INVESTIGATION OF THE COMPETITIVENESS OF A TEXTILE AND APPAREL MANUFACTURER: A CASE STUDY IN TAIWAN

A thesis submitted to the University of Manchester for the degree of

Doctor of Philosophy

In the Faculty of Engineering and Physical Science

2013

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School of Materials
List of Tables.................................................................................................................. 7
List of Figures.................................................................................................................. 8
Abstract.......................................................................................................................... 10
Declaration...................................................................................................................... 11
Copyright Statement ..................................................................................................... 12
Acknowledgements......................................................................................................... 13
Chapter 1 Introduction .................................................................................................... 14
  1.1 Research context ....................................................................................................... 14
  1.2 Research aim and objectives .................................................................................... 16
  1.3 Thesis structure ....................................................................................................... 17
Chapter 2 Recent Developments and Challenges in the Evolution of Textile and Apparel
Manufacturers .............................................................................................................. 20
  2.1 The background of the textile and apparel industries .............................................. 20
  2.2 Textile and apparel industrial development and its impacts on manufacturers .... 22
    2.2.1 The change of market demand .......................................................................... 22
    2.2.2 Global value chains ............................................................................................ 24
    2.2.3 Technological advancements ............................................................................ 29
    2.2.4 Trade agreements and the post quota era .......................................................... 30
  2.3 The development of the T&A manufacturers in Taiwan ......................................... 35
    2.3.1 The first generation of the NICs in Asia .............................................................. 35
    2.3.2 The competitiveness of Taiwanese T&A manufacturers .................................... 38
  2.4 Summary .................................................................................................................. 42
Chapter 3 Literature Review ........................................................................................... 44
  3.1 Strategic management theories ................................................................................ 44
    3.1.1 Industry perspective ........................................................................................... 45
    3.1.2 Transaction cost theory ....................................................................................... 48
    3.1.3 Resource-based view ......................................................................................... 50
  3.2 Supply (chain) management .................................................................................... 54
    3.2.1 The definition of supply (chain) management ..................................................... 54
    3.2.2 The development of supply (chain) management .............................................. 55
4.5.1 Data coding .................................................................................................................. 122
4.5.2 Integrated definition for function modelling (IDEF0) .................................................. 124
4.6 Reliability and validity of case study research ............................................................... 126
4.7 Summary ....................................................................................................................... 127

Chapter 5 The Case Study .................................................................................................... 128

5.1 The pilot case study: Canterbury of New Zealand .......................................................... 128
  5.1.1 The introduction ......................................................................................................... 128
  5.1.2 The background ........................................................................................................ 128
  5.1.3 Product development ............................................................................................... 131
    5.1.3.1 Market research .................................................................................................. 132
    5.1.3.2 Design brief meeting ......................................................................................... 133
    5.1.3.3 Product adoption meetings ............................................................................... 134
    5.1.3.4 Manufacturing phase ....................................................................................... 136
    5.1.3.5 Product launching ......................................................................................... 138
  5.1.4 Business relationships and strategies ...................................................................... 139
  5.1.5 Emerging themes ..................................................................................................... 142
  5.1.6 Amendments to interview schedule ........................................................................ 145

5.2 New Wide Group .......................................................................................................... 146
  5.2.1 Introduction ............................................................................................................. 146
  5.2.2 Company background ............................................................................................. 149
    5.2.2.1 Company profile and history ......................................................................... 149
    5.2.2.2 Company structure ......................................................................................... 150
    5.2.2.3 Competitors and market shares ................................................................. 154
    5.2.2.4 Product offerings and target buyers ........................................................... 156
  5.2.3 Company dynamics .................................................................................................. 157
    5.2.3.1 Business goal .................................................................................................. 157
    5.2.3.2 Business development .................................................................................... 158
    5.2.3.3 Business risks ................................................................................................. 164
  5.2.4 New Wide’s new product development .................................................................. 165
    5.2.4.1 Fabric development and its process ............................................................ 165
    5.2.4.2 Apparel NPD and its process ....................................................................... 178
  5.2.5 J. J.’s Mae. Inc. (Rainbeau) .................................................................................... 184
    5.2.5.1 The background and development of business ............................................ 184
    5.2.5.2 Target Market ................................................................................................. 186
5.2.5.3 The NPD and its process of J.J. Mae. Inc. ........................................ 186
5.2.6 Key factors of competitiveness deriving from NPD ........................................ 195
  5.2.6.1 The knowledge and experience of NPD ........................................ 196
  5.2.6.2 Internal management of NPD .................................................. 200
  5.2.6.3 The management of New Wide’s sales teams .................................. 200
  5.2.6.4 The management of IT .......................................................... 204
5.3 Summary ................................................................................................. 205

