (globally)

| Trade indicators | | | | | | | | |
|-----------------------|----------------------------------|---------------------------------|--------------------------------|-------------------------------|---------------------------------------|--|---------------------------------------|----------------------------|
| Importers | Value imported, 2008 (US\$ '000) | Trade balance, 2008 (US\$ '000) | Quantity imported, 2008 (tons) | Unit value, 2008 (US\$/unit), | Annual growth in value, 2004-2008 (%) | Annual growth in quantity, 2004-2008 (%) | Annual growth in value, 2007-2008 (%) | Share in world imports (%) |
| World | 2 999 321 | -121 447 | 145 820 | 20 569 | 18 | 18 | 5 | 100 |
| 1. Russian Federation | 388 488 | -383 723 | 19 004 | 20 442 | 41 | 30 | 18 | 12.95 |
| 2. China | 331 407 | -82 068 | 18 302 | 18 108 | -5 | | 10 | 11.05 |
| 3. India | 144 284 | -106 031 | 7 968 | 18 108 | 74 | 71 | 271 | 4.81 |
| 4. USA | 116 049 | -19 499 | 6 409 | 18 107 | 5 | | -11 | 3.87 |
| 5. Turkey | 105 828 | -89 605 | 4 361 | 24 267 | 12 | 19 | 9 | 3.53 |

Source: ITC (2010b) calculations based on COMTRADE statistics

⁹ The full list of extruder importers is presented in Annexure J.

Although not presented in Table 6.14, South Africa is the 28th largest importer of extruders globally to the value of R32.3 million or 1.1 per cent of the total imports in 2008. This is presented in Table 6.15.

Table 6.15: South Africa's import values for product HS 847720, 2008

| Value imported, 2008 (US\$ '000) | Trade balance, 2008 (US\$ '000) | Quantity imported, 2008 (tons) | Unit value (US\$/unit), 2008 | Annual growth in value 2004–2008 (%) | Annual growth in quantity, 2004–2008 (%) | Annual growth in value, 2007–2008 (%) | Share in world imports (%) |
|-------------------------------------|------------------------------------|-----------------------------------|---------------------------------|---|--|--|-------------------------------|
| 32 380 | -31 540 | 1 788 | 18 110 | 15 | | 17 | 1.1 |

Source: ITC (2010b) calculations based on COMTRADE statistics

Although not presented in Table 6.14, Tunisia ranks 72nd of world importers of extruders. Table 6.16 shows the imported value of extruders imported by Tunisia in 2008 as US\$3.924.000 which represents 0.13 per cent of world imports for extruders.

Table 6.16: Tunisia's import values for product HS 847720, 2008

| Value imported, 2008 (US\$ '000) | Trade balance, 2008 (US\$ '000) | Annual growth in value 2004–2008 (%) | Annual growth in quantity, 2004–2008 (%) | Annual growth in value, 2007–2008 (%) | Annual growth of world exports, 2004– 2008 (%) | Share in world imports (%) | Ranking in world imports |
|-------------------------------------|------------------------------------|---|--|--|--|-------------------------------|-----------------------------|
| 3 924 | -3 924 | 21 | 1 | -71 | 16 | 0.13 | 72 |

Source: ITC (2010b) calculations based on COMTRADE statistics

The main countries of origin of extruders that are exporters to Tunisia are Taiwan, China, Germany and France (see Table 6.17). The world demand for extruders increased and this indicates the market potential for extruders in the global market. There has been an annual growth in value over the long-term of imports of extruders of 21 per cent, which indicates a market potential for extruders

in Tunisia. This growth is higher than the growth in value of world exports of extruders of 16% over the long-term. This potential confirms the findings of the DSM that Tunisia is a potential market for extruders exported from South Africa.

Table 6.17: Top five exporters of product HS 847720 to Tunisia, 2008

| Trade indicators | | | | | | | | | | | |
|------------------|----------------------------------|---------------------------------|--------------------------------|--------------------------------|------------------------------|---|--|---|---|---|--|
| Exporters | Value imported, 2008 (US\$ '000) | Trade balance, 2008 (US\$ '000) | Share in Tunisia's imports (%) | Quantity imported, 2008 (tons) | Unit value (US\$/unit), 2008 | Imported growth in value, annual, 2004–2008 (%) | Imported growth in quantity, annual, 2004–2008 (%) | Imported growth in value, annual, 2007–2008 (%) | Ranking of partner countries in world exports | Share of partner countries in world exports (%) | Total export growth in value of partner countries, 2004–2008 |
| | 3 924 | -3 924 | 100 | 294 | 13 347 | 21 | 1 | -71 | | 100 | 16 |
| 1. Taiwan | 1 754 | -1 754 | 44.7 | 101 | 17 366 | 30 | -1 | 211 | 6 | 4 | 13 |
| 2. China | 1 031 | -1 031 | 26.3 | 156 | 6 609 | 90 | 155 | 132 | 4 | 8.7 | 50 |
| 3. Germany | 750 | -750 | 19.1 | 11 | 68 812 | 49 | -7 | -91 | 1 | 33.5 | 16 |
| 4. France | 284 | -284 | 7.2 | 20 | 14 200 | -14 | -36 | 87 | 11 | 1.6 | 11 |
| 5. India | 81 | -81 | 2.1 | 5 | 16 200 | | | | 12 | 1.3 | 47 |

Source: ITC (2010b) calculations based on COMTRADE statistics

6.4.1.2 Extruder-exporting countries

The total export figures for extruders (HS 847720) for 2008, as well as the top five exporting countries for extruders are reflected in Table 6.18. The total value of exports was US\$2.877.874.000, with Germany, Italy, Austria and China the three largest exporters. The top five exporters represent 74,84 per cent of total exports. The total unit value per extruder was US\$26,713 and imports showed an annual growth of 16 per cent in the period of 2004 to 2008. The full list of extruder exporters is presented in Annexure K.

Table 6.18: Top five exporting countries globally of product HS 847720, 2008 (globally)

| Trade indicators | | | | | | | | |
|------------------|----------------------------------|---------------------------------|--------------------------------|------------------------|---------------------------------------|--|---------------------------------------|----------------------------|
| Exporters | Value exported, 2008 (US\$ '000) | Trade balance, 2008 (US\$ '000) | Quantity exported, 2008 (tons) | Unit value (US\$/unit) | Annual growth in value, 2004–2008 (%) | Annual growth in quantity, 2004–2008 (%) | Annual growth in value, 2007–2008 (%) | Share in world exports (%) |
| World | 2 877 874 | -121 447 | 107 734 | 26 713 | 16 | 7 | 10 | 100 |
| 1. Germany | 965 405 | 895 772 | 21 942 | 43 998 | 16 | 8 | 6 | 33.55 |
| 2. Italy | 444 151 | 394 770 | 16 594 | 26 660 | 14 | 9 | 12 | 15.43 |
| 3. Austria | 264 395 | 235 233 | 6 701 | 39 456 | 10 | 1 | -9 | 9.19 |
| 4. China | 249 339 | -82 068 | 13 947 | 17 878 | 50 | - | 48 | 8.66 |
| 5. Japan | 230 381 | 181 369 | 7 587 | 30 365 | 8 | 2 | 1 | 8.01 |

Source: ITC (2010b) calculations based on COMTRADE statistics

6.4.1.3 South Africa and Tunisia's trade of extruders

TradeMap data presented in Table 6.19 reveals that Tunisia imports extruders but that Tunisia does not import any extruders from South Africa (ITC, 2010). The data also indicates that South Africa exports components for machinery for working rubber or plastics for the manufacture of products from rubber and plastics (HS 847790) to the value of US\$1.845.000 to the world but not to Tunisia in 2008 (see Table 6.19). Tunisia imported products under HS code 847790 to the value of US\$7.129.000 in 2008.

Table 6.19: Trade between South Africa and Tunisia in product HS 847720 and product HS 847790, 2008

| | | South Africa's exports to Tunisia ¹⁰ | | | | Tunisia's imports from world ¹¹ | | | South Africa's exports to world | | |
|---------|---|---|---|-------------------------------------|-----------------------|--|---------------------------------------|----------------------------|---------------------------------|---------------------------------------|----------------------------|
| HS code | Product label | Value, 2008 (US\$'000) | Annual growth in value, 2004–2008 (%p.a.) | Share in South Africa's exports (%) | Equivalent ad valorem | Value, 2008 (US\$'000) | Annual growth in value, 2004–2008 (%) | Share in world imports (%) | Value, 2008 (US\$'000) | Annual growth in value, 2004–2008 (%) | Share in world exports (%) |
| 847720 | Extruders for working rubber or plastics not elsewhere specified (nes) | 0 | 0 | 0 | 0 | 3 924 | 21 | 0.13 | 840 | 2 | 0.03 |
| 847790 | Parts of machinery for working rubber or plastics for the manufacture of products from rubber or plastics | 0 | 0 | 0 | 10 | 7 129 | 14 | 0.11 | 1 845 | 5 | 0.03 |

Source: ITC (2010b) calculations based on COMTRADE statistics

6.4.2 Potential South Africa Tunisia trade in extruders

The extruder trade figures presented in Table 6.19 indicate that Tunisia imports products classified under HS code 847720 yet none of these products are imported from South Africa. Tunisian extruder imports increased over the long term while South African extruder exports also increased over the long term. A further indicator of market potential is the strong food-processing, plastics

¹⁰ South Africa's exports have been reported by South Africa.

¹¹ Tunisia's imports have been reported by Tunisia.

and especially aluminium extrusion industries. These are typical industries in which extruders are used. Tunisia is an exporter of extruded products, which further indicates that there is growth potential. The potential per industry was described in Section 6.3.4.2. Although South African does not export to Tunisia, there is a high potential based on the prolonged growth in demand in Tunisia and the growth in supply from South Africa. The next section provides more detail on the potential for extruders in various industries in Tunisia.

6.4.2.1 Potential market per industry

In Section 6.3, an overview was provided of the Tunisian economy. A closer examination of the economy reveals that a number of economic sectors in Tunisia can be regarded as potential extruder markets for South African extruders. Within the manufacturing sector, a number of industries are of particular importance for South African extruder exporters. (Key companies in each industry that could be regarded as potential users or importers of extruders are listed in Annexure L). An overview of these industries is subsequently provided, as well as issues related to market concentration and market access for extruder exporters from South Africa.

6.4.2.1.1 Tunisian food-processing industry

The food-processing industry consists of approximately 1,033 companies that employ ten or more persons. Amongst these, 164 produce for the export market (see Table 6.20).

Table 6.20: Breakdown by activity of companies in the Tunisian food-processing industry that employ ten or more persons

| Activity | Exclusively for export | Partially for export | Total |
|--|------------------------|----------------------|-------|
| Oils and fats industry | 13 | 306 | 319 |
| Fruits and vegetables industry | 19 | 47 | 66 |
| Refrigerator or freezer depots | 63 | 99 | 162 |
| Seafood industry | 36 | 38 | 74 |
| Cereals and cereal derivatives industry | 8 | 226 | 234 |
| Beverage industry | 10 | 52 | 62 |
| Milk and milk derivatives industry | - | 34 | 34 |
| Sugar and sugar derivatives industry | 3 | 24 | 27 |
| Meat industry | - | 28 | 28 |
| Other food-processing industries | 22 | 63 | 85 |
| Note: Certain companies are engaged in several activities. | | | |

Source: API (2009)

Production for the food-processing industry in 2008 reached a value of TND9.927 million compared with TND6.784 million in 2004. The value-added increased from TND1.165 million in 2004 to TND1.607 million in 2008 (see Figure 6.13).

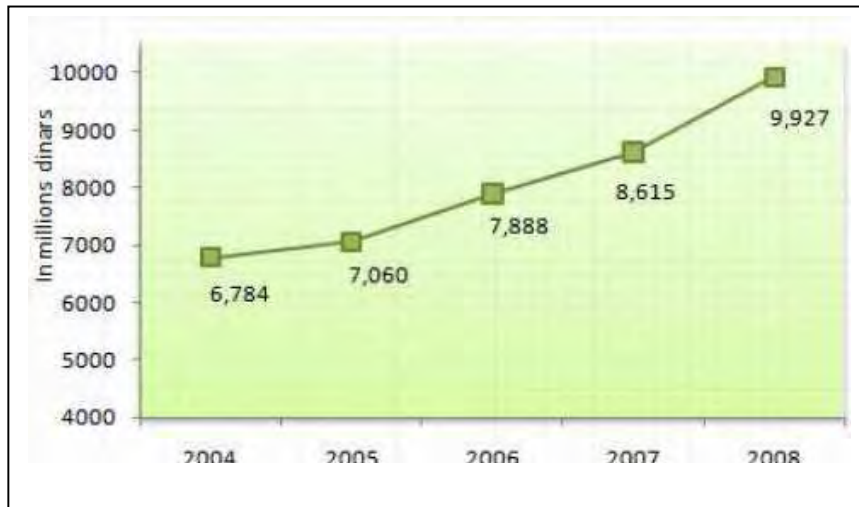


Figure 6.13: Growth in production in the Tunisian food-processing industry, 2004 to 2008 (at current prices)

Source: API (2009)

Investment in the food-processing industry increased from TND225 million in 2004 to TND300 million in 2008 (see Figure 6.14).

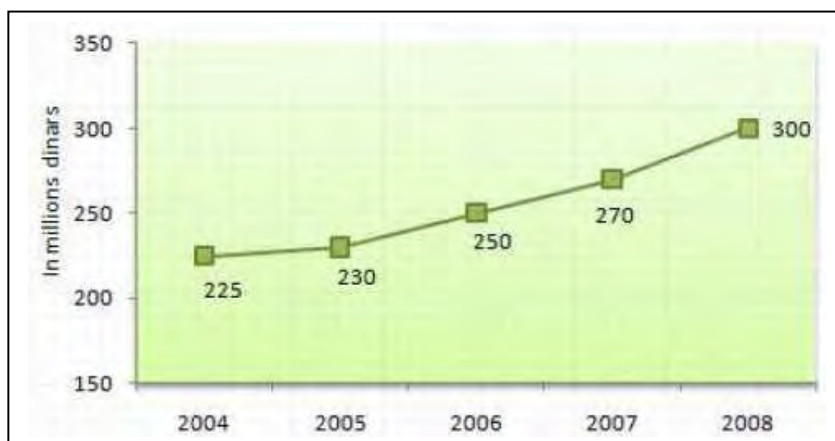


Figure 6.14: Growth in investment in the Tunisian food-processing industry, 2004 to 2008

Source: API (2009)

According to the Agence de Promotion d'Industrie (API; 2010), the food-processing industry companies that employ ten or more workers accounted for 66,870 sector jobs in 2009, of which 15,340 positions were with companies that produce exclusively for export and 51,530 positions were with companies who produce partially for export, representing 13 per cent of total employment in the manufacturing sector.

Exports from the food-processing industry increased from TND1.227 million in 2004 to TND1.850 million in 2008. The olive oil-processing industry accounted for 41 per cent of total industry exports and is by far the largest sub-industry. Figure 6.15 provides a breakdown of food exports.

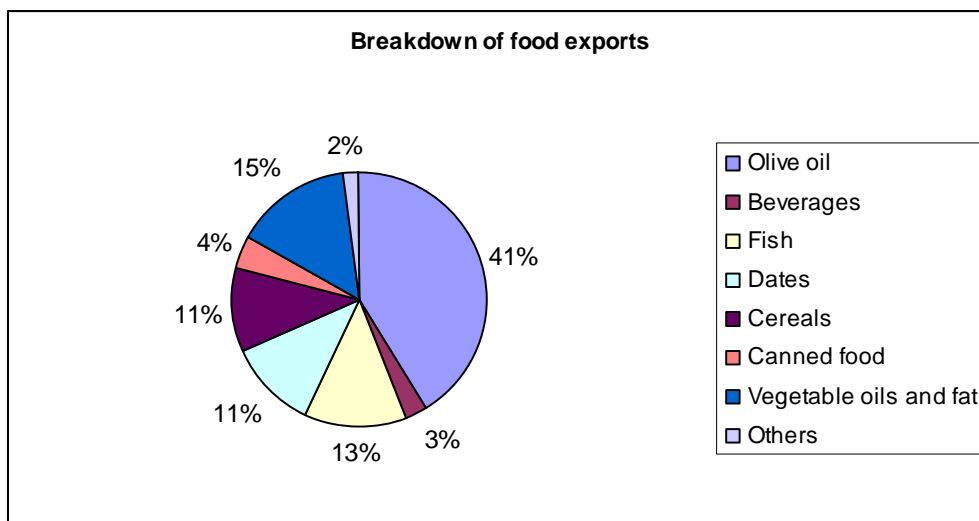


Figure 6.15: Breakdown of food product exports from Tunisia, 2008

Source: INS (2009)

Food-processing industry imports in 2008 were valued at TND2.599 million compared with TND1.037 million in 2004. Cereals and cereal derivatives, oils, and sugar and sugar derivatives represent 90 per cent of food product imports in 2008. Figure 6.16 provides a breakdown of food imports.

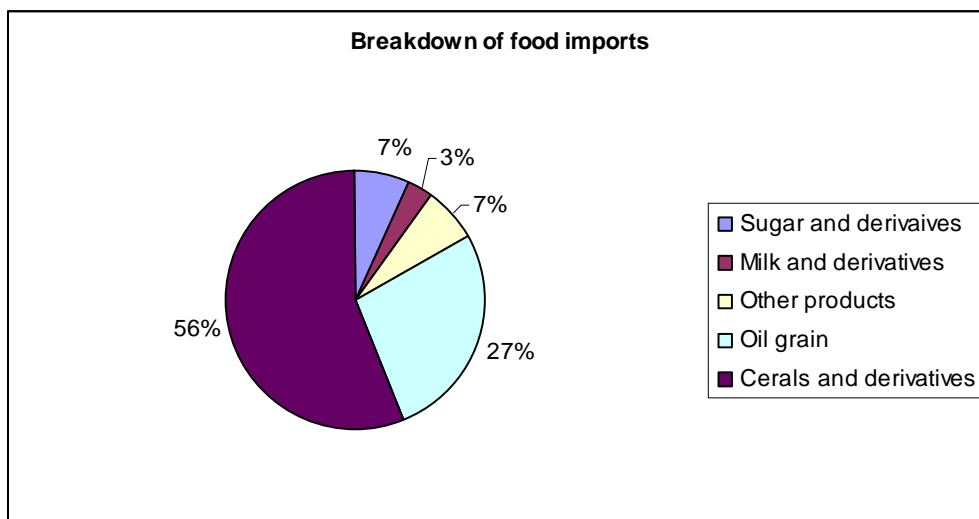


Figure 6.16: Breakdown of food product imports to Tunisia, 2008

Source: INS (2009)

Italy is the major supplier of food products to Tunisia, constituting 40 per cent of exports, followed by the Spain (21 per cent) and Libya (13 per cent) (see Figure 6.17).

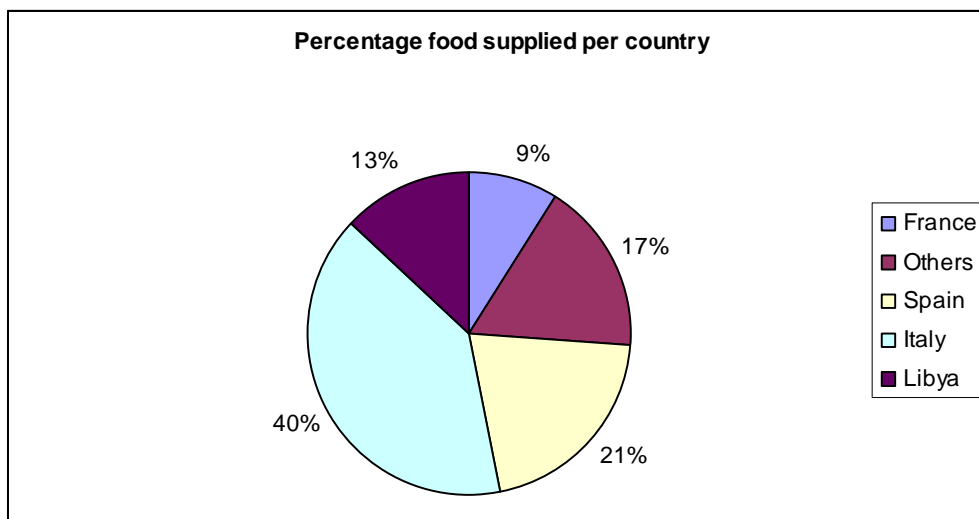


Figure 6.17: Breakdown of food products imports to Tunisia by country, 2009

Source: INS (2009)

The food processing industry consists of 107 companies with foreign participation, of which 23 are 100 per cent foreign owned (see Figure 6.18). France and Italy lead in the number of partnerships with Tunisian companies in this industry.

