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COMPETITIVENESS OF THE MANUFACTURING SECTOR: SELECT CASES OF THE FIJI ISLANDS

By

ALKA ASHWINI

A thesis submitted in partial fulfilment of the requirements for the degree of Master of Arts.

Department of Management and Public Administration
The University of the South Pacific

NOVEMBER, 2005

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DECLARATION OF ORIGINALITY

I declare that this thesis is my own work and that to the best of my knowledge it contains no materials previously published, or substantially overlapping with material submitted for the award of any other degree at any institution, except where due acknowledgement is made in the text.

(Alka Ashwini)

November 2005
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To all the people who assisted me in one way or another, sincere thanks. However, I bear all shortcomings and errors.
ABSTRACT

The manufacturing sector in Fiji plays an important role by providing employment to a substantial majority of the population and has been contributing to the economic development of this small developing nation in the South Pacific. Although the manufacturing sector in Fiji is reasonably developed and has been quite successful in a lot of ventures, it also has problems. These problems are related to its competitiveness and its ability to withstand external pressure and to be able to sustain its operations for long-term survival. Very little research has been done on the manufacturing sector in general and on its competitiveness.

The study attempts to identify the factors that help enhancing the competitiveness of a sector like manufacturing, with special a focus on Fiji. The thesis is divided into six parts and each part has important information to reveal in terms of the competitiveness of the manufacturing sector in Fiji.

The first part gives the background to the research problem, hypotheses and justification for research, methodology that will be adopted and a brief outline of the six chapters.

The second part attempts to define the manufacturing sector worldwide. There is no fixed or best definition and every country has developed its own special meaning. Extensive literature reviews into the problems of the manufacturing sector in terms of its competitiveness with a special focus of Fiji is carried out. The literature looks at the problems already identified by other authors and what has been done so far to enhance the competitiveness of the manufacturing sector. The activities of the government
along with the efforts of other key players are also discussed. The literature review helps generate potential research questions.

The third part looks at the methodology of the study. This section explains in detail how the research was conducted and the problems encountered. A conceptual framework is used to set the boundary for the research and to set out the methodology. The sample selection and its characteristic are also discussed.

The fourth part is very interesting as it highlights the findings and discusses it. The findings were based on the sample characteristics. Tables and other illustrations have been used to present any numerical information. This section continues to discuss the factors of competitiveness in manufacturing and then concludes.

In part five, two case studies are developed and discussed in detail with close relation to the research topic ‘Competitiveness of the manufacturing sector’. Briefly the cases represent two manufacturing firms that have excelled or are better performers in the area of competitiveness than the rest of the firms in the sample.

The final part presents the conclusions, implications, limitations and suggestions for future research.
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>ACP</td>
<td>African, Caribbean and the Pacific</td>
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<tr>
<td>ANOVA</td>
<td>Analysis of variance</td>
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<td>APO</td>
<td>Asian Productivity Organization</td>
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<td>BTA</td>
<td>Bilateral Trading Agreement</td>
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<td>CCFL</td>
<td>Crest Chicken Fiji Limited</td>
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<td>CISPRO</td>
<td>Chemical Inventory System</td>
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<td>FDI</td>
<td>Foreign Direct Investment</td>
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<td>FIC</td>
<td>Forum Island Countries</td>
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<td>FIT</td>
<td>Fiji Institute of Technology</td>
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<td>FNTC</td>
<td>Fiji National Training Council</td>
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<td>FQA</td>
<td>Fiji Quality Awards</td>
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<td>FSC</td>
<td>Fiji Sugar Corporation Limited</td>
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<td>GCR</td>
<td>Global Competitiveness Report</td>
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<td>GDP</td>
<td>Gross Domestic Product</td>
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<td>HR</td>
<td>Human Resource</td>
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<td>ICT</td>
<td>Information Communication Technologies</td>
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<td>IMD</td>
<td>International Institute of Management Development</td>
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<td>ISC</td>
<td>Information Systems Centre</td>
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<td>ISO 9000</td>
<td>International Organization for Standardization</td>
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<td>IT</td>
<td>Information Technology</td>
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<tr>
<td>OECD</td>
<td>Organization for Economic Cooperation and Development</td>
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<td>PACER</td>
<td>Pacific Agreement on Closer Economic Relations</td>
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<td>PICTA</td>
<td>Pacific Island Countries Trade Agreement</td>
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<tr>
<td>PLC</td>
<td>Programmable Logic Controllers</td>
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<tr>
<td>Acronym</td>
<td>Full Form</td>
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<tr>
<td>R&amp;D</td>
<td>Research and Development</td>
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<td>ROO</td>
<td>Rules of Origin</td>
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<tr>
<td>SME</td>
<td>Small and Medium Enterprise</td>
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<td>SPARTECA</td>
<td>South Pacific Regional Trade and Economic Co-operation Agreement</td>
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<td>SPSE</td>
<td>South Pacific Stock Exchange</td>
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<tr>
<td>SPSS</td>
<td>Statistical Package for the Social Sciences</td>
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<td>TFF</td>
<td>Tax Free Factory</td>
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<td>TFZ</td>
<td>Tax Free Zone</td>
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<tr>
<td>TPAF</td>
<td>Training and Productivity Authority of Fiji</td>
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<td>TQM</td>
<td>Total Quality Management</td>
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<tr>
<td>USP</td>
<td>University of the South Pacific</td>
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<tr>
<td>WCY</td>
<td>World Competitiveness Yearbook</td>
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<td>WTO</td>
<td>World Trade Organization</td>
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1.1 Background to the Research

Global competitiveness is a vital ingredient in support of a smooth operation of globalization (Hoa, 2003). Global pressure has in fact accentuated over the last few decades and is placing pressure on firms’ competitiveness and making them very vulnerable. Thus, firms need to recognize various competitive factors for their business survival. Technology, product and its quality, skilled human resource, research and innovation, information technology applications, market penetration etc. are among few of these factors to enhance the competitiveness of firms.

Generally, competitiveness is the ability to design, produce and or market products or services superior to those offered by competitors, considering the price and non-price factors (Momaya and Shee, 2001). Competitiveness can actually be defined at three levels: nation, industry/sector and company/firm level (Chapter 2). Any industry can apply the competitive strategy for long-term survival. In this study, the focus is largely on firm-level competitiveness in the manufacturing industry.

Fiji’s manufacturing sector plays an important role in the creation of employment, generation of revenue and partly supporting the economy as a whole (Prasad et al., 2000). According to the most recent Key Statistics, the manufacturing sector contributed a total of F$493,837 million in 2002 next to F$581,321 million by tourism i.e. putting together wholesale and retail, hotels and restaurants (FIBS, 2005). These statistics highlight the magnitude and importance of the manufacturing sector in Fiji. Further, the manufacturing sector as a step towards harnessing long-term benefits from industrialization and wealth creation for the nation attracts considerable research.

For securing the much needed foreign exchange and simultaneously to promote economic growth, emphasis is now being placed on promoting export
competitiveness of Fiji. This can be achieved through 'firm competitiveness' (Prasad, 2004), specifically the firms operating within the manufacturing sector. In view of the above reasons, this research makes an attempt to examine competitiveness of the manufacturing sector in Fiji through an in-depth study of the firms within the sector.

This research project is simply an effort to address this problem and enhance competitiveness. The aim is to carry out comprehensive research in the Fijian manufacturing sector with the principal focus on finding the best manufacturing practices and sector competitiveness. An outline as to what this research will comprise is highlighted in the final part of this chapter.

1.2 Research Problem and Hypotheses

The basic problem that is being addressed in this research is to determine the manufacturing sector competitiveness in Fiji. This is best stated as-

1.2.1 Objectives

General Objective
The objective of this study is to examine critically the current practices of manufacturing firms in Fiji and their competitiveness for sustainable economic growth.

Specific Objectives
The specific objectives are to:

- carry out an exploratory study to identify "factors of competitiveness" relevant to manufacturing sector from the background literature
- examine the competitive factors such as cost, quality, technology, product, customer and human resources etc. in the manufacturing sector and investigate firms' priority for these factors
- verify the contribution of the identified factors to firm competitiveness
- identify any restrictions and limitations to enhancing competitiveness faced by manufacturing firms
• identify two successful or nearly successful manufacturing firms in Fiji as case studies to examine the issues of:
  - the factors they have invested in to boost firm-level competitiveness
  - the type of resources (e.g., men, machines, material, methods and technology) they employ for their successful operations
  - their manufacturing strategies to be competitive in the market
• prioritize and recommend the strategies for manufacturing firms for enhancing their competitiveness.

1.2.2 Hypotheses

A review of the available literature (Chapter 2) has led to the formulation of the following hypotheses for this study:

**Hypothesis 1 (H1)** Competitiveness is dependent on product and its quality, customer, price, skilled labour, technology, IT infrastructure and government support.

**Hypothesis 2 (H2)** Competitive factors such as product, quality, technology, human resources, market etc. contribute towards enhancement of sector competitiveness.

**Hypothesis 3 (H3)** There exists a correlation among the factors of competitiveness.

**Hypothesis 4 (H4)** Competitive firms (Top 10)* have better management of competitive factors than the rest of the firms in the sample.

**Hypothesis 5 (H5)** Competitiveness of the three groups of firms (Top-10, Top-15 and Rest) is not the same.

*Top 10 companies were selected on criteria such as annual sales, labour productivity and export figures.
The competitive factors raised in the hypotheses will be included in the questionnaire to collect the relevant data. Further, the hypotheses will be tested by quantitative means. These hypotheses and details of their statistical tests can be found in Chapters 3 and 4.

1.3 Justification for the Research

While very few studies have actually been done on the manufacturing sector, the manufacturing sector has the potential to become the major revenue earner and export generator for the economy. As already noted, the manufacturing sector has the capacity to contribute a substantial amount of revenue and at the same time to employ a good proportion of the local population.

Studies that have already been done on the manufacturing sector have focused on a few competitive variables such as total quality management, quality standards and productivity. Furthermore, these studies are very case specific, which focus mainly on a company or a few companies rather than the entire manufacturing sector in Fiji. Therefore, making it difficult to understand the full picture and situation of the competitiveness of the manufacturing sector in Fiji. All previous work carried out in the interest area has been discussed in-depth in the literature review (See Chapter 2).

Further, this study is an initiative towards adding to the existing body of knowledge in manufacturing practices in Fiji and enhancing its competitiveness. The proposed study will reveal current manufacturing practices and provide recommendations that will not only secure a firm’s profits, market share and viability but also enhance the overall efficiency and effectiveness of manufacturing and its competitiveness. Consequently, appealing not only to industry specific firm managers but also to the local Government in terms of boosting the competitiveness of Fiji’s manufacturing sector through hidden opportunities.

Hence, results from this research are likely to be a valuable resource to the government as well as to the operators of manufacturing firms in Fiji. In an academic sense, this study will greatly contribute to the discipline of Management and Public Administration with a special focus on Operations Management.
1.4 Methodology

Briefly, the data sources appropriate for this research were both primary and secondary in nature. The secondary research included any published and unpublished data available.

As for the primary part, this involved studying fifty manufacturing firms in Fiji by means of a structured or close-ended questionnaire (7-point Likert scale). This formed the main study. Prior to the distribution of the questionnaire, a preliminary step was to test them in a pilot survey for validity and usefulness. Questionnaires were coded, checked and analyzed using the SPSS software package.

Further, two firms were selected as case studies and a thorough evaluation followed (See Chapter 3 for an in-depth discussion of the methodology).

1.5 Outline of the Report

This thesis is divided into six chapters and is described below (see also Figure 1.1).

• Chapter one is a summary of the thesis. This chapter highlights the usefulness of the study, aims and objectives and scope of the study. The chapter also features a brief summary or outline of all six chapters of the thesis. This will assist in understanding the flow of the research.

• Chapter two takes an in-depth look at the various literature available on 'competitiveness' and 'manufacturing'. The available data has been arranged in an inverted pyramid structure. The chapter looks at the competitiveness of the manufacturing sector in the international/global context and local context. A global outlook including the definitions, importance and dimensions of competitiveness, key players and measures of competitiveness and finally the many factors that determine competitiveness (firm-level) and promise sustainability are discussed. Next, a shift towards the local context takes effect. This becomes the focus and boundary of the study. It is here that all materials on Fiji are documented. The emergence of industrialization and its various phases along with the background and historical overview of the manufacturing
sector in Fiji and efforts and problems to enhance firm-level competitiveness are discussed. Consequently, the focus area discussion helps to validate the need for this particular research.

- Chapter three is devoted to the research methodology. The research methods adopted by the researcher are discussed. These methods include primary and secondary approaches, recording and verification of data and the data analysis techniques. This chapter clearly outlines the methods and techniques used for data gathering and analysis as seen fitting for this particular research. Also highlighted are the limitations of this research and the problems encountered during the process.

- Chapter four looks at the response rates from the main study. This is a full on chapter on the data analysis and interpretation of the results on the main study.

- Chapter five looks at the two case studies that were selected from the main study. In this chapter, a background of both the firms is given and the various competitive factors that the firms have invested in to boost competitiveness are discussed. Efforts are made to verify the usefulness of the pre-determined competitive factors and to validate findings from data analysis. Both cases are well documented and comparisons are made.

- Chapter six is the finale of the thesis. All prior chapters are recapped and discussions of major findings are emphasized in this chapter. This then allows the researcher to conveniently outline the appropriate implications and recommendations. The chapter closes with suggestions for future research in the area of 'competitiveness of the manufacturing sector in Fiji'. Following the six chapters is the reference and appendix.

An illustration of the organization of the thesis is presented in Figure 1.1.
1.6 Delimitations of Scope and Assumptions of the Study

Limitations are necessary in all research. In this study, the limitations had to be undertaken due to the time given for the completion of the thesis and the limited funds allocated for the research. In order to make this study manageable, the manufacturing sector was chosen from the whole range of sectors in the Fijian economy. The manufacturing sector on its own is fairly large and is made up of small, medium and large scale manufacturing firms, although for convenience and to avoid possible error and bias, only large scale manufacturing firms were studied.

These firms were selected on the judgement sampling technique, i.e. on the number of employees, sales turnover, export figures etc. By doing this, the researcher was able to study two-thirds of Fiji’s large manufacturers. This technique not only allowed for precision and focus but also ensured that the sample (50 large-scale manufacturers) would be representative of the population (large-scale manufacturers). The key places of research were Suva, Nadi, Lautoka and Ba as they comprise the majority of Fiji’s industrial areas.

1.7 Conclusion

In conclusion, this research is focused on the competitiveness of the manufacturing sector in Fiji. It looks into the current status of manufacturing firms in Fiji in terms of their competitiveness according to the carefully selected competitive factors such as
technology, information technology, quality, human resource development, price, product management.

Firm competitiveness is vital for survival in this globalized world, as will be discussed in the next chapter, and competitive factors are a pre-requisite to this. Given the success of consistent investment in these competitive factors in the developed countries, the question that arises is how realistic and effective it would be for the less developed countries particularly the South Pacific Islands. In this context, would these variables or factors assist manufacturing firms in Fiji to become as successful and competitive as those in the developed countries?

This study is necessary to gain a more concrete and realistic view of the manufacturing firms in Fiji and their competitiveness. The study will help reveal the gaps in manufacturing firms’ road to competitiveness and provide few of the many remedies to address these challenges.

Following this chapter is Chapter 2, which makes up the literature review. This chapter provides the essential theoretical background on global competition, definitions and dimensions of competitiveness, key players and the competitive variables/factors needed for sustainability of firms, followed by an in-depth look at the industrialization phases and the manufacturing sector in Fiji.
CHAPTER 2

LITERATURE REVIEW

2.1 Introduction
In this section, related literature has been reviewed to establish the progress of current research on the competitiveness of the manufacturing sector together with the various factors leading to firm competitiveness. This review includes a compilation of previous research, and a critical analysis through means of a summary, classification, comparison and evaluation of all previous literature followed by some research questions. The literature review has been divided as such to include an overview of parent discipline, research problem area and its boundaries, previous research done and research questions.

2.2 Overview
2.2.1 Global Competitiveness
Globalization has increased competitive pressure on firms and has changed the way in which firms operate altogether. The globalization of trade, financial transactions and business has highlighted the magnitude of competition on an international scale (Hoa, 2003). While globalization offers unparalleled opportunities for firms that act successfully, it heightens the foregone costs for firms that lag behind who eventually risk becoming marginalized. The bottom line is that, in an open and liberalized world, increasing firm competitiveness is a major challenge. For this reason, success and survival in such times demands new perspectives and dependency on competitiveness (Fawzy, 2002; Ambastha and Momaya, 2004; Heseltine, 1994). International competitiveness of nations is an illusive concept and of recent national concern. One must note, however, that there still is a lot of variation in the literature when it comes to defining and understanding competitiveness. As a construct, competitiveness is a cause, an outcome, and a means to achieving a given status level (Waheeduzzaman and Ryans, 1996). The criteria that define or determine
competitiveness may be a reflection of a country's own perception of achieving excellence.

In order to understand the dynamics of 'competitiveness' the following key questions need to be answered:

1. What is meant by competitiveness?
2. Why is it critical at this time?
3. What are the rules and prerequisites to achieve competitiveness?
4. What are the different roles of governments, firms and other key actors in building firm efficiency that boosts competitiveness?

(Nabi and Luthria, 2002; Fawzy, 2002)

2.3 Competitiveness Defined

Competitiveness has been described by many researchers as a multi-dimensional and relative concept (Shee, 2002; Ambastha and Momaya, 2004; Shurchuluu, 2002; Corbett and Wassenhove, 1993) and can be defined in a number of ways.

According to the International Institute of Management Development (IMD), competitiveness is "a field of economic knowledge which analyses the facts and policies that shape the ability of a nation to create and maintain an environment that sustains more value creation for its enterprises and more prosperity for its people" (Garelli, 2003:702). It is the ability to produce the right goods and services of the right quality at the right price and at the right time. In a nutshell, it is meeting customer needs or market desires more effectively and efficiently than other firms (Heseltine, 1994; Corbett and Wassenhove, 1993). Any competitive firm will flourish and prosper but one that is uncompetitive will become insolvent if it does not improve its performance.

Veliyath and Zahra (2000:22) refer to competitiveness as the "firm's ability to match the standards of the leaders in its industry on various benchmarks and critical success factors". Waheeduzzaman and Ryan (1996:8) assert that "competitiveness is the degree to which a nation can, under free and fair market conditions, produce goods
and services that meet the test of international markets while simultaneously maintaining or expanding the real incomes of its citizens”.

Feurer and Chaharbaghi (1994:55) state that, “Competitiveness is relative and not absolute. It depends on shareholder and customer values, financial strength which determine the ability to act and react within the competitive environment and the potential of technology in implementing the necessary strategic changes”.

The Organization for Economic Cooperation and Development (OECD, 1996) stresses that competitiveness is in essence supporting the ability of companies, industries, regions, nations or supranational regions to generate reasonably high factor income and factor employment levels at the same time as being and remaining exposed to international competition.

Others like Krugman (1994) argue that competitiveness can be better referred to as productivity. Similarly, Dunning (1995) believes that competitiveness is all about benchmarking economic performance. But the fact that remains is that regardless of how often and ill defined the term competitiveness may be, when put into context, it describes an important feature in the world economy.

To be more precise, competitiveness can actually be defined at three levels: nation, industry/sector and company/firm level. There are many definitions available for competitiveness as stated above but the most comprehensive and functional definition is perhaps given by D’Cruz (1992) in Momaya et al. (2001:35) as:

*Country competitiveness* is the extent to which a national environment is conducive or detrimental to business.

*Industry/sector competitiveness* is the extent to which an industry or business sector offers potential for growth and attractive return on investment. The concept can also be defined as the collective ability of firms in the sector to compete internationally.
**Firm/company competitiveness** is the ability to design, produce and market products or services superior to those offered by competitors, considering the price and non-price factors.

The boundary of study in this research is primarily firm-level competitiveness. Therefore, the sources of competitiveness are those assets and processes within an organization that provide competitive advantage. These sources can be tangible and intangible.

2.4 Importance of Firm-level Competitiveness

Competitiveness gained importance as a subject of study by management scholars during the last decade or so. In fact, much of the motivation and stimulus for competitiveness arose in the eighties, when the United States experienced an economic decline causing many American firms to lose ground all over the world in a number of key industries such as automobile manufacture, shipbuilding, electronics and steel. This incident further prompted researchers to focus attention on country and industry level competitiveness (Shee, 2002; Ambastha and Momaya, 2004).

2.5 Dimensions of Competitiveness - micro and macro

There are two dimensions to competitiveness: the micro-dimension and macro dimension. The micro-dimension of competitiveness refers to competition among firms within a nation and its implications in international markets and the macro-dimension refers to competition among nations (Waheeduzzaman and Ryans, 1996). This study focuses on the micro-dimension of competitiveness.

2.5.1 Micro-dimension

In this study, the firm is the unit of analysis whose competitiveness at the global level will be the focus. It should be understood that even though competitiveness comes as a global concern, the true agents that are concerned in or do the competing are in reality the firms and not countries. These firms are also inclusive of state owned firms or sponsored likewise. Naturally, government policies both active and passive have significant implications for firms’ competitiveness but it is still the managers in these individual firms that make the decisions regarding investment,
setting prices, selecting the right organizational form etc. (Waheeduzzaman and Ryans, 1996; Heseltine, 1994). Therefore, the point that these authors are driving at is that the firm is the main competitor.

2.6 Key Players of Competitiveness

In this section, the roles of the three major players — firm, government and other actors — are discussed in enhancing the competitiveness of firms in the country.

2.6.1 The Role of Firms

A firm has various roles to play for survival. To begin with, firms must improve their ability to deal with continuous change and to build assets for the future. Firms need to work on developing competitive edges rather than defending or merely relying on inherited or comparative advantages. Hence, they must base their competition on quality, flexibility, design, reliability and networking. Specifically creativity, specialization and diversification are the key focal points for firms to gain competitive positions in the global market.

Furthermore, while dealing with global rules firms need to invest in improving productivity, adding more credibility to products by using internationally accepted certification methodologies, seeking new product lines (especially in the areas of services and agricultural products) and trying to diversify markets by penetrating new markets (Fawzy, 2002; Madani and Page, 2002). To stay ahead, greater investment in new kinds of assets is crucial. These are investment in intangible assets such as research and development, technology, managerial, entrepreneurial, and employee skills, business organization, market development and software. This initiative will provide firms with flexibility and the necessary capabilities to survive and prosper.

2.6.2 The Role of Government

As mentioned earlier, firms must improve their competitiveness; however, government must guide their efforts in this respect. Because most developing countries suffer from market failures, government’s remedial actions can actually improve the distribution of resources, be cost effective and benefit long-term
aggregate growth. Firms need clear rules, a stable macro economic environment, efficient institutions, access to imports and the elimination of red tape (Veliyath and Zahra, 2000).

The government thus needs to provide a better framework for good corporate governance, including greater competition, stronger banking and capital markets and better rules to protect minority shareholders. More attention must be paid to economic interdependence in policy design and implementation. At the same time, the setting up and upgrading of education and training facilities and programs is important as a lack of an adequately trained and educated workforce can have a directly adverse effect on manufacturing companies (Lau, 1993).

In addition, the government must take globalization trends and demands into account and design policies to suit the needs of all in the society, that is equal returns. Also public private partnership must become a reality if a region seeks competitiveness in a changing and dynamic global market. The challenge for government is to implement policies that act favourably in its development with respect to globalization (Fawzy, 2002; Heseltine, 1994; Shurchuluu, 2002).