Chapter 6 Analysis and Discussion .................................................................. 206
  6.1 Introduction ............................................................................................. 206
  6.2 Strategic positioning and required resources ............................................. 206
  6.3 The NPD process .................................................................................. 209
    6.3.1 The analysis of NW’s NPD process ................................................ 211
    6.3.2 Textile and apparel NPD integration ................................................ 252
  6.4 Product innovation and technological development .................................... 256
  6.5 Marketing factors .................................................................................. 264
  6.6 NPD Management ............................................................................... 268
    6.6.1 Top/senior managers ....................................................................... 268
    6.6.2 The management of NPD teams ..................................................... 271
  6.7 NPD collaboration and partnering relationships ........................................ 275
    6.7.1 Supply (chain) management .......................................................... 275
    6.7.2 Strategic network ........................................................................... 280
    6.7.3 Strategic alliances .......................................................................... 282
    6.7.4 Supply options of partnering relationships ..................................... 286
  6.8 Summary ................................................................................................ 289

Chapter 7 Conclusion .................................................................................... 290
  7.1 Introduction ............................................................................................. 290
    7.1.1 To identify the resources/capabilities/knowledge deriving from the NPD
          process of the T&A manufacturer in Taiwan that can lead to competitive
          advantages .......................................................................................... 290
    7.1.2 To investigate how the T&A manufacturer in Taiwan generates competitive
          advantages through innovation/technological capabilities, marketing factors,
internal management, and strategic collaboration in the context of NPD ........292
7.1.3 To identify the key competitive strategies that the manufacturer in Taiwan
has adopted in order to sustain competitiveness in the global T&A industries .295
7.2 Research implications ..................................................................................................................296
7.3 Research limitations and further investigation ........................................................................298
Appendix i The first questionnaires for the interview .................................................................302
Appendix ii Markup pilot interview questionnaires .................................................................306
Appendix iii Interview questionnaires for Rainbeau .................................................................309
Appendix iv Further interview questionnaires for New Wide ..................................................312
References ........................................................................................................................................313
List of Tables

Table 2.1 Industrial upgrading .......................................................................................... 27
Table 2.2 The competitiveness of the T&A manufacturers in Taiwan .................. 42
Table 3.1 Inimitable resources and their contexts ...................................................... 51
Table 3.2 Buyers’ supply options .................................................................................. 66
Table 3.3 New product development processes ............................................................ 72
Table 3.4 Key purposes of forming alliances in NPD ................................................. 84
Table 4.1 Approaches and main features of two research paradigms ....................... 100
Table 4.2 The features of Quantitative and Qualitative Research Approaches .. 103
Table 4.3 Strengths and limitations of case study ....................................................... 108
Table 4.4 Strengths and limitations of interview ......................................................... 115
Table 4.5 The major types of interviews ....................................................................... 117
Table 4.6 Strengths and limitations of observation ..................................................... 119
Table 4.7 Tactics for ensuring validity and reliability of case study ......................... 126
Table 5.1 Canterbury timeline of product development .............................................. 131
Table 5.2 Knitted fabrics division ................................................................................ 152
Table 5.3 Apparel & Trade Division ............................................................................ 153
Table 5.4 Business alliance division ........................................................................... 154
Table 5.5 New Wide’s annual sales revenue ................................................................. 155
Table 5.6 The timeline of New Wide’s business development ................................. 158
Table 6.1 NW’s partnering relationships in its NPD .................................................... 277
Table 6.2 The alliances formed by NW ........................................................................ 284
# List of Figures