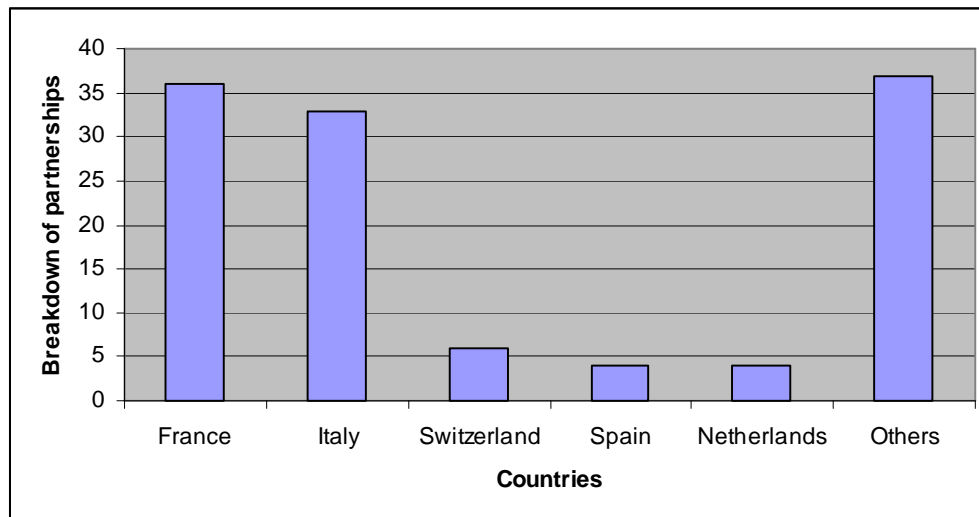


Figure 6.18: Breakdown of partnerships with Tunisian companies in the food processing industry by country, 2009

Source: API (2009)

6.4.2.1.2 The Tunisian plastics and polymers industry

In Tunisia, the sales of extruded plastic products are approximately TND131 million, which represents 38 per cent of the global sales figures of the plastic industry. There are 147 plastics manufacturers that use extruders. Injection moulding is worth TND149 million, and is thus even larger, constituting 43 per cent of the global sales figures (INS, 2009).

The Tunisian plastics and polymers industry consists of 265 industrial companies that have ten or more employees, 74 of which are companies that produce exclusively for export (see Table 6.21).

Table 6.21: Breakdown by activity of companies in the Tunisian plastics and polymers industry that employ ten or more persons

| Activities | Exclusively for export | Partially for export | Total |
|-------------------------------------|------------------------|----------------------|------------|
| Basic plastic materials | 4 | 15 | 19 |
| Tubes, pipes, sheets and plates | 5 | 42 | 47 |
| Packaging and packaging films | 12 | 94 | 106 |
| Building and construction materials | 6 | 19 | 25 |
| Other | 51 | 78 | 129 |

Note: Certain companies are engaged in several activities.

Source: API (2009)

The production of articles from plastic in Tunisia in 2008 was valued at TND564 million, compared with TND436 million in 2004. In 2007, the plastics and polymers industry value add constituted on average 29 per cent of the value of production. The growth peaked at TND734 million in 2007 but decreased by TND170 million from 2007 to 2008 (see Figure 6.19).

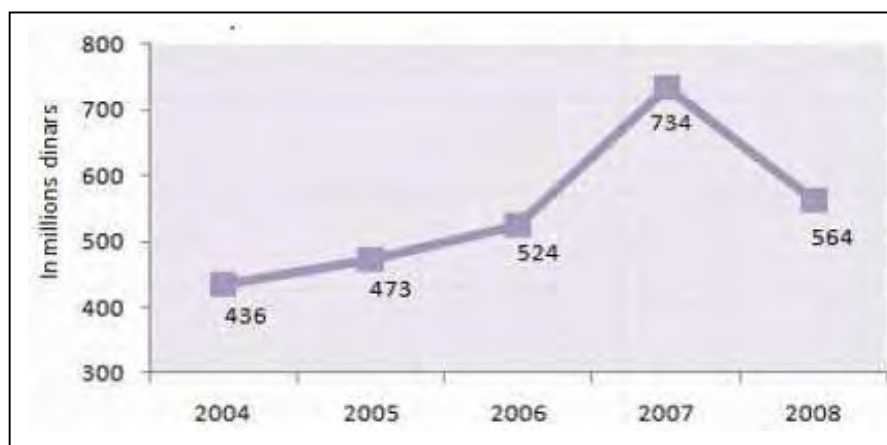


Figure 6.19: Growth in production in the Tunisian plastics and polymers industry, 2004 to 2008 (at current prices)

Source: MDIC (2009)

Investment in the plastics industry was valued at TND26 million in 2007, compared with TND25 million in 2004 (see Figure 6.20).

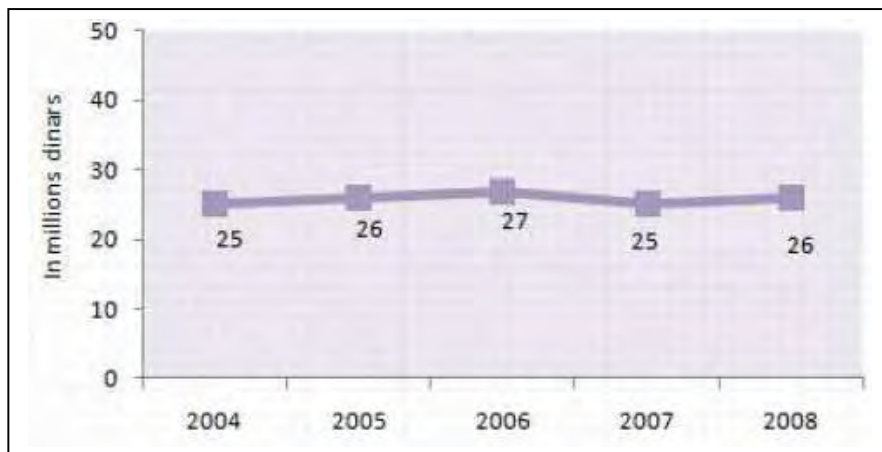


Figure 6.20: Growth in investment in the Tunisian plastics and polymers industry, 2004 to 2008

Source: MDIC (2009)

According to the API (2010), the Tunisian plastics and polymers industry companies with ten or more employees account for 13,150 sector jobs in 2009. Companies that produce exclusively for export employ some 5,150 workers. Sector exports have grown consistently, rising from TND166 million in 2004 to TND221 million in 2008 and increasing by 23 per cent per annum on average (see Figure 6.21).

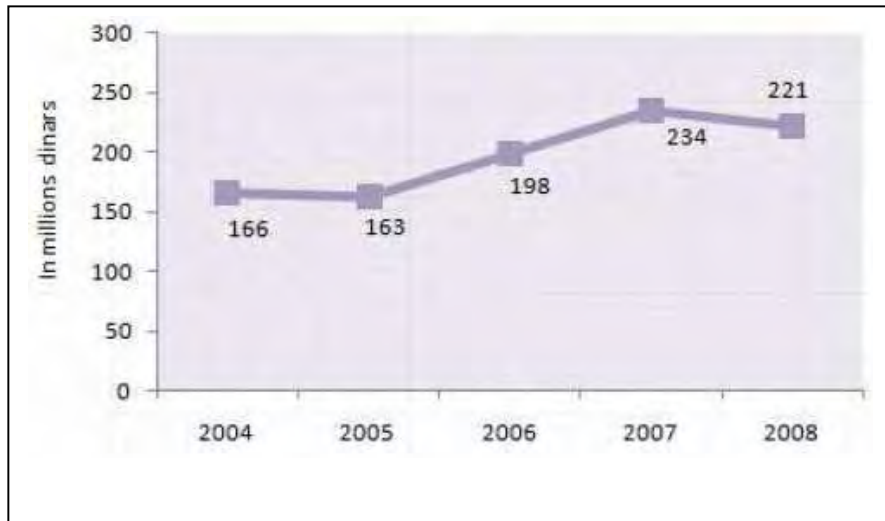


Figure 6.21 Growth in exports in Tunisian plastics and polymers industry, 2004 to 2008

Source: MDIC (2009)

The breakdown of exports from the plastics industry in 2008 by product group is given in Figure 6.22. Technical articles, and tubes and pipes constitute the bulk of export products in this industry.

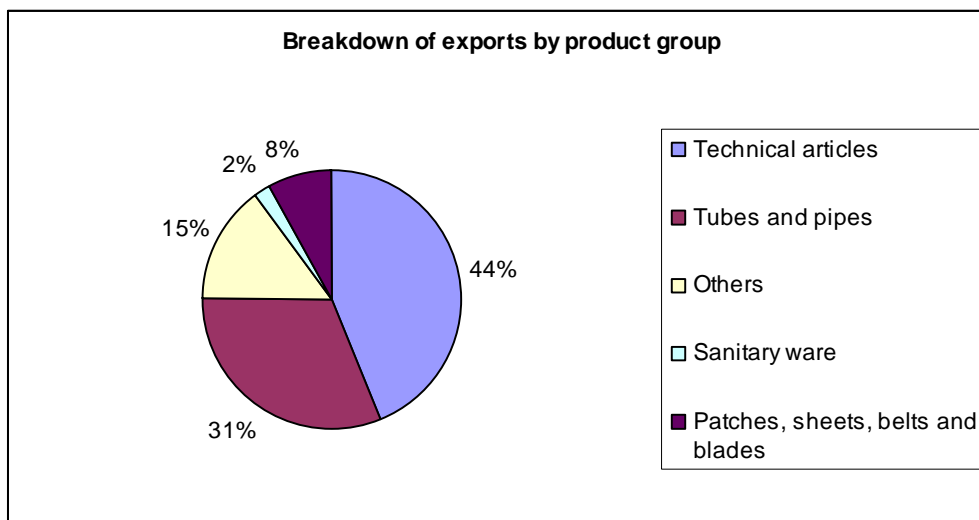


Figure 6.22: Breakdown of exports by product group in the Tunisian plastics and polymers industry, 2008

Source: INS (2009)

Tunisia's principal export partners in this industry include France and Italy, which combined represent 49.1 per cent of total industry exports. Plastic and polymers industry imports increased from TND693 million in 2004 to TND921 million in 2008. Raw materials represent 82 per cent of total industry imports (see Figure 6.23).

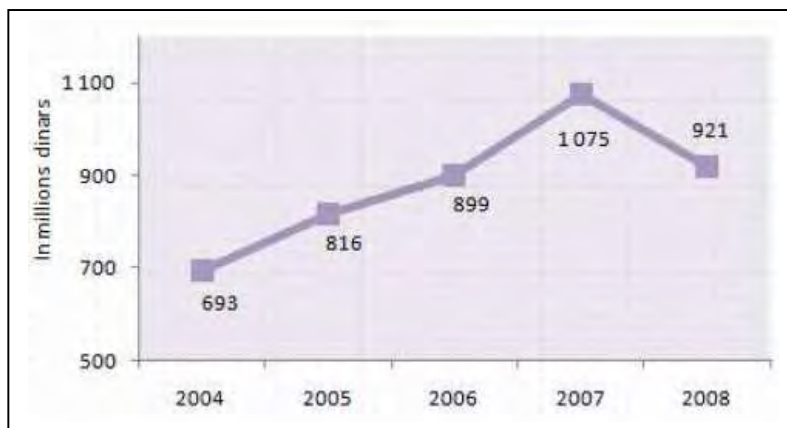


Figure 6.23: Growth in imports in the Tunisian plastics and polymers industry, 2004 to 2008

Source: INS (2009)

From the perspective of South African extruder exporters, it is significant to note that plastic pellets form the bulk of imports in this industry. Plastic pellets are used for plastics and polymers extrusion processes (see Figure 6.24).

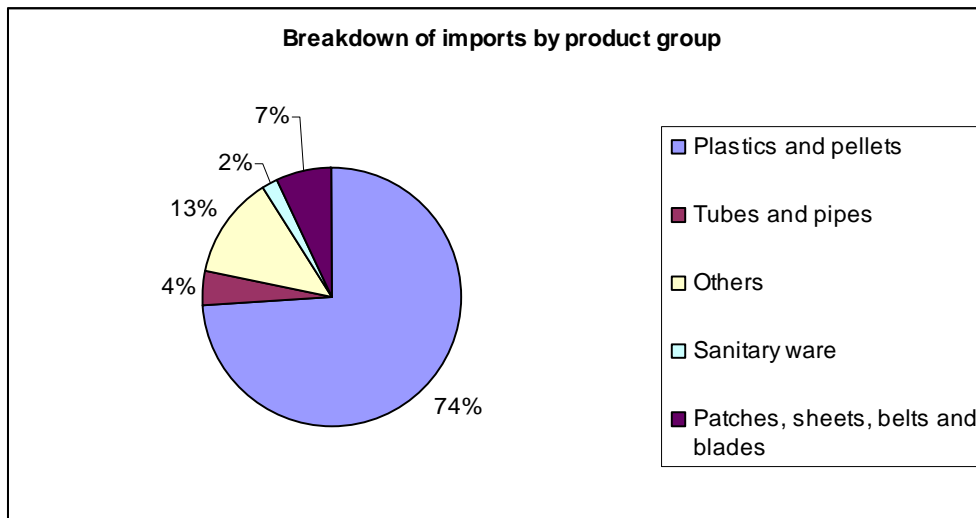


Figure 6.24: Breakdown of imports by product group in the Tunisian plastics and polymers industry, 2008

Source: INS (2009)

The countries of the EU constitute the major suppliers to the plastics and polymers industry, representing 82 per cent of plastic product imports to Tunisia in 2008. The Tunisian government set the following objectives for the development of the plastics and polymers industry (INS, 2009):

- i. the development of products for construction (profiles, plates and windows);
- ii. the development of products for agriculture (films for greenhouses, irrigation tubes for drip irrigation systems);
- iii. the development of high standard packaging, as well as the production of multi-layer films;
- iv. partnership and associations with plastics makers and order placers; and
- v. stimulating the Tunisian industry to export more and import less.

The Tunisian plastics and polymers industry consists of 88 companies with foreign participation, of which 57 are 100 per cent foreign owned. France and Italy lead in terms of partnerships with Tunisian companies (see Figure 6.25).

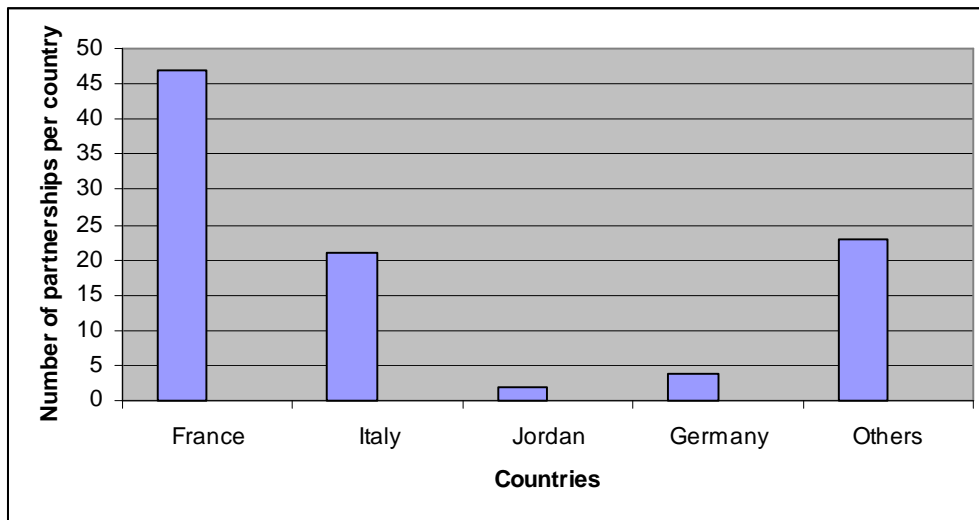


Figure 6.25: Breakdown of partnerships with Tunisian companies in the plastics and polymers industry by country, 2009

Source: API (2009)

6.4.2.1.3 Tunisian mechanical and metal works industry (including aluminium)

The Tunisian mechanical and metal works industry is comprised of 574 industrial companies that employ ten or more persons. Amongst the companies, approximately 163 produce exclusively for export. Table 6.22 indicates that most large companies fall within this industry.

Table 6.22: Breakdown by activity of companies in the Tunisian mechanical and metal works industry that employ ten or more persons, 2009

| Activity | Exclusively for export | Partially for export | Total |
|---|------------------------|----------------------|-------|
| Iron works, foundry, metals non-ferrous | 15 | 56 | 71 |
| Metal works ¹⁾ | 94 | 271 | 365 |
| Machinery and equipment | 19 | 81 | 100 |
| Automotive components, cycles ²⁾ | 29 | 57 | 86 |
| Naval construction | 14 | 8 | 22 |
| Manufacture of aircraft | 3 | – | 3 |

1) Radiators and heaters for central heating systems; forging, stamping, metallurgy of powder metals; treatment of metals; metal carpentry joints and closures; items from metal threads
2) Including only mechanical automotive components

Source: API (2009)

The value of mechanical and metal works industry production in 2008 reached TND3.700 million compared with TND 2.170 million in 2004. Value-added in 2008 was 28 per cent (see Figure 6.26).

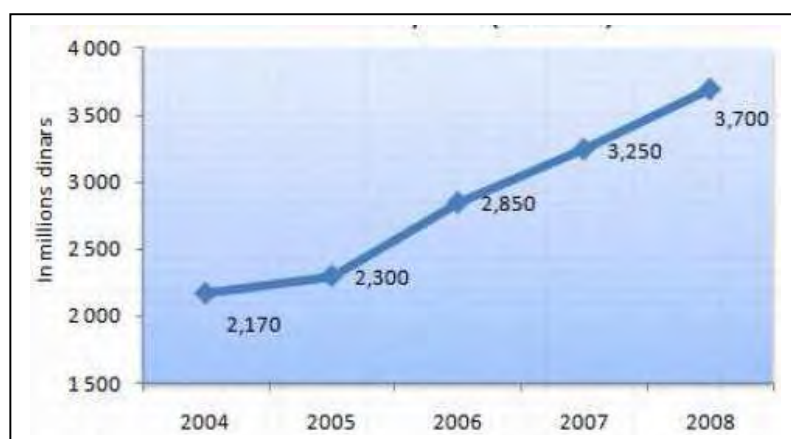


Figure 6.26: Growth in production in the Tunisian mechanical and metal works industry, 2004 to 2008

Source: INS (2009)

In the mechanical and metal works industry, automotive components form the bulk of production, followed by metal works at 46 per cent and 26 per cent, respectively (see Figure 6.27).