2.6.3 The Role of Other Actors

Other actors in the enhancement of manufacturing sector competitiveness include business associations, universities and the media and are better known as the third partner in development. The business associations are responsible for the deepening of public-private partnerships. That is they have to communicate, analyze and explain the implications of public policy to their members. By doing this, they would increase their members' awareness of global competitive challenges and assist with the development of cooperative policies to help firms cope with new realities.

The universities, on the other hand, should direct their research concerns to help firms and governments improve productivity in the organizations. Lastly, the media should undertake intensive public awareness campaigns so that firm competitiveness becomes a real national concern. Further, the media should also help in vigorously promoting participation and inclusion (Fawzy, 2002).
2.7 Measuring Competitiveness

In designing a reform agenda for building competitiveness, it is important to benchmark performance across nations. Several variables have been used as indicators of competitiveness. Some of the most popular discussed are national competitiveness scores, foreign direct investment inflows, unit labour cost and exports. Two popular sources of national competitiveness scores are the Global Competitiveness Report (GCR), which is prepared by the World Economic Forum and the World Competitiveness Yearbook (WCY) compiled by the International Institute of Management Development (IMD) (Nabi and Luthria, 2002; Ambastha and Momaya, 2004). The IMD’s WCY is perhaps the world’s most thorough and comprehensive annual report on the competitiveness of nations, published without interruption since 1989 (Rosselet-McCaulley, 2004). It measures and compares how well countries are providing an environment that sustains the domestic and global competitiveness of the firms operating in their borders (Nabi and Luthria, 2002).

2.8 Role of IMD

This section highlights IMD’s roles in promoting competitiveness along with a brief outline of various competitive variables. IMD assesses the competitiveness at a country level and then documents this in its prestigious publication WCY. IMD assesses the competitiveness of each country with the help of standard competitive facets such as economic performance, government efficiency, business efficiency and infrastructure. These facets are further broken down to factors/variables, for example, business efficiency comprises productivity, labour market, finance, management practices, attitudes and values (Rosselet-McCaulley, 2004).

Furthermore, the most recent global competitiveness index rankings are available from the official website of GCR (http://www.weforum.org/pdf/Gcr/Growth
Competitiveness Index 2003 Comparisons). There are 104 countries ranked as the world’s most competitive nations with Finland being the number one in 2004. What is even more interesting is that countries like Mauritius, Trinidad and Tobago, and Jamaica are listed in the competitiveness ranking. This indicates that the smaller and developing countries such as Fiji are also quite competent and have the potential to be listed in the competitiveness ranking (GCR, 2004).
In view of this, it can be concluded that the competitiveness of a nation is important and can only be achieved through an outcome-based approach. A firm on its own may be competitive but when all firms are put together, they add up to industry competitiveness. Again all the sectors contribute towards country-level competitiveness. So in general, firm competitiveness contributes to industry competitiveness and hence country-level competitiveness increases. The competitive variables governed by IMD are a very useful indicator for measuring the competitiveness of nations. Extending the same logic, some variables that enhance the competitiveness of industries and firms are captured from literature and presented below.

2.9 Competitive variables/factors
The following is a list of competitive variables or factors.

1. Benchmarking
The benchmarking variable is one of the latest additions to the list of productivity approaches developed in the last two decades (APO, 2001). It is defined as a continuing search, measurement, and comparison of products, processes, services, procedures, ways to operate and best practices that other companies have developed to obtain an output and to match global performances (Massa and Testa, 2004; Yusuff, 2004; Anderson and Pettersen, 1996; Garvin, 1993; Hyland and Beckett, 2002). The concept allows a company to learn from best practices both internally and externally to achieve superior performance (Bessant et al., 2003; Laise, 2004) and facilitate competitiveness (Shurchuluu, 2002; Skandalakis and Nelder, 2001). Another point to note is that the benchmarking process is very much intended to be a learning process through observation of a company’s practices and performances, identification of gaps and at the same time closing these gaps, acquiring new resources and leveraging them and so forth (Cox et al., 1997; Vaziri, 1992; Zairi and Whymark, 2000; Carr and Smeltzer, 1999).

According to Voss et al. (1994), manufacturing was among the first functional areas in which benchmarking was developed and tested. This view is supported by Yusuff
(2004), who adds that manufacturing holds great promise for the application of benchmarking.

Many APO (Asian Productivity Organization) member countries are fast learning about this useful concept and are making efforts to promote and propagate benchmarking in their own countries as it is an interesting strategy for organizational learning and adjustment (St-Pierre and Raymond, 2004; APO, 2001). Fiji appears as one of the APO member countries.

2. Quality
Beginning with the 1980s, manufacturing businesses have focused on quality improvement efforts to enhance their competitiveness and profitability (Mehra and Agrawal, 2003; Vokurka and Davis, 1996; Lillrank, 2003). Quality, as the next variable, is closely related to benchmarking. According to Kartha (2004:331), "the quest for 'Quality' is probably more widespread and intense globally now than at any time in history". This notion has been further reinforced by Calingo (2002:3), who stresses that quality has been increasingly recognized as the "cornerstone of developing the much needed global competitiveness for Asia and the Pacific if Asia-Pacific countries are to emerge as a coherent economic region".

One popular way of promoting quality has been through the use of an awards framework. Currently there are at least 77 quality and business excellence awards being implemented in 69 countries and economies worldwide (Calingo, 2002). Almost all of the 19 member countries of the APO have introduced quality and business excellence awards programs. In fact, many of these APO countries developed awards modelled on the Balridge Award and the Demming Award. Fiji, being one of the APO member countries, has successfully developed an award known as the Fiji Quality Award (FQA) (Djerdjouri, 2004; Singh, 2002).

In a symposium on Quality and Business Excellence Awards in 2001, the APO member countries justified the need for industrial competitiveness. It is further reinforced by the Chairman of the Awards Council in Fiji, Mr James Datta, who strongly emphasized the point that "Fiji's economic future lies in the viability of its business sector and all other sectors that make up Fiji's economy". The awards
scheme is actually a great way to bring out the best in any organization as it encourages a shift in the business practices to rejuvenate and revitalize the entire operations of an organization (Chaudari, 2003).

It can be further understood that national quality and business excellence awards have been a beacon and a blueprint for stimulating many firms to their highest levels of sustainable achievement (Calingo, 2002).

The twenty-first century harbours strong global competition where the playing field and the rules of the game have changed. The ISO certification, which is quite renowned and a popular certification in many countries is expected to help organizations to enhance quality and efficiency, improve communications, achieve competitive advantages and an increase in market share, reduce costs and achieve a higher stock price (Magd and Curry, 2003; Kartha, 2004).

3. Technology

The next important competitive variable is technology. The ability to adapt in a rapidly changing and competitive environment has become an increasingly important aspect of competitiveness. Fundamental to every manufacturing strategy is the identification of the right technological means of meeting the firm’s competitive priorities (Leong et al., 1990; Spina, 1998; Veilyath and Zahra, 2000). Technology use is a complex set of activities involving the operation and organization of existent technologies for purposeful ends but also involving the absorption of new technology into existing technological systems. Firms select technologies, which provide the technological means of achieving their competitive priorities (Albino et al., 2004). But technologies also condition the knowledge and practices of their users (Sonntag, 2003). The point is that a firm’s technology choices shape the product market formation and growth.

Sonntag (2003) argues that the competitive edge that manufacturers can keep on a long-term basis is not just by buying a new machine but also by learning to use that equipment in a certain application. That is, your factory has to fit the technology’s model, as you are changing your factory towards the concept behind the equipment. Lastly, successful innovation such as the exploitation of successful new ideas
(Heseltine, 1994) and managerial initiatives (Ma, 2004) has to follow to enhance competitiveness.

Manufacturing Strategy
Manufacturing strategies also play a crucial and powerful (Skinner, 1987) role in boosting competitiveness. Manufacturing companies formulate strategies to develop their manufacturing capabilities and to increase their competitiveness in the market place (Minarro-Viseras et al., 2005; Sonntag, 2003; Maslen et al., 1997). The manufacturing strategy is defined as the deployment and development of manufacturing capabilities in total alignment with the firm’s goals and strategies. Husseini and Brien (2004) put the emphasis on manufacturing goals and its priority. These goals can only be achieved via a manufacturing strategy consisting of improvements in the firms’ operations, organization and human resource, management, technology as well as to the external and internal contexts.

Authors (Maslen et al., 1997; Swamidass et al., 1987; Young et al., 1992) further stress that the manufacturing vision needs to be formed in the context of an overall strategy process and the firm will have to take into consideration a number of factors in choosing and applying the strategies. It is generally agreed that manufacturing strategies must align to business objectives (Sonntag, 2003) for company success, or there has to be a ‘strategic fit’ (Kim and Lee, 1993). Manufacturing companies use the strategy design process to select the many changes in their organizations necessary to survive and prosper as successful competitors in the future (Minarro-Viseras et al., 2005).

4. Information Technology
In the current competitive environment, knowledge is regarded as a fundamental asset for organizations, thus highlighting the importance of the knowledge transfer management process.

With respect to the organizational dimension, most authors agree that knowledge transfer depends on the individual’s characteristics such as experience, values, motivation and beliefs. According to Cohen and Levinthal (1990), knowledge transfer can be described as the ability of individuals in an organization to assimilate
and apply new information by relating it to prior existing knowledge. In addition, knowledge is affected by the relationship between the source and recipient. The tradeoff between exploiting and creating knowledge represents a challenge to organizational design.

Organization design is often concerned with maximizing intra-group similarity thereby creating inter-group dissimilarity. Thus a one-size-fits-all approach to knowledge transfer is by definition ill suited to both intra-group and extra-group transfer. A breakthrough in being able to capture, codify and store knowledge is via information communication technologies (ICT). However, this too is not the total solution, for technology is perceived as insufficient without human intervention, hence companies are always in search of the right balance between technology and human centered approaches.

Finally, technology can improve the efficiency of knowledge transfer by increasing the speed of transfer and decreasing costs due to time and distance. Technology can also enlarge the span of possible support strategies. This happens particularly in knowledge acquisition, where suitable technologies can support either or both actors in making codification and interpretation consistent or inconsistent (Albino et al., 2004).

5. Knowledge Workers

With the swift progress of globalization and the information revolution, knowledge and knowledge workers have at the present time become mainstream resources and a key base for competitiveness. In today’s knowledge based economy, the conventional production factors for example, land, capital and machinery alone are no longer sufficient to win against global competition. Therefore, to create the synergy that is required for higher productivity and competitiveness, it is important to establish close networks and strong teamwork among knowledge workers.

Similarly, the emergence of a knowledge based management and economy has had a considerable bearing on the whole spectrum of the productivity movement of this region in the new century. Knowledge work, at best, stands opposite manual work in a spread spectrum and it involves ideas and data.
Furthermore, knowledge work is considered fluid by nature, and the productivity of knowledge workers is hard to measure. Therefore, knowledge workers have considerable autonomy to define their jobs and to set the pace of their work. Managing knowledge workers today involves challenges not met before (Capitalizing all Knowledge Workers, 2002: 1–6).

Many managers regard their company’s people as the most important and valuable competitive resource (Ling, 2000; Simmerly, 1997). They assert that the foundation of their company’s capabilities is the people who work for the organization. However, to get them to be happy and retain them, it is important for the company to practice good compensation (bonuses, free food, pay, benefits, insurance etc); provide exceptional facilities (on-site employee conveniences, fitness facilities, clean, safe and well maintained facilities etc); have a facilitative company culture (community involvement, casual environment, workplace diversity etc); promote management of employee relations (no lay-off policy, respect, promotion etc); practice accommodating work place (paid vacations/time off, sabbatical, travel perks, sick leave etc); be family friendly (maternity/paternity leave, perquisites for children, pay for child care, adoption aide etc) and to invest in their workers competencies (education, training programs, scholarships, tuition reimbursement etc). These are the characteristic of a great place to work (Fawcett et al., 2004).

2.10 Studies Pertaining to Manufacturing and Competitiveness

It is evident from the available literature that the principle of competitiveness is important for the success and survival of firms around the world. A number of studies have been carried out in specific countries by various authors in addition to those carried out by IMD. Many of these studies investigating the contributions of competitive factors towards development and growth of firms within counties are discussed below.

Gordan and Sohal (2001) have assessed the manufacturing competitiveness of Canadian and Australian plants with variables related to competitive business practices, workforce focus and process orientation. Similarly, St-Pierre and Raymond (2004) have measured performance of Canadian small to medium sized enterprises.
with benchmarking models. Likewise, there are a number of writings available on competitiveness in the USA (Nelson, 1992; Guimaraes et al., 1999; Kocakulah et al., 2000; Lau, 1993; Skinner, 1987; Ungan, 2004; Swinehart et al., 2000; Wheelright, 1985; Hughes, 2005).

Comprehensive studies have measured manufacturing competitiveness in Africa particularly in Nigeria, Cameroon, Cote d'Ivoire and Senegal (Davies, 2001; Adenikinju et al., 2002) with basic factors of production, that is input, process and output. Pitelis (2003) has casually explored manufacturing and competitiveness in Greece. Performance of manufacturing in the UK using non-financial measures has been carried out by Abdel-Maksoud (2004) and competitiveness by Heseltine (1994).

Yusuff (2004) has studied best practices in manufacturing in Malaysia. Manufacturing performance of Latin American countries (Argentina, Brazil, Chile and Mexico) has been covered by authors Husseini and Brien (2004). Studies pertaining to competitiveness in India include (Tripathi, 2005; Shee, 2002; Momaya et al., 2001). Competitiveness and performance of Asian manufacturers has been carried out by Ling (2000) and Lin et al. (2004).

Finally, Barclay (2000) has explored the competitiveness in the Caribbean country of Trinidad and Tobago and their manufacturing firms. These country studies are presented in Table 2.1 for easy reference.
Table 2.1 Studies Pertaining to Competitiveness and Manufacturing

<table>
<thead>
<tr>
<th>Country</th>
<th>Authors</th>
<th>Study details</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>Nelson (1992); Guimaraes et al. (2000); Lau (1993); Skinner (1987); Ungan (2004); Swinehart et al. (2000); Wheelright (1985); Hughes (2005)</td>
<td>Writings on US competitiveness.</td>
</tr>
<tr>
<td>India</td>
<td>Tripathi (2005); Shoe (2002); Momaya et al. (2001)</td>
<td>Competitiveness of Indian firms.</td>
</tr>
</tbody>
</table>

2.11 Manufacturing Sector in Fiji

From the foregoing discussion, it can be understood that competitiveness is a complex term that encompasses many variables or factors to guarantee its success and is important and applicable to all countries and their industries. The following sections attempt to study the emergence and importance of industrialization across various time lines, to discuss the role of government in enhancing the sector and to highlight the current competitiveness and problems of the manufacturing firms in Fiji.
According to the literature available on Fiji, for many years industrialization was not given serious thought as a viable development strategy, due to the country’s perceived lack of economies of scale (Chandra, 1996). But given the relative success of small economies by means of advances in technology, reduction in the importance of domestic markets and with the rise of export oriented production, even small countries have acknowledged the possibility of industrialization as a key development strategy. One such country is Fiji.

Amid the South Pacific Island nations, Fiji is one of the most developed, blessed with ample natural resources among which the key ones being forestry, minerals, fish, fertile soil and arable land (Rokotuibau, 1997; Prasad et al., 2000).

In the subsequent sections, the term manufacturing is defined, followed by a discussion of the various phases of manufacturing in Fiji, the importance of the sector, a review of recent literature and some persisting problems related to the sector.

2.12 Manufacturing Defined
Manufacturers are referred to as those organizations that extract raw materials, add value through processing them, and transform intermediate materials and components into finished products (Pun, 2004).

2.13 Business Categories
Every country has its own categorization of businesses. The definitions of businesses are often influenced by a number of factors such as differences in country size, economy, gross domestic product etc.

Similarly, businesses in Fiji are categorized as micro-enterprises, small, medium and large businesses under the 2002 Enterprise Development Act. Categorization is based primarily on the firm’s annual turnover or total assets and the number of employees, as is presented in Table 2.1.
### Table 2.2 Business Categories in Fiji

<table>
<thead>
<tr>
<th>Micro-enterprise</th>
<th>Small Business</th>
<th>Medium Business</th>
<th>Large Business</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any enterprise that has turnover or total assets not exceeding F$30,000 and employs not more than 5 people</td>
<td>Any enterprise that has a turnover or total assets between F$30,000 and F$100,000 and employs 6–20 people</td>
<td>Any enterprise that has an annual turnover or total assets between F$100,000 and F$500,000 and employs 21-50 people</td>
<td>Any enterprise that has an annual turnover or total assets above F$500,000 and employees more than 50 people.</td>
</tr>
</tbody>
</table>

(Source: Enterprise Development Act, 2002)

2.14 Phases of manufacturing

Manufacturing in Fiji can be divided in three distinct phases. The first phase covers the late 1960s and much of the 1970s, a period of rapid expansion of the commercial sectors, influenced by protection for manufacturing and a big increase in tourism. The 1980s mark entry into a new phase is characterized by difficulties of world conditions, increases in petroleum prices, volatile prices for sugar and the devastation of the sugar crop by two hurricanes. From the late 1980s and onwards, the third phase places emphasis on export orientation due to devaluation of the currency as a result of political instability, and the operation of protected export markets as a result of the South Pacific Regional Trade and Economic Co-operation Agreement (SPARTECA) and the Tax Free Factory System (Williams and Chandra, 1993). These three phases are explained in greater detail in the subsequent sections.

1. The 1970s

Fiji gained its independence in 1970 and set out on a development path of becoming economically independent. In the initial stages, the agriculture and the primary sector development were prioritized and it was in these circumstances that the country first entertained the prospect of import substitution.

Import substitution was an excellent idea as Fiji too could manufacture goods for its own consumption using the available natural resources. This approach also promoted local industries and entrepreneurship. Fiji followed the classic import substituting industrialization strategy, providing the normal package of assistance to manufacturers and providing high levels of tariff protection, protection from
domestic competition, using quotas and licenses, offering virtually no incentives for export production and imposing tight controls on foreign investment (Chandra, 1989; Chandra, 1996; Prasad et al., 2000).

Consequently, there was a rapid growth in manufacturing value added (an average of 5 per cent per annum) and employment but these gains lasted only till the exhaustion of import substitution opportunities (Chandra, 1996). By the year 1980, lack of competition, unsound government policies, lack of awareness of the need for productivity and courting of labour and business led to industrial stagnation (Prasad, 2004).

2. The 1980s
Nonetheless, in the year 1984 and more radically since the military coups of 1987, the government (then the Alliance Government) shifted its policy towards deregulation of the economy, making it more export oriented. The two coups May 1987 and September 1987 caused manufacturing output on the whole to decline sharply in domestic market goods as consumers heavily reduced their discretionary spending in the face of political instability and economic uncertainty. Tyre retreading, plastics, cement and other construction goods were some of the types of manufacturing that were greatly affected.

As a result of the deregulation strategy, export performance was strengthened and the outward looking strategy was proposed for better economic growth. That is, manufacturing was no longer perceived as just a complement to Fiji’s agricultural and tourism sectors but as a prospective industry that could become the leader. The devaluation of the Fiji dollar as a national measure by as much as 33 percent (Prasad et al., 2000) during June 1987–October 1987 provided a further boost to the exports of garments and footwear.

The government pursued export promotion with a phased program that proposed increasing competition in the manufacturing sector through a sharp reduction in the level of protection, and through labour market reforms designed to introduce greater flexibility in the labour market and ensure international competitiveness (Chandra, 1996).
For this reason, the tax free system was introduced in late 1987. The government offered an attractive package for manufacturers and export service providers, provided they exported at least 95 per cent of their output. The investment and incentive package involved a total waiver of licensing for imports of capital goods and other production materials, duty free import of capital goods and equipment and duty exemption on importation of raw materials, components, spares and packaging materials (Chandra, 1989). Further, companies were offered a tax holiday of 13 years. There were no restrictions on the repatriation of capital and profits. In addition, the tax-free status entitled firms to import specialist personnel for enterprises subject to requirements under the Immigration Act so immigration rules were relaxed to encourage foreign investment.

3. The 1990s to the present

Today, this sector has been recognized as an important element of Fiji’s future (Prasad et al., 2000) and the focus has been placed on trade liberalization and in making the manufacturing sector the leading sector in the economy in the medium to long term. The government has adopted a more pragmatic approach in an effort to integrate Fiji into the world trading system (Prasad, 2004). Ministers of Finance have referred to the performance of the Asian Tigers and more recently of Mauritius, indicating that industrialization is the key to Fiji’s future prosperity (Chandra, 1996).

Consequently, the Government has directed its current efforts towards trade facilitation issues that are expected to cater for a much smoother transition to more open trade. The government is developing this by the continued upgrading on the areas of quarantine protocols, customs, ports and immigration. Also, government plans to recruit and appoint trade specialists at various foreign missions. Trade facilitation is very important if Fiji is to reap the benefits of regional free trade agreements. The Pacific Islands Countries Trade Agreement (PICTA) has already been negotiated to allow free trade amongst all the Forum Island Countries (FICs) by 2012. The Pacific Agreement on Closer Economic Relations (PACER) with Australia and New Zealand also came into force on 3 October 2002 and this is expected to provide further support for trade facilitation for Fiji (Prasad, 2004; Reddy et al., 2003).
The Fiji Government (2002) recognizes that "trade of goods and services at the
global level is becoming more and more competitive as countries lower their tariffs
and remove non-trade barriers. It means greater competition for domestic market
producers especially those that are inefficient and an erosion of the preferences
pricing that is currently enjoyed by Fiji export industries such as the sugar and
garment industries".

Fiji also became a member of the World Trade Organisation (WTO) in January 1996
and currently it accords most favoured nation treatment to all its trading partners. Fiji
is moreover a signatory to the Cotonou Agreement (previously known as the Lome
Agreement). In this agreement, the European Union grants non-reciprocal trade
preferences to countries in Africa, Caribbean and Pacific (ACP) states. Further, Fiji
has acquired preferential access for its manufactured goods under the SPARTECA
agreement, which is a non-reciprocal agreement between Australia and New Zealand
and the 14 South Pacific Forum Island Countries (FIC).

All these measures have been further enforced and emphasized in the Fiji
government polices for 2003–05. The first step is to improve investment and trade
facilitation and current negotiation capacity to achieve sustained global integration.
The second is to formulate and advocate Fiji’s trade policy as a reflection of the
country’s interests and priorities, and to diversify export markets by pursuing new
markets particularly in the Asia–Pacific region.

The government’s key performance indicators of progress towards these objectives
include: trade facilitation by the year 2003; recruiting personnel with background in
areas of trade, trade negotiations and investment to serve at Fiji’s foreign missions,
by 2003; determining the feasibility of establishing trade offices in new markets
completed by the years 2003 to 2004 and a memorandum of understanding with new
markets established by the year 2005 (Fiji Government, 2002; Prasad, 2004; Reddy et
al., 2003).

Furthermore Fiji’s exports are subject to the following rules of origin (ROO)
provisions:
• exports to the EU under the Lome Convention and now the Cotonou Agreement
• exports under GSP to high-income countries
• exports to Australia and New Zealand under the SPARTECA agreement
• bilateral trade agreement between Fiji and Tonga
• bilateral trade agreement between Fiji and Papua New Guinea.

Fiji has also signed full reciprocal Bilateral Trading Agreements (BTAs) with Australia, China, Papua New Guinea and Vanuatu. Non-reciprocal BTAs have also been signed with Tuvalu, Tonga and the Cook Islands while negotiations are continuing with New Zealand, Solomon Islands, Kiribati, Nauru, Samoa and New Caledonia.

From the above timeline, it is apparent that government has instituted significant improvements to make the manufacturing sector more competitive. The next section looks at the role of the manufacturing sector and its contributions in Fiji.