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td>The T&amp;A value chain</td>
<td>26</td>
</tr>
<tr>
<td>3.1</td>
<td>Five force model</td>
<td>45</td>
</tr>
<tr>
<td>3.2</td>
<td>Partnering relationships based on asset specificity</td>
<td>58</td>
</tr>
<tr>
<td>3.3</td>
<td>The supply options of buyers</td>
<td>65</td>
</tr>
<tr>
<td>3.4</td>
<td>The stage-gates process models</td>
<td>71</td>
</tr>
<tr>
<td>3.5</td>
<td>Fashion Retail Product Development Model</td>
<td>73</td>
</tr>
<tr>
<td>3.6</td>
<td>Revised apparel retail product development model</td>
<td>74</td>
</tr>
<tr>
<td>3.7</td>
<td>The process of apparel NPD</td>
<td>75</td>
</tr>
<tr>
<td>3.8</td>
<td>The developed research conceptual model</td>
<td>96</td>
</tr>
<tr>
<td>4.1</td>
<td>The analysis of qualitative research</td>
<td>120</td>
</tr>
<tr>
<td>4.2</td>
<td>Open coding process</td>
<td>122</td>
</tr>
<tr>
<td>4.3</td>
<td>Screen shot of open coding by free nodes of NVIVO</td>
<td>123</td>
</tr>
<tr>
<td>4.4</td>
<td>Screen shot of open coding by tree nodes of NVIVO</td>
<td>124</td>
</tr>
<tr>
<td>4.5</td>
<td>A basic IDEF0 technique template</td>
<td>125</td>
</tr>
<tr>
<td>4.6</td>
<td>Example of IDEF0</td>
<td>125</td>
</tr>
<tr>
<td>5.1</td>
<td>The triangle product plan</td>
<td>134</td>
</tr>
<tr>
<td>5.2</td>
<td>The NPD process of Canterbury of New Zealand</td>
<td>143</td>
</tr>
<tr>
<td>5.3</td>
<td>The overview of NPD network of New Wide and J.J.’s Mae. Inc</td>
<td>147</td>
</tr>
<tr>
<td>5.4</td>
<td>The departments and personnel interviewed in New Wide</td>
<td>148</td>
</tr>
<tr>
<td>5.5</td>
<td>The departments and personnel interviewed in Rainbeau</td>
<td>148</td>
</tr>
<tr>
<td>5.6</td>
<td>New Wide Group business structure</td>
<td>151</td>
</tr>
<tr>
<td>5.7</td>
<td>New Wide fabric development schedule</td>
<td>167</td>
</tr>
<tr>
<td>5.8</td>
<td>New Wide fabric development process</td>
<td>168</td>
</tr>
<tr>
<td>5.9</td>
<td>Product planning meeting with Mrs. Wang</td>
<td>169</td>
</tr>
<tr>
<td>5.10</td>
<td>New Wide’s seasonal mood board constructions</td>
<td>174</td>
</tr>
<tr>
<td>5.11</td>
<td>New Wide’s seasonal trend boards/weekly moodboards</td>
<td>174</td>
</tr>
<tr>
<td>5.12</td>
<td>The two main apparel NPD schedules of New Wide</td>
<td>180</td>
</tr>
<tr>
<td>5.13</td>
<td>Trend sources/service that Rainbeau adopted</td>
<td>187</td>
</tr>
<tr>
<td>5.14</td>
<td>Apparel NPD process of Rainbeau</td>
<td>188</td>
</tr>
</tbody>
</table>
Figure 5.15 The design meeting (fabric sourcing) with the Vice President...........189
Figure 5.16 Rainbeau’s sample production room ...........................................191
Figure 5.17 An example of Rainbeau’s apparel NPD time plan after design confirmation............................................................................................................192
Figure 5.18 Standard example of Rainbeau’s quality certification.................193
Figure 5.19 The showrooms of fabric R&D in New Wide’s Taipei head office 197
Figure 6.1 Overview of New Wide’s NPD process ........................................210
Figure 6.2 Overview of NW’s fabric NPD ......................................................211
Figure 6.3 Research and analysis of NW’s fabric NPD A1 .........................212
Figure 6.4 Synthesis of NW’s fabric NPD A2 ................................................215
Figure 6.5 Selection of NW’s fabric NPD A3 .................................................218
Figure 6.6 Production of NW’s fabric NPD A4 ..........................................221
Figure 6.7 Distribution of NW’s fabric NPD A5 ..........................................224
Figure 6.8 Overview of NW’s apparel NPD ..................................................226
Figure 6.9 Market research and development of NW’s apparel NPD C1........227
Figure 6.10 Apparel production communication with apparel buyers C2 ......230
Figure 6.11 Manufacturing of NW’s apparel NPD C3 ..................................233
Figure 6.12 Distribution of NW’s apparel NPD C4 ......................................236
Figure 6.13 Overview of Rainbeau’s (NW’s allied) apparel NPD .................238
Figure 6.14 Research and analysis of NW’s allied apparel NPD B1 .............239
Figure 6.15 Synthesis of NW’s allied apparel NPD B2 ................................242
Figure 6.16 Selection of NW’s allied apparel NPD B3 ................................245
Figure 6.17 Manufacturing of NW’s allied apparel NPD B4 ......................248
Figure 6.18 Distribution of NW’s allied apparel NPD B5 ............................250
Figure 6.19 New Wide’s integrated textile and apparel NPD and information flows..................................................................................................................263
Abstract