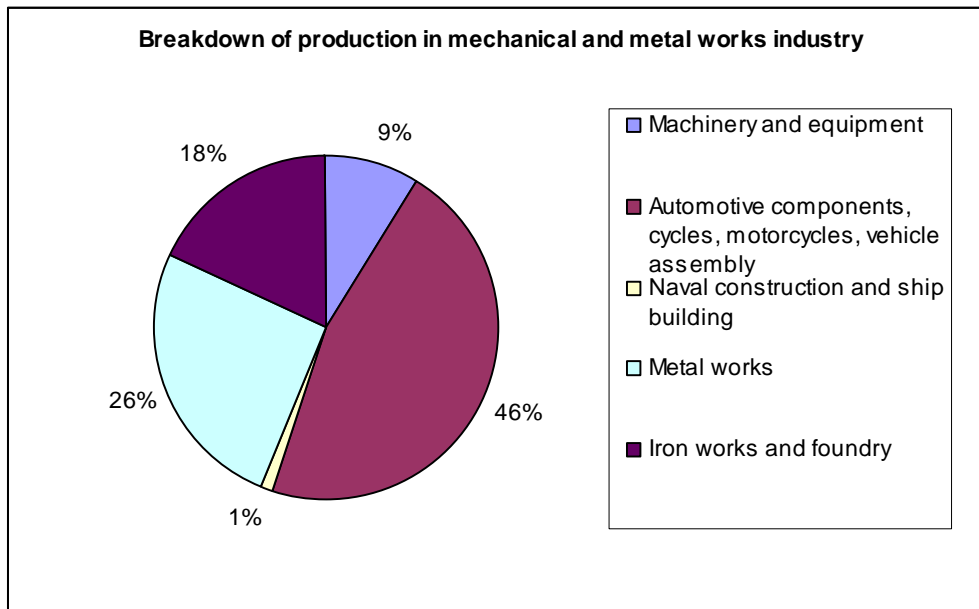


Figure 6.27: Breakdown of production in the Tunisian mechanical and metal works industry (at current prices), 2009

Source: MDIC (2009)

According to the MDIC (2009), annual investment in the Tunisian mechanical and metal works industry rose from TND128 million in 2004 to TND172 million in 2008. Companies with ten or more employees employed 35,200 persons in 2009 (API, 2009). Exports from the mechanical and metal works industry continuously increased during the period of 2004 to 2008, rising from a level of TND694 million in 2004 to TND1.900 million in 2008 (see Figure 6.28).

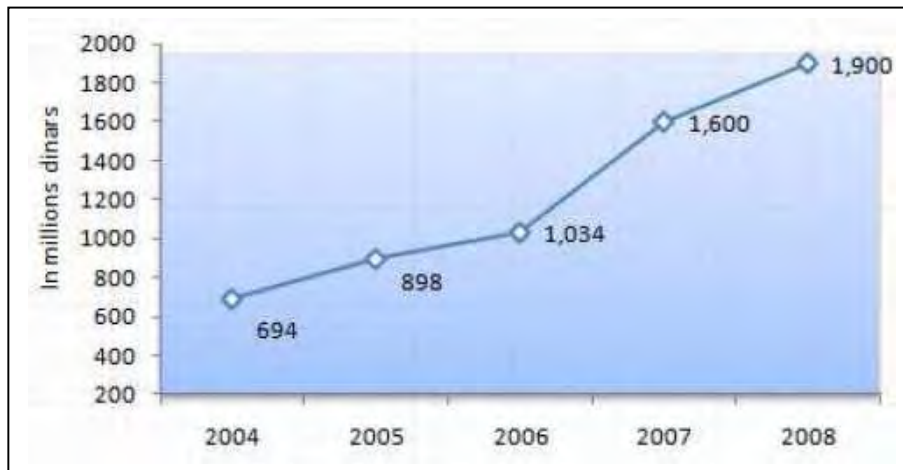


Figure 6.28: Growth in exports in the Tunisian mechanical and metal works industry, 2004 to 2008

Source: INS (2009)

As indicated in figure 6.29, products made of metal and aluminium form the bulk of exports in the mechanical and metal works industry. Machinery and equipment are also exported.

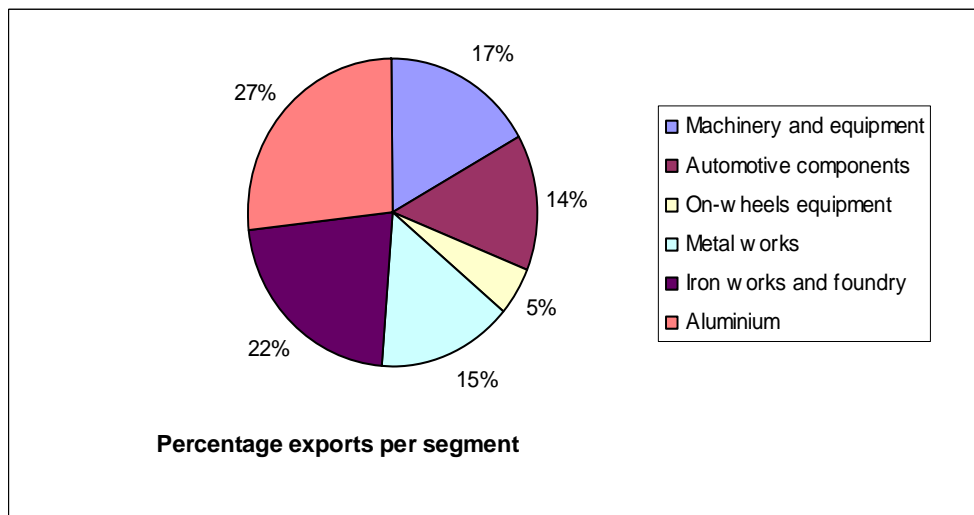


Figure 6.29: Breakdown of exports by segment in the Tunisian mechanical and metal works industry, 2009

Source: INS (2009)

Most of the exports in the mechanical and metal works industry are destined for France and Italy. Destination countries are shown in Figure 6.30.

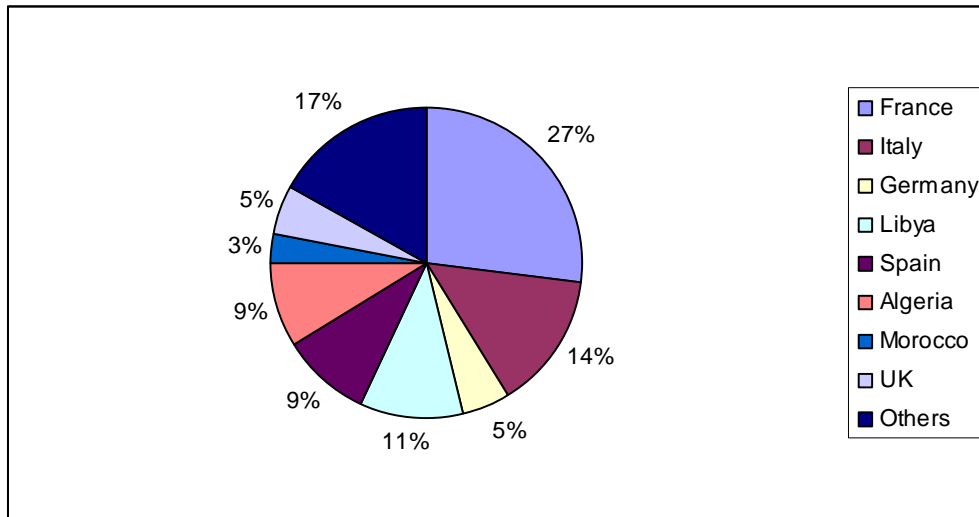


Figure 6.30: Breakdown of exports by country in the Tunisian mechanical and metal works industry, 2009

Source: INS (2009)

Figure 6.31 indicates that imports for the period of 2004 to 2008 increased by 8 per cent per annum on average. Imports in 2008 amounted to TND6.300 million compared with TND4.690 million in 2004.

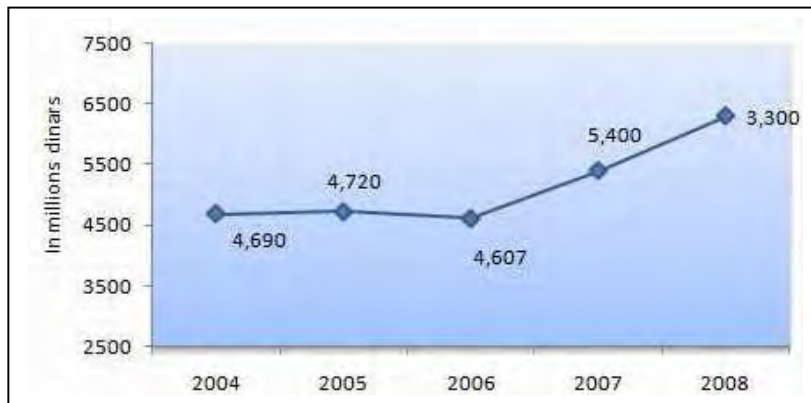


Figure 6.31: Growth in imports in the Tunisian mechanical and metal works industry, 2004 to 2008

Source: INS (2009)

As indicated in Figure 6.32, most imports in this sector are in the metal works, iron works and foundry and machinery and equipment categories.

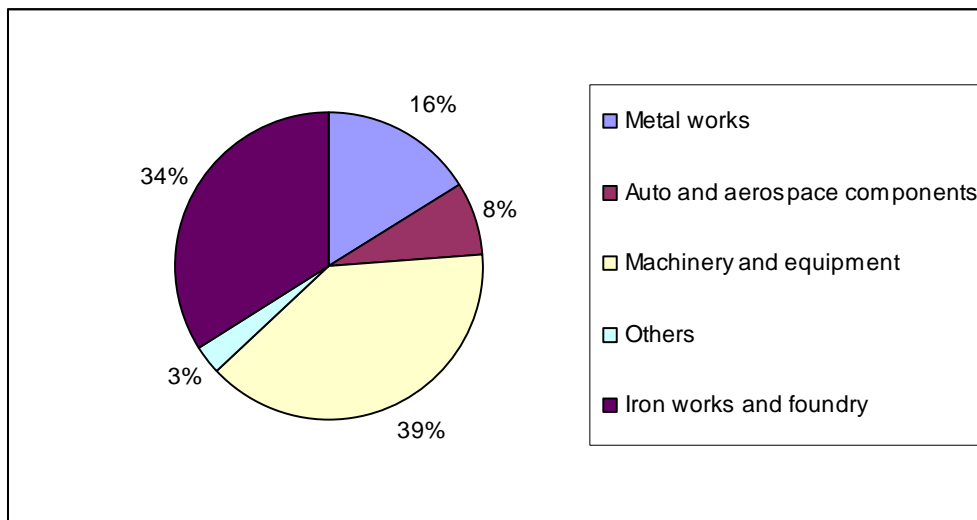


Figure 6.32: Breakdown of imports in the Tunisian mechanical and metal works industry, 2009

Source: INS (2009)

These products originate mainly in France and Italy (see Figure 6.33).

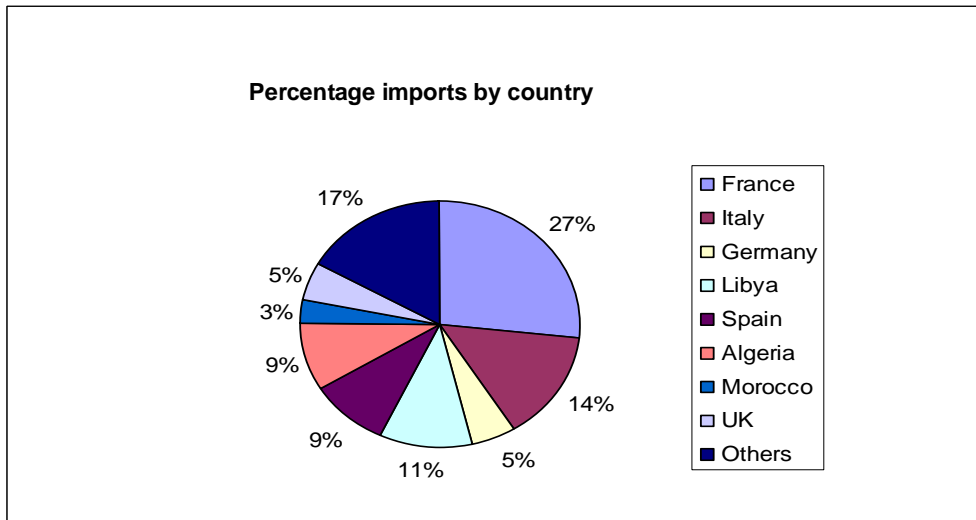


Figure 6.33: Breakdown of imports by country in the Tunisian mechanical and metal works industry, 2009

Source: INS (2009)

The mechanical and metal works industry consists of 177 companies with foreign participation, of which 137 are 100 per cent foreign owned by mainly French and Italian companies (see Figure 6.34).

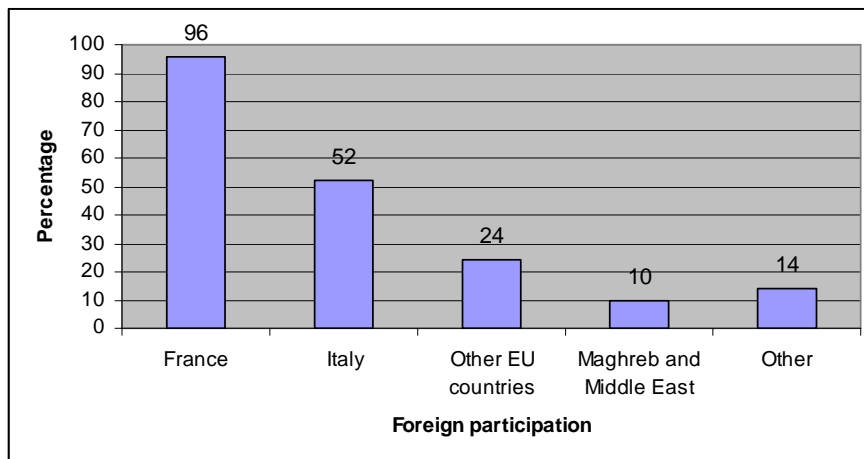


Figure 6.34: Breakdown of partnerships with Tunisian companies in the mechanical and metal works industry by country, 2009

Note: A company may be counted more than once.

Source: API (2009)

6.4.2.2 Conclusion

The trade and trade relations between Tunisia and South Africa have been highlighted and Tunisia as a potential market for extruders from South Africa has been described in this section. It was found that although Tunisia imports extruders from a number of countries, no extruders are imported from South Africa. In addition, the various industries in Tunisia in which extruders are typically used to manufacture products have been highlighted in order to indicate the potential for the use of extruders in these sectors. In the following section, an export strategy for extruder exports to Tunisia is proposed. Furthermore, trade data indicated growth in the value of exports of extruders globally of 16 per cent over the long-term and of exports to Tunisia of 21 per cent. This indicates the potential growth in extruder exports from South Africa to Tunisia, confirming the DSM findings of the potential for extruder exports from South Africa.

6.5 Recommendations on export strategies for exporters of extruders to Tunisia

Having assessed the trade environment in Tunisia and established that there is a market for South African-manufactured extruders in Tunisia, recommendations for TPOs and extruder manufacturers and new extruder exporters can be made.

6.5.1 Recommendations to Trade Promotion Organisations

It was stated in Section 2.2.3 that an export-promotion strategy is a TPO's strategy for promoting the export of a specific product in a specific market. Both the DTI and the SACEEC provide export-promotion services in this regard, although these services do not specifically focus on information gathering regarding the Tunisian market. There is also no specific trade-promotion strategy

followed by either the DTI or the SACEEC with regard to promoting export of extruders or other products in the capital equipment industry to Tunisia. Tunisia is regarded as a market for extruders, with both short-term (216,38 per cent for 2006–2007) and long-term (29,76 per cent for 2003–2007) growth prospects. However, South Africa has not yet exported extruders to Tunisia. In terms of the short-term growth in the demand for extruders in Tunisia, the fourth DSM filter (for more detail on the filter, see Section 3.5) results indicate that short-term growth in the period of 2006 to 2007 was 216,38 per cent, with a short-term growth cut-off value of 44,77 per cent (Rossouw *et al.*, 2010). This is regarded as sufficient for short-term growth and is confirmed by trade data used in this chapter. In terms of long-term growth prospects, the DSM results indicate that long-term growth in the demand for extruders in Tunisia in the period of 2003 to 2007 was 29,76 per cent with a long-term growth cut-off value of 28,82 per cent (DTI, 2010a). This is regarded as sufficient for long-term growth. In order to capitalise on this export opportunity, the recommendation of the study is that South Africa's TPOs need to adopt certain offensive actions in their export-promotion strategy to enable exporters to take advantage of the growing market both in the short and long term, and to gain successful entry into this significant market. Taking into account the degree of market concentration that currently exists, as well as the current trade barriers (that also include NTBs; see Section 6.3.4.4), it is recommended that an offensive export-promotion strategy be selected that actively pursues the opportunities available (Cuyvers, 2010; see Annexure M for all the other capital equipment REOs for Tunisia and Table 3.4 for a list of products in the capital equipment industry that can be targeted for export-promotion activities). The following could be included in such an offensive export-promotion strategy:

- i. Closer co-operation and establishment of partner relationship between TPOs and potential extruder exporters in order to assess the information needs of such exporters and to inform them of the export potential and on the market characteristics: such a partnership between the TPOs and the potential exporters will enhance the REO and will ensure that the correct export-promotion activities are arranged or provided by the TPO for extruders exporting to

Tunisia using the most appropriate and available export-promotion instruments.

- ii. Detail on issues related to the market in Tunisia: Such market information is typically required by exporters (whether new or more experienced) and could include information on institutions that could be involved in the export promotion of extruders both in South Africa and Tunisia, for example export-promotion organisations in Tunisia, banks and relevant government bodies. This information offering should be tailored to the needs of the exporters and the stage of export of the exporter (see Sections 2.2.2.1 and 2.2.3.3).
- iii. Focused communication:
 - a. Exporters could be communicated with regarding the status of the REO and Tunisia as an export destination.
 - b. The DTI commercial attaché based in Tunis could be communicated with regarding the status of the REO and Tunisia as an export destination.
 - c. Extruder manufacturers and perhaps also exporters of extruder components could be invited to participate in general trade missions, and local and regional trade fairs, in addition to the traditional fairs organised by the DTI and the SACEEC. An example is the METEF 2010 trade show held in Italy which focuses on the Middle Eastern and North African market, which will give greater prominence to the aluminium extrusion production chain. METEF 2010 is a leading international exhibition dedicated to the production chain of aluminium and non-ferrous metals, from raw materials to machinery, plants, equipment, products and applications in the following compartments: extrusion, die-casting, rolling, surface treatment, machining and joining (METEF, 2010). Present at this event are the main extruders users (including Arotubi, an Italian manufacturer of small-diameter aluminium tubes; Capral, an Australian manufacturer of aluminium window and door profiles; and Tunisie Profilés Aluminium, Tunisian manufacturer of aluminium window and

door profiles) and leading global manufacturers of extruder machinery, plants and components (including Halex Aluminium Extruder Dies Ltd of Germany).

- d. Foreign Tunisian industry decision-makers and major importers could be invited to networking events.

- iv. Tailored advanced export training and technical assistance with a particular focus on trade in North Africa and specifically Tunisia can be developed and presented.

- v. Financial support for in-market marketing campaigns targeting the food-processing, plastics, and mechanical and metal works (especially aluminium) industries can be considered.

- vi. An assessment of the trade barriers can be made and presented to inform local extruder manufacturers of these trade barriers and the way to manage them.

- vii. Workshops and seminars on results of market research and recommendations on possible steps of action: For example, a workshop for extruder manufacturers and in particular new exporters, focusing specifically on the export of extruders to Tunisia and by extension the Middle East and North Africa, could be organised. Such a workshop could be expanded to also include the wider capital equipment industry and the users of extruders in South Africa and Tunisia. One of the main purposes should be to determine the information needs of exporters and specifically new exporters and to assess whether the TPO could assist in providing such information (and also communicate the areas in which the TPO cannot assist; see Sections 2.2.2.1 and 2.4.1). Results from the interviews, presented in Chapter 5, indicate that indeed there are gaps between what exporters' needs are in terms of information and what TPOs provide in terms of advice, services, publications, and other trade-promotion initiatives. It was found that TPOs provide a general and wide range of export-promotion

services, including information that could be useful to exporters, yet the latter were unaware of these products and services. Making available all this relevant information to exporters in the identified product sectors would enhance the potential success of export ventures to identified markets, as it would enable exporters to develop detailed marketing and export plans based on the provided analysed information. It would also support the assessment of strategies, enhance competitor perceptions and efficacy of export operations, provide insights into competitor capabilities, and enhance long-term market prospects.