2.15 Role of the Manufacturing Sector in Fiji
The manufacturing sector is largely made up of the sugar, gold, timber, wood chips, garment, coconut oil and food industries, with sugar and gold being the traditional major foreign exchange earners. According to the 2005 Key Statistics (FIBS, 2005), Fiji's domestic exports for the year 2004 was F$919,861 million and total exports was F$1,174,679 million. The major domestic exports involved commodities such as sugar and molasses, gold, garments, woodchips, fish, timber and wood and others. Figure 2.1 displays the percentage contributions of the various commodities.
Figure 2.1 Total Domestic Exports for the year 2004

From the pie-chart above, it can be confirmed that the major domestic exports is dominated by two well known manufacturing industries—sugar and molasses (20.4%) and garments (24.6%). Garment manufacture has emerged as an important industry; accounting for the bulk of Fiji's manufacturing sector export earnings. This can perhaps be best attributed to the introduction of the tax-free factory (TFF) and tax-free zone (TFZ) schemes in 1986 (Rokotuilau, 1997). The increased export potential of the industry has also led to a surge in employment.

The sugar industry, on the other hand, was the single largest industry in the country during the 1970s but unfortunately has faced decline since the mid-1980s, a decline in the face of a few emerging industries, most notably garments and tourism (Narayan and Prasad, 2003). Other factors causing the sugar industry's decline include land lease issues and the poor state of machines in the sugar mills.

Nevertheless, the sugar industry contributes roughly 7 percent of the GDP and 8.5 percent of the total foreign exchange earnings. The sugar industry also absorbs a large section of the workforce in various forms: growers, mill workers, cane cutters, drivers etc (Reddy, 1999; Reddy, 2002; Reddy, 2003; Reddy, 2005).

The above statistics reveal opportunities in manufacturing and the Fiji government has been quick to realize this and has embarked on restructuring policies to boost the
overall economy. One step has been to undertake the structural adjustment policy recommendations by the World Bank and the IMF to improve the export sector of the economy. Consequently, Fiji placed much emphasis in the final decade of the twentieth century on making its economy more competitive, particularly in the area of export-manufactured goods (Prasad et al., 2000; Prasad, 2004).

2.16 Recent Writings on the Competitiveness of Fiji’s Manufacturing Sector

This section contains a summary of all relevant literature available on Fiji’s manufacturing sector that has been directed in the interest of competitiveness. To date, there are only a few studies that have been directly devoted to competitiveness. The main studies that have been carried out and the literature available have largely focused on benchmarking, productivity, quality practices and total quality management supported by a few company studies. They are described in the sections below.

A fair amount of literature has been published by the Asian Productivity Organization on benchmarking and quality awards, which are one of the latest additions to the list of productivity approaches developed in the last two decades for management improvement. This is because Fiji is one of the APO member countries.

Literature generated (APO, 2001; APO, 2002; Djerdjouri, 2004) has very much focused on the Fiji Quality Award (FQA). This award follows the reference model of the Australian Business Excellence Award and aims to promote the recognition of excellence and the communication of best practices. The FQA was an initiative that arose out of the Round Table Conference (RTC) that took place on August 24–26, 1995. The RTC itself was a project developed by APO and had been utilized in a number of member countries to forge unity within nations on the issue of national productivity and to establish the basic foundations on which productivity enhancement activities could be further developed. The major outcome of the RTC was the development of Fiji’s Productivity Charter, which was developed by three social partners, i.e. government, employers and employees.
The Fiji National Training Council (FNTC) currently known as the Training and Productivity Authority of Fiji (TPAF) considered the Australian quality awards as the most suitable model for Fiji and signed a strategic partnership agreement with the Australian Quality Council for the adoption of the Australian Quality Award System and its customization to become the Fiji Quality Awards (FQA). The FQA has been promoted in Fiji through various modes and has been offered for the past three years since its inception. Over the years, despite the nation's political problems, the number of companies applying for the FQA has increased.

The effects of benchmarking practices in the form of quality awards have been explicitly documented by popular local magazines (The Review, 2003; Pacific Magazine, 2002; Fiji's Business Magazine, 2000). Documentations include Natural Water of Fiji's success as a result of its quality practices, the 2003 Fiji Quality Awards night held at the Sheraton Hotel and highlights of the FQA winning companies such as Fiji Industries Limited, South Pacific Distilleries and Vodafone Fiji Limited.

Similar studies have been done on the concept of Total Quality Management (TQM), which is to seek continuous improvement in the quality performance of all processes, products and services of an organization. Authors Djerdjouri and Patel (2000) are perhaps the first to carry out a study on TQM implementation on four Fiji companies: Punjas Fiji, Telecom Fiji, Carpenters Shipping and Vodaphone Fiji. Their findings and discussions reveal that there are numerous lessons that can be learnt from the Fiji experience. The four cases concluded that there must be a senior level commitment for quality practices to be established or initiated and that ISO 9000 standards are not the final solution to all problems.

A different TQM based study by Sharma and Hoque (2002) has also been carried out. Their study was concerned with the appraisal of TQM practices by the Housing Authority of Fiji (HA) and findings revealed that TQM adoption had led the company to perform more efficiently in delivering their services.

The issues pertaining to productivity have just recently been covered. A study done by Prasad et al. (2000) provides an empirical analysis on productivity growth in
Fiji’s manufacturing industries. Another study by Reddy (2003) reveals the farm productivity, efficiency and profitability in Fiji’s sugar industry.

Nevertheless, there is a series of local study papers and articles on the performance of the manufacturing sector (Chandra, 1989; Williams and Chandra, 1993; Chandra, 1996; Rokotuibau, 1997; Narayan and Prasad, 2003). These studies have mainly compared the performance of the manufacturing sector over a given number of years and across sectors country-wide such as tourism, wood and sugar. Studies specifically on the performance of the sugar industry have been carried out by (Barrack and May, 1997; N.Reddy, 1999, 2002a, 2002b; Szmedra, 2002).

To date, little literature has been generated specifically on the topic of ‘competitiveness’. Authors M.Reddy (2004) and Prasad (2004) have written very briefly on the impact of globalisation and the need to enhance competitiveness of the Fijian economy.

Other regular publications and statistics on the manufacturing sector include the Reserve Bank of Fiji Working papers and Quarterly Review series and the Fiji Islands Bureau of Statistics Census of Mining and Quarrying, Manufacturing, Electricity and Water.

Concluding from the literature available to date, there is very little study undertaken on competitiveness of the manufacturing sector, hence calling for further research in the sector.

2.17 Current Market-wide and Country-wide Problems of the Manufacturing Sector

Despite various breakthroughs, the manufacturing sector in Fiji still continues to face problems in both the market and country. These problems are presented briefly in the following paragraphs.

To start off, import substituting industries were established with the expectation that they would one day become successful exporters. This, however, has not been the
case. Export success has mainly been limited to those sectors specifically established for exporting.

Second, foreign direct investment (FDI) has been fluctuating for the last decade. This is largely attributed to political instability. In a survey conducted by Grynberg (1996), 14 garment firms had considered moving their operations, in a reaction to political instability. Other manufacturing infrastructure related investment is taking place but at a slower rate.

Although the Fiji government has realised the importance of productivity improvement in its manufacturing industries, there is still a lot to be done. Because of the coups, there has been an exodus of skilled people to greener pastures (Chandra, 1996) and this has directly impacted the economy. Although quick training action has more or less replenished much of the human resources lost to emigration, the quality and experience of the new employees cannot yet match what has been lost.

2.18 Summary of Fiji’s Manufacturing Sector

Competitiveness is of particular importance for small states because of their vulnerabilities and handicaps. Authors Briguglio and Cordina (2004) and Prasad (2004) support this view by stressing that for small economies like Fiji, competitiveness is essential for promoting economic development and survival in this globalized world. The simple point to note here is that for a small country like Fiji, exports plays a huge role in boosting the economy, thus ensuring greater export competitiveness is now being emphasised (Prasad, 2004).

Opportunities of this kind are indeed worthwhile and due to the sheer size of the manufacturing industry, it is best to explore all the areas of development before moving to the top at full speed. To make the Fijian manufacturing sector competitive, there is a need for improved productivity, technology advancement, better management, quality practices and creating awareness of best practices in manufacturing. Basic objective in this study will be to enhance the competitiveness of the manufacturing sector of Fiji through the above factors of competitiveness.
Clearly it is obvious reason that the success of Fiji’s manufacturing sector depends heavily on such factors, hence the urgency of the need for more research on firm competitiveness. This is supported by Nabalarua (1998:111), who argues that in order to rejuvenate Fiji’s stagnating economy, “policymakers and planners have to recognize that the stereo-typed myth of industrialization as being a non-viable development strategy for small economies is a non-issue”. She further emphasizes that Fiji’s policymakers and planners should change their perception by simply learning from the experiences of other small economies like Mauritius and the ‘Asian Tigers’ as they are proof of the prospects that can be achieved with a strategy of economic growth and industrialization.

2.19 Some Research Questions

The subject of competitiveness needs to be addressed at all levels. Competitiveness is a concern for all: country, industry/sector and firm. Many questions remain unanswered despite the rich literature available about the concept (Ambastha and Momaya, 2004). For this research, questions will largely be centred on Fiji’s manufacturing industry competitiveness and the role played by the firms within it.

Some of the research questions that arise from the current literature are: What factors make these manufacturing firms competitive? What are the roles of government policies and regulations and firms’ manufacturing strategies in boosting competitiveness? What role does the government play in enhancing the competitiveness of the manufacturing sector as a whole? What are the problems faced by firms in their struggle for competitiveness? Who are the successful firms and what sets them apart from other, unsuccessful firms? What are the factors that the firms should prioritize to boost their competitiveness? Do factors such as price, product and its quality, technology, IT, skilled labour, customer, market and government play a significant role in enhancing the competitiveness?

2.20 Concluding the Literature Review

To conclude, many of the studies that have been published with respect to Fiji are actually very much focused on just on a few products, such as garments, sugar and mineral water. Moreover, issues covered are limited to a few factors of
manufacturing, for example, quality practices, technology, productivity, ISO 9000 standards and labour. The literature does not include any study of the manufacturing sector as a whole. Moreover, previous studies do not have many linkages with the issues directly related to competitiveness. In view of this, a detailed study is undertaken that could help in enhancing the competitiveness of a sector like manufacturing in Fiji. This study collects and analyzes data of firms within the manufacturing sector as a means to examining its competitiveness.

2.2.1 Conclusion
This chapter has reviewed the literature and rhetoric related to problems associated with the attainment of international standards of competitiveness in an organization, with keen focus on the manufacturing sector. The thesis focuses on the concept of competitiveness in manufacturing as a key to long-term sustainability. The chapter actually describes the numerous competitive factors that need to be consistently revised for comparable levels of competitiveness and this could be more or less the potential solution for Fiji's manufacturing sector.

The next chapter develops an appropriate research methodology to investigate the research questions generated.
CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction
The purpose of the research is to identify the competitiveness of firms in Fiji's manufacturing sector by the use of selected competitive factors generated from literature. The literature does not provide a definite and universal set of competitive factors therefore it is crucial to identify the most critical ones (Minarro-Viseras et al., 2005). This has been taken into account with a conceptual framework as the basis for research (refer to Figure 3.2). A questionnaire-based survey of manufacturers countrywide was selected as the most appropriate research method among those available. Other methods include personal interviews and case studies. The preferred method facilitates the gathering of the required information from a larger sample size over the wide geographic area. The principal components of the research methodology are illustrated in a concise manner in Figure 3.4 and include design and validation of the questionnaire, selection of the manufacturing firms, execution of survey and the analysis of results.

3.1.1 Research Problem
The manufacturing sector in Fiji plays a very important role in the creation of wealth and of the generation of employment for the country. From the literature research, it was evident that the manufacturing sector lacked 'manufacturing competitiveness'. This research project was conducted to find out why this was so, and it further looked at the various competitive factors that firms in Fiji engaged and prioritized in order to close this gap.

The study investigated how the consistent upgrading of competitive factors with the right sort of management attitude has the potential and capacity to match the competitiveness of the manufacturing sector in Fiji to international standards. This capacity from investment in various competitive factors can then permit
manufacturing firms in Fiji to gain competitive advantage within the global markets and to win listing in the World Competitive Yearbook.

Competitiveness of the manufacturing sector in Fiji was investigated by means of a questionnaire survey (main study) and follow-up case study. The questionnaire survey assisted in discovering the level of competitiveness of Fiji’s manufacturing firms. The aim of the case study was to report on two manufacturing firms in Fiji that believed in the consistent upgrading of competitive factors to become better players in the market.

3.1.2 Research Objectives

The objectives and hypotheses of the study are outlined in Chapter 1. In this section of Chapter 3, the objectives of the study are elaborated. The intention was to:

1. To carry out a literature review on the competitiveness of the manufacturing sector in general.
2. To carry out a literature review that focuses on competitiveness of the manufacturing sector in Fiji and that determines the competitive status (see Chapter 2).

a) Review relevant literature to provide background for the Fiji context. This includes:
   i. General background of Fiji’s industrialization development.
   ii. Competitiveness of the manufacturing sector in Fiji.
   iii. Challenges of global pressure.
   iv. Weaknesses and strengths of the manufacturing sector.
   v. Providing an overview of the importance of the manufacturing sector for Fiji’s people and economy and the need for building sector competitiveness
b) Use a conceptual framework model on competitiveness and manufacturing as a basis for narrowing our study and appropriate focus.
3. To conduct a pilot survey and a main survey of the manufacturing sector in Fiji to validate the problem statement.
   a) This pilot survey involves design, distribution of a self-administered manufacturing competitiveness beta-questionnaire to three groups of people: industry experts, target respondents (15 firms) and peer researchers. The questionnaire looks at selected competitive variables or factors that firms in Fiji engage in to enhance competitiveness.
   b) The main survey involved distributing the revised questionnaire to the remainder of the manufacturing firms in the sample.

4. To analyze the questionnaires in the main study with SPSS statistical package.
   a) Carry out testing of the hypotheses.
   b) Interpret the results after testing and discuss (see Chapter 4).

5. To best outline the results and verify the findings of the main study in select case studies. The case study involved:
   a) Visits to the select manufacturing firms for in-depth face-to-face interviews with managers in the field of Operations, Logistics, Purchasing and Quality (or similar) and employees if possible.
   b) Collect secondary data from the company documentation available and historical records and data.
   c) Coordinate data collection and write-up case study (see Chapter 5).

6. On the basis of the research findings in Chapter 4 and 5, make recommendations and conclusions for further research in the final chapter. These recommendations should be realistic and relevant and should help address the problem in the context of the manufacturing sector in Fiji specifically.

3.2 Justification for the Paradigm and Methodology
For this particular research, a combination of quantitative and qualitative research was seen as fitting for the research problem, which was to determine the
competitiveness of Fiji’s manufacturing sector with selected competitive factors or variables. This is summarized in Table 3.1.

Table 3.1 Summary of Research Type

<table>
<thead>
<tr>
<th>Qualitative research</th>
<th>Quantitative research</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Research problem:</strong></td>
<td><strong>Research problem:</strong></td>
</tr>
<tr>
<td>How?</td>
<td>Who (how many)?</td>
</tr>
<tr>
<td>How are Fiji’s manufacturing firms performing in terms of their competitiveness?</td>
<td>How many manufacturing firms in Fiji are competitive?</td>
</tr>
<tr>
<td>Why?</td>
<td>What (how much)?</td>
</tr>
<tr>
<td>Why are they facing competitiveness problems?</td>
<td>What competitive variables do these firms invest in to boost overall competitiveness?</td>
</tr>
<tr>
<td><strong>Literature review:</strong></td>
<td><strong>Literature review:</strong></td>
</tr>
<tr>
<td>Exploratory - what are the variables involved?</td>
<td>Exploratory - what are the relationships between the variables, which have been previously identified and measured?</td>
</tr>
<tr>
<td>Competitive factors like human resource, innovation, technology, finance, Government assistance etc. have been selected as variables necessary for firm competitiveness, after a thorough literature review.</td>
<td>Competitive factors are identified as dependent variables that influence the level of competitiveness from the literature review. The relationship between firm competitiveness (independent variable) and competitive factors (dependent variables) is measured and tested. Also hypotheses are developed.</td>
</tr>
<tr>
<td>From the literature review, possible research questions are developed, e.g.</td>
<td>(H1) Competitiveness is dependent on product and its quality, customer, price, skilled labour, Technology, IT infrastructure and government support.</td>
</tr>
<tr>
<td>What factors make these manufacturing firms competitive?</td>
<td>(H2) Competitive factors such as product, quality, technology, human resources, market etc. contribute towards enhancement of sector competitiveness.</td>
</tr>
<tr>
<td>What are the roles of government policies, regulations and firms’ manufacturing strategies in determining competitiveness?</td>
<td>(H3) There exists a correlation among the factors of competitiveness.</td>
</tr>
<tr>
<td>What role does the government play in enhancing the competitiveness of the manufacturing sector as a whole?</td>
<td>Hypothesis 4: (H4) Competitive firms (Top 10*) have better management of competitive factors than the rest of the firms in the sample.</td>
</tr>
<tr>
<td>What are the problems faced by firms in their struggle for competitiveness?</td>
<td>(H5) Competitiveness of the three groups of firms (Top-10, Top-15 and Rest) is not the same.</td>
</tr>
<tr>
<td>Who are the successful firms and what sets them apart from less successful firms?</td>
<td></td>
</tr>
<tr>
<td>Do factors such as price, product and its quality, technology, IT, skilled labour, customer, market, government play a significant role in enhancing the competitiveness?</td>
<td></td>
</tr>
</tbody>
</table>

| Paradigm: | Paradigm: |
| Phenomenological/interpretive. All data collected is then interpreted and documented in line with competitiveness. | Positivist. All data is measured and tested and then explanations follow. |

| Methodology: | Methodology: |
| For example, case study research or action research | For example, survey or experiment. A questionnaire survey is called for 50 manufacturing firms in Fiji. These are studied via a structured questionnaire. This design helps to test the variable relationships and the hypotheses. |
| Results from the main study help identify two select cases on which an in-depth study takes place via observation, open questions, related documents and empirical conclusions are made. | |
3.3 Evolution of the Research

The Figure 3.1 displays the evolution of the research. The factors or criteria that enhance competitiveness in the context of the manufacturing sector were identified. This was done by means of a comprehensive literature review, proposed framework and discussions with supervisors. In addition, the pre-testing or pilot test of the questionnaire further identified the necessary factors of competitiveness in Fiji’s manufacturing sector.

![Diagram of Evolution of Research](image)

Figure 3.1 Evolution of the Research
The necessary questions were developed using the selected factors and distributed to respondents of the firms. Two case studies were carried out to understand the profile of the competitive manufacturing firms and their competitive practices and strategies. The evolution of this research from motivation to methodology is presented in the framework Figure 3.4.

3.4 Research Methodology

In the subsections that follow, details of the conceptual framework, identification of the competitiveness and performance criteria and research framework are discussed.

3.4.1 Development of a Conceptual Framework

The chief objective of this research is to assess the competitiveness of the manufacturing sector in Fiji and this calls for a proper conceptual framework that crisply encompasses the main focus and intent of the study. Although there are a number of models, frameworks and theory related to competitiveness, there is no specific and universal model available for manufacturing competitiveness and its crucial factors. In an attempt to incorporate the various levels of competitiveness and competitive factors (Pun, 2004; Cavana et al., 2000), the researcher proposed the following competitiveness framework. These competitive factors also known as concepts are explored to the fullest extent in this study. It is hoped that the proposed competitiveness framework serve as a useful indicator in monitoring and understanding the competitiveness of manufacturing firms.

The conceptual framework Figure 3.2 presents the background framework of the study. While assessing the competitiveness of the manufacturing sector, two issues are important for this study: competitiveness and manufacturing. The model gives details of the competitive variables or factors in the manufacturing sector.
The interactions of these variables such as price, product, quality etc. within a manufacturing firm contribute to its competitiveness. All these firms within the manufacturing sector collectively boost the competitiveness of the sector known as "industry competitiveness". All different sectors, in the same logic, together boost the competitiveness of the country known as "country competitiveness". It therefore can be said that "company or firm competitiveness" leads to industry competitiveness, which further boosts country competitiveness. This is clearly illustrated in the framework. The study attempts to collect data on all these factors to
examine the competitiveness of the sector. This study is restricted to the firms within the manufacturing sector as the stated objective is to assess its competitiveness. The domain of study is below the dotted line in the framework. Supporting the conceptual framework are the competitive and performance criteria. These are discussed and illustrated below.

3.4.2 Competitiveness Criteria
The key factors and concepts seen to be crucial for manufacturing competitiveness are listed below. Each factor is further broken down to best meet the research objectives.

1) Price
Competitive pricing and its linkage with quality, cost leadership strategy and the role of technology in influencing product prices.

2) Product
Product quality and superiority, its image or appeal, i.e. design and packaging and its availability.

3) Quality
Quality of products, achievement of quality awards, particularly ISO standards, and its usefulness in boosting business growth and morale, awareness of quality awards etc.

4) Human resources (HR)
Employee awareness and skill level, appreciation of feedback for decision making, absenteeism levels, productivity levels, adaptability and flexibility of employees towards new tasks and practices of health and safety issues etc.

5) Customer
Market potential of the product and geographic spread of customers and the market pressure faced by the firm.

6) Technology
Development and upgrading of firms' technology and processes and appreciation of the importance of research and development for growth (R&D).
7) **Information Technology (IT)**
Use of computer technology and software in firms’ operations management, innovation and benchmarking practised.

8) **Marketing of product**
Cost and quality problems encountered in the local and international market and export capabilities of the firm.

9) **Government**
Organization of workshops and training programs for the manufacturing sector, subsidies and tax incentives for export activities.

10) **Assistance**
The level of support and assistance provided by the government to boost the sector as a whole.

These factors selected from literature were used as the basis for the preparation of the questionnaire.

3.4.3 **Performance Criteria**
The firms in the sample were assessed on the criteria of productivity, export ability and performance. These criteria are indicative of the firms’ overall standing in the market and their efforts towards competitiveness and is displayed in Figure 3.3.

**Productivity**
- Annual sales and employee number
- Employee inputs
- Employee turnover rate

**Export Ability**
- Domestic and international market share
- Production capability
- Expansion of firm

**Performance**
- Annual sales
- Investment into stated competitive factors
- Superiority and popularity of product

*Figure 3.3 Performance Criteria for the Manufacturing Firm*
3.5 Framework of Research Methodology

The methods adopted in this research were a multi-criteria approach. Survey research based on a questionnaire as a method of data collection has been recommended by many authors in the area of operations management (Forza, 2002; Voss et al., 2002; Bertrand and Fransoo, 2002). More specifically, the confirmatory survey research method adopted can contribute to scientific knowledge through data collection and hypothesis testing (Pinsonneault and Kraemer, 1993; Fillippini, 1997; Malhotra and Grover, 1998) followed by a few case studies (Voss et al., 2002). As a starting point, a framework summarising all the iterative steps of this research is presented in Figure 3.4.

![Figure 3.4 Framework of Research Methodology](image-url)
The most important data sources were the literature review and the individuals who gave feedback for this research. The literature research was comprised of relevant refereed journals, articles, books, newspapers, business magazines and master's theses. Supplementary information was gathered from the Internet, which is the world wide website of information on manufacturing management. Informal discussions with industry professionals provided valuable information for the identification of competitive criteria for inclusion in the questionnaire. Therefore, the major data collection methods in the research were literature reviews, statistical data from secondary sources, questionnaire surveys, interviews and content analysis. Content analysis is the process of identifying, coding and categorizing the primary patterns in the data (Patton, 1990). The term content analysis involves an information analysis of the key events of an industry recorded in reports, research papers, business magazines, newspapers, and Internet etc.