Given the severe global competition and the manufacturing challenges, retaining competitiveness in the textile and apparel (T&A) industries has become crucial for manufacturers. To achieve this, although historically manufacturers have been regarded as mainly production orientated, a number of them have occupied a primary intermediary position by applying the mechanisms of industrial upgrading and instituting new product development (NPD) in their businesses together with the synergy of alliances and networks. This has enabled the manufacturers to provide various products and services to international buyers. The Taiwanese T&A manufacturers can serve as a good example. They have managed to retain their competitiveness in the global industry for the last half century by continuously evolving their businesses and acquiring extensive capabilities.

To achieve competitiveness in the T&A sectors, strategic planning that can lead to competitive advantages is required. NPD has emerged as a source of business competitiveness and its success determinants can lead to competitive advantages. Supply management, particularly partnering relationships, is crucial to manufacturers’ competitive advantage, since no single firm can possess all the necessary resources and capabilities. Against this background, this study has constructed a research framework, in line with the resource-based view (RBV) and transaction cost theory (TCT), in order to explore how competitive advantages can be achieved, which can lead to manufacturers’ competitiveness. An in-depth case study of a representative Taiwanese manufacturer has been employed and examined. The selected Taiwanese T&A manufacturer has acquired resources, various (dynamic) capabilities and knowledge through its NPD process, resulting in core competences and sources for competitive advantages. It has become a lead firm in its supply chain/network, deploying a variety of partnering relationships in order to conduct NPD activities strategically, and has vertically integrated T&A NPD. This has allowed it to provide an increasing variety of new products and services, in order to serve a wider range of customers, thus continuously acquiring business opportunities in dynamic markets.

This study has found that the manufacturers in the T&A industries can adopt more proactive strategic modes in NPD activities, to enhance NPD outcomes and their relationships with buyers. It is important for manufacturers to acquire crucial and complementary resources/capabilities through strategic networks, developing alliances to strategically plan and implement NPD. Operational relationships need not only to be viewed in relation to their immediate cost reduction benefits, but also to be extended to longer-term collaborations, in order to achieve competitive advantage deriving from evolving products and cost benefits based on a holistic and strategic view of the business.
Declaration

I declare that no portion of the work referred to in this thesis has been submitted in support of an application for another degree of this or any other university or institute of learning.
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Acknowledgements

The author would like to express her sincere thanks to her supervisor Dr. Pammi Sinha, for her assistance.