- viii. Trade Promotion Organisations could offer a networking opportunity for companies that export to Tunisia inviting delegates from the DTI, the SACEEC and the DFA, and perhaps banks and logistics companies to provide relevant information. Tunisian commercial attachés should also attend such networking events.
- ix. Trade Promotion Organisations could provide information to extruder manufacturers on exhibits, trade shows and pavilions. The DTI identified Tunisia and Egypt as key destinations for South African exports for growth in the Middle East and North Africa. Trade Promotion Organisations could contact their Tunisian counterparts in order to assess the level of support available to South African exporters of extruders. These TPOs can also be valuable sources of Tunisian trade and industry information (see Annexure I for a list of Tunisian TPOs, their services and their contact details).
- x. Trade Promotion Organisations could investigate the advantages of promoting other products that fall under HS Chapter 84, together with extruders in Tunisia. Such products include rubber or plastic vacuum moulders, thermo-formers (HS 847740); parts of machines for working rubber or plastic (HS 847790); moulds, injection and compression, for rubber or plastic (HS 848071); and metal treating machines, electric wire coil-winders (HS 847981).

Currently, South Africa does not export to or has limited exports of any of these products to Tunisia. All HS Chapter 84 products that have short-term and long-term growth potential in Tunisia are listed in Annexure M. Table 3.4 also lists additional products that may inform decisions on export promotion of other REOs in the capital equipment industry.

- xi. Trade Promotion Organisations could start market development activities in Tunisia in the form of introductions of the product. This could include the gathering of local market information by the South African embassy staff based in Tunis. This CI input from either the TPO and/or external organisations of information that has been synthesised, analysed, evaluated and contextualised must be used by the TPO in its export-promotion strategy formulation, and disseminated to the exporters. This would assist TPOs in achieving the export-promotion differentiation required for this particular market type (growing short and long term, and relatively small or no market share) and differentiation according to trade barriers and market concentration.
- xii. Based on the results of interviews with the SACEEC, namely that the SACEEC faces capacity challenges, enhancing the capacity of the SACEEC can be a recommendation. This can be done by providing for additional information and analysis specialists for the capital equipment industry. At present, the SACEEC has no analysis capability and therefore no capacity to determine the KIN for its industry.
- xiii. Finally, it is recommended that market profiles of the markets that show the most potential for specific products produced and manufactured in South Africa be compiled under the auspices of the DTI, using the structure of the case study presented in this chapter, and that these profiles be regularly updated and made available to exporters.

6.5.2 Recommendations to extruder exporters

Based on the results of the case study, a number of recommendations for extruder exporters are made:

- i. Potential extruder exporters could contact the DTI and the SACEEC in order to determine the areas in which they can assist exporters to enhance their export success, specifically with regard to Tunisia. By becoming a member of the SACEEC for example, exporters gain access to knowledge and expertise on export activities, export incentives and financial incentives, market potential and exposure to other exporters to Tunisia.
- ii. Potential extruder exporters could contact the DTI to obtain information on the Tunisian market as an export destination. The DTI will also be able to provide information on the various export incentives available to exporters of capital equipment, and on trade tariffs and trade barriers. Prospective exporters could also access information on the current status of export promotion of the product in general and in the target market. Gathering information on trade barriers will be particularly important, as it was found in Section 6.3.4.4 that trade barriers are still quite high in Tunisia and that market concentration is growing (see Section 6.3.4.3; see also Section 6.5.1.1, Annexure J and Table 3.4 for other products classified under HS Chapter 84 that could be promoted in unison with South African extruders for export to Tunisia).
- iii. Potential extruder exporters could launch CI activities focused on gathering and analysing the required export information. This study puts forward the argument that by applying the CI model (as explained in Section 2.5.3), exporters can determine the KINs of exporters. Through CI activities, all relevant information can be gathered on the target market, customers, competitors, competitor products, the regulatory and institutional environment, and

relevant competitive forces from a variety of sources, amongst which are the TPOs. This information can then be analysed and interpreted against the background of potential export opportunities and threats for each industry in the identified markets. Competitive Intelligence activities can be done by the exporter or it can be fully or partially outsourced to external experts. The CI model and the manner in which it could be used by exporters were described in Section 5.5.3. In the planning and focus phase, exporters need to focus on the required information, which is then collected in the second phase, analysed and interpreted in the third phase, and communicated and used in the final phase. This process is supported by an appropriate structure, the availability of the required skills and a culture of competitiveness. The results indicated that exporters at present do not know of or use CI as a tool to enhance their competitiveness and success in the export market. This study recommends that extruder exporters be presented with the CI model customised for them at an appropriate forum to highlight its benefits.

- iv. Potential extruder exporters could use the CI cycle to determine the key intelligence topics or the KINs (as described in Section 2.3) that would be required to enter the Tunisian market and to gather the required information. Using CI to gain real intelligence on the market in Tunisia would inform an exporter's strategy and would be necessary, as not all information required can be provided by the TPOs.
- v. Potential extruder exporters could tailor KINs, broadly identified in Sections 2.3, 5.2.1 and 5.2.2, with regard to the following on the Tunisian market for extruders and the competition:
 - a. market size and growth prospects of the various industries the extruder exporter would aim to target, that is food-processing, feed, plastics and polymers, mechanical and metal works, and compounding industries;
 - b. major companies in each industry;

- c. suppliers of extruders to major companies in each industry;¹²
- d. specified competitor analysis on each competitor's Tunisian operations, for example the period for which they have exported to Tunisia, their clients, the type of service and product they deliver (for example, twin- or single-screw extruders, and maintenance and service contracts), the nature of their presence in Tunisia, their view of their growth prospects, and pricing information; and
- e. a comprehensive market assessment of Tunisia and perhaps also of other markets in the Middle East and North Africa that can be serviced from Tunisia as a base (such an assessment could be compiled and managed internally or outsourced to an external vendor), including an investigation of potential new market prospects, for example launching a small business development programme and assisting NGOs with local development and food security programmes.

6.6 SUMMARY OF FINDINGS AND RECOMMENDATIONS

In this chapter, a market study on Tunisia was presented with a specific focus from the perspective of South African extruder manufacturers. The need for this market study has its origins in the DSM results for South Africa¹³ and from stated KINs from manufacturers to expand its market. The findings on this case study were here, including that Tunisia poses significant market potential for South African extruder manufacturers. This finding is supported by the growth witnessed in key industries in which extruders are used. Furthermore, although Tunisia imports extruders, none of these imports originate in South Africa. A number of recommendations were made for TPOs while export strategy recommendations were made for potential extruder exporters. In the next chapter, a summary of the study and recommendations for further research will be presented.

¹² It was found that several large global brands are already present in the Tunisian market (see Annexure J.)

¹³ The DSM identified Tunisia as a potential market for extruders from South Africa and this was confirmed by the trade data that was used in this chapter.

CHAPTER 7: SUMMARY, RECOMMENDATIONS AND CONCLUSION

7.1 INTRODUCTION

This study focused firstly on the types of information and the sources of information required by exporters in South Africa and it highlighted certain gaps between what exporters require and what is offered by TPOs in terms of types of information. Secondly, this study focused on the role CI can play in exporting extruders to Tunisia. Tunisia was identified as an REO for extruders manufactured in South Africa (see Section 3.4).

This chapter summarises the main findings of this study. Thereafter, it makes recommendations for further studies. It concludes with a discussion on the contribution of this study.

7.2 SUMMARY OF THE STUDY

This section provides a summary of the study regarding its content and theoretical frame of reference. Thereafter, it discusses the literature review on types of information, sources of information and export incentives. Next, extruders, the extrusion process and the capital equipment industry in South Africa are described. Then, the research methodology is summarised. Lastly, the results and findings of the survey and case study are summarised.

7.2.1 Context and theoretical frame of reference

From the perspective of exporters, participation in the global economy and export to new foreign markets bring the challenge of obtaining the required information on the target market. The

increasingly competitive business environment places increasing demands on exporters and TPOs to make better use of resources available. For exporters to succeed, various types of information are required. The challenging business environment demands, amongst others, that exporters must have access to and use certain types of information that they gather from a variety of sources using several gathering techniques. This information then has to be subjected to a process of analysis and interpretation before it is used in strategic business decisions regarding the business and market.

This information is obtainable from various sources, including TPOs. The need therefore arose to study the types of information required, gathered and used by exporters and to determine the sources of information that exporters typically access. This study furthermore investigated the use of CI as an instrument to determine the types of information that exporters require. Chapter 1 provided further background to the problem statement, research objectives and methodology.

The demands of exporters described above and the challenges that TPOs face, including the challenge of the double allocation of scarce resources, mean that such resources must be utilised more efficiently. A means to achieve this is focusing on real and viable export opportunities. From the perspective of exporters, CI as a strategic management tool can enhance exporters' competitiveness and provide focus in terms of information needs. Competitive Intelligence can assist exporters in improving their export potential and growth in their export market.

7.2.2 Literature review on types and sources of information

The aim of Chapter 2 was two-fold, namely to provide a summary of the literature of the types and sources of information that exporters require and to illustrate the use of CI as an instrument to present this information in such a way that it can be used by exporters in order to become more

successful and competitive in their export activities. Chapter 2 therefore focused firstly on the importance of exports and exporters' need for information. In Section 2.2.1, it was stated that exports compel companies to be innovative and use the latest technology and management practices, which increases productivity and competitiveness. Exports also lead to faster sales and employment growth in companies, while forging closer ties between countries while enhancing business relationships. Government and public institutions have an important role to play in export promotion and the role of TPOs in this regard was described (Section 2.2.3). Chapter 2 also described the various types of information required by exporters and the sources of information they would typically access (Sections 2.3 and 2.4). Finally, this chapter described CI for exporters, including detail on the CI cycle (Section 2.5). This chapter provided guidance to exporters in terms of the types of information they require and the role that TPOs can play in providing certain types of information. Finally, export-promotion strategies were described. Governments' involvement, mainly through TPOs, in the formulation of export-promotion strategies to promote specific domestic sectors was described.

7.2.3 Extruders and the extrusion process

In Chapter 3, the importance of export diversification and the export of manufactured goods were described. Chapter 3 indicates that although export diversification is preferable to export specialisation, it is not practical to promote all products exported owing to the allocation of resources. Therefore, it is important to prioritise REOs (see Section 3.4).

The capital equipment industry in South Africa and specifically extruders and the extrusion process were described in this chapter. Chapter 3 also focused on the key stakeholders in the extruder industry in South Africa, namely extruder manufacturers, users of extruders and relevant TPOs. The larger capital equipment industry was studied to determine the competitive drivers and

challenges pertaining to the industry, and the capital equipment industry was described.

7.2.4 Research methodology

In Chapter 4, the research methodology followed for the empirical component of this study was described. In order to achieve the research objectives as described in Chapter 1, two research methods were used, namely a survey research method and a case study method. Both were described in the chapter.

For the survey, described in Section 4.3, three types of respondents were interviewed, namely extruder manufacturers, users of extruders and TPOs. For each of the three groups interviewed, a semi-structured interview guide composed of both open and closed questions was compiled. Personal interviews were conducted with the extruder manufacturers and TPOs, while the users of extruders were interviewed telephonically.

In order to research the export of South African-manufactured extruders to Tunisia, a case study was undertaken. This method was described in Section 4.2.3.2.

7.2.5 Survey results and findings

In Chapter 5, the results of the survey were presented. The survey method was described in Chapter 4, while the structure of the three questionnaires used for the three types of respondents, that is extruder manufacturers, extruder users and TPOs, were described in Sections 5.2.1, 5.2.2 and 5.2.3, respectively.

The survey focused on the types of information that exporters require, the sources of information

available to them (focusing on TPOs) and the extent to which they use CI as a tool to assist them in the identification and gathering of types of information. The results of the survey described in Chapter 5 indicate that the only type of information that extruder manufacturers in South Africa seek on a continuous basis is competitor information, specifically pricing information. However, as the results demonstrate, this is not typically the type of information supplied by TPOs in South Africa (described in Sections 5.3.5 and 5.3.6).

A number of recommendations were made to TPOs to address this shortcoming. The information needs assessment was partly informed by the results of the interviews with users of extruders. These results indicate the competitive drivers relevant in the capital equipment industry (Section 5.5.2).

The results furthermore demonstrated that there is no evidence that extruder manufacturers have a procedure to monitor market and the competition or to identify KINs. When information on a specific issue is required, this is gathered informally on an ad hoc basis. As the results demonstrate, such manufacturers also fail to capture and store such information. An implemented procedure for determining the KINs in order to gather and analyse the required information, and then communicate and use this information in business decisions can greatly enhance exporter success.

Based on the results of the survey, various recommendations for extruder manufacturers and TPOs pertaining to types of information (Section 5.5.1), sources of information (Section 5.5.2) and CI (Section 5.5.3) were made. Specific recommendations were made for TPOs on the export services offered versus the services required by exporters (Section 5.5.4).

7.2.6 Case study results and findings

Chapter 6 presents the results of this case study on export of South African-manufactured extruders to Tunisia. A case study research method was selected and applied to analyse the export of extruders to Tunisia as an REO. This case study involved the in-depth study and detailed description of Tunisia as a potential market for extruders exported by South Africa.

In the results of the case study presented in the chapter, the extruder trade figures between South African and Tunisia were presented. In particular, the Tunisian market was discussed with regard to potential market industries, market concentration, and trade barriers and potential export-promotion strategies.

It was found that there is indeed a potential market for extruders in Tunisia and that the industries in which extruders are typically used are significant and growing. It was however also found that there are high trade barriers and a high market concentration in Tunisia. These findings have an impact on the design of an appropriate export-promotion strategy. In this case, an offensive export-promotion strategy was proposed against the background of high trade barriers and a high market concentration. Appropriate instruments that can be used in an offensive export-promotion strategy such as closer cooperation and the establishment of partnerships between TPOs and potential extruder exporters and tailored advanced export training, were described in Section 6.5.

7.3 RECOMMENDATIONS FOR FURTHER RESEARCH

Recommendations for further research are three-fold and relate to: (i) types and sources of information; (ii) a formalised CI model to direct information-seeking behaviours of exporters of extruders; and (iii) further market studies.

Firstly, the results of the interviews indicate that there is an expressed need for research of this nature to extend to the wider capital equipment industry, for example to exporters of mining equipment and other companies in the capital equipment industry (see Table 3.4) in order to fulfil exporters' information needs. South Africa has proven expertise and export successes in this industry but there is scope for further growth, provided the required information on foreign markets is made available.

Secondly, the CI model potentially holds benefits to the competitiveness of exporters. Being able to determine the KINs and then gather such information from various sources to be analysed and used in decisions will enhance export success.

Thirdly, it is recommended that market profiles of the markets that demonstrate the most potential for specific products produced and manufactured in South Africa as seen from the results of Rossouw *et al.* (2010) are compiled under auspices of the DTI using the structure of the case study in Chapter 6. It is furthermore recommended that these profiles be regularly updated and made available to exporters. The top twenty realistic product–market combinations for South Africa are listed in Annexure B.

7.4 CONCLUSION

In conclusion, the contribution of this study is firstly in the evaluation of the types of information and sources of information required by exporters and comparing these to the types and sources of information available to exporters. The CI process was used to determine the types and sources of information and this was applied in practice by means of questionnaires to determine the types of information required by exporters. Furthermore, a case study was compiled to illustrate the use of

CI in the special case of extruder exports to Tunisia.

A further contribution is in the recommendations made to TPOs regarding possible export-promotion strategies and instruments. This includes clarity on exporters' KINs.

Another contribution is to propose CI as an instrument for assisting exporters in focusing on the required information and in acquiring such information from various sources. Using a gap analysis, the information that manufacturers of extruders as potentially new exporters need was compared with the information and services offered by TPOs. Areas of discrepancies were highlighted and recommendations were made on the manner in which to overcome these discrepancies. These recommendations apply to most exporters in the capital equipment industry.

Finally, a market case study of Tunisia was presented that focused on an export strategy for South African-manufactured extruders to Tunisia. Included in the recommendations is information pertaining to a proposed offensive export-promotion strategy for TPOs, informed by an overview of the Tunisian economy, market concentration and market-access barriers. These pointers would assist TPOs in providing a more focused and tailored export-promotion service to exporters of extruders to Tunisia. In general, this study also highlighted that the TPOs and in particular the DTI should focus their trade-promotion activities on the characteristics of the REOs. In the case study of extruders to Tunisia, which demonstrated the existence of high trade barriers and a high market concentration in the market, an offensive export-promotion strategy is required, which requires much involvement by the TPO. In cases in which South Africa has a larger market share and there are low trade barriers, a defensive export strategy is applicable. Were the TPO to apply the DSM in order to determine the most relevant export strategy for a particular product–market combination, increased export success can be achieved.