3.6 Questionnaire Design

The questionnaire for this study was developed based on an extensive survey of the literature (Guimareas et al., 1999) and designed using the 7-point Likert scale: 1 being strongly disagree, 4 neutral (neither agree or disagree) and 7 being strongly agree. The choice of the Likert scale (i.e. interval scale type) was considered appropriate to capture qualitative data (i.e. Non-metric data) (Hair et al., 1992; Laugen et al., 2005) pertaining to competitive variables of the manufacturing sector. The seven-point Likert scale allows adequate flexibility and choices for the respondents as compared to a 5-point or 9-point scale. For more clarity, the details of 7-point in the Likert scale are shown in Appendix 2.

In the designing of the questionnaire, some basic rules of courtesy, presentability, readability and non-technicality were kept in mind. All efforts were made to prepare a neat questionnaire with appropriate introduction, instructions, and a well-arrayed set of questions with good alignment to make it easier for respondents to answer (Converse and Presser, 1988).

Bearing the above rules in mind, 84 well-categorized questions were designed under separate competitive variables. The items from 1 to 7 in the questionnaire encompass background information about number of employees, turnover of firms, respondents'
work experience, ownership etc. Items 9 to 22 consist of importance of organizational factors in decision-making. Questions pertaining to competitive variables are indicated in items 8 to 84. These variables include information collection regarding the product, quality, technology, customers, labour, financial, pricing structure and government assistance etc. The questionnaire was further supported by a covering letter giving instructions for respondents (Guimaraes et al., 1999).

In order to legitimize the survey instrument above, it is pointed out that similar studies have used a questionnaire approach for surveys of this sort (Noble, 1997; Guimaraes et al., 1999; Li, 2000; Ajitabh et al., 2001; Abdel-Maksoud, 2004; Bayazit, 2004).

3.7 Pilot Survey

The most overlooked component of a successful survey is the role played by the *pilot survey* which is a method of obtaining an estimate of the population variance. The pilot survey further helps to achieve an acceptable response rate and to provide reliable data on the relevant topics.

Pilot survey starts with designing a draft questionnaire which has to be pre-tested by serving three groups of subjects: industry experts, target respondents and peer researchers. The objective of distributing to these subjects is to ensure the compliance of the questionnaire to stated objectives (Dil mann, 1978; Zhang et al., 2003), collect feedback for missing variables, duplication of variables and ease of response and finally to make necessary changes.

The pre-testing of the questionnaire, as a pilot survey, in this research involved potential respondents (Fowler, 1993) from 15 firms in the manufacturing sector in Fiji to determine whether the questionnaire will suffice the research needs and objectives. A beta version of the questionnaire was distributed to these company respondents for getting their initial response. It has to be noted that the unit of analysis (Flynn et al., 1990) in this research is manufacturing companies. After collecting the responses through the pilot survey, the researcher inquired, in addition to normal observation, whether:
• the instructions were clear
• the questions were clear
• any questions were missing
• any questions were duplication or overlapping others.

Thus the pilot survey helped in identifying the redundancy in the beta-questionnaire. Also it helped in incorporating new questions/variables into the questionnaire through interactions with respondents during the pilot survey. This research then incorporated the suggestions or deletions, if any, to the questionnaire to be distributed in the final survey.

3.8 Design and Development of Survey Research

Once the pilot survey was successful, the final version of the questionnaire emerged and was distributed to the respondents from the manufacturing companies. The respondents, the sample size, data collection method and its analysis etc. is presented below and discussed in the subsequent sections.

![Figure 3.5 Survey Design](image-url)
3.9 Sample Characteristics and Selection
The sample of firms, in this study, was selected from the list of manufacturing companies obtained from Registrar of Companies and the Fiji Manufacturer’s Association (FMA). The sample was based on the Fiji Standard Industry classification codes (FSIC, 2004). Standard classification codes often provide a useful starting point for the researcher and they may need to be modified at times to suit the researcher’s needs (Flynn et al., 1990; Zhang et al., 2003; Laugen et al., 2005).

Selection of approximately fifty firms, from a population of 80, was based on purposive sampling. Purposive sampling is made up three major types: judgement, snowball and quota sampling. This research adopted judgement sampling which involves the choice of subjects who are in the best position to provide the information required (Cavana et al., 2000). The selection of companies, as the unit of analysis, was judged on the basis of the number of workers, the value of fixed assets and the annual turnover (Forza, 2002).

The fifty firms included manufacturer(s) of beverages, timber and furniture, nail and mesh, concrete and related products, paint, fish, garments, assorted food, shoe and other types. These firms gave an overall geographic coverage (Tripathi, 2005; Shah and Ward, 2003) of the manufacturing firms in Fiji’s small economy and are quite representative of the population.

3.10 Data Collection and Techniques
The study involved data collection through primary research by administering the final version of the questionnaire that emerged after revision in line with the pilot survey experience.

(a) Distribution of Questionnaire and Data Collection
The questionnaire was distributed to the selected manufacturing firms located in Suva, Nadi, Lautoka, Sigatoka, Tavua and Ba. The targeted respondents were the managers or supervisors of manufacturing, quality control, logistics and supply chain.
Prior to distribution of the questionnaire, a letter of request was sent to the respondents in their business address. All the addresses and telephones contacts were retrieved from the Fiji telephone directory. This letter served as advance information to the respondents and requested their approval. After a week, the respondents were contacted by telephone for an appointment and questionnaires were administered for getting response. Wherever possible, questionnaires were administered face-to-face.

Before collection, the questionnaire was checked thoroughly for the completeness of its filling. Any discrepancy in the questionnaire response was clarified with the respective respondent and efforts were made for its completeness.

The self-administered or personally-administered questionnaire allowed the establishment of rapport with the respondents in the early stages of the survey, on-the-spot clarification sought by the respondents and collection of the questionnaires immediately after they were completed.

This technique allowed for a 100 percent response rate. Moreover, a self-administered questionnaire gives the researcher “greater control, allows you to benefit from direct contact with the respondent, gather additional related information and to have a ‘feel’ for the subject” (Thaman, 1999).

(b) Data Coding and Entry

Before starting the analysis of the data and testing the hypotheses, a few preliminary steps were carried out. Data collected from the self-administered questionnaires was checked for its correctness. The collected questionnaires were given an identification number and the data was entered into the SPSS spreadsheet, a statistical package for data analysis (SPSS Manual, 1999). SPSS is an acronym for ‘Statistical Package for the Social Sciences’ and is one of the oldest and the most common packages for statistic analysis of data, and is available in many versions (i.e. student and professional) for different operating systems (windows and Macintosh). The identification number or serial number helps tracking the questionnaire at the time of need. The missing data will remain vacant in the spreadsheet. The unique feature of SPSS is that it handles the missing data without any wrong computation. Each question in the questionnaire was coded by assigning a variable name and entered in
the 'variable view' of the spreadsheet. For the purpose of statistical analysis, variable coding made it easier for data entry and analysis. After data entry was complete, analysis was carried out in two parts: descriptive statistics and hypothesis testing.

(c) Scale Reliability and Internal Consistency

Reliability yields the same results on repeated trials (Kerlinger, 1986; Carmines and Zeller, 1979). Internal consistency method was used to test the reliability of the questionnaire items in this study. Cronbach coefficient alpha (α) is the most popular test and a reliable indicator in Operations Management research (Cronbach, 1951; Forza, 2002) and is expressed in the following way.

$$\alpha = \frac{np}{1+(n-1)p}$$

Where,

- $n$ = is the number of items
- $p$ = average inter-item correlation

If Cronbach's alpha (α) value is more than 0.5 (Nunnally, 1978), one can claim that internal consistency is good enough.

(d) Hypothesis Testing

Hypothesis testing usually explains the nature of certain relationships among groups, or the independence of two or more factors in a situation. Various factors of competitiveness and their inter-relationships and linkages are presented in Figure 3.6. It is hypothesized that these factors interact among each other and collectively boost the competitiveness of a firm. The various hypotheses (e.g. H (1), H (2), H (3), H (4) and H (5)) and their respective tests using SPSS statistical package are further displayed in Table 3.2.
Figure 3.6 Factor Linkages in Competitiveness Framework

Legend
- H1
- H2
- H3
- H4, H5

Manufacturing

FIRMS Top-10, Top-15 and Rest
<table>
<thead>
<tr>
<th>Construct</th>
<th>Explanations</th>
<th>Statistical Test</th>
<th>Link to Hypotheses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respondent and organizational profile</td>
<td>Refer Questionnaire. Item 1 to Item 7 provide respondent and organizational profile details such as employee number, sales volume, experience, ownership, industry type</td>
<td>Descriptive Statistics as appropriate. (SPSS / Descriptive statistics / descriptive)</td>
<td>Background statistics of respondents with respect to employee, position etc will be determined</td>
</tr>
<tr>
<td>Prioritization of organizational factors in decision making</td>
<td>Refer Questionnaire. Item 8 to 22 provide factors like cost, quality, customer satisfaction, employee issues, economic welfare of nation and local community, social responsibility, ethics, profitability, sales volume, innovation, vision</td>
<td>Descriptive Statistics as appropriate. Average of all the factors. (SPSS / Descriptive statistics / descriptive)</td>
<td>Explains the significance of various organizational factors and their importance / prioritization</td>
</tr>
<tr>
<td>Competitive variables</td>
<td>Refer Questionnaire. Item 23-84 provide the competitive variables</td>
<td>Scale Reliability (SPSS / Scale / Reliability analysis)</td>
<td>To test the factor loading and validate the factor generation from SPSS. (Scale reliability test for internal consistency: finding cronbach alpha)</td>
</tr>
<tr>
<td>Quality, product, market, price, government support</td>
<td>Refer Questionnaire. Item 23 to 79 will provide information about product, quality, price, market, human resource details</td>
<td>Chi - square test (SPSS / descriptive / crosstab)</td>
<td>Hypothesis 1: (H1) Competitiveness is dependent on H1(a) product, H1 (b) quality, H1(c) market, H1(d) price, H1(e) skilled labour, H1(f) Technology, H1(g) IT infrastructure and H1(h) government support</td>
</tr>
</tbody>
</table>
### Competitiveness of manufacturing sector in Fiji

Refer Questionnaire. Item 23-79 will provide details on the various competitive variables like product, quality, price, technology, market etc. Refer Questionnaire. Item 23-84 will provide details on the competitive variables. Refer Questionnaire. Items 23-84 will provide details on firm's competitive factors. The questionnaire will also reveal the competitiveness of the firms.

<table>
<thead>
<tr>
<th>Hypothesis 2: (H2)</th>
<th>Factors such as product, quality, technology, human resources, market etc contribute towards enhancement of sector competitiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypothesis 3: (H3)</td>
<td>There exists a correlation among the competitive factors</td>
</tr>
<tr>
<td>Hypothesis 4: (H4)</td>
<td>Competitive firms (Top-10) have better management of competitive factors than the rest of the firms in the sample</td>
</tr>
<tr>
<td>Hypothesis 5: (H5)</td>
<td>Competitiveness of the three groups of firms (Top-10, Top-15 and Rest) is not same</td>
</tr>
</tbody>
</table>

#### 3.11 Select Case Studies

In addition to the questionnaire survey, a case study approach was adopted to make a validation of the findings of the study. Case study emphasizes detailed contextual analysis of a limited number of events or conditions and their relationships (Soy, 1997; Yin, 1984) as it uses multiple sources of evidence (Flower and Hayes, 1981) such as documents, archival records, interviews, direct observation, participant observation and artifacts.

In this research, two case studies were selected to study their competitive variables in greater detail such as product type, quality, technology, export pricing etc. Given
below are the criteria for case selection and research instruments that were used for data collection.

(a) Criteria for case selection
Two firms from the manufacturing sector were identified as case studies for further investigation. The objective of conducting case studies was to evaluate the firms’ best manufacturing practices in terms of competitiveness, their limitations and restrictions. The firms in the sample were ranked and categorized into three groups (Top-10, Top-15 and Rest) on the basis of annual sales, export percentages and labour productivity. The two firms as case studies were further selected on the following criteria common to both. The firm:

• is an active manufacturer of goods (not services) as the present research focuses on manufacturing of tangible products only
• is likely to be domestically very competitive and has outstanding practices in its operations
• has both export and local market presence
• has a good market share and turnover
• has attained a number of quality awards such as Fiji Quality Awards, Exporter of the Year Awards and so forth
• is successful through prioritization of competitive manufacturing variables indicated in the questionnaire.

In addition to the above criteria, selection of two firms was differentiated on the basis of their unique products (e.g. garments; food).

(b) Data Collection, Analysis and Presentation
The data collection for the select case studies was of an exploratory type. It involved data from secondary sources of the company such as administrative records and other documents, company news bulletin, annual reports and websites etc. Further, primary data collection in the form of in-depth interviews (Taylor and Bogdan, 1984; Lofland and Lofland, 1995) with the help of an open-ended questionnaire (Delahaye and Smith, 1998) was carried out (see Appendix 3 for the open-ended questionnaire).
The objective of data collection by either means was to focus on the facts about the product and its quality, technology and process management, human resource management; marketing issues, customer, competitive pricing etc. The questionnaire took an in-depth look at the firms’ practices and efforts to boost overall competitiveness and were answered by the managers in operations, logistics, purchasing and quality. The collected data was transcribed, summarized and analyzed qualitatively.

3.12 Location of data
The main study involved 50 manufacturing firms situated in Suva, Nadi, Lautoka, Ba, Tavua and Labasa as these are the major industrial areas in Fiji.

The firms selected from the main study as case studies on the basis of annual sales, labour productivity and export figures were: Crest Chicken Fiji Limited and the Fiji Sugar Corporation Limited. These firms fell in the Top 10 category (see Appendix 1). The select case studies locations are described below:

Case study 1- Crest Chicken Fiji Limited (CCFL)
Crest Chicken Fiji Limited is a foreign owned company that is engaged in the production of frozen chicken meat and is situated in Colo-i-Suva in Suva.

Case study 2- The Fiji Sugar Corporation Limited (FSC)
Fiji Sugar Corporation Limited is a public company that is engaged in the production of raw sugar with by-products of molasses and bagasse. FSC owns and operates four mills: Lautoka, Rarawai in Ba, Penang in Rakiraki and the Labasa mill. The sugar mill under study is the Lautoka mill.

3.13 Benefits
The sample selection allowed adequate time to be spent on interviews. Also the respondents required for study were of a high calibre, thus had no problem in interpreting questions. Also the majority of the large manufacturing companies in Fiji are well marketed in terms of having an informative website and this was an added advantage.
3.14 Response Rate
The fifty companies that were selected were notified by post of the researcher's intent and then followed up by phone calls for research scheduling. There were a number of companies that confirmed receipt of the letter and were willing to help. Other companies that still claimed to be unaware were once again informed through personal visits, phone call and via email. From the fifty companies only forty-five were interested in participating in the main survey i.e. the response rate for manufacturing firms was 45%.

3.15 Reliability and Validity
Before the field research began, the fieldwork activities had to be planned and mapped out under the strict direction and guidance of the assigned supervisors. Main things that were prioritized and confirmed were to inform respondents of the manufacturing companies well before the actual research began and to have the close-ended questionnaire ready for distribution (Likert scale). This would be easy to fill out and suit respondents' busy schedules. All supplementary stationery, for example receipt books, pens, files etc., were to be purchased and kept ready for use and the transportation modes, i.e. bus and taxi, had to be arranged.

The planning and preparation greatly assisted in the fieldwork being completed within the time frame allocated and the questionnaire design accommodated standardized responses.

3.16 Problem Recognition /Limitations of the Study
In order to make the research more simple and manageable, only the large manufacturers were studied. These fifty companies accounted for almost two-thirds of Fiji's large manufacturers thus it can be assured confidently that the responses of the main (questionnaire) study are representative of the entire population of large-scale manufacturers. Also the time frame and funds allocated for the research allowed it only best and right to study the large-scale operators in the manufacturing industry.
Despite this sample selection and careful judgment, there still were other problems, including some manufacturing firms' unwillingness to participate, make themselves available even after appointments were made or to disclose all the information that was required.

However, these problems were overcome with persuasion and ethical considerations. In cases where questionnaires were faxed or emailed to the respondents of the manufacturing firms on request, there were certain questions that were not filled out properly or attempted at all. This is probably due to the question being vague or ambiguous to the respondent. Thus it can be concluded that the presence of the researcher in administering the questionnaire is important for clarification and validity.

3.17 Ethical considerations
Research of this type involves dealing with people and groups therefore it is important to be "thoughtful and considerate of the needs and feelings of others" (Bouma, 1993). Ethical considerations concerning employees and managers of the manufacturing firms were taken into careful consideration when undertaking data collection. The managers and employees were advised that I was undertaking this research as a partial fulfillment for a Master's Degree in Management and Public Administration at the University of the South Pacific and it was their choice to participate. Lastly, I have respected all requests for confidentiality with respect to reports on the part of employees, managers and the management of the firms, for example, on sales figures etc.

3.18 Conclusion
The findings of both the secondary and primary data are documented and discussed in Chapters 4 and 5. In Chapter 4-Data Analysis and Results Interpretation, a critical analysis of the data has been evaluated in line with the competitiveness of the manufacturing sector in the global context and in particular Fiji. This data was analyzed using relevant academic literature (Literature Review-Chapter 2) and the research done. In Chapter 5-Case Study, competitiveness of two manufacturing firms as case studies are discussed with respect to the stated objectives.
This present chapter has been concerned with a number of issues, principally the justification of the methodology, the unit of analysis and subjects or sources of data, administration of instruments or procedures, limitations of the methodology, data analysis techniques adopted and ethical issues. The following Chapter 4 presents a comprehensive data analysis on the manufacturing firms and interprets the results.
CHAPTER 4

DATA ANALYSIS AND RESULTS INTERPRETATION

4.1 Introduction
This chapter takes an in-depth look at the data analysis and interpretation of the results. The findings have been tested through appropriate statistical means to see if the research questions and hypotheses have been supported, followed by relevant interpretations. The analysis includes two parts. First, the results from descriptive statistics are analysed to illustrate the industry and respondent profiles and the importance of competitive factors. Then, the relationships between competitive factors and competitiveness of firms are tested using chi square, correlation, regression analysis, independent sample t-test and one-way ANOVA test. The final section of the chapter then discusses the results in the context of competitiveness.

4.2 Descriptive Statistics
The descriptive procedure displays univariate summary statistics for several variables in a single table and calculates standardized values (z score) for frequencies, mean, measures of central tendency and dispersion. It involves the transformation of raw data into a form that would provide information to describe a set of factors in a situation. Simply, descriptive statistics provide the descriptive information of a set of data or describes the phenomenon of interest (Cavana et al., 2000; SPSS Manual, 1999).

In this study, the descriptive test summarizes the respondent and organizational profile and is presented in the following sections.
4.2.1 Subjects (Respondent and Organizational Profile)

Table 4.1 Respondent and Organizational Profile

<table>
<thead>
<tr>
<th>Serial</th>
<th>Variable</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Comments / Explanation to the mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Number of employees in the organization</td>
<td>4.17</td>
<td>1.761</td>
<td>Each firm had on average 50–99 employees</td>
</tr>
<tr>
<td>2</td>
<td>Respondent position</td>
<td>3.32</td>
<td>1.695</td>
<td>Respondents were largely Operations managers</td>
</tr>
<tr>
<td>3</td>
<td>Respondent level of experience</td>
<td>3.19</td>
<td>1.227</td>
<td>Each respondent had on average of 5–10 years of work experience</td>
</tr>
<tr>
<td>4</td>
<td>Organization’s annual sales volume</td>
<td>5.03</td>
<td>2.277</td>
<td>On an average, firm sales ranged from F$5–10 million</td>
</tr>
<tr>
<td>5</td>
<td>Ownership of organization</td>
<td>3.51</td>
<td>1.177</td>
<td>The majority of firms were partly foreign owned</td>
</tr>
<tr>
<td>6</td>
<td>Respondent level of involvement in decision making</td>
<td>3.62</td>
<td>0.610</td>
<td>All respondents were involved in decision making to a great extent</td>
</tr>
<tr>
<td>7</td>
<td>Industry of the organization</td>
<td>2.94</td>
<td>0.485</td>
<td>The majority of firms fell under the manufacturing category</td>
</tr>
</tbody>
</table>

According to Table 4.1, the mean represents the common response opted by all the respondents. From the mean, it can be seen that the average number of employees in each firm ranged from 50 to 99. The majority of the respondents came from an operations background with experience ranging between 5 and 10 years. In addition, the majority of the respondents were greatly involved in the firm’s decision making. As for the firms selected, the majority were partly foreign owned manufacturers with annual sales ranging from F$5 million to F$10 million. It can also be seen that the average number of employees (50–99) in a firm and the firm’s annual sales (F$5 million–F$10 million) matches with the definition of a large enterprise in Chapter 2. A more detailed profile is shown in Table 4.2 and Table 4.3.

4.2.2 Respondent Firms and Sector-wise Distribution

With the technique of self-administered questionnaires, a total of 47 questionnaires were collected from 45 firms out of the original 50 manufacturing firms. The sample
of 50 large firms sufficiently represented the manufacturing population. Thus the turnover of questionnaires collected and correct responses was 94%. Also the response rate was high as the questionnaires were self-administered. Table 4.2 shows the statistics of the respondent firms and sector-wise distribution of the respondents.

Table 4.2 Statistics of the Respondent-Firms and Sector-Wise Distribution

<table>
<thead>
<tr>
<th>Number of Employees</th>
<th>Respondent Firms</th>
<th>Respondent Firms (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 &lt;10</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>2 10-19</td>
<td>6</td>
<td>12.77</td>
</tr>
<tr>
<td>3 20-49</td>
<td>16</td>
<td>34.04</td>
</tr>
<tr>
<td>4 50-99</td>
<td>7</td>
<td>14.89</td>
</tr>
<tr>
<td>5 100-249</td>
<td>8</td>
<td>17.02</td>
</tr>
<tr>
<td>6 250-499</td>
<td>7</td>
<td>14.89</td>
</tr>
<tr>
<td>7 500-749</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>8 750-999</td>
<td>2</td>
<td>4.26</td>
</tr>
<tr>
<td>9 1000-1999</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>10 &gt;2000</td>
<td>1</td>
<td>2.13</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td>47</td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sales Turnover (FSM)</th>
<th>Respondent Firms</th>
<th>Respondent Firms (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 &lt; 0.5</td>
<td>3</td>
<td>6.82</td>
</tr>
<tr>
<td>2 0.5-1</td>
<td>4</td>
<td>9.09</td>
</tr>
<tr>
<td>3 1-2.5</td>
<td>1</td>
<td>2.27</td>
</tr>
<tr>
<td>4 2.5-5</td>
<td>8</td>
<td>18.18</td>
</tr>
<tr>
<td>5 5-10</td>
<td>9</td>
<td>18.18</td>
</tr>
<tr>
<td>6 10-20</td>
<td>6</td>
<td>13.64</td>
</tr>
<tr>
<td>7 20-50</td>
<td>9</td>
<td>18.18</td>
</tr>
<tr>
<td>8 50-100</td>
<td>4</td>
<td>9.09</td>
</tr>
<tr>
<td>9 100-200</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>10 200-300</td>
<td>2</td>
<td>4.55</td>
</tr>
<tr>
<td>11 &gt;300</td>
<td>1</td>
<td>2.27</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td>47</td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Export (% of Total Sales)</th>
<th>Respondent Firms</th>
<th>Respondent Firms (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 0</td>
<td>7</td>
<td>14.89</td>
</tr>
<tr>
<td>2 &lt;5</td>
<td>3</td>
<td>6.38</td>
</tr>
<tr>
<td>3 5-9</td>
<td>2</td>
<td>4.26</td>
</tr>
<tr>
<td>4 10-29</td>
<td>17</td>
<td>36.17</td>
</tr>
<tr>
<td>5 30-49</td>
<td>7</td>
<td>14.89</td>
</tr>
<tr>
<td>6 50-69</td>
<td>1</td>
<td>2.13</td>
</tr>
<tr>
<td>7 70-89</td>
<td>3</td>
<td>6.38</td>
</tr>
<tr>
<td>8 90-99</td>
<td>5</td>
<td>10.64</td>
</tr>
<tr>
<td>9 100</td>
<td>2</td>
<td>4.26</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td>47</td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>
Table 4.2 presents the key attributes that help judge a firm's overall size and standing in the economy. The number of people that the firm employs is perhaps significant in conjunction with its sales turnover, which is the firm's annual total revenue. Sales turnover and firm-level competitiveness can also be measured by the level of exports.

The greatness of the export potential signals high quality products and world-class standards of the firm. Further, the larger firms in Fiji are located on the island of Viti Levu mainly in Suva and Lautoka. These cities are not only characteristic of its size but also of their proximity to the major seaports and airports.

The next Table 4.3 takes an in-depth look at the respondent profile.

<table>
<thead>
<tr>
<th>Geographical Spread</th>
<th>Total</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suva</td>
<td>28</td>
<td>59.57</td>
</tr>
<tr>
<td>Lautoka</td>
<td>8</td>
<td>17.02</td>
</tr>
<tr>
<td>Sigatoka</td>
<td>2</td>
<td>4.26</td>
</tr>
<tr>
<td>Nadi</td>
<td>2</td>
<td>4.26</td>
</tr>
<tr>
<td>Ba</td>
<td>5</td>
<td>10.64</td>
</tr>
<tr>
<td>Tavua</td>
<td>1</td>
<td>2.13</td>
</tr>
<tr>
<td>Outside Viti Levu</td>
<td>1</td>
<td>2.13</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td>47</td>
<td>100.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Industry Sector</th>
<th>Total</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture, Forestry &amp; Fishing</td>
<td>1</td>
<td>2.13</td>
</tr>
<tr>
<td>Building &amp; Construction</td>
<td>3</td>
<td>6.38</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>42</td>
<td>89.36</td>
</tr>
<tr>
<td>Mining &amp; Quarrying</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>2.13</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td>47</td>
<td>100.00</td>
</tr>
</tbody>
</table>
From Table 4.3, it is evident that most respondents held important senior positions in the firm. This was a good thing as they had more expertise and experience on their firm-level competitiveness and were better candidates to fill out the questionnaire. This is further supported by their level of involvement in decision making.

4.2.3 Other Important Issues

The following two tables display the descriptive summary of decision making factors, awareness of quality awards and the contribution of government support towards firm competitiveness.
Table 4.4 Factor Importance in Firms’ Decision Making (N = 47)

<table>
<thead>
<tr>
<th>Factors</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost and quality</td>
<td>5</td>
<td>7</td>
<td>6.79</td>
<td>0.508</td>
</tr>
<tr>
<td>Customer satisfaction</td>
<td>5</td>
<td>7</td>
<td>6.70</td>
<td>0.548</td>
</tr>
<tr>
<td>Employee issues</td>
<td>4</td>
<td>7</td>
<td>6.60</td>
<td>0.742</td>
</tr>
<tr>
<td>Economic welfare of nation</td>
<td>2</td>
<td>7</td>
<td>5.91</td>
<td>1.231</td>
</tr>
<tr>
<td>Welfare of community</td>
<td>3</td>
<td>7</td>
<td>5.81</td>
<td>1.313</td>
</tr>
<tr>
<td>Employee growth and development</td>
<td>3</td>
<td>7</td>
<td>5.96</td>
<td>1.160</td>
</tr>
<tr>
<td>Environmental effects</td>
<td>2</td>
<td>7</td>
<td>5.83</td>
<td>1.565</td>
</tr>
<tr>
<td>Ethics</td>
<td>1</td>
<td>7</td>
<td>6.02</td>
<td>1.581</td>
</tr>
<tr>
<td>Long-term competitiveness of firm</td>
<td>4</td>
<td>7</td>
<td>6.47</td>
<td>0.830</td>
</tr>
<tr>
<td>Firm profitability</td>
<td>4</td>
<td>7</td>
<td>6.49</td>
<td>0.748</td>
</tr>
<tr>
<td>Product and service quality</td>
<td>5</td>
<td>7</td>
<td>6.57</td>
<td>0.651</td>
</tr>
<tr>
<td>Sales volume</td>
<td>5</td>
<td>7</td>
<td>6.62</td>
<td>0.573</td>
</tr>
<tr>
<td>Product and service innovation</td>
<td>3</td>
<td>7</td>
<td>6.23</td>
<td>0.937</td>
</tr>
<tr>
<td>Upgrading manufacturing</td>
<td>5</td>
<td>7</td>
<td>6.34</td>
<td>0.788</td>
</tr>
<tr>
<td>Success and vision</td>
<td>1</td>
<td>7</td>
<td>6.19</td>
<td>1.191</td>
</tr>
</tbody>
</table>

According to Table 4.4, respondents indicated that in their critical management decisions, all of the above factors played a very important role and that almost all were given equal or similar priority. However, by studying the mean, the factors can be clustered into two groups.

The first group of factors, with a mean of 6.0 and more, are highly prioritized and consist of cost and quality, customer satisfaction, employee related issues, work ethics, firm competitiveness and its profitability, product plus service quality and its relation to sales volume, innovation, upgrading of manufacturing facility and finally the role of firm’s success and vision in enhancing overall firm competitiveness.

The second group of factors, with a mean of between 5.0 and 5.9 is less prioritized than the preceding group and consists of the importance of company contributions to the welfare of the nation and community, employee growth and development and to the natural environment. Nonetheless, the ‘cost and quality’ matter was supported by the highest mean of 6.79, as this is possibly what influences a firm's success and supports their reason for existence.
The questionnaire was made up of a number of important questions but the following four factors in Table 4.5 needed to be highlighted the most.

Table 4.5 Contributions of Selected Factors (N = 47)

<table>
<thead>
<tr>
<th>Factors</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government role on</td>
<td>1</td>
<td>7</td>
<td>2.49</td>
<td>1.428</td>
</tr>
<tr>
<td>competitive variables</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ISO 9000 firm</td>
<td>1</td>
<td>7</td>
<td>3.04</td>
<td>2.874</td>
</tr>
<tr>
<td>Not aware of quality awards</td>
<td>1</td>
<td>7</td>
<td>1.94</td>
<td>1.712</td>
</tr>
<tr>
<td>Government helps enhance</td>
<td>1</td>
<td>7</td>
<td>3.17</td>
<td>1.659</td>
</tr>
<tr>
<td>firm competitiveness</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

From the results displayed in Table 4.5, all firms were aware of quality awards such as ISO 9000 and practices yet only a handful had successfully attained awards. More interesting is the fact that the assistance given by the government in terms of organizing workshops, training on competitive variables and any subsidies on fees for training was minimal. Respondents further commented that what little training was given was rarely industry specific, that is, it could be useful to only a few firms. For example, quality and productivity issues were more suited to the garment industry than to the manufacturers of concrete blocks, wire, mesh etc.

In general, most firms agreed that the government did little to enhance firm competitiveness. These are some concerns raised in the recommendations section in Chapter 6.

4.3 Reliability Test

Before proceeding to the hypothesis testing, it was important to check the questionnaire for its reliability and consistency. Reliability analysis allows a person to learn the properties of measurement scales and the items that make them up. It tests both the consistency and stability. The reliability analysis procedure actually calculates a number of commonly used measures of scale reliability and also offers information concerning the relationships between individual items in the scale. There are also numerous models of reliability available to a researcher such as Alpha.
(Cronbach), Split Half, Guttman, Parallel and Strict parallel (SPSS Manual, 1999; Cavana et al., 2000).

For this research, the Cronbach Alpha was used. The Cronbach Alpha is a reliability coefficient that indicates how well the items in a set are positively correlated to one another. The coefficient can hold a value of zero to 1 but the coefficient of 0.8 and 0.6 is generally accepted. The closer the reliability coefficient is to 1 the better it is. (Bryman and Cramer, 1990; Nunnally, 1978). Scale reliability was carried out on all the sets of competitive factors and the results are displayed in Table 4.6.

Table 4.6 Cronbach alpha of Individual Factors

<table>
<thead>
<tr>
<th>Factors</th>
<th>Cronbach coefficient alpha (α)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology</td>
<td>0.465</td>
</tr>
<tr>
<td>Product</td>
<td>0.674</td>
</tr>
<tr>
<td>Price</td>
<td>0.505</td>
</tr>
<tr>
<td>Customer</td>
<td>0.197</td>
</tr>
<tr>
<td>Human Resource</td>
<td>0.622</td>
</tr>
<tr>
<td>Finance</td>
<td>0.250</td>
</tr>
<tr>
<td>IT</td>
<td>0.834</td>
</tr>
<tr>
<td>Quality</td>
<td>0.329</td>
</tr>
<tr>
<td>Government Assistance</td>
<td>0.731</td>
</tr>
<tr>
<td>Marketing</td>
<td>0.563</td>
</tr>
</tbody>
</table>

Looking at the Cronbach Alpha of the ten factors individually in Table 4.6, the reliability of product, human resources, IT and government assistance are above 0.6 and this shows that the internal consistency reliability of the measure used in the study can be considered to be good. However, technology, price, customer, finance, quality and marketing reveal otherwise. Since these factors are equally important for enhancing firm competitiveness, they are included in further analysis.

4.4 Hypothesis Testing

There are four hypotheses that have been formulated to test a few inter-relationships on the contribution of competitive variables to the overall competitiveness. The following paragraphs explain the hypothesis testing of each one.
4.4.1 Hypothesis 1 (H1)

I. Formulating the hypothesis
Hypothesis 1: (H1) Competitiveness is dependent on product and its quality, customer, price, skilled labour, technology, IT infrastructure and government support.

H1 (a) Competitiveness is dependent of product.
(b) Competitiveness is dependent of quality.
(c) Competitiveness is dependent of customer.
(d) Competitiveness is dependent of price.
(e) Competitiveness is dependent of skilled labour.
(f) Competitiveness is dependent of technology.
(g) Competitiveness is dependent of IT infrastructure.
(h) Competitiveness is dependent of government support.

Each of the factors was tested for its contribution towards competitiveness. To test the hypothesis, a series of Chi-square tests was performed using SPSS, the results of which are shown in Table 4.7. A chi-square test is a non-parametric test that establishes the independence or otherwise between two nominal variables.

II. Decision criteria
A significance level at 5 percent ($\alpha = 0.05$) was set. In other words, if the calculated p-value (significance levels) is less than 0.05, the hypothesis will be rejected.

III. Analyze data with SPSS
The data was analyzed with the SPSS package and the output appears in Table 4.7.
According to Table 4.7:

HI (a) – the chi-square value of 319.068, with 270 degrees of freedom is not significant (i.e. p < 0.05).

HI (b) – the chi-square value of 240.472, with 270 degrees of freedom is significant (i.e. p > 0.05).

HI (c) – the chi-square value of 267.506, with 240 degrees of freedom is significant (i.e. p > 0.05).

HI (d) – the chi-square value of 230.570, with 225 degrees of freedom is significant (i.e. p > 0.05).

HI (e) – the chi-square value of 286.025, with 285 degrees of freedom is significant (i.e. p > 0.05).

HI (f) – the chi-square value of 300.848, with 255 degrees of freedom is not significant (i.e. p < 0.05).

HI (g) – the chi-square value of 245.212, with 270 degrees of freedom is significant (i.e. p > 0.05).

HI (h) – the chi-square value of 235.232, with 195 degrees of freedom is not significant (i.e. p < 0.05).

*IV. Interpret results

As the Table 4.7 indicates, HI (a), HI (f) and HI (h) are not supported as they are not significant at the 5 % level. The rest of the hypotheses, that is, HI (b), HI (c), HI (d), HI (e), HI (g) are supported.
(d), H1 (e) and H1 (g) will be accepted. To conclude, it can be said that competitiveness would seem to be dependent on a combination of quality, market, price, labour and IT infrastructure. This is illustrated in Figure 4.1.

![Diagram](attachment:image)

**Figure 4.1** The Relationship between the Independent Variables (Competitive Factors) and the Dependent Variable (Competitiveness).

4.4.2 Hypothesis 2 (H2)

**I. Formulating the hypothesis**

Hypothesis 2: (H2) Competitive factors such as product, quality, technology, human resources, market etc. contribute towards enhancement of sector competitiveness.

To test this hypothesis, a linear regression test was carried out using the SPSS software package. The linear regression estimates the coefficients of the linear equation involving one or more independent variables that best predict the value of the dependent variable (SPSS Manual, 1999).

**II. Decision Criteria**

It is assumed that competitiveness (the dependent variable) is influenced by factors such as product, quality, technology, human resources, market and so forth (the independent variable). The linear regression line formula will be:

\[ Y = a + bX \]

Where:  
- Y is the dependent variable  
- X is the independent variable  
- a is the intercept of the regression line on the Y axis  
- b is the slope of the regression line
The backward method has been used for this analysis. The selection of this method lets the user identify how independent variables are entered into the analysis. Backward variable elimination allows the researcher to enter all of the variables in the block in a single step and then removes them one at a time based on the removal criteria. Once the analysis is performed the following questions will be answered:

- How good is the overall model?
- Are all the coefficients significant?
- How should the Beta values be interpreted?
- How should the t statistic be interpreted?
- Do you think that there are any important variables left out?
- Is our hypothesis true?

(Cavana et al., 2000).

III. Analyze data with SPSS

Some data has been examined with the SPSS package. These are related to the competitiveness of a firm and have been collected on a range of variables. However, here the main objective is basically trying to test to see whether the independent variables—product, quality, technology, human resources, market and so forth—explain the variation observed in the competitiveness of the firm (the dependent variable). The outputs of the linear regression test are given in Table 4.8:

Table 4.8 Regression Analysis

<table>
<thead>
<tr>
<th>Model</th>
<th>Factors</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
<th>Adjusted R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>(Constant)</td>
<td>1.908</td>
<td>0.550</td>
<td>3.467</td>
<td>0.001</td>
<td>0.522</td>
</tr>
<tr>
<td></td>
<td>Technology</td>
<td>0.222</td>
<td>0.093</td>
<td>2.379</td>
<td>0.022</td>
<td>0.522</td>
</tr>
<tr>
<td></td>
<td>Finance</td>
<td>0.300</td>
<td>0.088</td>
<td>3.422</td>
<td>0.001</td>
<td>0.522</td>
</tr>
<tr>
<td></td>
<td>Government assistance</td>
<td>0.221</td>
<td>0.054</td>
<td>4.115</td>
<td>0.000</td>
<td>0.522</td>
</tr>
</tbody>
</table>

Dependent Variable: competitiveness
IV. Interpret the results

From the output displayed in Table 4.8, it can be said that the regression formed between competitiveness and the factors selected is best given by the equation:

\[
\text{Competitiveness} = 1.908 + 0.222 \text{ (Technology)} + 0.300 \text{ (Finance)} + 0.221 \text{ (Government assistance)}
\]

This equation only partially supports Hypothesis 2. The t statistic in the regression model can help you determine the relative importance of each independent variable in the model. The general rule to follow is if the t value is well below -2 or above +2, then the independent variable in the equation can be kept. This is true for our case and hence the variables (technology, finance and government assistance) in the equation can be retained.

This can also be determined by looking at the significance or p-values for the coefficients. That is, if the p-value is less than 0.05 (or a specified \( \alpha \) level), it can be concluded that the coefficient is significantly different from zero and hence the variable in the equation is kept. In our case, this is true, as the coefficients for technology, finance and government assistance indicate a \( p < 0.05 \) and this suggests that technology, finance and government assistance are very significant variables in the regression equation. The beta value shows that finance and government assistance contribute the most to the variation in the dependent variable (competitiveness). Further the values of 0.522 in adjusted \( R^2 \) indicates that technology, finance and government assistance do contribute significantly to competitiveness, hence the model is good.

4.4.3 Hypothesis 3 (H3)

1. Formulating the hypothesis

Hypothesis 3: (H3) There exists a correlation among the factors of competitiveness.

To test this hypothesis, the correlation test was performed. In research where there are several variables, there is always the yearning to know how one variable is related to another, that is, the nature, direction and significance of the bivariate
relationships of the variables used in the study. The bivariate correlation used in this research computes Pearson's correlation coefficient, Spearman's rho and Kendall's tau-b with their significance levels. Correlations help measure how variables or rank orders are related (SPSS Manual, 1999; Cavanaugh et al., 2000; Minaro-Viseras et al., 2005).

II. Decision Criteria
The data used are the symmetric quantitative variables and the test of significance selected was Two-tailed. The result of the correlation test is presented in Table 4.9.

III. Analyze data with SPSS

Table 4.9 Correlations among Factors of Competitiveness

<table>
<thead>
<tr>
<th>Factors</th>
<th>Tech</th>
<th>Product</th>
<th>Customer</th>
<th>Price</th>
<th>HRD</th>
<th>Finance</th>
<th>IT</th>
<th>Quality</th>
<th>Govt. Assistance</th>
<th>Marketing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology</td>
<td>1</td>
<td>0.708(**)</td>
<td>0.452(**)</td>
<td>0.633(*)</td>
<td>0.533(**)</td>
<td>0.321(*)</td>
<td>0.444(**)</td>
<td>0.319(*)</td>
<td>0.252</td>
<td>0.064</td>
</tr>
<tr>
<td>Product</td>
<td>0.592(**)</td>
<td>1</td>
<td>0.103</td>
<td>0.474(**)</td>
<td>0.560(*)</td>
<td>0.490(**)</td>
<td>0.523(*)</td>
<td>0.178</td>
<td>0.035</td>
<td></td>
</tr>
<tr>
<td>Customer</td>
<td>0.983</td>
<td>0.232</td>
<td>1</td>
<td>0.399(*)</td>
<td>0.16</td>
<td>0.186</td>
<td>0.105</td>
<td>0.02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Price</td>
<td>0.256</td>
<td>0.025</td>
<td>0.253</td>
<td>1</td>
<td>0.446(**)</td>
<td>-0.412(**)</td>
<td>-0.037</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HRD</td>
<td>0.264</td>
<td>0.458(**)</td>
<td>0.704(*)</td>
<td>0.095</td>
<td>1</td>
<td>0.324</td>
<td>0.195</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finance</td>
<td>0.201</td>
<td>0.294(*)</td>
<td>0.095</td>
<td>0.324</td>
<td>0.163</td>
<td>1</td>
<td>0.044</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IT</td>
<td>0.426(**)</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality</td>
<td>0.641</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Government</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assistance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.611(**)</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2 tailed).
V. Interpret the results

According to the output shown in Table 4.9, the significance of \( p \) is equal to 0.05. This is generally acceptable at the conventional level in social sciences and business research. This significance of 0.05 indicates that 95 times out of 100 one can be assured that there is true significant correlation between the variables or there is only a 5 percent chance that the relationship does not truly exist. Furthermore, there is a positive significant relationship between the variables, which is represented by 1.0. Further, the bivariate correlation analysis indicates the strength of the relationship at the various intervals. Although it is hard to say which variable causes which, it can be confidently said that the variables are associated with each other thereby supporting the hypothesis (3) correct.

4.4.4 Hypothesis 4 (H4)

I. Formulating the hypothesis

Hypothesis 4: (H4) Competitive firms (Top-10)* have better management of competitive factors than the rest of the firms in the sample.

The hypothesis was tested using the independent sample t-test. An independent sample t-test compares the mean of one variable (e.g. product, quality, technology etc.) for two groups of cases, i.e. Top-10 and the Rest of the firms in the sample. The details of the analysis and interpretations follow subsequently. To carry out the t-test, firms were categorized into two groups Top-10 and Rest. The ranking of firms was performed on the criteria such as annual sales, labour productivity and export as percentage of annual sales. Details of the ranking can be seen in Appendix 1. The results of the independent sample t-test are provided in Table 4.11.

II. Decision Criteria

The normal desired significance level for this hypothesis is set at 5 percent (giving a 95 per cent confidence interval level for a two-sided test). So the significance level is at 10 percent (\( \alpha = 0.10 \)).

---

Top-10* companies were selected on criteria such as annual sales, labour productivity and export figures.
Using the independent samples t-test, Hypothesis 4 will be rejected if the calculated p-value (significance level) is less than 0.05, as 95 percent confidence interval was chosen while running the test in SPSS.

III. Analyze data with SPSS

The original output of SPSS was rearranged and written in the following format.

Table 4.10 Hypothesis Testing with t-test (Independent Sample t-test).

<table>
<thead>
<tr>
<th>Hypothesis 4 (H4)</th>
<th>Factors</th>
<th>Test results</th>
<th>Mean value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competitive firms (Top-10)* have better management of competitive factors than the rest of the firms in the sample.</td>
<td>Technology</td>
<td>1.449&lt;sup&gt;a&lt;/sup&gt; 0.235&lt;sup&gt;b&lt;/sup&gt; 0.303&lt;sup&gt;c&lt;/sup&gt; 0.763&lt;sup&gt;d&lt;/sup&gt;</td>
<td>5.36&lt;sup&gt;e&lt;/sup&gt; 5.26&lt;sup&gt;f&lt;/sup&gt; 5.65&lt;sup&gt;i&lt;/sup&gt; 5.68&lt;sup&gt;j&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>Product</td>
<td>0.157&lt;sup&gt;a&lt;/sup&gt; 0.694&lt;sup&gt;b&lt;/sup&gt; 1.019&lt;sup&gt;c&lt;/sup&gt; 0.315&lt;sup&gt;d&lt;/sup&gt;</td>
<td>6.00&lt;sup&gt;e&lt;/sup&gt; 5.68&lt;sup&gt;f&lt;/sup&gt; 6.68&lt;sup&gt;i&lt;/sup&gt; 5.68&lt;sup&gt;j&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>Customer</td>
<td>0.957&lt;sup&gt;a&lt;/sup&gt; 0.333&lt;sup&gt;b&lt;/sup&gt; 0.347&lt;sup&gt;c&lt;/sup&gt; 0.730&lt;sup&gt;d&lt;/sup&gt;</td>
<td>5.13&lt;sup&gt;e&lt;/sup&gt; 5.04&lt;sup&gt;f&lt;/sup&gt; 5.04&lt;sup&gt;i&lt;/sup&gt; 5.68&lt;sup&gt;j&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>Price</td>
<td>7.000&lt;sup&gt;a&lt;/sup&gt; 0.031&lt;sup&gt;b&lt;/sup&gt; -0.652&lt;sup&gt;c&lt;/sup&gt; 0.528&lt;sup&gt;d&lt;/sup&gt;</td>
<td>5.10&lt;sup&gt;e&lt;/sup&gt; 5.48&lt;sup&gt;f&lt;/sup&gt; 5.10&lt;sup&gt;i&lt;/sup&gt; 5.68&lt;sup&gt;j&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>HRD</td>
<td>0.178&lt;sup&gt;a&lt;/sup&gt; 0.675&lt;sup&gt;b&lt;/sup&gt; -0.327&lt;sup&gt;c&lt;/sup&gt; 0.746&lt;sup&gt;d&lt;/sup&gt;</td>
<td>5.34&lt;sup&gt;e&lt;/sup&gt; 5.44&lt;sup&gt;f&lt;/sup&gt; 5.34&lt;sup&gt;i&lt;/sup&gt; 5.68&lt;sup&gt;j&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>Finance</td>
<td>0.019&lt;sup&gt;a&lt;/sup&gt; 0.892&lt;sup&gt;b&lt;/sup&gt; -0.774&lt;sup&gt;c&lt;/sup&gt; 0.449&lt;sup&gt;d&lt;/sup&gt;</td>
<td>5.02&lt;sup&gt;e&lt;/sup&gt; 5.24&lt;sup&gt;f&lt;/sup&gt; 5.02&lt;sup&gt;i&lt;/sup&gt; 5.68&lt;sup&gt;j&lt;/sup&gt;</td>
</tr>
</tbody>
</table>
Table 4.10 shows the mean values for Top-10 versus the Rest of the firms in the sample with respect to the various competitive factors of competitiveness. Each one of the factors is discussed below.