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ANNEXURE A: REO FOR SOUTH AFRICAN EXTRUDERS

Table A1: REOs for South African extruders

| Country | Region | HS 6-digit product code and description | Filter 4 cell classification | Potential export value (US\$ '000) | Current SA Exports (US\$ '000) |
|----------------|-----------------------|---|------------------------------|------------------------------------|--------------------------------|
| Belarus | Eastern Europe | 847720 - Extruders for working rubber or plastic | 2 | 2 367 | 0 |
| Brazil | South America | 847720 - Extruders for working rubber or plastic | 5 | 22 854 | 0 |
| China | East & Southeast Asia | 847720 - Extruders for working rubber or plastic | 1 | 75 292 | 0 |
| Cyprus | Europe | 847720 - Extruders for working rubber or plastic | 2 | 308 | 0 |
| Germany | Western Europe | 847720 - Extruders for working rubber or plastic | 3 | 19 916 | 36 |
| Indonesia | East & Southeast Asia | 847720 - Extruders for working rubber or plastic | 2 | 7 846 | 0 |
| Latvia | Baltic States | 847720 - Extruders for working rubber or plastic | 2 | 1 784 | 0 |
| New Caledonia | Australia-Oceania | 847720 - Extruders for working rubber or plastic | 2 | 10 | 0 |
| Saudi Arabia | Middle East | 847720 - Extruders for working rubber or plastic | 5 | 49 918 | 0 |
| Thailand | East & Southeast Asia | 847720 - Extruders for working rubber or plastic | 1 | 21 821 | 0 |
| Tunisia | Africa | 847720 - Extruders for working rubber or plastic | 2 | 6 702 | 0 |
| Turkey | Middle East | 847720 - Extruders for working rubber or plastic | 1 | 22 876 | 0 |

Source: DSM, 2010

ANNEXURE B: TOP 20 REALISTIC PRODUCT:MARKET COMBINATIONS FOR SOUTH AFRICA

Table B.1: Top 20 REOs for South Africa

| Country | Region | HS chapter | HS 6-digit product code and description | Filter 4 cell classification | Potential export value (US\$ '000) | Current SA Exports (US\$ '000) |
|----------------|-----------------------|------------|--|------------------------------|------------------------------------|--------------------------------|
| South Korea | East & Southeast Asia | 30 | 300490 - Medicaments nes, in dosage | 12 | 44 171 138 | 0 |
| United States | North America | 27 | 270900 - Petroleum oils, oils from bituminous minerals, crude | 5 | 31 631 042 | 222 318 |
| United States | North America | 87 | 870324 - Automobiles, spark ignition engine of >3000 cc | 1 | 25 023 646 | 39 745 |
| Japan | East & Southeast Asia | 27 | 270900 - Petroleum oils, oils from bituminous minerals, crude | 5 | 20 766 038 | 0 |
| Belgium | Western Europe | 27 | 270900 - Petroleum oils, oils from bituminous minerals, crude | 5 | 17 424 189 | 0 |
| South Korea | East & Southeast Asia | 27 | 271011 - Aviation spirit | 2 | 16 716 315 | 0 |
| Italy | Southern Europe | 27 | 270900 - Petroleum oils, oils from bituminous minerals, crude | 5 | 16 014 314 | 0 |
| South Korea | East & Southeast Asia | 85 | 851780 - Elect apparatus for line | 2 | 15 746 590 | 0 |
| South Korea | East & Southeast Asia | 87 | 870899 - Motor vehicle parts nes | 7 | 13 558 271 | 0 |
| South Korea | East & Southeast Asia | 84 | 847160 - I/O units w/n storage u | 2 | 12 365 208 | 0 |
| France | Western Europe | 87 | 870332 - Automobiles, diesel engine of 1500-2500 cc | 1 | 12 349 536 | 0 |
| France | Western Europe | 27 | 270900 - Petroleum oils, oils from bituminous minerals, crude | 5 | 12 345 705 | 5 |
| United Kingdom | Northern Europe | 27 | 270900 - Petroleum oils, oils from bituminous minerals, crude | 5 | 11 696 672 | 41 |
| South Korea | East & Southeast Asia | 85 | 852540 - Still image video camera | 7 | 11 241 477 | 0 |
| Belgium | Western Europe | 30 | 300490 - Medicaments nes, in dosage | 1 | 10 999 417 | 778 |
| Germany | Western Europe | 27 | 270900 - Petroleum oils, oils from bituminous minerals, crude | 5 | 10 779 297 | 0 |
| United States | North America | 87 | 870323 - Automobiles, spark ignition engine of 1500-3000 cc | 1 | 10 704 206 | 475 053 |
| China | East & Southeast Asia | 26 | 260111 - Iron ore, concentrate, not iron pyrites, un-agglomerate | 5 | 10 312 203 | 37 266 |
| India | South Asia | 27 | 270900 - Petroleum oils, oils from bituminous minerals, crude | 5 | 7 722 784 | 0 |
| United States | North America | 85 | 852520 - Transmit-receive apparatus for radio, TV, etc. | 3 | 7 276 116 | 120 |

Source: DSM, 2010

ANNEXURE C: EXTRUDER MANUFACTURERS PRESENT IN SOUTH AFRICA

Table C.1: Extruder manufacturers in South Africa

| Manufacturer | Representation in South Africa¹ | Industry | Nature of presence |
|---------------------------------------|---|--|--|
| CFAM | South African | Food, feed, plastics, polymers, compounds | Extruder, extrusion lines and component manufacturing, full service and technical assistance |
| Amut (Italy) | Plasquip | Plastics | Technical service and sales team |
| Wenger (USA) | Texpro | Feed | Component manufacturing, repairs and service |
| Bühler (Switzerland) | Buhler SA | Food | Component manufacturing, repairs and service |
| Baker Perkins (UK) | Techquip | Food | SA agent that provides local sales capacity |
| Krauss-Maffei (Germany) and Berstorff | Injection Moulding Technologies; Reaction Process Machinery | Plastics | Local service and sales capacity |
| Friul Filiere | Hestico | Plastics | Machinery and tools for the extrusion; local sales and support capacity |
| Bettenfeld (Germany) | DK Machinery | Plastics | Local service and sales capacity |
| Buss | Macotech | Plastics and compounding | Local service and sales capacity |
| Coperion Werner & Pfleiderer | Hestico | Plastics, chemicals, pharmaceuticals, food | Local sales and support capacity |

¹ Although international brands like Rollepaal (Netherlands), Cincinnati (USA), Leistritz (Germany), Clextral (France) and Kiefel (Germany) as well as a number of Chinese and Indian extruder brands sell into the South African extruder market, these manufacturers have no presence in South Africa either directly or through agents and distributors.

ANNEXURE D: INTERVIEW GUIDE FOR EXTRUDER MANUFACTURERS

EXTRUDER MANUFACTURERS' / EXPORTERS' QUESTIONNAIRE

The survey you have received is interested in studying the information needs of extruder exporters. You have been selected by to participate in the survey due to your activity in the extruder manufacturing sector in South Africa. By completing this survey you agree that that the information you provide may be used for research purposes. Know that you are free to decide not to participate and complete the survey, or withdraw at any time, although your data cannot be replaced by anyone else's. The survey is however completed anonymously, and I as researcher will have no way of connecting the information you provide to you personally. Even so, the researcher undertakes to keep the individual information provided herein confidential, not to let it out of their possession, and to analyse results only at the group level.

PART 1: BACKGROUND QUESTIONS

1. Briefly describe your business in terms of growth and challenges you face from a manufacturing and exporting perspective:
2. Briefly describe the markets in which you compete and comment on the company's overall strategy for each market?

| Market | Strategy e.g. growth through new products, new markets, acquisitions, organic growth |
|-----------|--|
| Food | |
| Plastics | |
| Aluminium | |
| Other | |

PART 2: QUESTIONS

1. Are you:
 - a) A manufacturer of extruders
 - b) An importer of extruders
 - c) A distributor of extruders
 - d) An exporter of extruders

If D, go to question 2. If not, please continue from question 3.

2. Regarding your exports:

| | |
|---|--|
| 1. What product/service does your company export? | |
| 2. Where to does your company export? | |
| 3. Do you export into Africa? | If not, are there specific reasons for this? Please elaborate |
| 4. Number of employees | |
| 5. What percentage of sales / production is exported? | |

3. Who is a typical user of your extruder?

4. What do you consider to be primary drivers of your **two main** competitors in your market?

| Areas of competition | Competitor A | Competitor B |
|--|--------------|--------------|
| Price | | |
| Quality | | |
| Service | | |
| Value-Add | | |
| Technological innovation | | |
| Size | | |
| Environmentally considerations | | |
| Delivery times | | |
| Strength of promotion | | |
| Distribution: networks, agents, distributors | | |
| Other e.g. skills and management, focus, differentiation | | |

5. What **types of macro information** are important to your company? (Please tick appropriate block).

| Types of competitive information on your market | |
|--|--|
| Macro economic information (trends, indicators, infrastructure) | |
| Political information (stability, security) | |
| Legal / regulatory information (customs, market access and regulations, exchange controls) | |
| Market information (customer profiles, culture and business ethics, customer preferences, distributors / channels) | |
| Marketing information (promotion, partners / agents to secure business or win contracts, trade fairs; market entry strategies, new business opportunities) | |
| Competitor information (products, prices, profiles, production and supply, reputation, tactics, activities) | |
| Trade restrictions (e.g. tariffs and non-tariffs, barriers, trade barriers, procedures) | |

6. How important are the following **types of macro information**? Please rate them according to importance?

| | Very Important | | | Not Important | |
|--------------------------------|----------------|---|---|---------------|---|
| | 1 | 2 | 3 | 4 | 5 |
| Macro economic information | | | | | |
| Political information | | | | | |
| Legal / regulatory information | | | | | |
| Market information | | | | | |
| Marketing information | | | | | |
| Competitor information | | | | | |
| Trade restrictions | | | | | |
| Other not mentioned above | | | | | |

7. What **types of macro information** do you currently seek?

| | Yes | No |
|--------------------------------|-----|----|
| Macro economic information | | |
| Political information | | |
| Legal / regulatory information | | |
| Market information | | |
| Marketing information | | |
| Competitor information | | |
| Trade restrictions | | |
| Macro economic information | | |
| Political information | | |
| Legal / regulatory information | | |
| Market information | | |
| Marketing information | | |
| Competitor information | | |
| Trade restrictions | | |
| Other not mentioned above | | |

8. In your experience, how important are the following **types of competitor information**?

| | Very Important | | | Not Important | |
|--|----------------|---|---|---------------|---|
| | 1 | 2 | 3 | 4 | 5 |
| Specific competitor information | | | | | |
| Competitive strategies | | | | | |
| Manufacturing costs | | | | | |
| R&D / product plans | | | | | |

| Specific competitor information | Very Important | | | Not Important | |
|----------------------------------|----------------|---|---|---------------|---|
| | 1 | 2 | 3 | 4 | 5 |
| Core Competencies | | | | | |
| Market position / shares | | | | | |
| Producer capacity | | | | | |
| Organisation structure | | | | | |
| Customer information | | | | | |
| Financial information / position | | | | | |
| Promotion Plans | | | | | |
| Sales activities | | | | | |
| Pricing | | | | | |

9. Do you have a process in place to monitor markets and competition?

| | |
|-----|----|
| Yes | No |
|-----|----|

10. How satisfied with the process at present?

| Totally satisfied | | | Not at all satisfied | |
|-------------------|---|---|----------------------|---|
| 1 | 2 | 3 | 4 | 5 |
| | | | | |

Please motivate your answer.

| |
|--|
| |
|--|

11. Which of the following **methods** do you use to gather export information?

| | |
|--|--|
| Export marketing research <i>i.e. a formal systematic manner of gathering relevant information</i> | |
| Export assistance <i>i.e. assistance rendered to the exporting firm by various suppliers including government departments)</i> | |
| Export market intelligence <i>i.e. the informal continuous manner to gather relevant information</i> | |

12. Do you use any other **methods** of gathering information? Please describe.

| |
|--|
| |
| |
| |

13. When you need information on your competitive environment or a possible new export market, what are the **sources** you turn to? What information do you get from those sources? How often do you get it? How accurate and reliable are these sources?

| Sources | I turn to this source | | Types of information from each source | Frequency <i>weekly, monthly, ad hoc</i> | Accuracy & reliability |
|---|-----------------------|----|---------------------------------------|---|------------------------|
| | Yes | No | | | |
| Information obtained from people inside the company | Yes | No | | | |
| The dti | Yes | No | | | |
| Export councils | Yes | No | | | |
| Research and consulting companies | Yes | No | | | |
| Published sources (<i>e.g. books, magazines, annual reports, analyst reports, etc.</i>) | Yes | No | | | |
| External databases and Internet | Yes | No | | | |
| Syndicated market research report | Yes | No | | | |
| Customers | Yes | No | | | |
| Personal contacts outside the company (<i>e.g. consultants, banks, universities</i>) | Yes | No | | | |
| Other | Yes | No | | | |

14. Rank the following **sources of information** according to importance, where 1 equals most important and 5 equals least important:

| | Very Important | | | | | Not Important | | | | |
|---|----------------|---|---|---|---|---------------|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| Information obtained from people inside the company | | | | | | | | | | |
| The dti | | | | | | | | | | |
| Export councils | | | | | | | | | | |
| Research and consulting companies | | | | | | | | | | |
| Published sources (<i>e.g. books, magazines, annual reports, analyst reports, etc.</i>) | | | | | | | | | | |
| External databases and Internet | | | | | | | | | | |
| Syndicated market research report | | | | | | | | | | |
| Customers | | | | | | | | | | |
| Personal contacts outside the company (<i>e.g.</i> | | | | | | | | | | |

| | Very Important | | | Not Important | |
|--|----------------|---|---|---------------|---|
| | 1 | 2 | 3 | 4 | 5 |
| <i>consultants, banks, universities)</i> | | | | | |
| Other | | | | | |

15. Are there other **sources of competitive information** not covered above, within or outside of your company that would be helpful to your group if it was available?

| | |
|-----|----|
| Yes | No |
|-----|----|

If yes, please specify. _____

16. Do you have a **Competitive Intelligence (CI) process** in place?

| | |
|-----|----|
| Yes | No |
|-----|----|

If yes, go to question 17. If not, please continue from question 22.

17. How long has your company been doing CI? _____ years

18. How would you categorise the CI process you have in place? (See key below)

| | |
|-------------|--|
| Early stage | |
| Mid level | |
| World Class | |

Key:

| | |
|-------------|--|
| Early stage | More fact than analysis, little useful communication, mostly competitor profiles and baseline industry assessments; little direct access to management; mostly secondary sources and use of consultants; basic analysis techniques and small network of internal and external human sources; 12 to 18 months |
| Mid level | More strategic analysis and early warning focus, SWOT analyses, value-chain analyses; more input into strategy and an alert service in place; Growing human source network; better access to top management; advanced analysis and networking capacity in place; fulltime personnel; 18 months to 4 years from start |
| World Class | Forward-looking strategic analyses delivered; early warning capability (of threats and opportunities); advanced analysis technique e.g. competitor response modeling and war gaming; CI continuous input in management decisions; Extensive human source network; skills focused on analysis; fulltime personnel; 4 years from start |

19. How do you use the outcomes of your CI process?

| | Mostly used for | | | Least used for | |
|---------------------------|-----------------|---|---|----------------|---|
| | 1 | 2 | 3 | 4 | 5 |
| Product development / R&D | | | | | |
| Market development | | | | | |
| Market positioning | | | | | |
| Pricing | | | | | |
| Sales tactics | | | | | |
| Marketing | | | | | |
| Other (please specify) | | | | | |

20. Do you report the results of your competitive intelligence process to others within your company e.g. presentations, news briefs, reports, database access?

| | |
|-----|----|
| Yes | No |
|-----|----|

If yes, please elaborate: _____

21. Who do you report your competitive intelligence results to?

| | |
|------------------------------|--|
| CEO / Managing Director | |
| Manager Strategy | |
| Export Manager | |
| Manager Business Development | |
| Other (please name) | |

22. Do you train your information specialists?

| | |
|-----|----|
| Yes | No |
|-----|----|

23. If yes, where else do they receive training?

| | |
|-----|----|
| Yes | No |
|-----|----|

24. What are the main functions in which you train information specialists?

| | |
|-----------------------------------|--|
| Determine key intelligence topics | |
| Gather macro information | |
| Gather competitor information | |
| Analyse information | |
| Communicate intelligence | |
| Manage an information database | |
| Other? | |

25. Are all your personnel sensitised about the importance of gathering and communicating competitive information?

| | |
|-----|----|
| Yes | No |
|-----|----|

If yes, please describe how this is done

| |
|--|
| |
|--|

26 Do you capture competitive information in a database?

| | |
|-----|----|
| Yes | No |
|-----|----|

If yes, please describe

| |
|--|
| |
|--|

27. Do you have any further comments?

| |
|--|
| |
|--|

ANNEXURE E: INTERVIEW GUIDE FOR RELEVANT TPOS

The survey you have received is interested in studying the information needs of extruder exporters. You have been selected by to participate in the survey due to your activity in the extruder manufacturing sector in South Africa. By completing this survey you agree that that the information you provide may be used for research purposes. Know that you are free to decide not to participate and complete the survey, or withdraw at any time, although your data cannot be replaced by anyone else's. The survey is however completed anonymously, and I as researcher will have no way of connecting the information you provide to you personally. Even so, the researcher undertakes to keep the individual information provided herein confidential, not to let it out of their possession, and to analyse results only at the group level.

PART 1: BACKGROUND QUESTIONS

1. How many members do you have?

2. How many years have you been in existence?

3. Please indicate which of the **services** listed below you provide to your members or stakeholders. Please tick applicable category:

| | Yes | No |
|--|-----|----|
| Identify markets with potential and export opportunities | | |
| Identify and facilitate the removal of obstacles impeding export growth | | |
| Match potential exporters with foreign buyers | | |
| Export marketing and incentive assistance | | |
| Development of exporters e.g. business / export skills | | |
| Export market information | | |
| Training and education services | | |
| Provide a forum for, assistance to and services to industry associations and members | | |
| Provide an information service (publications, etc.) | | |
| Other | | |

4. How do you communicate your services with your members?

| | |
|------------------------|--|
| Meetings / briefings | |
| Documented information | |

| | |
|----------------------------|--|
| Internet (website/e-mails) | |
| Other | |

PART 2: QUESTIONS

1. How many South African manufacturers of extruders are you aware of?

2. Who are they?

3. Are there extruder exporters among your members?

| | |
|-----|----|
| Yes | No |
|-----|----|

4. If yes, where do they export to?

5. Can you provide extruder industry information

- a. Turnover in Rand value
- b. Number of extruder manufacturers
- c. How many of them are exporters
- d. Competitive drivers: (Please tick below where applicable and rank in terms of importance)

| | Very Important | | | Not Important | |
|--|----------------|---|---|---------------|---|
| | 1 | 2 | 3 | 4 | 5 |
| Price | | | | | |
| Quality | | | | | |
| Service | | | | | |
| Value-Add | | | | | |
| Technological innovation | | | | | |
| Size | | | | | |
| Environmentally considerations | | | | | |
| Delivery times | | | | | |
| Strength of promotion | | | | | |
| Distribution: Networks, agents, distributors | | | | | |
| Other e.g. skills and management, focus, differentiation | | | | | |

6. Do you provide specific information on African states?

| | |
|-----|----|
| Yes | No |
|-----|----|

7. What **type of information** and assistance do you provide to exporters / stakeholders?

| | Yes | No |
|--|-----|----|
| Macro economic information (trends, indicators, infrastructure) | | |
| Political information (stability, security) | | |
| Legal / regulatory information (customs, market access and regulations, exchange controls) | | |
| Market information (customer profiles, culture and business ethics, customer preferences, distributors / channels) | | |
| Marketing information (promotion, partners / agents to secure business or win contracts, trade fairs; market entry strategies, new business opportunities) | | |
| Competitor information (products, prices, profiles, production and supply, reputation, tactics, activities) | | |
| Trade restrictions (e.g. tariffs and non-tariffs, barriers, trade barriers, procedures) | | |
| Macro economic information (trends, indicators, infrastructure) | | |
| Political information (stability, security) | | |
| Legal / regulatory information (customs, market access and regulations, exchange controls) | | |
| Market information (customer profiles, culture and business ethics, customer preferences, distributors / channels) | | |
| Marketing information (promotion, partners / agents to secure business or win contracts, trade fairs; market entry strategies, new business opportunities) | | |
| Competitor information (products, prices, profiles, production and supply, reputation, tactics, activities) | | |
| Trade restrictions (e.g. tariffs and non-tariffs, barriers, trade barriers, procedures) | | |
| Other e.g. financial packages | | |

Also provides information on financial packages

7. Which **sources of information** do you think exporters use to access information you do not / cannot provide?

| | |
|--|--|
| Information obtained from internal personnel | |
| Personal contacts outside the organisation (e.g. consultants, banks, universities) | |
| Electronic databases and Internet | |
| Published sources (e.g. books, magazines, annual reports, analyst reports, etc.) | |
| Government/government agencies (e.g. trade departments, agencies, embassies, etc) | |
| Documents generated in the organisation (e.g. Intranet, newsletters) | |

| | |
|--|--|
| Other published sources (e.g. newspapers, magazines, journals) | |
| Other | |

8. Where do you get **your** information from? Please rank the following **sources** of information according to importance.

| | Very Important Not Important | | | | | I don't use this source of information |
|--|---------------------------------|---|---|---|---|--|
| | 1 | 2 | 3 | 4 | 5 | |
| Information obtained from internal personnel | | | | | | |
| Personal contacts outside the organisation (e.g. consultants, banks, universities) | | | | | | |
| Electronic databases and Internet | | | | | | |
| Published sources (e.g. books, magazines, annual reports, analyst reports, etc.) | | | | | | |
| Government/government agencies (e.g. trade departments, agencies, embassies, etc) | | | | | | |
| Documents generated in the organisation (e.g. Intranet, newsletters) | | | | | | |
| Other published sources (e.g. newspapers, magazines, journals) | | | | | | |

9. How would you rate the **quality** of information that you provide to your members?

| | High Quality | | | Low Quality | |
|--------------------------------|--------------|---|---|-------------|---|
| | 1 | 2 | 3 | 4 | 5 |
| Macro economic information | | | | | |
| Political information | | | | | |
| Legal / regulatory information | | | | | |
| Market information | | | | | |
| Marketing information | | | | | |
| Competitor information | | | | | |
| Trade restrictions | | | | | |
| Macro economic information | | | | | |

| | | | | | |
|---|--|--|--|--|--|
| Political information (stability, security) | | | | | |
| Legal / regulatory information | | | | | |
| Market information | | | | | |
| Marketing information | | | | | |
| Competitor information | | | | | |
| Trade restrictions | | | | | |
| Other | | | | | |

10. What do you regard as challenges / gaps / opportunities in the service delivery to your clients / members?

11. Concluding comments / remarks

ANNEXURE F: INTERVIEW GUIDE FOR EXTRUDER USERS

The survey you have received is interested in studying the information needs of extruder exporters. You have been selected by to participate in the survey due to your activity in the extruder manufacturing sector in South Africa. By completing this survey you agree that that the information you provide may be used for research purposes. Know that you are free to decide not to participate and complete the survey, or withdraw at any time, although your data cannot be replaced by anyone else's. The survey is however completed anonymously, and I as researcher will have no way of connecting the information you provide to you personally. Even so, the researcher undertakes to keep the individual information provided herein confidential, not to let it out of their possession, and to analyse results only at the group level.

PART 1: DEMOGRAPHIC DETAILS

1. Please indicate the type of business you operate

| | |
|---|--|
| Manufacturing (food, plastics, aluminium, etc.) | |
| Construction | |
| Food production | |

2. What products does your company manufacture with the aid of an extruder?

PART 2: QUESTIONS

1. What type of extruder(s) do you use?

| | |
|---------------------|--|
| Single Screw | |
| Twin / double screw | |

2. How many extruders do you have?

| | |
|---------------------|--|
| Single Screw | |
| Twin / double screw | |

3. What is the origin and manufacturer?

4. Do you buy directly from the manufacturer or through an agent / distributor?

| | |
|---------------------|--|
| Direct | |
| Agent / distributor | |

5. What factor (s) influenced your buying decision most?

| | |
|--|--|
| Price | |
| Quality | |
| Service and technical assistance | |
| Value-add | |
| Capacity | |
| Environmentally considerations | |
| Delivery times | |
| Strength of promotion | |
| Distribution: Networks, agents, distributors | |
| Other (please mention) | |

6. Do you require back-up service?

| | |
|-----|----|
| Yes | No |
|-----|----|

7. Is it important to have a service contract in place?

| | |
|-----|----|
| Yes | No |
|-----|----|

With the agent / distributor / manufacturer?

8. Do you keep spare parts?

| | |
|-----|----|
| Yes | No |
|-----|----|

9. What would you regard as challenges pertaining to your extruder?

| |
|--|
| |
|--|

ANNEXURE G: SUPPORT LETTER FROM THE NWU



NORTH-WEST UNIVERSITY
YUNIBESITI YA BOKONE-BOPHIRIMA
NOORDWES-UNIVERSITEIT
POTCHEFSTROOM CAMPUS

Private Bag X1290, Potchefstroom

South Africa 2520

Tel: (018) 299-4900

Fax: (018) 299-4910

Web: <http://www.nwu.ac.za>

Faculty of Economic and Management Sciences

Tel: +27 (0) 18 299 1445

Fax: +27 (0) 18-299 1398

E-mail: Wilma.Viviers@nwu.ac.za

To whom it may concern

SUPPORT LETTER FROM THE NORTH-WEST UNIVERSITY (POTCHEFSTROOM CAMPUS)

Research: Export information needs, information seeking patterns and information services for extruder exporters and users in South Africa

The NWU seeks your assistance to one of its students, Mrs. Marié-Luce Kühn. She is a PhD student in International Trade at the North-West University (Potchefstroom Campus) under my supervision.

I would appreciate your assistance in terms of the following:

- Allocate time for an interview with Mrs. Kühn.
- Provide any additional information relevant to her.

We would like to add that any company information will be treated confidentially and used only in an aggregated format.

Kindly feel free to contact me should you need any more information on this study.

Regards

A handwritten signature in black ink, appearing to read 'W. Viviers'.

Prof Wilma Viviers

Director: School of Economics

ANNEXURE H: COVER LETTER FOR INTERVIEWS



NORTH-WEST UNIVERSITY
YUNIBESITI YA BOKONE-BOPHIRIMA
NOORDWES-UNIVERSITEIT
POTCHEFSTROOM CAMPUS

Private Bag X1290, Potchefstroom

South Africa 2520

Tel: (018) 299-4900

Fax: (018) 299-4910

Web: <http://www.nwu.ac.za>

**Faculty of Economic and Management
Sciences**

Tel: +27 (0) 18 299 1445

Fax: +27 (0) 18-299 1398

e-mail: mlm@ibis.co.za

To whom it may concern

Research: Business information needs, information seeking patterns and information services for extruder exporters and users in South Africa

I am a PhD candidate at the North-West University (Potchefstroom Campus) and I am conducting research on the topic of export information needs, seeking patterns and information services for extruder exporters and users in South Africa.

I am requesting your participation in my research by answering the questionnaire.

Please respond to the questions and provide any remarks you may deem necessary or helpful.

Thank you for your cooperation.

A handwritten signature in black ink, appearing to read 'Marié-Luce Kühn'.

Mrs. Marié-Luce Kühn
MA, North-West University

ANNEXURE I: TPOS IN TUNISIA

Table I.1: TPOs in Tunisia

| Name of Institution | Services |
|---|--|
| <p>Industry Promotion Agency (Agence de promotion de l'industrie - API)</p> <p>www.tunisianindustry.nat.tn</p> | <p>Public body responsible for the implementation of the government's policies relative to the promotion of the industrial sector. API provides a support structure and information for companies and export promoters including:</p> <ul style="list-style-type: none"> • Information on national/regional foreign trade regulations (on request) • Information on shipping and other transport facilities (on request) • Lists of manufacturers, exporters, importers, etc. (on request) • National production and foreign trade statistics (on request) • Publications on country/territory/region (guide to traders) (on request) • Assistance to overseas companies for joint ventures (on request) • Information on marketing techniques and business practices (on request) |
| <p>Centre for export promotion (Centre de promotion des exportations - CEPEX)</p> <p>www.cepex.nat.tn</p> | <ul style="list-style-type: none"> • Arbitration (on request) • Assistance in establishing contacts with traders and trade organisations (on request) • Assistance to overseas companies for joint ventures (on request) • Circulation of trade offers/trade opportunities (on request) • Information on market prospects (on request) • Information on marketing techniques and business practices (on request) • Information on national health and technical regulations (on request) • Information on national/regional foreign trade regulations (on request) • Information on prices of specific products (on request) • Information on shipping and other transport facilities (on request) • Information on trade events/participation in trade fairs (on request) • Information on trade events/participation in trade fairs (online) • Lists of manufacturers, exporters, importers, etc. (on request) • National production and foreign trade statistics (online) • Publications on country/territory/region (guide to traders) (on request) |

| Name of Institution | Services |
|--|---|
| | <ul style="list-style-type: none"> • Information on regulations and/or procedures for public tenders (on request) • National production and foreign trade statistics (on request) |
| <p>Chamber of Industry and Commerce (Chambre de commerce et d'industrie de Sfax)</p> <p>www.ccis.org.tn</p> | <ul style="list-style-type: none"> • Arbitration (on request) • Assistance in establishing contacts with traders/ and trade organisations (on request) • Assistance to overseas companies for joint ventures (on request) • Availability of showrooms for displaying products (on request) • Circulation of trade offers/trade opportunities (online) • Information on market prospects (on request) • Information on national health and technical regulations (on request) • Information on national/regional foreign trade regulations (on request) • Information on shipping and other transport facilities (on request) • Information on trade events/participation in trade fairs (online) • Lists of manufacturers, exporters, importers, etc. (on request) • National production and foreign trade statistics (on request) • Publications on country/territory/region (guide to traders) (on request) • Training facilities (room, equipment and training) (on request) |
| <p>Tunis Trade Point</p> <p>http://www.tradepoint.org/index.php?id=658</p> | <p>The Tunis Trade Point is a member of the World Trade Point Federation (WTPF), an international non governmental organisation founded in 2000. Tunis Trade Point aims to support Tunisian companies in developing their business internationally. It falls under the supervision of the Ministry of Commerce and Handicrafts and is located in the Tunisian Export Exchange.</p> |
| <p>Industrial Association for Commerce and Handicrafts (an exporter association). (Union tunisienne de l'industrie, du com. et de l'artisanat - UTICA)</p> <p>www.utica.org.tn</p> | <ul style="list-style-type: none"> • Arbitration (on request) • Assistance in establishing contacts with traders and trade organisations (on request) • Assistance to overseas companies for joint ventures (on request) • Circulation of trade offers/trade opportunities (on request) • Information on market prospects (on request) |

| Name of Institution | Services |
|--|---|
| | <ul style="list-style-type: none"> • Information on marketing techniques and business practices (on request) • Information on national health and technical regulations (on request) • Information on national/regional foreign trade regulations (on request) • Information on prices of specific products (on request) • Information on shipping and other transport facilities (on request) • Information on trade events/participation in trade fairs (on request) • Lists of manufacturers, exporters, importers, etc. (on request) • National production and foreign trade statistics (on request) • Publications on country/territory/region (guide to traders) (on request) • Training facilities (room, equipment and training) (on request) |
| <p>Tunisian purchasing and supply management association (Association Tunisienne de Gestion des approvisionnements et des achats – ATUGA)</p> | <p>Provides support to exporters in Tunisia.</p> |
| <p>Enhancing Arab Capacity for Trade (EnACT), an International Trade Centre (ITC) technical assistance facility funded in large part by the Canadian International Development Agency (CIDA)</p> | <p>EnACT aims to develop the full export potential of five North African countries of which Tunisia is one. The others are Algeria, Egypt, Jordan and Morocco. EnACT falls under the ITCs Aid for Trade cluster of activities and also strives to share environmentally sound best practices with its partners and stakeholders in line with Millennium Development Goals (MDGs) number 7 and 8, i.e. ensuring environmental sustainability, developing a global partnership for development. In addition, EnACT focuses on MDG number 3, promoting gender equality and empowering women.</p> |

Source: Intracen, 2010

ANNEXURE J: EXTRUDER MANUFACTURERS THAT EXPORT EXTRUDERS TO TUNISIA

J.1 Background

It was determined during the research that there is no extrusion manufacturing capacity in Tunisia and that all extruders that are used in local industries are imported. The scan did not determine whether the companies listed below are importing single and or twin screw extruders.

J.2 Extruders manufacturers that export to Tunisia:

The following extruder manufacturers export extruders to Tunisia:

- i. Clextral, headquartered in France, manufactures and exports turnkey production lines for the human and animal food industry utilising the twin screw technology. Products include breakfast cereals, snacks, ingredients, baby food, pet food and fish feed. It also has twin screw extrusion lines for the fine chemicals, plastic, recycling, energetic materials and biodegradable materials. Its extruder products are complemented by regular training sessions and local support via the 6 sites worldwide, with a complete customised offer including i.e. maintenance, equipment and production lines renovation and revamping, components supply, training, technical and process assistance. Clextral has bases in North America (Tampa, Florida), South America (Santiago, Chile), Asia (Shanghai, China) and North Africa (Algiers, Algeria). Clextral enables its customers to develop new products in its 2 test centres (based in the USA and in France) equipped with pasta and extrusion equipment reproducing the industrial processes.
- ii. Amut, based in Italy, manufactures extrusion plants for processing thermoplastic materials and plastics recycling plants. More than 80 percent of its production is exported. Its

advantage is the complete plants for the extrusion of thermoplastic materials. CNP in Tunisia uses Amut extruders. Amut has an agent, Ejem, in Tunisia while it has another agent in Morocco. Amut also has an agent in South Africa namely Plasquip, in Wadeville. Ejem is located and may be contacted at the following address:

Immeuble Ayam, Angle des rues Lac Malaren et Lac Toba - 1053 Les Berges du Lac,
Tunis, Tunisia

Telephone +216 71 960 399

Facsimile: +216 71 960 385

fama@planet.tn

Contact person: Mr. Jamel Maazoun

iii. Zocchi is based in Italy and its principal business is the manufacturing of extrusion and co-extrusion die heads. It has also extended its products to include specialised complete blown film production lines to produce packaging, film. Its lines are used for different applications: food packaging, industrial packaging, sanitary packaging and agricultural film. It manufactures film extrusion lines, Co-extrusion lines, Special extrusion lines, extrusion heads, nip Rollers, cooling Rings, winders, embossing plants and stretched plastic net extrusion lines. Its products are used in Tunisia in the plastics industry but it has no office in Tunisia. The company's website is www.zocchigiovanni.it

iv. Cincinnati is based in Austria and it is represented in Tunisia by an agent A.C.T. Cincinnati manufactures both single- and twin-screw extruders that are used in the plastics industry and in particular pipe production. Cincinnati Extrusion offers high quality machinery, service and know-how for a wide range of applications in pipe extrusion in particular pressure pipes, drain and sewer pipes, corrugated pipes and foam core pipes. The company is contactable at the following address:

Zarrouk Centre, Appt. N°52 5ème étage, Angles rues Ibn Khaldoun et Ahmed Tlili, 1001

Tunis, Tunisia

Telephone: +216-71-335770

Facsimile: +216-71-339574

Contact person: Kamel Taamallah

act.tunisie@planet.tn

ANNEXURE K: EXTRUDER TRADE FIGURES (IMPORT AND EXPORT)

Table K.1: Importing countries of product HS 847720, 2008 (globally)

| Importers | Trade Indicators | | | | | | | | | |
|--------------------|--------------------------------------|------------------------------------|---------------------------|---------------|------------------------|---|--|---|---------------------------|--|
| | Value imported in 2008, in US\$ '000 | Trade balance in 2008 in US\$ '000 | Quantity imported in 2008 | Quantity Unit | Unit value (US\$/unit) | Annual growth in value between 2004-2008, % | Annual growth in quantity between 2004-2008, % | Annual growth in value between 2007-2008, % | Share in world imports, % | |
| World | 2,999,321 | -121,447 | 145,820 | Tons | 20,569 | 18 | 18 | 5 | 100 | |
| Russian Federation | 388,488 | -383,723 | 19,004 | Tons | 20,442 | 41 | 30 | 18 | 13 | |
| China | 331,407 | -82,068 | 18,302 | Tons | 18,108 | -5 | | 10 | 11 | |
| India | 144,284 | -106,031 | 7,968 | Tons | 18,108 | 74 | 71 | 271 | 4.8 | |
| US | 116,049 | -19,499 | 6,409 | Tons | 18,107 | 5 | | -11 | 3.9 | |
| Turkey | 105,828 | -89,605 | 4,361 | Tons | 24,267 | 12 | 19 | 9 | 3.5 | |
| Thailand | 86,685 | -77,247 | 4,821 | Tons | 17,981 | 14 | | -21 | 2.9 | |
| Saudi Arabia | 85,196 | -84,965 | 2,454 | Tons | 34,717 | 79 | 72 | -39 | 2.8 | |
| Mexico | 81,647 | -78,507 | 4,509 | Tons | 18,108 | 22 | 14 | -43 | 2.7 | |
| Brazil | 77,414 | -58,133 | 3,356 | Tons | 23,067 | 54 | 59 | -15 | 2.6 | |
| France | 75,973 | -30,615 | 2,055 | Tons | 36,970 | 8 | 7 | 46 | 2.5 | |
| Germany | 69,633 | 895,772 | 2,522 | Tons | 27,610 | 22 | 13 | -13 | 2.3 | |
| Iran | 65,193 | -65,081 | 2,647 | Tons | 24,629 | 7 | 6 | 23 | 2.2 | |
| Chinese Taipei | 55,315 | 59,351 | 1,860 | Tons | 29,739 | 5 | 2 | 46 | 1.8 | |
| Viet Nam | 54,786 | -54,662 | 3,025 | Tons | 18,111 | 27 | 25 | 36 | 1.8 | |
| Indonesia | 52,547 | -51,655 | 4,355 | Tons | 12,066 | 29 | 18 | 34 | 1.8 | |

| Importers | Trade Indicators | | | | | | | | | |
|-------------------|--------------------------------------|------------------------------------|---------------------------|---------------|------------------------|---|--|---|---------------------------|--|
| | Value imported in 2008, in US\$ '000 | Trade balance in 2008 in US\$ '000 | Quantity imported in 2008 | Quantity Unit | Unit value (US\$/unit) | Annual growth in value between 2004-2008, % | Annual growth in quantity between 2004-2008, % | Annual growth in value between 2007-2008, % | Share in world imports, % | |
| Poland | 51,563 | -39,027 | 2,058 | Tons | 25,055 | 9 | 4 | -17 | 1.7 | |
| Italy | 49,381 | 394,770 | 1,271 | Tons | 38,852 | 13 | 3 | -22 | 1.6 | |
| Republic of Korea | 49,070 | 18,448 | 1,924 | Tons | 25,504 | 1 | -5 | -29 | 1.6 | |
| Japan | 49,012 | 181,369 | 1,727 | Tons | 28,380 | 24 | 12 | -1 | 1.6 | |
| Colombia | 47,914 | -47,199 | 2,522 | Tons | 18,998 | 29 | 31 | 328 | 1.6 | |
| Spain | 47,788 | -36,863 | 1,590 | Tons | 30,055 | 2 | -2 | -36 | 1.6 | |
| Ukraine | 43,902 | -41,781 | 3,474 | Tons | 12,637 | 36 | 35 | 193 | 1.5 | |
| Venezuela | 42,469 | -42,393 | 1,543 | Tons | 27,524 | 105 | 45 | 187 | 1.4 | |
| Canada | 35,929 | -23,060 | 1,984 | Tons | 18,109 | 12 | | 5 | 1.2 | |
| Malaysia | 35,703 | -31,748 | 1,972 | Tons | 18,105 | 9 | 7 | -26 | 1.2 | |
| Portugal | 32,638 | -31,675 | 497 | Tons | 65,670 | 26 | -6 | 182 | 1.1 | |
| Argentina | 32,558 | -30,252 | 1,464 | Tons | 22,239 | 25 | 10 | 133 | 1.1 | |
| South Africa | 32,380 | -31,540 | 1,788 | Tons | 18,110 | 15 | | 17 | 1.1 | |
| Switzerland | 31,645 | 62,102 | 771 | Tons | 41,044 | 21 | 19 | 114 | 1.1 | |
| Romania | 30,522 | -29,806 | 1,339 | Tons | 22,795 | 14 | 4 | 27 | 1 | |
| Egypt | 30,025 | -30,025 | 1,658 | Tons | 18,109 | | | | 1 | |
| Austria | 29,162 | 235,233 | 1,083 | Tons | 26,927 | 15 | 12 | -17 | 1 | |
| United Kingdom | 28,844 | -2,533 | 1,559 | Tons | 18,502 | 0 | 23 | -45 | 1 | |