The average scores of competitiveness for individual factors for the two firm categories are:

- **Technology**—average technology for Top-10 firms in the sample is 5.36 and 5.26 for the Rest of the firms, which certainly indicates that Top-10 firms have better management of technology.

- **Product**—average product for Top-10 firms in the sample is 6.00 and 5.68 for the Rest of the firms, which certainly indicates that Top-10 firms have better management of product.
- Customer—average customer potential for Top-10 firms in the sample is 5.13 and 5.04 for the Rest of the firms, which certainly indicates that Top-10 firms have better management of customer.
- Price—average price for Top-10 firms in the sample is 5.10 and 5.48 for the Rest of the firms, which certainly indicates that Rest of the firms have better management of price.
- HRD—average human resource development (HRD) for Top-10 firms in the sample is 5.34 and 5.44 for the Rest of the firms, which certainly indicates that Rest of the firms have better management of HRD.
- Finance—average finance for Top-10 firms in the sample is 5.02 and 5.24 for the Rest of the firms, which certainly indicates that Rest of the firms have better management of finance.
- IT—average information technology (IT) for Top-10 firms in the sample is 5.96 and 5.59 for the Rest of the firms, which certainly indicates that Top-10 firms have better management of IT.
- Quality—average quality for Top-10 firms in the sample is 4.71 and 4.81 for the Rest of the firms, which certainly indicates that Rest of the firms have better management of quality.
- Government Assistance—average government assistance for Top-10 firms in the sample is 3.27 and 2.71 for the Rest of the firms, which certainly indicates that Top-10 have better management of government assistance.
- Marketing—average marketing for Top-10 firms in the sample is 4.30 and 3.68 for the Rest of the firms, which certainly indicates that Top-10 firms have better management of marketing.

Top-10 firms have better management of competitive factors except price, human resource development, finance and quality. This can be confirmed by the F-value of Levene's test for equality of variances and the respective significance level (Cavana et al., 2000). According to Levene's test (F-value), all the competitive factors are significant (as calculated p values > 0.05) except for the price factor (which has a p value of 0.011, p < 0.05). In the case of the four factors price, human resource development, finance and quality, the t-value with respect to "equal variances not assumed" was accepted.
Therefore, it is possible to use the results for the t-test with equal variances assumed for all the factors except price, human resource development, finance and quality, i.e. equal variances are not assumed. To validate the hypothesis, comparisons have to be made with the calculated $p$-values and the desired significance level ($\alpha$ value) of 0.05. The calculated $t$ values significance level for all the factors is greater than 0.05, hence Hypothesis 4 is accepted except for price, human resource development, finance and quality.

4.4.5 Hypothesis 5 (H5)

I. Formulating the hypothesis

Hypothesis 5: (H5) Competitiveness of the three groups of firms (Top-10, Top-15 and Rest) is not the same.

The hypothesis was tested using the one-way ANOVA (post-hoc test). The one-way analysis of variance (ANOVA) is tested to examine significant mean differences among more than two groups. ANOVA is valid only when it is required to compare more than two groups. So the sample is further divided into three groups: Top-10, Top-15 and Rest of the firms, from the same table in Appendix 1. The details of the analysis and interpretations follow.

II. Decision criteria

With the one-way ANOVA test, the significance level is set at 5 percent ($\alpha=0.05$). Here also the hypothesis will be rejected if the calculated $p$-value (significance level) is less than 0.05.

III. Analyze data with SPSS

The Table 4.12 presents the results of one-way ANOVA test and Post-hoc test. The output of the original SPSS data has been rearranged.
Table 4.11 ANOVA and Post-hoc Test

<table>
<thead>
<tr>
<th>Hypotheses</th>
<th>Factors</th>
<th>ANOVA result</th>
<th>Post-hoc test</th>
</tr>
</thead>
<tbody>
<tr>
<td>(H5) Competitiveness of the three groups of firms (Top-10, Top-15 and Rest) is not the same.</td>
<td>Technology</td>
<td>0.284^a</td>
<td>0.027^f</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.754^b</td>
<td>0.997^f</td>
</tr>
<tr>
<td></td>
<td>Product</td>
<td>0.521^a</td>
<td>0.295^c</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.597^b</td>
<td>0.704^d</td>
</tr>
<tr>
<td></td>
<td>Customer</td>
<td>0.079^b</td>
<td>0.119^f</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.924^b</td>
<td>0.917^f</td>
</tr>
<tr>
<td></td>
<td>Price</td>
<td>0.409^a</td>
<td>0.400^g</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.667^b</td>
<td>0.688^d</td>
</tr>
<tr>
<td></td>
<td>HRD</td>
<td>0.272^a</td>
<td>0.196^g</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.763^b</td>
<td>0.183^d</td>
</tr>
<tr>
<td></td>
<td>Finance</td>
<td>1.572^a</td>
<td>0.513^c</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.219^b</td>
<td>0.347^d</td>
</tr>
<tr>
<td></td>
<td>IT</td>
<td>0.882^a</td>
<td>0.120^f</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.421^b</td>
<td>0.968^d</td>
</tr>
<tr>
<td></td>
<td>Quality</td>
<td>0.106^a</td>
<td>0.141^c</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.900^b</td>
<td>0.593^d</td>
</tr>
<tr>
<td></td>
<td>Government Assistance</td>
<td>1.474^a</td>
<td>0.178^c</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.246^b</td>
<td>0.950^d</td>
</tr>
<tr>
<td></td>
<td>Marketing</td>
<td>2.164^a</td>
<td>0.078^c</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.127^b</td>
<td>0.992^d</td>
</tr>
</tbody>
</table>

^a F statistics from ANOVA test, ^b significance level (p>0.05), ^c Mean difference from Post-hoc test, ^d significance level (p>0.05).

IV. Interpret the results

By comparing the desired significance level (α value) of 0.05 with the calculated p-values from mean difference, i.e. (Top-10 and Rest) for post-hoc test, it can be said that the calculated significance level is outside the limit of 0.05; hence Hypothesis 5 is accepted. So Top-10 firms are competitive in product, customer, IT, government assistance and marketing and Top-15 are competitive in technology, price, human resource development, finance and quality.
So to conclude, the test results of one-way ANOVA confirm that the statistical decisions made are extremely significant and appear perfectly sensible and that the post-hoc procedure within SPSS helped determine which particular groups had the most significant mean differences.

4.5 Patterns of data for each research question or hypothesis

Table 4.13 carefully summarises the outcomes of each hypothesis and its acceptance and rejection using the specific tests.

4.5.1 Hypotheses Outcomes

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Test Required</th>
<th>Outcomes (Accept or Reject)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypothesis 1: (H1) Competitiveness is dependent on H1 (a) product, H1 (b) quality, H1(c) market, H1(d) price, H1(e) skilled labour, H1(f) Technology, H1(g) IT infrastructure and H1(h) government support.</td>
<td>Chi - square test (SPSS/descriptive/cross tab)</td>
<td>Accept H1 (a), H1 (b), H1 (c), H1 (e), H1 (g) and H1 (h). Reject H1 (d) and H1 (f).</td>
</tr>
<tr>
<td>Hypothesis 2: (H2) Factors such as product, quality, technology, human resources, market etc contribute towards enhancement of sector competitiveness</td>
<td>Regression test (SPSS/Regression/Linear)</td>
<td>Partially accept H2.</td>
</tr>
<tr>
<td>Hypothesis 3: (H3) There exists a correlation among the competitive factors.</td>
<td>Correlation Test (SPSS/Correlate/Bivariate)</td>
<td>Accept H3.</td>
</tr>
<tr>
<td>Hypothesis 4: (H4) Competitive firms (Top-10) have better management of factors than the rest of the firms in the sample.</td>
<td>Independent samples T-test (SPSS Compare of means/Independent samples T-test)</td>
<td>Partially Accept H4.</td>
</tr>
<tr>
<td>Hypothesis 5: (H5) Competitiveness of the three groups of firms (Top-10, Top-15 and Rest) is not the same.</td>
<td>One-way Anova (Post-hoc test) (SPSS/Compare of means/One-way Anova)</td>
<td>Accept H5</td>
</tr>
</tbody>
</table>
4.6 Discussion

In this research, ten competitive factors were rated according to their importance. The results suggest that more important factors tend to produce more attention from the managers of manufacturing firms than the less important ones. Technology, finance and government assistance have been emphasised most by the manufacturers in the sample. This result is consistent with the literature and also indicates the importance of the government assistance factor as a competency in the drive to enhance firm competitiveness.

Technology, on the other hand, is also seen as a winner in the majority of firms. This factor is also consistent with the results of the data analysis. The technology factor is viewed as a foundation for productivity, cost efficiency and on-time delivery. Thus an accomplishment in higher manufacturing process technology is a positive indicator for manufacturing competitiveness.

Furthermore, for a business to be successful, to be able to invest and afford competitive factors, a strong and secure finance has to be present. This is a vital prerequisite for firm-level competitiveness.

Other competitive factors such as quality, product, price etc did not gain much priority in the tests shown but this does not mean they are a neglected topic in Fiji. Nevertheless, there is considerable interest in these factors by the managers of manufacturing firms and it is something that requires more time, investment and patience for positive contributions and results.

Finally, it was observed that Top-10 firms in Fiji had better management of competitive factors such as technology, product, customer, IT, government assistance and marketing than the rest of the firms in the sample and that there were significant mean differences.

4.7 Conclusion

This chapter has presented an exploratory model of the factors that lead to firm-level competitiveness. Competitiveness was analysed in technology, quality, IT, product,
price, government assistance, marketing, customer market and finance across a set of 47 questionnaires. Various hypotheses were tested on competitive factors and their influences and role in firm competitiveness. Statistical analysis and tests were used to examine the different hypotheses and research questions. The study also showed how the computer results generated by SPSS are interpreted.

An important point to note is that data analysis must follow the testing of hypotheses that have already been formulated. It would be wrong to alter our original hypotheses to suit the results of the data analysis. However, it is acceptable to develop inductive hypotheses and later test them through further research. The results of the hypotheses indeed point towards the objective that competitive factors mentioned in the conceptual framework are definitely causing the firm to achieve competitiveness, with the most important ones being technology, finance and government assistance.

The following chapter is a study completed on two firms and their efforts in attaining competitiveness. The select case studies exemplify the results of the hypotheses and research questions and a number of conclusions and comparisons are made towards the end of the chapter.
CHAPTER 5

CASE STUDY

5.1 Introduction
This chapter takes an in-depth look at two case studies. Case research has consistently been one of the most powerful research methods in operations management (Voss et al., 2002). Case study objectives were articulated to guide the direction of the study, followed by selection of methodology and collection of data. The case study findings are then presented one after another, followed by a brief discussion highlighting the key outcomes. Finally comparisons and conclusions are made.

5.2 Objectives of the Case Study
As mentioned earlier (Chapter 1), the objectives of this study were to identify two successful or nearly successful manufacturing firms in Fiji as case studies to examine the following issues:

1. The factors they have invested in to boost firm-level competitiveness.
2. The types of resources (e.g., men, machine, material, method and technology) they employ for their successful operations.
3. Their manufacturing strategies to remain competitive in the market.

The basis on which the two case studies were selected is discussed below.

5.3 Basis of Selection of Case Study
This empirical research used two case studies as a qualitative measure, from among the large-scale manufacturing firms in Fiji. The case studies as a measure of triangulation have been used as a follow up to survey based research (Meredith and Vineyard, 1993; Heyer and Brown, 1999; Shee, 2002) in an attempt to examine deeply and validate previous empirical results.

The basis on which two case studies were selected are as follows.

1. Annual sales— the total earnings of the firm for the last financial year.
(2) Labour productivity— the total earnings divided by the number of employees in the firm.
(3) Export figures—exports as a percentage of the firm’s annual sales.

Firms were categorized into three groups (Top-10, Top-15 and Rest) based on the above-mentioned criteria of annual sales, labour productivity and export figures. The case studies discussed in this chapter were selected from the Top-10 category. Top-10 category recognizes the firms as manufacturers of quality products as well as being competitive firms in the industry.

It is commonly acknowledged that a single case study has limitations in terms of generalization of the research findings, particularly from a statistical point of view (Prajogo and Sohal, 2004). For this reason, the ideal number of cases selected was two. Voss et al. (2002) support the notion that the fewer the case studies, the greater the opportunity for observation. Further, the methods and instruments chosen to best realize the purpose and address the research questions giving maximum validity are discussed below.

5.4 Data Collection Methods for Select Case Studies

In order to facilitate data collection and analysis in the case studies, multiple respondents within the firm or multiple data collection methods (Yin, 1984; Barnes, 2001) were considered to gain the fullest understanding of the firm’s operations and to validate the findings from data analysis. This involved the use of interviews through unstructured questionnaires and document scanning. The case study protocol concentrates on three sections. The introductory section looks at the individual firm’s historical background, area of operations and major products offered to the market. The main section deals with various competitive factors that the firm has invested in over the last two decades in order to enhance its firm-level competitiveness. Finally, the last section highlights the key findings, draws conclusions and compares the two case studies.

The key informants were the senior managers involved in Operations, Quality, Logistics and Supply Chain in the two firms. These individuals had significant
involvement in the firms' manufacturing strategies and programs to enhance competitiveness. In addition, their position allowed them to develop a balanced view on the company characteristics at both the operational level and the strategic level. In total, two interviews were conducted at each company's site guided by an unstructured questionnaire. These interviews were recorded and later transcribed for analysis. The documents, which comprised of company annual reports, government reports, newspaper articles etc (Barnes, 2001) were a supplement to the interview and included in the report.

The two case studies are presented in three major parts. First is the background, followed by various competitive factors and the last part highlights and concludes and compares the key findings.

5.5 Case Study 1: Crest Chicken Fiji Limited (CCFL)
The first case study selected was Crest Chicken Fiji Limited. It was ranked as one of the Top-10 firms in Fiji on the basis of annual sales, labour productivity and export figures (See Appendix 1).

5.5.1 Background of the Firm
The company began to operate in Fiji as a frozen food manufacturing firm in the late eighties after a merger with Watties (a New Zealand owned company) and Goodman Fielder International (an Australian owned company). Today, it employs over 500 staff. Its primary products include a wide range of chicken based products for local consumers and major export customers in the South Pacific region. The sales revenue for the year 2004 amounted to roughly F$50 million with standard Crest whole chickens accounting for over 80 percent of this figure. The company has been extremely successful in exporting its products to Tuvalu, Solomon Islands and Tonga. Exports have increased tremendously over the last two decades. It is reputed for its high profile of customers, the Crest small-holder farm program and its efficient food safety programs. It also maintains strong recruitment programs, manufacturing practices and quality standards via links to its parent company, Goodman Fielder International. In particular, through pioneering in frozen food (chicken production), the company has become a competitive leading frozen food manufacturer in Fiji.
5.5.2 Success of the Firm – competitive factors

All ten competitive factors were chosen for investigation on firm-level competitiveness of Crest Chicken: technology, product, customer, price, human resource development, financial resources, information technology, quality, government assistance and marketing. The importance of these ten factors has been clearly exemplified by the operations of Crest Chicken Fiji Limited. Each of the factors is discussed below.

(i) Technology

The firm has invested in state-of-the-art technology for the production of chicken products. This technology is associated with the production related machines, boilers, blast freezers and a generator that switches on seconds after detecting a power cut. The entire production machinery is operated in a very sophisticated manner. Technicians in a single control room operate the machine and this involves setting the right speed of the machine and conveyor and adjusting the boiler temperatures. Once this is done, a test run is carried out to ensure maximum efficiency of operations. Their production machinery allows maximum standardization of the product, so there is not much human involvement in the processing stage, which ensures that there is very little wastage. All waste materials are further sucked into well-fitted drains to be carried to the waste boiler. Here the waste materials are treated, mixed with various nutrients and then baked into food pellets or chicken meal. This efficient set-up not only signals their concern for the environment but also their social responsibility. Overall, the investment in advanced equipment has enabled Crest to achieve a high level of process capability that could not otherwise have been achieved by manual processes.

(ii) Product

Crest produces no other frozen product apart from chicken and this means that it must always ensure best quality for continued sales and profits. That is, it does not have any other sort of business line to fall back on or off-set costs in times of hardship. The challenge is to sustain the popularity of their products in the market both locally and abroad through right packaging (e.g. right size, appeal, packing materials, durability etc.) and efficient suppliers (small holder farms). Their suppliers are either company owned or are small holders. Currently, there are roughly 900 Crest owned farms and
130 small holder farms. The advantage of having own farm and small holder farms is that it allows Crest to set standard criteria and conditions, carry out inspection freely and best of all it gives them a strategic edge in easily implementing changes to improve quality over other chicken producers and lowering buying costs.

(iii) Customer

Given the fact, that Crest Chicken Limited had established as early as the late eighties allows the firm to dominate a generous local market of 95 percent. This early start also indicates their good reputation in the country and years of community involvement and building customer relationships. These attributes have put the Crest firm in a very favourable position. With this position, they are able to enjoy the growing market share, market potential of the product and confidence and loyalty of customers in their Crest tag. However, years of establishment alone are just not enough to ensure survival in a competitive market.

(iv) Price

Price is a very important factor that Crest believes can create firm-level competitiveness. No matter how good a product is in terms of its quality, it must be supported by a reasonable and rational price. From discussion with key respondents, Crest believes that customers tend to focus more on the price factor than the actual quality. This factor further supports their reason for investment in the state-of-the-art technology. Their technology investment was definitely a good strategic decision as it allowed for standardization in operations and overall reduction of production costs. Crest has also formed a contract with its retailers whereby they must sell at a fixed or set special price. This price arrangement does not allow retailers to increase prices; however, it does allow them to make substantial profit. This price adjustment directly benefits the customer, which is Crest’s highest priority.

(v) Human Resource Development

Even though there is little human involvement in the production stage, employees are regarded as valuable assets. This is mainly because man and machine work together at Crest. Running the state-of-the-art machines and technology means that employees
need to be well trained and coordinated. This takes place in the form of in-house and off-site trainings. In-house training involves video sessions, courses and demonstrations conducted by TPAF (Training and Productivity Authority of Fiji), peer learning etc. Apart from these techniques, employees hold regular meetings to discuss daily tasks and to set goals. Off-site training is also practised and this involves sending staff to local training institutions (TPAF, University of the South Pacific (USP), Fiji Institute of Technology (FIT), local and international workshops, meetings and conferences. Crest believes that employees must always be given time, support and recognition for their hard work. This makes employees feel as though they are part of the company and will contentedly commit to common goals and raise the firm’s productivity levels.

(vi) Financial Resources

Financial resources are the key pre-requisite for all investment. Crest is a self-funded business that has experienced increase in profits for the last five years. These ‘increases’, as Crest confirmed, are the result of directly investing large parts of their profits back into the business. This strategy is perhaps common to most businesses, but the real challenge is in choosing the right type of investment. All investments have to be aligned with company goals and objectives and needs to be carried out at the right time. Some of Crest’s best-fit investments included purchase of the state-of-the-art technology or machinery, IT upgrades (CISPRO technologies) and small-holder farm programs and schemes.

(vii) Information Technology

IT is quickly catching up with the many firms in the manufacturing industry. Crest too has realized the benefits of IT and has pursued it through the installation of a software program known as CISPRO, which is an acronym for Chemical Inventory System. It is a high performance relational database program that tracks and maintains accurate, real-time inventory information and this software is easy to use and implement. Crest has installed this system in all its warehouses around the country. The CISPRO system is quite remarkable, as it has improved Crest’s security on data access and allows them to keep track of inventory, immediate visibility into stock levels availability, aggregate demand and practice risk pooling thus making its operations centralized.
(viii) Quality
In this globalized world, quality is very important and is often recognized by the adoption of various quality systems, e.g. ISO 9000 etc. Although companies in Fiji have been quick to realize the value of quality awards, implementation is rather slow and this can largely be attributed to financial constraints and lack of awareness. Crest values its current market share and looks forward to attracting more customers by engaging in quality practices and acquiring certificates such as ISO 9000, HACCP and Halal. These certificates have indeed raised their quality levels, matching them to international food standards. According to the Crest management, although the implementation of such quality awards is fairly time consuming, it really pays off in the end. Crest believes from experience, that customers are more likely to pick up a product that has a quality seal on its packaging.

(ix) Government Assistance
Another factor that must be present, especially in a developing country like Fiji, is government assistance. No matter how small is the contribution or assistance, it certainly makes a difference to the entire operations of the firm. Crest respondents confirmed that there were few if any workshops or subsidies on training provided by the government and that government’s role in building firm-level competitiveness was minimum and more needed to be done.

(x) Marketing
In terms of marketing, Crest asserted that the government needs to increase their involvement and priority in the manufacturing sector. Although government supports the export of locally manufactured products through tax incentives and duty suspension schemes, this is really not enough. It can be argued that the majority of the larger manufacturers (Top-10 and Top-15 in the sample) are better able to enjoy these benefits, though the same cannot be said for the other manufacturers.

5.5.3 Discussion
Several insights can be drawn from the case study and are discussed in the next paragraphs.
Firstly, the company has witnessed a major change in the industry in terms of competition and has been trying to gain competitive advantage over its competitors. As a response to competitive challenges and to build firm-level competitiveness, Crest shifted its focus to strengthen its competitive factors such as technology, IT and quality. This allowed the firm to achieve considerable success in the highly competitive environment.

Another important point to note is that the case study demonstrated that quality plays an important role as an “order qualifier”. The success that the firm has enjoyed for many years has gone hand in hand with its long history of implementing a sound quality management system. This tradition has benefited the firm particularly in winning the confidence of its major customers that demand the implementation of a high standard of quality system at competitive pricing and at the same time building and strengthening customer relationships.

So to conclude, this case study demonstrates that building firm-level competitiveness is important and that the competitive factors contribute significantly to it.

5.6 Case Study 2: The Fiji Sugar Corporation Limited (FSC–Lautoka Mill)

The second case study selected was the Fiji Sugar Corporation Limited (FSC) on the basis of sales revenue, labour productivity and export figures: it was among the Top-10 firms ranked on these factors. Details of the firm’s investments in the stated competitive factors are discussed below.

5.6.1 Background

The Sugar Industry is vital to Fiji’s economy as it contributes around 7 percent of gross domestic product (GDP), generates about 19 percent of total domestic exports with a total foreign earning of F$178.4 million in the year 2004 (FSC, 2005).

FSC was incorporated in Fiji by an Act of Parliament in 1972 to take over the sugar milling activities of the South Pacific Sugar Mills with effect from 1 April, 1973 as the
sole manufacturer of raw sugar (FSC, 2000-2005). Today, FSC is the largest public company in Fiji, with the Government of Fiji, a major shareholder, owning 68% of shares while statutory bodies, local companies and individuals own the rest of the shares. The company’s shares are listed and traded on the South Pacific Stock Exchange Limited (SPSE).