| Importers | Trade Indicators | | | | | | | | | |
|----------------------|--------------------------------------|------------------------------------|---------------------------|---------------|------------------------|---|--|---|---------------------------|--|
| | Value imported in 2008, in US\$ '000 | Trade balance in 2008 in US\$ '000 | Quantity imported in 2008 | Quantity Unit | Unit value (US\$/unit) | Annual growth in value between 2004-2008, % | Annual growth in quantity between 2004-2008, % | Annual growth in value between 2007-2008, % | Share in world imports, % | |
| United Arab Emirates | 26,444 | -25,819 | 1,589 | Tons | 16,642 | | | -13 | 0.9 | |
| Nigeria | 24,695 | -24,695 | 1,364 | Tons | 18,105 | | | -9 | 0.8 | |
| Belarus | 23,195 | -22,665 | 611 | Tons | 37,962 | 4 | -6 | 96 | 0.8 | |
| Belgium | 20,732 | -12,351 | 1,009 | Tons | 20,547 | -1 | 6 | 1 | 0.7 | |
| Finland | 20,714 | 28,163 | 451 | Tons | 45,929 | 25 | 15 | 19 | 0.7 | |
| Australia | 17,094 | -15,357 | 944 | Tons | 18,108 | 20 | | 7 | 0.6 | |
| Morocco | 16,713 | -16,623 | 1,258 | Tons | 13,285 | 16 | 20 | 36 | 0.6 | |
| Peru | 16,696 | -16,696 | 828 | Tons | 20,164 | 43 | 22 | 84 | 0.6 | |
| Norway | 16,655 | -16,278 | 357 | Tons | 46,653 | 69 | 42 | 223 | 0.6 | |
| Algeria | 16,500 | -16,500 | 708 | Tons | 23,305 | 0 | -9 | 112 | 0.6 | |
| Israel | 16,470 | -15,731 | 910 | Tons | 18,099 | 24 | | -5 | 0.5 | |
| Chile | 16,287 | -15,901 | 899 | Tons | 18,117 | 22 | | -50 | 0.5 | |
| Czech Republic | 16,014 | -11,905 | 653 | Tons | 24,524 | 9 | 3 | 1 | 0.5 | |
| Greece | 14,447 | -14,242 | 493 | Tons | 29,304 | 16 | 7 | 43 | 0.5 | |
| Ecuador | 14,156 | -14,156 | 944 | Tons | 14,996 | 47 | 38 | -10 | 0.5 | |
| Latvia | 13,551 | -12,883 | 301 | Tons | 45,020 | 185 | 106 | 279 | 0.5 | |
| Bulgaria | 13,251 | -12,082 | 736 | Tons | 18,004 | 20 | 2 | 6 | 0.4 | |
| Kazakhstan | 11,438 | -11,428 | 625 | Tons | 18,301 | 29 | 30 | -36 | 0.4 | |

| Importers | Trade Indicators | | | | | | | | | |
|------------------------|--------------------------------------|------------------------------------|---------------------------|---------------|------------------------|---|--|---|---------------------------|--|
| | Value imported in 2008, in US\$ '000 | Trade balance in 2008 in US\$ '000 | Quantity imported in 2008 | Quantity Unit | Unit value (US\$/unit) | Annual growth in value between 2004-2008, % | Annual growth in quantity between 2004-2008, % | Annual growth in value between 2007-2008, % | Share in world imports, % | |
| Hong Kong (SARC) | 11,391 | 1,966 | 629 | Tons | 18,110 | -16 | | 49 | 0.4 | |
| Serbia | 11,070 | -7,220 | 774 | Tons | 14,302 | 50 | 30 | -3 | 0.4 | |
| Pakistan | 10,576 | -10,412 | 584 | Tons | 18,110 | -18 | | 48 | 0.4 | |
| Singapore | 6,412 | -4,367 | 354 | Tons | 18,113 | 24 | | 3 | 0.2 | |
| Slovakia | 6,292 | 3,984 | 266 | Tons | 23,654 | 8 | 7 | 193 | 0.2 | |
| Slovenia | 6,251 | -6,087 | 173 | Tons | 36,133 | 4 | -6 | 516 | 0.2 | |
| Hungary | 6,159 | -3,631 | 201 | Tons | 30,642 | 6 | -4 | -13 | 0.2 | |
| Netherlands | 5,951 | 22,771 | 630 | Tons | 9,446 | -9 | 16 | -28 | 0.2 | |
| Bosnia and Herzegovina | 5,861 | -5,827 | 316 | Tons | 18,547 | 34 | 13 | 538 | 0.2 | |
| Croatia | 5,366 | -5,075 | 247 | Tons | 21,725 | 19 | 17 | -16 | 0.2 | |
| Ireland | 5,306 | -5,305 | 187 | Tons | 28,374 | 70 | 47 | -10 | 0.2 | |
| Angola | 5,218 | -5,218 | 276 | Tons | 18,906 | 80 | | 321 | 0.2 | |
| Syrian Arab Republic | 4,948 | -4,873 | 263 | Tons | 18,814 | 5 | | 20 | 0.2 | |
| Kenya | 4,839 | -4,777 | 281 | Tons | 17,221 | 35 | | 37 | 0.2 | |
| Bangladesh | 4,829 | -4,829 | 321 | Tons | 15,044 | 33 | 12 | 104 | 0.2 | |
| Guatemala | 4,356 | -4,289 | 204 | Tons | 21,353 | 16 | 0 | 14 | 0.1 | |
| Philippines | 4,267 | -4,228 | 1,676 | Tons | 2,546 | 6 | 25 | -10 | 0.1 | |
| Denmark | 4,092 | -3,479 | 96 | Tons | 42,625 | -4 | 9 | 7 | 0.1 | |

| Importers | Trade Indicators | | | | | | | | | |
|---|--------------------------------------|------------------------------------|---------------------------|---------------|------------------------|---|--|---|---------------------------|--|
| | Value imported in 2008, in US\$ '000 | Trade balance in 2008 in US\$ '000 | Quantity imported in 2008 | Quantity Unit | Unit value (US\$/unit) | Annual growth in value between 2004-2008, % | Annual growth in quantity between 2004-2008, % | Annual growth in value between 2007-2008, % | Share in world imports, % | |
| Ghana | 4,050 | -4,032 | 248 | Tons | 16,331 | | 6 | 95 | 0.1 | |
| Sweden | 4,015 | -928 | 146 | Tons | 27,500 | 4 | 22 | 2 | 0.1 | |
| Tunisia | 3,924 | -3,924 | 294 | Tons | 13,347 | 21 | 1 | -71 | 0.1 | |
| Zambia | 3,798 | -3,754 | 302 | Tons | 12,576 | 42 | 17 | 433 | 0.1 | |
| Dominican Republic | 3,446 | -3,446 | 190 | Tons | 18,137 | | | 24 | 0.1 | |
| New Zealand | 2,807 | -2,689 | 140 | Tons | 20,050 | -11 | -17 | -47 | 0.1 | |
| Kuwait | 2,660 | -2,660 | 86 | Tons | 30,930 | -10 | | 102 | 0.1 | |
| Uzbekistan | 2,584 | -2,584 | 172 | Tons | 15,023 | 12 | | -35 | 0.1 | |
| Mali | 2,488 | -2,488 | 123 | Tons | 20,228 | 236 | 98 | 2972 | 0.1 | |
| Lebanon | 2,406 | -2,281 | 180 | Tons | 13,367 | -15 | -21 | 1004 | 0.1 | |
| Republic of Moldova | 2,112 | -2,108 | 96 | Tons | 22,000 | 87 | 71 | 55 | 0.1 | |
| Jordan | 2,094 | -1,615 | 311 | Tons | 6,733 | 2 | | 474 | 0.1 | |
| Estonia | 2,067 | -2,065 | 102 | Tons | 20,265 | 12 | 3 | 14 | 0.1 | |
| Ethiopia | 2,001 | -2,001 | 152 | Tons | 13,164 | -9 | -14 | 303 | 0.1 | |
| The former Yugoslav Republic of Macedonia | 1,984 | -1,975 | 108 | Tons | 18,370 | 18 | | 520 | 0.1 | |
| Senegal | 1,741 | -1,741 | 98 | Tons | 17,765 | 8 | 22 | 79 | 0.1 | |
| Djibouti | 1,583 | -1,583 | 93 | Tons | 17,022 | 12 | 5 | 1549 | 0.1 | |

| Importers | Trade Indicators | | | | | | | | | |
|------------------------|--------------------------------------|------------------------------------|---------------------------|---------------|------------------------|---|--|---|---------------------------|--|
| | Value imported in 2008, in US\$ '000 | Trade balance in 2008 in US\$ '000 | Quantity imported in 2008 | Quantity Unit | Unit value (US\$/unit) | Annual growth in value between 2004-2008, % | Annual growth in quantity between 2004-2008, % | Annual growth in value between 2007-2008, % | Share in world imports, % | |
| Sri Lanka | 1,552 | -1,552 | 86 | Tons | 18,047 | -11 | -12 | -12 | 0.1 | |
| Cyprus | 1,495 | -1,495 | 52 | Tons | 28,750 | 31 | 37 | 143 | 0 | |
| El Salvador | 1,448 | -1,443 | 66 | Tons | 21,939 | 12 | 3 | -78 | 0 | |
| Azerbaijan | 1,289 | -1,283 | 208 | Tons | 6,197 | 26 | 26 | 25 | 0 | |
| Bolivia | 1,278 | -1,278 | 243 | Tons | 5,259 | 23 | 38 | 37 | 0 | |
| Sudan | 1,237 | -1,237 | 275 | Tons | 4,498 | 128 | 67 | -7 | 0 | |
| Tajikistan | 1,216 | -1,216 | 57 | Tons | 21,333 | 324 | | 520 | 0 | |
| Costa Rica | 1,214 | -1,213 | 131 | Tons | 9,267 | -1 | 5 | -55 | 0 | |
| Côte d'Ivoire | 1,123 | -1,123 | 125 | Tons | 8,984 | 1 | 11 | -6 | 0 | |
| Libyan Arab Jamahiriya | 1,076 | -1,076 | 60 | Tons | 17,933 | 87 | | -65 | 0 | |
| Tanzania | 1,030 | -1,030 | 69 | Tons | 14,928 | -1 | 23 | -31 | 0 | |
| Swaziland | 1,028 | -1,028 | 39 | Tons | 26,359 | | | | 0 | |
| Trinidad and Tobago | 1,026 | -1,021 | 60 | Tons | 17,100 | 3 | -5 | -29 | 0 | |
| Myanmar | 1,024 | -1,024 | 58 | Tons | 17,655 | 2 | | -14 | 0 | |
| Armenia | 1,014 | -999 | 126 | Tons | 8,048 | 57 | 91 | 30 | 0 | |
| Georgia | 961 | -961 | 77 | Tons | 12,481 | 75 | 69 | 881 | 0 | |
| Panama | 953 | -953 | 38 | Tons | 25,079 | -38 | -37 | 759 | 0 | |
| Uruguay | 869 | -613 | 81 | Tons | 10,728 | 22 | 26 | 12 | 0 | |

| Importers | Trade Indicators | | | | | | | | | |
|----------------------------------|--------------------------------------|------------------------------------|---------------------------|---------------|------------------------|---|--|---|---------------------------|--|
| | Value imported in 2008, in US\$ '000 | Trade balance in 2008 in US\$ '000 | Quantity imported in 2008 | Quantity Unit | Unit value (US\$/unit) | Annual growth in value between 2004-2008, % | Annual growth in quantity between 2004-2008, % | Annual growth in value between 2007-2008, % | Share in world imports, % | |
| Paraguay | 803 | -803 | 120 | Tons | 6,692 | 6 | 4 | 318 | 0 | |
| Lithuania | 780 | 1,116 | 83 | Tons | 9,398 | -31 | -22 | -84 | 0 | |
| Iraq | 774 | -774 | 136 | Tons | 5,691 | 32 | | 330 | 0 | |
| French Polynesia | 748 | -748 | 17 | Tons | 44,000 | 12 | 16 | 72 | 0 | |
| Oman | 743 | -743 | 50 | Tons | 14,660 | 26 | 70 | -65 | 0 | |
| Nepal | 676 | -667 | 37 | Tons | 18,270 | 68 | 64 | 956 | 0 | |
| Luxembourg | 651 | -425 | 21 | Tons | 31,000 | 4 | -7 | 106 | 0 | |
| Malawi | 650 | -650 | 43 | Tons | 15,116 | 22 | 34 | 172 | 0 | |
| Cameroon | 541 | -541 | 38 | Tons | 14,237 | 1 | | 22 | 0 | |
| Mongolia | 517 | -517 | 36 | Tons | 14,361 | 64 | | 3877 | 0 | |
| Congo | 465 | -465 | 26 | Tons | 17,885 | 69 | -2 | 124 | 0 | |
| Cuba | 462 | -462 | 23 | Tons | 20,087 | 14 | | -2 | 0 | |
| Lao People's Democratic Republic | 409 | -409 | 23 | Tons | 17,783 | 4 | | 13533 | 0 | |
| Uganda | 408 | -408 | 25 | Tons | 16,320 | -22 | -33 | -27 | 0 | |
| Democratic Republic of the Congo | 393 | -393 | 40 | Tons | 9,825 | 165 | | 373 | 0 | |
| Mauritius | 354 | -266 | 20 | Tons | 17,700 | -9 | -9 | 141 | 0 | |

| Importers | Trade Indicators | | | | | | | | | |
|---------------------------------------|--------------------------------------|------------------------------------|---------------------------|---------------|------------------------|---|--|---|---------------------------|--|
| | Value imported in 2008, in US\$ '000 | Trade balance in 2008 in US\$ '000 | Quantity imported in 2008 | Quantity Unit | Unit value (US\$/unit) | Annual growth in value between 2004-2008, % | Annual growth in quantity between 2004-2008, % | Annual growth in value between 2007-2008, % | Share in world imports, % | |
| Madagascar | 337 | -337 | 73 | Tons | 4,616 | 1 | 19 | 349 | 0 | |
| Democratic People's Republic of Korea | 334 | -334 | 19 | Tons | 17,579 | 17 | | -4 | 0 | |
| Togo | 291 | -286 | 27 | Tons | 10,778 | 28 | | -3 | 0 | |
| Haiti | 278 | -278 | 15 | Tons | 18,533 | | | -13 | 0 | |
| Bahrain | 240 | -240 | 14 | Tons | 17,143 | -24 | | 400 | 0 | |
| Mozambique | 208 | -208 | 12 | Tons | 17,333 | -24 | | 333 | 0 | |
| Benin | 193 | -193 | 11 | Tons | 17,545 | 86 | | 2657 | 0 | |
| Cambodia | 192 | -192 | 22 | Tons | 8,727 | 61 | | 327 | 0 | |
| Montenegro | 192 | -192 | 7 | Tons | 27,429 | | | 433 | 0 | |
| Tokelau | 173 | -173 | 10 | Tons | 17,300 | | | | 0 | |
| Free Zones | 167 | -41 | 9 | Tons | 18,556 | 7 | | -4 | 0 | |
| Honduras | 155 | -150 | 18 | Tons | 8,611 | -33 | | 216 | 0 | |
| New Caledonia | 152 | -152 | 11 | Tons | 13,818 | 56 | 82 | 407 | 0 | |
| French South Antarctic Territories | 145 | -145 | 1 | Tons | 145,000 | | | | 0 | |
| Mayotte | 108 | -108 | 1 | Tons | 108,000 | | | | 0 | |
| Papua New Guinea | 108 | -108 | 14 | Tons | 7,714 | 22 | | 1700 | 0 | |

| Importers | Trade Indicators | | | | | | | | | |
|--------------|--------------------------------------|------------------------------------|---------------------------|---------------|------------------------|---|--|---|---------------------------|--|
| | Value imported in 2008, in US\$ '000 | Trade balance in 2008 in US\$ '000 | Quantity imported in 2008 | Quantity Unit | Unit value (US\$/unit) | Annual growth in value between 2004-2008, % | Annual growth in quantity between 2004-2008, % | Annual growth in value between 2007-2008, % | Share in world imports, % | |
| Zimbabwe | 107 | -107 | 29 | Tons | 3,690 | 117 | 20 | -80 | 0 | |
| Liberia | 84 | -84 | 5 | Tons | 16,800 | | | | 0 | |
| Malta | 76 | -76 | 1 | Tons | 76,000 | -38 | -47 | -86 | 0 | |
| Kyrgyzstan | 76 | -76 | 7 | Tons | 10,857 | 132 | | -89 | 0 | |
| Qatar | 73 | -73 | 10 | Tons | 7,300 | 15 | 44 | -99 | 0 | |
| Guinea | 66 | -66 | 6 | Tons | 11,000 | -13 | -18 | -91 | 0 | |
| Sierra Leone | 65 | 284 | 4 | Tons | 16,250 | 88 | | 5 | 0 | |
| Turkmenistan | 54 | -54 | 3 | Tons | 18,000 | | | -40 | 0 | |
| Fiji | 50 | -50 | 3 | Tons | 16,667 | 2 | | -18 | 0 | |
| Palestine | 47 | -47 | 3 | Tons | 15,667 | | | | 0 | |
| Gabon | 44 | -44 | 2 | Tons | 22,000 | | | | 0 | |
| Albania | 30 | -30 | 9 | Tons | 3,333 | -25 | -7 | 100 | 0 | |
| Yemen | 22 | -22 | 6 | Tons | 3,667 | -40 | | -93 | 0 | |
| Bahamas | 19 | -19 | 1 | Tons | 19,000 | | | | 0 | |
| Comoros | 17 | -17 | 3 | Tons | 5,667 | | | | 0 | |
| Samoa | 15 | -15 | 1 | Tons | 15,000 | | | | 0 | |
| Andorra | 11 | -11 | 1 | Tons | 11,000 | 30 | | | | |
| Suriname | 11 | -11 | 1 | Tons | 11,000 | -19 | | -96 | 0 | |

| Importers | Trade Indicators | | | | | | | | | |
|---------------|--------------------------------------|------------------------------------|---------------------------|---------------|------------------------|---|--|---|---------------------------|--|
| | Value imported in 2008, in US\$ '000 | Trade balance in 2008 in US\$ '000 | Quantity imported in 2008 | Quantity Unit | Unit value (US\$/unit) | Annual growth in value between 2004-2008, % | Annual growth in quantity between 2004-2008, % | Annual growth in value between 2007-2008, % | Share in world imports, % | |
| Rwanda | 7 | -7 | 0 | Tons | | -43 | | | 0 | |
| Tonga | 6 | -6 | 0 | Tons | | | | | 0 | |
| Bhutan | 5 | -5 | 0 | Tons | | | | | 0 | |
| Faroe Islands | 5 | -5 | 0 | Tons | | | | | 0 | |
| Namibia | 2 | -2 | 1 | Tons | 2,000 | -60 | -48 | -99 | 0 | |
| Nicaragua | 1 | 22 | 0 | Tons | | -65 | | | 0 | |
| Iceland | 1 | 450 | 0 | Tons | | | | | 0 | |
| Burundi | 1 | -1 | 0 | Tons | | | | | 0 | |

Sources: ITC calculations based on COMTRADE statistics.