The Corporation is largely managed and staffed by more than 2500 Fiji citizens during the peak season (FSC, 2005). FSC owns and operates a total of four sugar mills country-wide, that is Lautoka, Rarawai in Ba and Penang in Rakiraki located on the main island of Viti Levu and Labasa mill, which is located on the second largest island of Vanua Levu. The Corporation’s primary product is raw sugar and its major export customers are the United Kingdom, the USA, Japan, Korea and Indonesia, who together contribute at least 91 per cent of the company’s total revenue. Sugar that is exported to United Kingdom was on protocol and Special Preferential Agreement that actually amounted to more than half of the total export (FSC, 2005). A small amount of sugar is also exported to Tonga, Samos, Kiribati and Solomon Islands and the remainder stays in the country for local consumption. The by-products of sugar are molasses, bagasse and mill-mud and these are efficiently used in the production of other items, for example fertilizer, alcoholic beverages etc. This signals that FSC believes in no wastage. According to the Annual Report (FSC, 2005), FSC cane production for the 2004 season was three million tonnes.

In addition, the Corporation through its subsidiaries and related companies is also engaged in the procurement of material and machinery (FSC Services Pty Limited, Australia), special development and project work (FSC Projects Limited), the blending of fertilizer (South Pacific Fertilizer Limited) and agriculture chemicals (Agchem Limited).

Lastly, exports have been gradually increasing over the last two decades and the firm is reputed for its high profile of customers, marketing, delivery and sale of raw sugar and research and extension programmes (White, 2003; FSC, 2003). Overall, FSC maintains strong recruitment programs, manufacturing practices and quality standards.
5.6.2 Success of the Lautoka Mill

The Lautoka mill, which is the focus of the case study, employs roughly around 1000 people. The sales revenue in the year 2004 amounted roughly F$24.2 million, which was more than the other sugar mills in the country. Over the last two decades, the Lautoka mill has turned out to be a steady raw sugar manufacturer in Fiji. The importance of technology, product, customer, price, human resource development, financial resources, information technology, quality, government assistance and marketing has been clearly exemplified by the operations of FSC Lautoka mill. The following discussion will clarify each one.

(i) Technology

In a sugar cane mill, there are many types of machines each serving its unique purpose. Briefly the major machines at the Lautoka Mill used for the production of raw sugar are the cane carrier, shredder, steam turbines, crushing mill, cane diffuser, bagasse-fired boiler, multiple effect evaporators, SRI clarifier, rotary mud filters, vacuum pans, ABB asca machines, silver weibull machines, rotary drum driers and coolers, bucket elevators, programmable logic controllers (PLC) control systems, electric motors, conveyors and pumps. The Lautoka Mill has a firm policy of continuously upgrading their machines to match what is currently used and available.

However, there are still a few machines that have been in the mill for the last 20 years or more. Even so, the efficiency of the plants is critical and the usual trend is to maintain the bulk of the plants at maximum or full capacity. In the case of older machines, which demand capacity constraints, the mill has supported them with available backups to facilitate rate restrictions. In a sugar mill, it is the technology that helps to convert the raw material (sugar cane) into raw sugar crystals therefore all machinery and technology need to be well looked after and maintained, as the slightest glitch, that is downtime and stoppages could affect production. Recently, in March 2004, an expert team from India visited the sugar mill to assess the current state of machinery and recommend suitable upgrades to their technology (Sugar Technology Mission, 2004).
(ii) Product
As mentioned earlier, the main product of the mill is raw sugar and the by-products are molasses, bagasse and mill-mud. Since FSC is the sole producer and manufacturer of raw sugar, it has to ensure its customers a continued and consistent supply accompanied with superior quality. Therefore, sugar cane farmers or growers are often visited by field officers from FSC to check cane quality and sugar content, growth, pest and other problems. In addition, the mill packages its product in various sizes to suit its local market needs. The raw sugar that is exported to the major markets is actually sent to refineries where it is further processed and made into white sugar.

(iii) Customer
The fact that FSC was established as early as the seventies and is the sole manufacturer of sugar in Fiji allows the company to favourably dominate a generous local market share of almost a 100 percent. Since its establishment, FSC has always been a dedicated exporter as 90–95% of its production is sold to United Kingdom, USA, Japan, Korea and Indonesia. This shows that they have come a long way and realize the importance of good customer relationships and quality standards. This also highlights their sugar manufacturing and employing capacity reputation in the country and hence years of community building. These attributes have put FSC in a very encouraging position. With this position, they are able to maintain sound market share, market potential of the product and confidence and loyalty of customers in their national (Fiji made) tag. But as in the case of Crest, years of establishment alone are just not enough for FSC to survive competitively.

(iv) Price
Price is an important factor when it comes to selling the product. The prices for the Tonga, Samoa, Kiribati and Solomon markets are mainly determined by the level of competition, so one can expect to see occasional fluctuations. As for Fiji, prices are closely monitored and set by the Prices and Income Board, which tries to ensure that customers are given a reasonable quantity and quality for a set price. For the overseas markets, all the major customers are government-to-government based. This means
that these are the preferential markets that FSC exports to at a premium price under the special Cotonou and SPARTECA agreements (FSC, 2005). In addition, FSC has maintained a long-term relationship with most of the buyers and this shows the buyer confidence in FSC’s product and quality. An important point to note is that FSC is able to withstand international competitive pressure only through the subsidized preferential prices given by the European Union. In fact without this support, FSC would have not have been so successful.

(v) Human Resource Development
A benchmarking exercise has been initiated to introduce a competency based training framework along the lines of internationally recognized sugar industry competency standards (FSC, 2002-2003). The mill is still quite labour intensive despite the range of machines used for sugar production. For this reason, employees are treated as valuable assets to the company as they are directly involved in operating and maintaining the complex machines. Training and development remain a key priority for the Corporation and they focus on identifying and improving the skills gap that exist at all levels of the Corporation.

FSC has developed its own training centre, which has now been revived after a lapse of three years. The majority of the employees are trained at this centre along with formal training and certification provided by TPAF and FJT. In-house training is a regular activity and the mill also hires consultants to provide training, upgrade skills at the mill and advise the company on relevant measures for improved development and competitiveness. The Lautoka mill claims to conduct training in a very organized and effective manner and believes that training has indeed brought about visible positive changes, for example less absenteeism and employee turnover, and increased job satisfaction among employees.

To maintain efficient mill operations, employees are often briefed in meetings of daily targets and goals, productivity issues, health and safety standards and other matters. For health and safety at the workplace, safety committees are assigned at the mills to ensure that all appropriate standards are maintained.
Other good practices include the carrying out of a full training needs analysis and regular dialogue and effective communication with the Trade Unions for a more harmonious industrial front (FSC, 2005).

(vi) Financial Resources

Financial resources are an important factor, determining the success and continuity of a firm. FSC relies on the sale of sugar and molasses for finances to support all its mill operations. Despite FSC’s investments into new machines, employee training etc, they still have not been able to earn the desired levels of profits. However, the respondents at the mill confirm that whatever revenue comes from the sale of sugar has been well used. That is, management makes an effort to invest most of the revenue back into the mill for its sustainability. Sugar earnings are spent on technology (improvement and replacement of plant and machinery) and IT upgrades, payment to employees, research and development etc. It is clear from interviews with respondents that FSC does not have the privilege to invest generously and so all investment related decisions are made once consultations with stakeholders, industry specialists, managers and other key personnel and in-depth research have taken place. Additional sources of revenue for the company come in the form of government assistance and this is discussed later in the chapter.

(vii) Information Technology

For mill operations as large as FSC, there has to be a good IT system in place. FSC has been continuously upgrading its IT facilities. In their factory operations at the Lautoka Mill, a lot of PLC controls have been installed, which they claim are quite comparable to modern industries in Australia. There is also a number of centralized controls and this has further supported reliability and performance of the mill and its operations. All communications systems are linked by a local intranet, which is thoroughly maintained by the FSC Information Centre Personnel. All mills are linked by telephone networks and data, which are efficiently maintained by the local Information Systems Centre (ISC). Other improvements include finance, technical, field information and human resource development.
The major achievement for this year has been the implementation of the web based electronic work order system, web based cash book, incorporating plant codes in the costing system, developing a new financial costing structure, implementation of maintenance and operating budget systems and automating the weight capturing and slip printing for the sugar unloading. The Personnel Administrative System (PAS) system was also enhanced to incorporate personal protective equipment entries (FSC, 2005).

(viii) Quality
Quality is a critical factor in this moment of time as this is what determines and assures the sale of a product. FSC does not have any of the renowned awards such as Fiji Quality Award and ISO awards but it does conform to a number of quality standards demonstrated by the Australian Sugar Research Institute to ensure the best product quality. There are also strict protocols followed at the mill on sugar quality and this is regularly monitored by audit teams. For example, this year the mills raised the sugar pol in an effort to improve sugar quality from burnt cane. Raising the sugar pol helps in washing away some of the dextran and other impurities from the surface of the sugar crystals (FSC, 2005). The Sugar Research Institute is a good source of quality awareness and FSC tries its best to adhere to their standards.

The major buyers of sugar have also dictated standards of quality that FSC has to maintain for the continued sale of sugar. To encourage its employees to focus on sugar quality, FSC ingeniously holds internal mill competitions. Not only does this make work more fun, it also boosts employee support and confidence in the mill, promotes collectiveness and an outcome based approach.

(ix) Government Assistance
FSC is perhaps one of the few firms that enjoy funding interests from the Fiji government. The government plays a big role in assisting the development and sale of Fiji sugar. This comes as no shock as sugar has for long been one of the major revenue earners (F$178.4 million in the year 2005) and FSC is the largest employer in the country (over 2500 individuals). Government helps to secure export markets for FSC.
through their Foreign Trade Department, which negotiates fair prices, quantity and other deals.

In addition, the government provides loans to FSC and negotiates generous foreign aid for the development of the company. For example, the Farming Assistance Scheme has been designed to assist Fijian cane growers to establish their crop with a cash grant by government. A total of F$2,543,420 was paid out for the crop establishment of 997 new growers and this input resulted in the production and harvest of 1390 hectares and 72,717 tonnes between the years 2000 and 2004 (FSC, 2005).

(x) Marketing

The marketing of sugar is done by Fiji Sugar Marketing Company Limited, a F$2 million government owned company acting as agent for Fiji Sugar Corporation. It is responsible for the transport and storage of sugar and its sale in the international, regional and local markets (Sugar Technology Mission, 2004). Therefore, Government is primarily responsible for taking care of marketing activities of FSC.

5.6.3 Discussion

FSC continues its efforts to upgrade mill operations. These upgrades along with government assistance and recommendations by the Sugar Technology Mission from India make FSC appreciate the whole concept of firm-level competitiveness. They believe that no matter what stage a company may be in, it is essential to invest continuously in the various factors for sustainability and firm-level competitiveness. In the short term, these factors may not provide benefits but their results will show in years to come.

5.7 Comparative study of the two cases

Based on the conceptual model and data analysis, a comparative study was undertaken. This comparison is done on the mean of competitive factors. Each factor was given a weightage based on the results of the hypothesis testing and is subjective in nature. The Table 5.1 looks at the overall mean score of items under the selected competitive factors.
Table 5.1 Mean Score of Competitive Factors

<table>
<thead>
<tr>
<th>Factors</th>
<th>Weight</th>
<th>Mean scores</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Crest</td>
<td></td>
<td>Weighted</td>
<td>FSC</td>
<td></td>
<td>Weighted</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>mean</td>
<td></td>
<td>score</td>
<td>mean</td>
<td></td>
<td>score</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technology</td>
<td>0.10</td>
<td>5</td>
<td>0.50</td>
<td>5</td>
<td>0.50</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Product</td>
<td>0.15</td>
<td>7</td>
<td>1.05</td>
<td>5</td>
<td>0.75</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customer</td>
<td>0.10</td>
<td>5</td>
<td>0.50</td>
<td>5</td>
<td>0.50</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Price</td>
<td>0.10</td>
<td>7</td>
<td>0.70</td>
<td>5</td>
<td>0.50</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Human Resources</td>
<td>0.05</td>
<td>5</td>
<td>0.25</td>
<td>5</td>
<td>0.25</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Development</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finance</td>
<td>0.15</td>
<td>6</td>
<td>0.90</td>
<td>4</td>
<td>0.60</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IT</td>
<td>0.05</td>
<td>6</td>
<td>0.30</td>
<td>5</td>
<td>0.25</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality</td>
<td>0.15</td>
<td>4</td>
<td>0.60</td>
<td>3</td>
<td>0.45</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Government</td>
<td>0.05</td>
<td>1</td>
<td>0.05</td>
<td>4</td>
<td>0.20</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assistance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marketing</td>
<td>0.10</td>
<td>2</td>
<td>0.20</td>
<td>5</td>
<td>0.50</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1.00</strong></td>
<td><strong>48</strong></td>
<td><strong>5.05</strong></td>
<td><strong>46</strong></td>
<td><strong>4.50</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: (Weighted score = weights*mean)

According to Table 5.1, both firms illustrate that most competitive factors (technology, product, customer, price, human resource development, finance, IT and quality) are prioritized in their firms. However, FSC has an advantage over Crest in government assistance and marketing and these factors have been comprehensively demonstrated in the FSC case study. Overall, Crest has been performing better than FSC, i.e. Crest's weighted score of 5.05 compares with a score of 4.50 for FSC.
5.8 Conclusion

In conclusion, these case studies have clearly demonstrated the importance of the stated competitive factors to boost competitiveness. Both case studies have confirmed that the factors such as technology, finance and assistance are very important for firm-level competitiveness and stress that all competitive factors must be present for the development of firm-level competitiveness, i.e. Hypothesis 3 supports the positive correlation of all the stated factors (see Chapter 4). It might not practically be feasible to acquire total competitive advantage in respect of all the factors but firms still need to work consistently on it.

The next chapter, which is the last chapter, recapitulates all chapters, draws conclusions and summarizes the major findings. Various implications of the study, limitations and suggestions for future research are discussed.
CHAPTER 6

SUMMARY OF FINDINGS AND CONCLUSIONS

6.1 Introduction
This chapter draws conclusions about each research question and hypothesis formulated. Various implications for theory and practice are also discussed followed by the limitations of this study and suggestions for future research. However, before proceeding into the details of this chapter, it is important to recapitulate all prior chapters.

Chapter one starts with the rationale behind this research and highlights the problem statements. The objective was to critically examine the current practices of manufacturing firms in Fiji and their competitiveness for sustainable growth. To address this problem, an extensive literature review was carried out on 'competitiveness and manufacturing' followed by the development of a conceptual framework for validation through the survey method.

Chapter two, which examines the literature, provides the essential theoretical background on global competition, definitions and dimensions of competitiveness, key players and the competitive variables needed for firms' competitiveness. Related literature was reviewed to ascertain the progress of current research on the competitiveness of the manufacturing sector together with the various factors leading to firm-level competitiveness. This review included a compilation of prior research by means of a summary, classification, comparison and evaluation of all previous literature. Detailed review justified the proposed research problem and highlighted some research questions.

Chapter three was an effort to develop a research methodology that adequately met the criteria for investigating the research problem. This chapter outlined the framework of research methodology with emphasis on survey methods of data collection. The
importance of the case study method was also discussed. Justification of the methodology, the unit of analysis, sampling techniques (judgement sampling), sources of data, administration of research instruments, data analysis techniques adopted and hypothesis testing was presented. A conceptual framework with hypothesis linkages was presented to indicate the factors contributing to firm competitiveness.

Chapter four takes an in-depth look at the data analysis and results interpretations. The questionnaire was tested for its scale reliability and the construct validity of the questions. The collected data were tested through various statistical techniques to see if the research questions and hypotheses had been accepted or rejected. A detailed interpretation of the test is presented after each hypothesis and the overall results are further discussed towards the end of the chapter.

Chapter five is focused on the select case studies of Fiji. The purpose of the case studies, as a triangulation method was to verify the results of the hypothesis testing and examine whether the stated competitive factors were responsible for enhancing the firm-level competitiveness. The findings of the case study demonstrated the importance of the stated competitive factors and confirmed that the factors technology, finance and assistance were most important for firm-level competitiveness. The chapter ended with conclusions and comparisons were made between the two case studies.

Chapter six presents the summary of findings and conclusions including the key findings, implications, recommendations, limitations of the study and scope for future research. These are scrupulously detailed out in the sections as follows.

6.2 Key Findings of the Study
The survey was conducted to determine the competitiveness of manufacturing firms in Fiji and the factors that led to its overall competitiveness. The results from the 84-item questionnaire survey provided a good insight into the current status of manufacturing practices of firms in the manufacturing sector of Fiji. The study findings are summarised below.
1. Literature study has been conducted, synthesized and categorized. The definition, dimensions, measurement variables, and factors contributing to competitiveness at various levels have been summarized. Literature pertaining to manufacturing strategies and firm competitiveness was also reviewed. The literature is categorized year-wise starting from 1970 till date.

2. Firm-level competitiveness is extremely important for a firm's continuity and success. The problems and prospects of the manufacturers in Fiji have been studied in the context of firm-level competitiveness. Various factors such as product and its quality, customer, price, skilled labour, technology, IT infrastructure, finance, marketing and government assistance were studied to determine the competitiveness of manufacturing firms. The study of the manufacturing sector indicates that there has been a shift towards these particular factors as a strategy for attaining firm-level competitiveness.

3. To attain firm-level competitiveness, a number of factors need to be present and this was confirmed in the data analysis (Chapter 4) and supported by the case studies (Chapter 5). All the factors in the conceptual model, that is to say product and its quality, customer, price, skilled labour, technology, IT infrastructure, finance, marketing and government assistance, are common prerequisites for competitiveness and were tested using the formulated hypotheses. The findings from the questionnaire survey and hypotheses testing are restated below:

   a) Competitiveness is dependent on the factors quality, market, price, labour and IT infrastructure as they were more statistically significant.
   b) For this study, the factors technology, finance and government assistance contributed more significantly to competitiveness. These three factors were better or greater contributors of competitiveness than the rest of the factors.
   c) There is a positive and significant correlation among the competitive factors and firm-level competitiveness, with technology having the highest significance level at 0.708.
d) Competitive firms (Top-10) were identified on the basis of annual sales, labour productivity and export figures and validated. The firms had significant quality and technology management practices supported by good finance and government assistance.

e) For comparison of the competitiveness of the manufacturing firms in the sample, they were grouped into three: Top-10, Top-15 and Rest. The ANOVA test revealed that there were differences in competitiveness among these three groups of firms.

4. Two manufacturing firms were selected for case studies to validate the factors of competitiveness that emerged from data analysis. The case studies adequately demonstrated and exemplified the importance of competitive factors in enhancing their firm-level competitiveness. Competitiveness of these firms resulted from continuous upgrading and investment of competitive factors and by sustaining them.

6.3 Implications

The various implications of this study are presented below.

1. This study has made a considerable difference to the existing body of knowledge in manufacturing practices and firm competitiveness in Fiji. The study determined the current competitiveness state of Fiji’s manufacturing sector and demonstrated the usefulness of the stated competitive factors. The conceptual model has proven to be a practical starting point towards enhancing firm competitiveness.

2. The two case studies in this research have validated the findings from the survey data analysis and confirmed that firm competitiveness is an important management philosophy in this dynamic age.

3. This study directly benefits manufacturing companies in the prioritization and investment in the factors of competitiveness and helps in understanding their usefulness in determining overall firm competitiveness.
4. It helps managers understand the significance of competitiveness in a changing business environment (Ling, 2000) and to flesh out what competitive factors means to Fiji manufacturers, and provides a methodology for pinpointing improvement priorities.

5. The results of the company case study (Chapter 5) revealed that there is a need to invest in competitive factors but not necessarily in all. This is where the firms' managers must contemplate the right manufacturing strategies and invest in factors that are aligned to company goals and are attainable with their current finances and positioning on resources.

6. For a firm to apply competitiveness as part of its strategy, it must first come up with a proper definition, as competitiveness is a multi-dimensional concept. This definition can be best evaluated by a research network in collaboration with the industry concerned (Ambastha and Momaya, 2004).

Overall, the implications for firm-level competitiveness can best assist managers of manufacturing firms identify the areas of need or the missing factors that are crucial for enhancing firm-level competitiveness.

6.4 Recommendations

Survey research conducted reveals some problems and prospects of manufacturing sector in Fiji. Despite more priority given to the service sector like tourism by government, the manufacturing sector of Fiji cannot be neglected, as the study reveals its potential for growth and development. It can be argued that all services follow manufacturing in some form or other, so manufacturing needs priority. Therefore, sustainable development and growth of the manufacturing sector is vital.

From the results obtained from the questionnaire study and follow up case studies, a number of key problems were identified by the respondents. These problems along with suitable recommendations to boost the competitiveness of the manufacturing sector are presented below.
1. The high cost of importing raw materials into the country as one of the inputs is a problem. Manufacturing firms stress that much of their raw materials comes from overseas countries resulting in additional costs. There is a suggestion from the manufacturing community for a sole supplier of raw materials in the country that sells at a reasonable wholesale price. For example, a sole supplier for garment related materials can actually benefit the many garment manufacturers in Fiji. This may also result in producing cost competitive products.

2. The manufacturing sector as a whole is having a difficult time in retaining and replacing skilled workers. Employees have been leaving their firms for reasons pertaining to better pay elsewhere, prospects of migration and the benefits of becoming an entrepreneur. The sector as a whole suffers as they cannot find quick replacements and are forced to rely on unskilled people or spend a huge lump sum of company revenue in hiring expatriates to manage the company operations.

On the same note, managers complain of worker attitude. The issue here is that many of the employees after receiving training stay with the company for a short period of time or as per contract requirements and then leave for better opportunities. Clearly the firm is placed at a greater loss as it has to maintain productivity and worker morale and incur costs in advertising and recruitment of the right person for the job. There is a desperate cry to the government to take actions on replenishing these lost employees. The appropriate government policy here would be to require all firms to train or to contribute to the cost of training provided by others in the industry (Batra and Tan, 2002) supported with payroll-levy training funds and tax incentives for employer-sponsored training, national training councils, and matching grants. This should be backed by political stability.

3. Many firms claim that government gives no real assistance in the form of free training, guidance and advice on how best to achieve and maintain firm-level
competitiveness. In this case, government could at least hold industry specific workshops and subsidize the entry fees (Luthria, 2002) for a start.

4. The matter of machinery is also significant. High-tech machinery is considered to be very useful and can bring about considerable reductions in costs and time resulting in higher productivity. However, before one decides to make a purchase of the state-of-the-art technology, it is important to do an assessment into the pros and cons of it. For a developing country like Fiji, purchasing a technology that is matched to international standards will probably seem expensive and the payback may not be realized as quickly because of low market share of the product produced locally. Most manufacturers believe that since labour is relatively cheap and readily available in Fiji; it is really not a setback to be behind in technology. That is, labour is a better pay-off when compared to the expensive demanding technology. However, at the same time room for improvements must be made for a company can only operate successfully and competitively if men and machine work together, even if the technology model is slightly outdated. This means that the available technology is not used optimally in the absence of a skilled workforce in the factory, e.g. garments and sugar.