Table K.2: Exporting countries of product HS 847720 in 2008 (globally)

| Exporters | Trade Indicators | | | | | | | | | |
|-------------------|--------------------------------------|------------------------------------|---------------------------|---------------|------------------------|---|--|---|---------------------------|--|
| | Value exported in 2008, in US\$ '000 | Trade balance in 2008 in US\$ '000 | Quantity exported in 2008 | Quantity Unit | Unit value (US\$/unit) | Annual growth in value between 2004-2008, % | Annual growth in quantity between 2004-2008, % | Annual growth in value between 2007-2008, % | Share in world exports, % | |
| World | 2,877,874 | -121,447 | 107,734 | Tons | 26,713 | 16 | 7 | 10 | 100 | |
| Germany | 965,405 | 895,772 | 21,942 | Tons | 43,998 | 16 | 8 | 6 | 33.5 | |
| Italy | 444,151 | 394,770 | 16,594 | Tons | 26,766 | 14 | 9 | 12 | 15.4 | |
| Austria | 264,395 | 235,233 | 6,701 | Tons | 39,456 | 10 | 1 | -9 | 9.2 | |
| China | 249,339 | -82,068 | 13,947 | Tons | 17,878 | 50 | | 48 | 8.7 | |
| Japan | 230,381 | 181,369 | 7,587 | Tons | 30,365 | 8 | 2 | 1 | 8 | |
| Chinese Taipei | 114,666 | 59,351 | 12,173 | Tons | 9,420 | 13 | 8 | 36 | 4 | |
| US | 96,550 | -19,499 | 5,401 | Tons | 17,876 | 6 | | 10 | 3.4 | |
| Switzerland | 93,747 | 62,102 | 1,342 | Tons | 69,856 | 35 | 22 | 17 | 3.3 | |
| Republic of Korea | 67,518 | 18,448 | 4,439 | Tons | 15,210 | 9 | 4 | 9 | 2.3 | |
| Finland | 48,877 | 28,163 | 1,197 | Tons | 40,833 | 42 | 34 | 84 | 1.7 | |
| France | 45,358 | -30,615 | 1,389 | Tons | 32,655 | 11 | 2 | -30 | 1.6 | |
| India | 38,253 | -106,031 | 2,140 | Tons | 17,875 | 47 | 43 | 39 | 1.3 | |
| Netherlands | 28,722 | 22,771 | 1,166 | Tons | 24,633 | 36 | 26 | 25 | 1 | |
| United Kingdom | 26,311 | -2,533 | 1,190 | Tons | 22,110 | 13 | -14 | 28 | 0.9 | |
| Brazil | 19,281 | -58,133 | 981 | Tons | 19,654 | 11 | 2 | 43 | 0.7 | |

| Exporters | Trade Indicators | | | | | | | | | |
|--------------------|--------------------------------------|------------------------------------|---------------------------|---------------|------------------------|---|--|---|---------------------------|--|
| | Value exported in 2008, in US\$ '000 | Trade balance in 2008 in US\$ '000 | Quantity exported in 2008 | Quantity Unit | Unit value (US\$/unit) | Annual growth in value between 2004-2008, % | Annual growth in quantity between 2004-2008, % | Annual growth in value between 2007-2008, % | Share in world exports, % | |
| Turkey | 16,223 | -89,605 | 1,372 | Tons | 11,824 | 51 | 28 | -13 | 0.6 | |
| Hong Kong (SARC) | 13,357 | 1,966 | 747 | Tons | 17,881 | -12 | | 73 | 0.5 | |
| Canada | 12,869 | -23,060 | 720 | Tons | 17,874 | 6 | | 72 | 0.4 | |
| Poland | 12,536 | -39,027 | 814 | Tons | 15,400 | 43 | 17 | 351 | 0.4 | |
| Spain | 10,925 | -36,863 | 713 | Tons | 15,323 | -3 | 3 | 41 | 0.4 | |
| Slovakia | 10,276 | 3,984 | 290 | Tons | 35,434 | 35 | 31 | 100 | 0.4 | |
| Thailand | 9,438 | -77,247 | 563 | Tons | 16,764 | 45 | | 16 | 0.3 | |
| Belgium | 8,381 | -12,351 | 414 | Tons | 20,244 | 12 | 11 | -35 | 0.3 | |
| Russian Federation | 4,765 | -383,723 | 275 | Tons | 17,327 | 73 | 17 | -39 | 0.2 | |
| Czech Republic | 4,109 | -11,905 | 230 | Tons | 17,865 | 30 | 28 | 315 | 0.1 | |
| Malaysia | 3,955 | -31,748 | 221 | Tons | 17,896 | -6 | -9 | 105 | 0.1 | |
| Serbia | 3,850 | -7,220 | 197 | Tons | 19,543 | 32 | 60 | 2004 | 0.1 | |
| Mexico | 3,140 | -78,507 | 176 | Tons | 17,841 | 30 | 24 | 85 | 0.1 | |
| Sweden | 3,087 | -928 | 182 | Tons | 16,962 | 194 | 78 | 130 | 0.1 | |
| Hungary | 2,528 | -3,631 | 269 | Tons | 9,398 | -17 | -17 | -7 | 0.1 | |
| Argentina | 2,306 | -30,252 | 124 | Tons | 18,597 | -3 | -12 | 43 | 0.1 | |
| Ukraine | 2,121 | -41,781 | 195 | Tons | 10,877 | 25 | 13 | -6 | 0.1 | |
| Singapore | 2,045 | -4,367 | 114 | Tons | 17,939 | 2 | | -4 | 0.1 | |

| Exporters | Trade Indicators | | | | | | | | | |
|----------------------|--------------------------------------|------------------------------------|---------------------------|---------------|------------------------|---|--|---|---------------------------|--|
| | Value exported in 2008, in US\$ '000 | Trade balance in 2008 in US\$ '000 | Quantity exported in 2008 | Quantity Unit | Unit value (US\$/unit) | Annual growth in value between 2004-2008, % | Annual growth in quantity between 2004-2008, % | Annual growth in value between 2007-2008, % | Share in world exports, % | |
| Europe Other. Nes | 2,006 | 2,006 | 82 | Tons | 24,463 | 45 | 18 | 110 | 0.1 | |
| Lithuania | 1,896 | 1,116 | 51 | Tons | 37,176 | 88 | 4 | 56 | 0.1 | |
| Australia | 1,737 | -15,357 | 97 | Tons | 17,907 | 3 | | 45 | 0.1 | |
| Bulgaria | 1,169 | -12,082 | 109 | Tons | 10,725 | 34 | 18 | -59 | 0 | |
| Portugal | 963 | -31,675 | 65 | Tons | 14,815 | 12 | 3 | -69 | 0 | |
| Indonesia | 892 | -51,655 | 285 | Tons | 3,130 | 133 | 195 | -60 | 0 | |
| South Africa | 840 | -31,540 | 47 | Tons | 17,872 | 2 | | 31 | 0 | |
| Israel | 739 | -15,731 | 41 | Tons | 18,024 | 142 | | 205 | 0 | |
| Romania | 716 | -29,806 | 114 | Tons | 6,281 | 17 | 2 | -47 | 0 | |
| Colombia | 715 | -47,199 | 54 | Tons | 13,241 | 46 | 16 | 59 | 0 | |
| Latvia | 668 | -12,883 | 75 | Tons | 8,907 | 83 | 53 | 48 | 0 | |
| United Arab Emirates | 625 | -25,819 | 80 | Tons | 7,813 | | | 408 | 0 | |
| Denmark | 613 | -3,479 | 21 | Tons | 29,190 | 8 | 28 | 35 | 0 | |
| Belarus | 530 | -22,665 | 151 | Tons | 3,510 | 30 | 46 | -30 | 0 | |
| Jordan | 479 | -1,615 | 23 | Tons | 20,826 | 81 | | 66 | 0 | |
| Iceland | 451 | 450 | 50 | Tons | 9,020 | | | | 0 | |
| Chile | 386 | -15,901 | 22 | Tons | 17,545 | 159 | | -49 | 0 | |
| Norway | 377 | -16,278 | 70 | Tons | 5,386 | 18 | 30 | -64 | 0 | |

| Exporters | Trade Indicators | | | | | | | | | |
|--------------|--------------------------------------|------------------------------------|---------------------------|---------------|------------------------|---|--|---|---------------------------|--|
| | Value exported in 2008, in US\$ '000 | Trade balance in 2008 in US\$ '000 | Quantity exported in 2008 | Quantity Unit | Unit value (US\$/unit) | Annual growth in value between 2004-2008, % | Annual growth in quantity between 2004-2008, % | Annual growth in value between 2007-2008, % | Share in world exports, % | |
| Sierra Leone | 349 | 284 | 3 | Tons | 116,333 | | | 2081 | 0 | |
| Croatia | 291 | -5,075 | 92 | Tons | 3,163 | 13 | 4 | -83 | 0 | |
| Uruguay | 256 | -613 | 31 | Tons | 8,258 | 101 | 79 | 12700 | 0 | |
| Saudi Arabia | 231 | -84,965 | 51 | Tons | 4,529 | | | 65 | 0 | |
| Luxembourg | 226 | -425 | 13 | Tons | 17,385 | 176 | 0 | 104 | 0 | |
| Greece | 205 | -14,242 | 28 | Tons | 7,321 | -18 | -38 | -91 | 0 | |
| Pakistan | 164 | -10,412 | 9 | Tons | 18,222 | 23 | | -16 | 0 | |
| Slovenia | 164 | -6,087 | 37 | Tons | 4,432 | 40 | -16 | -90 | 0 | |
| Free Zones | 126 | -41 | 27 | Tons | 4,667 | | | | 0 | |
| Lebanon | 125 | -2,281 | 19 | Tons | 6,579 | 0 | 12 | | 0 | |
| Viet Nam | 124 | -54,662 | 7 | Tons | 17,714 | 119 | | 68 | 0 | |
| New Zealand | 118 | -2,689 | 32 | Tons | 3,688 | -11 | | -17 | 0 | |
| Iran | 112 | -65,081 | 9 | Tons | 12,444 | 70 | | 1144 | 0 | |
| Morocco | 90 | -16,623 | 3 | Tons | 30,000 | 58 | -19 | -70 | 0 | |
| Mauritius | 88 | -266 | 5 | Tons | 17,600 | -22 | 14 | | 0 | |
| Venezuela | 76 | -42,393 | 17 | Tons | 4,471 | -31 | -39 | | 0 | |
| Syria | 75 | -4,873 | 4 | Tons | 18,750 | -12 | | 971 | 0 | |
| Guatemala | 67 | -4,289 | 1 | Tons | 67,000 | | -49 | -76 | 0 | |

| Exporters | Trade Indicators | | | | | | | | | |
|----------------------------------|--------------------------------------|------------------------------------|---------------------------|---------------|------------------------|---|--|---|---------------------------|--|
| | Value exported in 2008, in US\$ '000 | Trade balance in 2008 in US\$ '000 | Quantity exported in 2008 | Quantity Unit | Unit value (US\$/unit) | Annual growth in value between 2004-2008, % | Annual growth in quantity between 2004-2008, % | Annual growth in value between 2007-2008, % | Share in world exports, % | |
| Kenya | 62 | -4,777 | 10 | Tons | 6,200 | | | | 0 | |
| Zambia | 44 | -3,754 | 20 | Tons | 2,200 | | | | 0 | |
| Philippines | 39 | -4,228 | 6 | Tons | 6,500 | -38 | -37 | | 0 | |
| Bosnia and Herzegovina | 34 | -5,827 | 7 | Tons | 4,857 | -23 | -21 | -83 | 0 | |
| Nicaragua | 23 | 22 | 2 | Tons | 11,500 | | | | 0 | |
| Ghana | 18 | -4,032 | 3 | Tons | 6,000 | | | | 0 | |
| Armenia | 15 | -999 | 26 | Tons | 577 | -53 | -27 | -96 | 0 | |
| Macao (SARC) | 13 | 13 | 3 | Tons | 4,333 | | | | 0 | |
| Kazakhstan | 10 | -11,428 | 0 | Tons | | -21 | | 100 | 0 | |
| Nepal | 9 | -667 | 0 | Tons | | | | | 0 | |
| Former Yugoslav Rep of Macedonia | 9 | -1,975 | 10 | Tons | 900 | -6 | | 80 | 0 | |
| Botswana | 7 | 7 | 0 | Tons | | | | | 0 | |
| Azerbaijan | 6 | -1,283 | 3 | Tons | 2,000 | -8 | 1 | -79 | 0 | |
| El Salvador | 5 | -1,443 | 1 | Tons | 5,000 | -65 | -58 | 150 | 0 | |
| Honduras | 5 | -150 | 2 | Tons | 2,500 | | | -94 | 0 | |
| Togo | 5 | -286 | 9 | Tons | 556 | -15 | | | 0 | |
| Trinidad and Tobago | 5 | -1,021 | 0 | Tons | | -13 | | -69 | 0 | |
| Republic of Moldova | 4 | -2,108 | 1 | Tons | 4,000 | -28 | -45 | -67 | 0 | |

| Exporters | Trade Indicators | | | | | | | | | |
|------------|--------------------------------------|------------------------------------|---------------------------|---------------|------------------------|---|--|---|---------------------------|--|
| | Value exported in 2008, in US\$ '000 | Trade balance in 2008 in US\$ '000 | Quantity exported in 2008 | Quantity Unit | Unit value (US\$/unit) | Annual growth in value between 2004-2008, % | Annual growth in quantity between 2004-2008, % | Annual growth in value between 2007-2008, % | Share in world exports, % | |
| Somalia | 3 | 3 | 0 | Tons | | | | | 0 | |
| Estonia | 2 | -2,065 | 1 | Tons | 2,000 | | | | 0 | |
| Costa Rica | 1 | -1,213 | 0 | Tons | | -60 | | | 0 | |
| Ireland | 1 | -5,305 | 0 | Tons | | | | | 0 | |

Sources: ITC calculations based on COMTRADE statistics

ANNEXURE L: CURRENT AND POTENTIAL USERS OF EXTRUDERS IN TUNISIA

L.1 Background

A high-level scan was conducted to determine three users with the highest potential for extruder application in Tunisia. These users are mainly manufacturers and producers of food and aluminium and plastics products. These users are listed below:

L.2 Extruder users

- i. Comptoir National du Plastique (CNP) produces various plastic products using a variety of machines including 12 extruders in the transformation of plastic material through extrusion, injection, blowing and moulding. It is situated at the industrial zone of north Sousse. Brands it uses are Amut, Zocchi and Plastimac (blow moulding). The company can be contacted at the following address: Le Comptoir National du Plastique, Route de Tunis - Km 6.5 - 4022 Akouda-Tunis
Telephone: (+216) 73 343 200 - 73 343 221 - 73 343 710
Facsimile: (+216) 73 343 644
Contact persons: Mr Mohamed Ajmi Karaoud and Mr Walid Chatti
www.cnp-tn.com

- ii. Profile Aluminium Maghrebin: Aluminium extrusion plant. The company can be contacted at the following address: 21 rue lac Michigan residence Lakeo, Les Berges du Lac, Tunis 1053, Tunisia
Telephone: +216 98 36 36 89
Facsimile: +216 71 861 713
Contact person: Ben Hassine Karim

iii. Tunisie Profilés Aluminium (TPR) leads with 90 percent of Tunisia's market share in aluminium alloy extrusion. Tunisie Profiles Aluminium SA manufactures aluminium products for the construction industry. It manufactures sections made of aluminium alloys. The company was founded in 1977 and is based in Ben Arous, Tunisia. It built two factories, in Algiers and Tripoli, in 2008, for a total of 55m Tunisian dinars. TPR, which was floated on the stock market in May 2007, exports to seven countries in Africa and Europe. In Algeria, demand for extruded aluminium is 10,000 tonnes per annum and should increase with the government's programme to build one million homes by 2009. Libya's market calls for the maintenance of major tourist projects and the construction of 400,000 homes by 2011. Company directors are banking on the planned construction of a million homes by 2009 in Algeria and a current market of 10,000 tonnes per annum of extruded aluminium. The company can be contacted at the following address: Rue des usines Z.I Sidi Rézig, Mégrine 2033 - Ben Arous - Tunisie

Telephone: +216 71 433 299 / 71 433 316

Facsimile: +216 71 429 521 / 71 434 777

E-mail: commercial@tpr.com.tn and export@tpr.com.tn

www.tpr.com.tn

ANNEXURE M: REOS FOR SOUTH AFRICAN PRODUCTS IN HS CHAPTER 84

Table M.1: REOs for South African products in HS 84

| HS 6-digit product code and description | Filter 4 cell classification | Potential export value (US\$ '000) | Current SA exports (US\$ '000) |
|--|------------------------------|------------------------------------|--------------------------------|
| 840510 - Producer, water and acetylene gas generators | 2 | 5 033 | \$0 |
| 840734 - Engines, spark-ignition reciprocating, over 1000 cc | 2 | 1 029 | \$0 |
| 841210 - Reaction engines other than turbo jets | 2 | 164 | \$0 |
| 841280 - Engines and motors nes | 2 | 270 | \$0 |
| 841290 - Parts of hydraulic/pneumatic/other power engines | 2 | 637 | \$0 |
| 841382 - Liquid elevators | 2 | 110 | \$0 |
| 841440 - Air compressors mounted on wheeled chassis for towing | 2 | 1 040 | \$0 |
| 841480 - Air or gas compressors, hoods | 2 | 31 896 | \$0 |
| 841919 - Instantaneous/storage water heaters, not electric nes | 2 | 525 | \$0 |
| 841989 - Machinery for treatment by temperature change nes | 2 | 4 374 | \$0 |
| 842010 - Calandering or rolling machines, not. for metals/glas | 2 | 383 | \$0 |
| 842091 - Cylinders for rolling machines, except metals, glass | 2 | 153 | \$0 |
| 842111 - Cream separators | 2 | 139 | \$0 |
| 842122 - Filtering/purifying machinery/apparatus for beverages | 2 | 59 | \$0 |
| 842139 - Filtering or purifying machinery for gases nes | 2 | 2 681 | \$0 |
| 842310 - Personal weighing machines, baby & household scales | 2 | 130 | \$0 |
| 842389 - Weighing machinery, nes | 2 | 218 | \$0 |
| 842489 - Sprays/powder dispersing machines except agricultural | 2 | 966 | \$0 |

| Hs 6-digit product code and description | Filter 4 cell classification | Potential export value (US\$ '000) | Current SA exports (US\$ '000) |
|---|------------------------------|------------------------------------|--------------------------------|
| 842539 - Winches or capstans nes | 2 | 830 | 0 |
| 842920 - Graders and levellers, self-propelled | 2 | 2 969 | 0 |
| 842959 - Earth moving/road making equipment, self-propelled nes | 2 | 10 512 | 0 |
| 843110 - Parts of hoists and winches | 2 | 618 | 0 |
| 843420 - Dairy machinery | 2 | 623 | 0 |
| 843510 - Presses, crushers etc for wine, fruit juice, beverage | 2 | 610 | 0 |
| 843850 - Machinery for the preparation of meat and poultry | 2 | 1 223 | 0 |
| 843991 - Parts of machines for making paper, etc pulp | 2 | 74 | 0 |
| 844240 - Parts of machinery for print preparation | 2 | 59 | 0 |
| 844312 - Sheet fed, office offset printers, sheet < 22x36 cm | 2 | 62 | 0 |
| 844321 - Reel fed letterpress printers except flexographic | 2 | 68 | 0 |
| 844842 - Reeds, healds, heald-frames for weaving looms | 2 | 396 | 0 |
| 845140 - Washing, bleaching or dyeing machines (non-domestic) | 2 | 2 922 | 0 |
| 845180 - Machinery to impregnate textiles, make linoleum, etc | 2 | 1 030 | 0 |
| 845210 - Household type sewing machines | 2 | 181 | 0 |
| 845290 - Parts of sewing machines, nes | 2 | 2 358 | 0 |
| 845410 - Converters used in metallurgy or metal foundries | 2 | 16 | 0 |
| 845521 - Hot, or combination hot-cold metal rolling mills | 2 | 1 902 | 0 |
| 846040 - Honing or lapping machines | 2 | 116 | 0 |

| Hs 6-digit product code and description | Filter 4 cell classification | Potential export value (US\$ '000) | Current SA exports (US\$ '000) |
|---|------------------------------|------------------------------------|--------------------------------|
| 846190 - Metal cutting, shaping, filing, engrave machines, nes | 2 | 453 | 0 |
| 846231 - Num controlled shearing (non-punching) machine tools | 2 | 293 | 0 |
| 846249 - Punching, notching, punch-shear machine tools, nes | 2 | 674 | 0 |
| 846330 - Machines for working metal wire | 2 | 348 | 0 |
| 846591 - Sawing machines for working wood, cork, etc | 2 | 483 | 0 |
| 846692 - Parts, accessories nes, wood, plastic machine tools | 2 | 721 | 0 |
| 846890 - Welding machinery parts | 2 | 68 | 0 |
| 847149 - Dig auto data proc units | 2 | 3 760 | 0 |
| 847340 - Parts and accessories of office machines, nes | 2 | 271 | 0 |
| 847350 - Parts and accessories equally suitable | 2 | 664 | 0 |
| 847740 - rubber or plastic vacuum moulders, thermo-formers | 2 | 510 | 0 |
| 847790 - Parts of machines for working rubber or plastic | 2 | 2 172 | 0 |
| 847890 - Parts of machinery for preparing tobacco | 2 | 1 109 | 0 |
| 847981 - Metal treating machines, electric wire coil-winders | 2 | 4 154 | 0 |
| 848041 - Moulds, injection or compression, for metals/carbides | 2 | 788 | 0 |
| 848071 - Moulds, injection & compression, for rubber or plastic | 2 | 4 461 | 0 |

Source: DSM, 2010