5. Next, the expiry of the quota system poses a severe threat. Government has not given enough priority in terms of future directions and promising opportunities when it comes to the quota system expiring. This expiry will open up the trade, allowing countries to export as much as they want as long as they have a buyer. This may seem to be good news but for a small country like Fiji, government support in terms of tax incentives, duty relief and other aid is vital. Since Fiji relies on raw materials from overseas, this makes their end product expensive. As a result vulnerability to competition from well resourced countries like India, China, Bangladesh and Pakistan has increased. For one to reap benefits from a higher degree of openness, investment in factory infrastructure and human capital (Adenikinju et al., 2002) is required so as to improve competitiveness.
6. Other recommendations are of a strategy of inter-firm cooperation (Luthria, 2002) and foreign direct investment (FDI) (Khemani, 2002; Graham and Richardson, 1997; Lall, 2002). Inter-firm cooperation strategy encourages firms to collectively promote technology diffusion by resolving common problems and sharing information to build their internal capabilities. FDI, on the other hand, is a great way to engage local enterprises directly into globalization, boost export competitiveness and access new technologies, knowledge and organizational methods.

6.5 Limitations
This research was carried out mainly by secondary data made available through the questionnaire survey. Although the data presented a great research opportunity, it had its limitations with self reported data and perhaps possible single respondent bias (Shah and Ward, 2003). Some limitations are listed below.

1. The findings are based on the sample size of 50 large-scale manufacturers hence generalizability of results is limited.

2. The data collection was limited to the large manufacturing firms of Fiji.

3. The research did not include the views of expert panels and open interviews with manufacturing directors of highly successful companies to conclude the findings of this study.

4. Due to the dynamic nature of manufacturing as well as its market and environmental situation, this kind of study needs to be updated periodically by the identification of new factors, followed by in-depth case studies (Laugen et al., 2005). Separate industry-level analysis will also offer interesting insights, as firm-level competitiveness is found in all industries (Shah and Ward, 2003).

In spite of these limitations, the data provide a rich picture of the competitiveness of the manufacturing firms in Fiji.
6.6 Future Research

Based on the experiences gained in conducting this study and the literature reviewed, the following agenda presents the scope for future research.

1. The study can be extended to a larger sample size covering more manufacturing firms in Fiji.

2. There can be a study relating to the service sector done in a similar way and recommendations can be made to boost the competitiveness of the firm.

3. This study was limited to the competitiveness of ‘large’ firms in the manufacturing sector but research can well be extended to small and medium firms (SMEs) in Fiji and the South Pacific.

4. For completeness, additional competitive factors or criteria (Ajitabh et al., 2001; Husseini et al., 2004) on issues related to total quality management, environment, supply chain management, benchmarking, logistics, capacity planning, resource planning etc. might be considered in future research on firm competitiveness (Laugen et al., 2005).

5. Future research could always test the validity of the findings of this research by using a different research method and different research design (Husseini et al., 2004; Minarro-Viseras et al., 2005; Zhang et al., 2003) as this will present the “real effects” (Yasin, 2002) of competitive factors on firm performance.

6.7 Conclusion

This last chapter has carefully summarized all previous chapters and presented the key findings from the research. This chapter also discusses the important implications and limitations in this study and concludes with suggestions for future research.

With anticipation, continued emphasis on manufacturing competitiveness will continue to increase our understanding of the competitive dynamics found within industries.
References


Global Competitiveness through National Quality and Business Excellence Awards; Asian Productivity Organization, Tokyo, pp. 3–18.


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Thaman, R. (1999). Lecture Notes: Geographic Techniques and Methods, University of the South Pacific, Suva.


Appendix 1

Ranking of firms on the basis of annual sales, export figure and labor productivity as a percentage of the total.

<table>
<thead>
<tr>
<th>COMPANY</th>
<th>Annual Sales (%)</th>
<th>Export as % of Sales (%)</th>
<th>Labour Productivity (%)</th>
<th>TOTAL</th>
<th>Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>F WATER</td>
<td>19.83%</td>
<td>6.33%</td>
<td>14.31%</td>
<td>34.47%</td>
<td>Top-10</td>
</tr>
<tr>
<td>TSC</td>
<td>16.52%</td>
<td>5.87%</td>
<td>10.04%</td>
<td>32.43%</td>
<td>Top-10</td>
</tr>
<tr>
<td>RCF</td>
<td>2.13%</td>
<td>0.65%</td>
<td>20.00%</td>
<td>7.69%</td>
<td>Top-10</td>
</tr>
<tr>
<td>PACCO</td>
<td>16.52%</td>
<td>0.05%</td>
<td>2.38%</td>
<td>3.28%</td>
<td>Top-10</td>
</tr>
<tr>
<td>GOLDEN</td>
<td>2.31%</td>
<td>5.16%</td>
<td>3.91%</td>
<td>9.38%</td>
<td>Top-10</td>
</tr>
<tr>
<td>FIL 2</td>
<td>2.13%</td>
<td>0.05%</td>
<td>8.45%</td>
<td>3.61%</td>
<td>Top-10</td>
</tr>
<tr>
<td>PGI</td>
<td>0.99%</td>
<td>5.49%</td>
<td>3.67%</td>
<td>2.02%</td>
<td>Top-10</td>
</tr>
<tr>
<td>CREST</td>
<td>4.96%</td>
<td>0.32%</td>
<td>3.58%</td>
<td>2.91%</td>
<td>Top-10</td>
</tr>
<tr>
<td>PGP</td>
<td>4.96%</td>
<td>0.00%</td>
<td>3.58%</td>
<td>2.85%</td>
<td>Top-10</td>
</tr>
<tr>
<td>FIL</td>
<td>2.31%</td>
<td>2.26%</td>
<td>3.01%</td>
<td>2.81%</td>
<td>Top-10</td>
</tr>
<tr>
<td>DANAM</td>
<td>0.09%</td>
<td>6.36%</td>
<td>0.72%</td>
<td>2.59%</td>
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</tr>
<tr>
<td>FMB</td>
<td>4.96%</td>
<td>1.29%</td>
<td>1.67%</td>
<td>2.64%</td>
<td>Top-15</td>
</tr>
<tr>
<td>TUSA B</td>
<td>0.50%</td>
<td>6.48%</td>
<td>0.04%</td>
<td>2.66%</td>
<td>Top-15</td>
</tr>
<tr>
<td>GIT SNACK</td>
<td>6.00%</td>
<td>2.26%</td>
<td>3.63%</td>
<td>2.29%</td>
<td>Top-15</td>
</tr>
<tr>
<td>PURE FIL</td>
<td>0.50%</td>
<td>4.52%</td>
<td>1.83%</td>
<td>2.73%</td>
<td>Top-15</td>
</tr>
<tr>
<td>SOUTHERX</td>
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<td>6.66%</td>
<td>0.08%</td>
<td>2.26%</td>
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</tr>
<tr>
<td>RANJFT</td>
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<td>6.20%</td>
<td>0.04%</td>
<td>2.16%</td>
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</tr>
<tr>
<td>HD GARM</td>
<td>0.02%</td>
<td>6.13%</td>
<td>0.14%</td>
<td>2.16%</td>
<td>Top-15</td>
</tr>
<tr>
<td>FOOD PAC</td>
<td>2.31%</td>
<td>2.91%</td>
<td>0.78%</td>
<td>2.00%</td>
<td>Top-15</td>
</tr>
<tr>
<td>GFI FEED</td>
<td>0.99%</td>
<td>1.29%</td>
<td>3.58%</td>
<td>1.37%</td>
<td>Top-15</td>
</tr>
<tr>
<td>RUPS</td>
<td>2.31%</td>
<td>6.45%</td>
<td>0.78%</td>
<td>1.72%</td>
<td>Top-15</td>
</tr>
<tr>
<td>RPL</td>
<td>0.50%</td>
<td>2.26%</td>
<td>1.61%</td>
<td>1.52%</td>
<td>Top-15</td>
</tr>
<tr>
<td>CRP</td>
<td>0.50%</td>
<td>2.26%</td>
<td>1.61%</td>
<td>1.52%</td>
<td>Top-15</td>
</tr>
<tr>
<td>BIL</td>
<td>0.50%</td>
<td>3.23%</td>
<td>0.84%</td>
<td>1.34%</td>
<td>Top-15</td>
</tr>
<tr>
<td>CORE</td>
<td>2.12%</td>
<td>1.29%</td>
<td>0.78%</td>
<td>1.46%</td>
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</tr>
<tr>
<td>RAT</td>
<td>2.31%</td>
<td>0.05%</td>
<td>1.67%</td>
<td>1.33%</td>
<td>Rest</td>
</tr>
<tr>
<td>EDDIE</td>
<td>0.50%</td>
<td>1.29%</td>
<td>1.61%</td>
<td>1.29%</td>
<td>Rest</td>
</tr>
<tr>
<td>CHF</td>
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<td>1.54%</td>
<td>0.64%</td>
<td>1.09%</td>
<td>Rest</td>
</tr>
<tr>
<td>S.R.S.</td>
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<td>1.54%</td>
<td>0.64%</td>
<td>1.09%</td>
<td>Rest</td>
</tr>
<tr>
<td>KANXAN</td>
<td>0.50%</td>
<td>1.54%</td>
<td>0.64%</td>
<td>1.09%</td>
<td>Rest</td>
</tr>
<tr>
<td>RCM(TMR)</td>
<td>0.25%</td>
<td>1.61%</td>
<td>0.90%</td>
<td>0.92%</td>
<td>Rest</td>
</tr>
<tr>
<td>JACKS</td>
<td>0.00%</td>
<td>0.97%</td>
<td>0.72%</td>
<td>0.99%</td>
<td>Rest</td>
</tr>
<tr>
<td>OFFROZ</td>
<td>0.50%</td>
<td>0.35%</td>
<td>1.61%</td>
<td>0.84%</td>
<td>Rest</td>
</tr>
<tr>
<td>F FOOD</td>
<td>0.50%</td>
<td>0.19%</td>
<td>1.61%</td>
<td>0.83%</td>
<td>Rest</td>
</tr>
<tr>
<td>MIL</td>
<td>0.25%</td>
<td>1.03%</td>
<td>0.90%</td>
<td>0.73%</td>
<td>Rest</td>
</tr>
<tr>
<td>CML</td>
<td>0.12%</td>
<td>1.61%</td>
<td>0.62%</td>
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<td>Rest</td>
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<tr>
<td>RAINROW</td>
<td>0.50%</td>
<td>1.29%</td>
<td>0.42%</td>
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<td>Rest</td>
</tr>
<tr>
<td>APP</td>
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<td>0.97%</td>
<td>0.56%</td>
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<td>Rest</td>
</tr>
<tr>
<td>FTWEAR</td>
<td>0.25%</td>
<td>1.29%</td>
<td>0.00%</td>
<td>0.54%</td>
<td>Rest</td>
</tr>
<tr>
<td>FTWEAR 2</td>
<td>0.25%</td>
<td>1.29%</td>
<td>0.00%</td>
<td>0.54%</td>
<td>Rest</td>
</tr>
<tr>
<td>APDCO</td>
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<td>1.29%</td>
<td>0.19%</td>
<td>0.51%</td>
<td>Rest</td>
</tr>
<tr>
<td>CO CP</td>
<td>0.50%</td>
<td>0.05%</td>
<td>0.64%</td>
<td>0.64%</td>
<td>Rest</td>
</tr>
<tr>
<td>PATEL GAR</td>
<td>0.05%</td>
<td>0.05%</td>
<td>0.18%</td>
<td>0.40%</td>
<td>Rest</td>
</tr>
<tr>
<td>RCM(G&amp;M)</td>
<td>0.05%</td>
<td>0.19%</td>
<td>0.43%</td>
<td>0.22%</td>
<td>Rest</td>
</tr>
<tr>
<td>GANGAS</td>
<td>0.05%</td>
<td>0.05%</td>
<td>0.43%</td>
<td>0.18%</td>
<td>Rest</td>
</tr>
<tr>
<td>LARS</td>
<td>0.25%</td>
<td>0.05%</td>
<td>0.14%</td>
<td>0.39%</td>
<td>Rest</td>
</tr>
<tr>
<td>PIONEER</td>
<td>0.02%</td>
<td>0.05%</td>
<td>0.14%</td>
<td>0.05%</td>
<td>Rest</td>
</tr>
</tbody>
</table>
Appendix 2

The University of the South Pacific
School of Social and Economic Development
Department of Management and Public Administration

Thank you for agreeing to participate in this research. The broad objective of this study is to critically examine the current practices of manufacturing in Fiji and its competitiveness for sustainable growth.

All information about your organisation is confidential and will only be used for academic purpose that is to assist in the researcher’s thesis. The Survey should take around twenty minutes to complete.

If you have any questions regarding your participation in this research, feel free to contact Dr Himanshu.K.Shee by phone at (679) 323-2179 or by email at shee_h@usp.ac.fj or Dr Narendra Reddy by phone at (679) 323-2134 or by email at reddy_n@usp.ac.fj.

We certainly hope you will be keen to participate. Thank you for considering our invitation.

Please read the following statements carefully.

1. The purpose of the research, together with any associated risks, has been explained to me and that I freely consent to participate in the research.
2. I have had the opportunity to have any questions answered and I understand that I can withdraw from this project at any time and that this withdrawal will not jeopardize me in any way.
3. I have been informed that the information I provide will be voluntary and confidential.

By choosing to return the survey instrument, I am affirming the above three points and consent to participate in the research.

Throughout the survey, please keep the following points in mind:
1. Respondent should be an operations or quality manager with the organisation.
2. In responding to the question, focus on the organisation as a whole and not just your personal involvement.
3. Your honest and thoughtful response to each statement is appreciated. Some statements may seem repetitive, but each is part of a standardized measure.

Dear Respondent,

Thank you for your cooperation and support in participating in this research.

Best wishes and kind regards.

Dr H.K.Shee
Dr N.Reddy
RESPONDENT DETAILS
Name of Organization: ____________________________
No. of Company branches: _______________________
Name of Respondent: ____________________________
Phone: ____________________________
Fax: ____________________________
Email: ____________________________

Section I - Respondent and Organizational Profile

1. Please indicate the number of employees in your organization:
   1. Less than 10
   2. 10-19
   3. 20-49
   4. 50-99
   5. 100-249
   6. 250-499
   7. 500-749
   8. 750-1000
   9. 1000-1999
   10. 2000 or more

2. Please indicate your current position in the organization:
   1. General Manager/CEO
   2. Deputy General Manager
   3. Operations Manager
   4. Quality Manager
   5. Other (please specify) ____________________________

3. Please indicate your level of work experience at this organization:
   1. Less than 1 year
   2. 1-5 years
   3. 5-10 years
   4. 10-15 years
   5. More than 15 years

4. Please indicate the organizations annual sales volume:
   1. Less than F$500,000
   2. F$500,000 - F$1 million
   3. F$1-F$2.5 million
   4. F$2.5 - F$5 million
   5. F$5-F$10 million
   6. F$10- F$20 million
   7. F$20-F$50 million
8. F$50-F$100 million
9. F$100-F$200 million
10. F$200-F$300 million
11. Over F$300 million

5. Please indicate which category describes your organization:
   1. State owned
   2. Local public
   3. Local Family
   4. Part foreign owned
   5. Foreign owned
   6. Joint venture

6. Please indicate your level of involvement in strategic decisions for your organization:
   1. Not at all
   2. To a very small extent
   3. To a moderate extent
   4. To a great extent

7. Which of the following best describes your organization’s industry?
   1. Agriculture, forestry and fishing
   2. Building and construction
   3. Manufacturing (e.g. sugar, food, garment or other)
   4. Mining and quarrying
   5. Other (please specify) ______________________

Section II: Importance of Organizational Factors

Please indicate how much importance should be assigned to each of the factors listed below when making critical management decisions. Use the scale: 1=Of No Importance and 7=Of Utmost Importance. (Circle/Tick)

<table>
<thead>
<tr>
<th>Factor</th>
<th>Of No Importance</th>
<th>Of Utmost Importance</th>
</tr>
</thead>
<tbody>
<tr>
<td>8. Cost, quality, delivery and flexibility</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>9. Customer satisfaction</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>10. Employee relations issues that is employee safety,</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>well-being, working conditions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Contributions to the economic welfare of the nation</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>12. The welfare of the local community</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>13. Employee professional growth and development</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>14. Effects on the environment</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>15. Ethical consideration</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
</tbody>
</table>
16. Effects on long term competitive ability of the organization 1 2 3 4 5 6 7
17. Effects on firms profitability 1 2 3 4 5 6 7
18. Effects on products/service quality 1 2 3 4 5 6 7
19. Effects on sales volume 1 2 3 4 5 6 7
20. Effects on products/service innovation 1 2 3 4 5 6 7
21. Manufacturing and operations of the organization needs to be upgraded constantly. 1 2 3 4 5 6 7
22. Success can be attributed to the well defined and powerful vision of our organization 1 2 3 4 5 6 7

Section 111: Competitive variables:

Indicate the extent to which you agree with each statement regarding competitive variables-

A. Technology (Machinery, tools and processes used in production)

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>23. Technology development is a priority for our organization</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>24. We have installed the state of the art equipment or latest in our manufacturing operations.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>25. We are constantly upgrading our technology and processes</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>26. We rely on computer software for efficient operations management</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>27. We are aware of the latest technology but have not implemented it in our factory/company.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
</tbody>
</table>

B. Product

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>28. We serve a niche market locally</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>29. Our product is superior in quality compared to others in the market</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>30. To maximize customer satisfaction we upgrade our products</td>
<td></td>
</tr>
</tbody>
</table>
31. We invest in Research and Development to increase quality

32. Our product is matched to world class standards

33. We can produce competitively (i.e. cost and quality)

34. We receive very little complaints from our customers/users

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
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<td>31.</td>
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<td>33.</td>
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</tbody>
</table>

**B. Market**

<table>
<thead>
<tr>
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<th>Strongly Agree</th>
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</thead>
<tbody>
<tr>
<td>35.</td>
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<td>36.</td>
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<td>40.</td>
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<tr>
<td>41.</td>
<td></td>
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</tr>
</tbody>
</table>

What is your product market share (Approximately) –

<table>
<thead>
<tr>
<th></th>
<th>Local market</th>
<th>South Pacific</th>
<th>International</th>
</tr>
</thead>
<tbody>
<tr>
<td>35.</td>
<td></td>
<td></td>
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<tr>
<td>36.</td>
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<tr>
<td>37.</td>
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<tr>
<td>38.</td>
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<td>40.</td>
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</tr>
<tr>
<td>41.</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

**C. Price**

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>42.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>43.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**

- (i.e. design, packaging etc)
- Market
- Strongly Agree
- Strongly Disagree
- Price
- Local market
- South Pacific
- International
- 1234567
44. Latest technology can improve the product quality at a lower cost

45. Customers focus on price factor than quality

D. Human resources development

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

46. Slow growth of your manufacturing firm is attributed to the lack of awareness and skills of employees and managers

47. Training of employees is prioritized in our organization

48. We value employee feedback

49. Employees are well compensated for their work

50. To bring about excellence we encourage team work

51. We have a high staff turnover

52. We work towards creating job satisfaction for our employees

53. Our employees are willing to retrain and assume new job responsibility

Please list the ways that employees undertake to finish a task successfully (quality circles, team work etc):

How do you train your employees and what is the average number of employees that get trained in a year?
E. Financial resources

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>55. We are a self funded business</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>56. Profits have been increasing for the last five years</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>57. We invest profits into business development</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>58. We are satisfied with profit level</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>59. Our business is bank financed</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
</tbody>
</table>

What is your export as percentage (%) of total revenue?

F. Information Technology (computer, networking and related accessories)

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>60. We upgrade our computer technology</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>61. IT applications (computerisation, electronic data transfers) help in</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>the operations of the company</td>
<td></td>
<td></td>
</tr>
<tr>
<td>62. There is a lot of emphasis on innovation in our company</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>63. We have developed through benchmarking initiatives</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>64. We have matched out technology to international standards</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
</tbody>
</table>

G. Quality

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>65. There is less quality drive among the manufacturing sector in Fiji</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>66. Our top management is serious about product and service quality</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
</tbody>
</table>

134
<table>
<thead>
<tr>
<th>Q No.</th>
<th>Statement</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>67.</td>
<td>Quality management is a priority for our company</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>68.</td>
<td>We are working towards quality awards</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>69.</td>
<td>We are not aware of Quality Awards, practices etc</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>70.</td>
<td>Customers prefer best quality with low prices</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>71.</td>
<td>Quality management practices has improved our production processes of our company</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>72.</td>
<td>We became aware of the quality awards and practices from TPAF</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>73.</td>
<td>We are an ISO 9000 accredited organization</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
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</table>

Please specify any other source of awareness

<table>
<thead>
<tr>
<th>Q No.</th>
<th>Statement</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>H.</td>
<td>Assistance</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>74.</td>
<td>Strongly Disagree</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>75.</td>
<td>Strongly Agree</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Q No.</th>
<th>Statement</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
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</thead>
<tbody>
<tr>
<td>J.</td>
<td>Marketing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>77.</td>
<td>Government encourages to export our products</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>78.</td>
<td>Government provides tax incentive for the export our products</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>79.</td>
<td>We are facing quality/cost problem in the export market</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td></td>
</tr>
</tbody>
</table>
I. Competitiveness of the Manufacturing Sector

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
</tbody>
</table>

80. The manufacturing sector in Fiji is not that competitive

81. The manufacturing sector has great potential and initiative in becoming competitive

82. Our manufacturing division is very competitive

83. Our company has potential to do better and to become more competitive

84. Government is doing a lot to enhance our competitiveness

What competitive factors (listed in the questionnaire) are lacking in your Company?

How is it affecting your current status and manufacturing/operations?

Dear respondent

Once again thank you very much in participating in my research and completing the questionnaires.

Alka Ashwini
Ph: 9937444
Email: s01007324@student.usp.ac.fj
Thank you for agreeing to participate in this research. The broad objective of this study is to critically examine the current practices of manufacturing in Fiji and its competitiveness for sustainable growth.

All information about your organisation is confidential and will only be used for academic purpose that is to assist in the researcher’s thesis. The Survey should take around twenty minutes to complete.

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Please read the following statements carefully.

1. The purpose of the research, together with any associated risks, has been explained to me and that I freely consent to participate in the research.
2. I have had the opportunity to have any questions answered and I understand that I can withdraw from this project at any time and that this withdrawal will not jeopardize me in any way.
3. I have been informed that the information I provide will be voluntary and confidential.

By choosing to return the survey instrument, I am affirming the above three points and consent to participate in the research.

Throughout the survey, please keep the following points in mind:

1. Respondent should be an operations or quality manager with the organisation.
2. In responding to the question, focus on the organisation as a whole and not just your personal involvement.
3. Your honest and thoughtful response to each statement is appreciated. Some statements may seem repetitive, but each is part of a standardized measure.
Dear Respondent,
Thank you for your cooperation and support in participating in this research.
Best wishes and kind regards.
Dr H.K. Shiee
Dr N. Reddy

Name of Firm: __________________________________________
Name of respondent: ____________________________________
Contact: _______________________________________________
Address: _______________________________________________

Guideline for select case studies-
1. What factors or variables make your firm competitive?
2. Briefly describe each of the competitive variables?
3. How do maintain the current level of competitiveness?
4. What factors signal growth and development for the firm?
5. How do you know you are competitive?
6. What are some strategies that the firm engages in to meet the competitive challenges?
7. What are the restrictions to competitiveness?
8. What are the limitations faced?
9. How does the firm overcome these limitations and restrictions?
10. How regularly do you upgrade in the competitive variables?
11. How soon till the company can enjoy the benefits of upgrades?
12. What is the biggest problem in the company?
13. How has the company overcome or minimized it?
14. Is the availability of skilled labor a serious problem and disruption for the firm?
15. How does the company perceive quality awards?
16. What quality awards has the firm achieved so far?
17. What makes your firm competitiveness different from other companies?
18. Is there a lot of support from government institutions?
19. If there are problems and challenges how can the government assist?
20. What is the future for your firm?