To the participants from New Wide Group, J.J.’s Mae. Inc. (Rainbeau), and Mrs Heidi Benjamin, for their time and support over the time of conducting the empirical research.

To the staff of the University of Manchester, Dr. Yi Wang, Dr. Hugh R Gong, Dr. Xiaogang Chen, Dr. Richard Kennon, and Ms. Rachel Studd, for their encouragement and advice.

To Mr. Tony Simcock, Mrs. Teresa Sutcliffe and Miss Yuan Li for their genuine friendship, and valuable time for guidance and editing of the thesis.

To Professor Neil Towers, for his useful insights for all amendments regarding the final version of the thesis.

And finally, to my dear family for their care, patience, encouragement and financial support, keeping me optimistic during the difficult times. In particular, Mr. Constantine Agrafotes, my fiancé for his knowledge input, great support and love. Without the help of all these people, none of the current work would have been feasible.
Chapter 1 Introduction

This chapter presents in brief the research context and the format of this thesis. Section 1.1 addresses the motivations for this research, a brief industrial background of the textile and apparel manufacturers, and the research questions. Section 1.2 presents the research aims and objectives. Following this, the structure of the thesis and the key information contained in each chapter are summarised in section 1.3.

1.1 Research context

The inspiration for this research was derived from the researcher’s contact with Taiwanese manufacturers in the textile and apparel (T&A) industries. According to her observation and initial contacts with several manufacturers, there seemed to be a discrepancy between the conventional wisdom that textile and apparel are viewed as sunset industries in Taiwan, one of the newly developed countries (NDCs)\(^1\), and the country’s manufacturers’ apparent success in remaining competitive by evolving their businesses. It appears that the Taiwanese T&A manufacturers, with approximately half a century of experience, have been improving their production capabilities, and playing a wider and more important role in the global T&A value/supply chain, rather than focusing solely on manufacturing (Gereffi, 1999; Jin, 2004; Thun, 2000). This has inspired the researcher to further investigate the competitive manufacturers, in order to understand how they have managed to retain competitiveness while facing fierce global competition.

The T&A industries, as one of the oldest industries, is an important global sector in terms of dispersal and employment (Gereffi, 2005; Kim et al., 2006). With technological development, the production methods have been continuously evolving, which has encouraged the development and upgrading of T&A manufacturing. Although textile manufacturing and apparel manufacturing tend to be perceived as two distinct industrial

\(^1\) Although there is no established definition of "developed" and "developing" countries or areas in the UN system, the International Monetary Fund (IMF) classifies nations according to (1) per capita income, (2) export diversification, and (3) degree of integration into the global financial system. Taiwan, S. Korea and others have been recognized as newly (economically) developed countries (NDCs) by the IMF since 2010; see list at: [www.imf.org/external/pubs/ft/weo/2010/02/pdf/c4.pdf#ae](www.imf.org/external/pubs/ft/weo/2010/02/pdf/c4.pdf#ae)
sectors (Abernathy et al., 1999; Adler, 2004), both of them can be closely linked together as the fabric produced is mainly channelled to apparel factories for assembly. Additionally, they both tend to suffer from the global cost competition resulting from becoming mature industries (Adler, 2004). This close link of T&A manufacturing forms a key focus of this study.

Manufacturers have become one of the central focuses of the T&A industries (Gereffi, 1999; Gereffi and Memedovic, 2003; Kilduff, 2000). Manufacturers’ activities are not static, because manufacturing production sites have been shifting across continents and countries. One important reason for this is that the T&A industries contribute a great deal to the economic growth of a nation, but growth tends to slump after a period of industrial development, because of the major cost issue (e.g. rising labour wages). Following the effects of globalisation, international trade regulations, and the advance of technology, T&A manufacturing activities have been decentralised (Dickerson, 1995; Gereffi, 1999; Kilduff, 2000; Kim et al., 2006). The major T&A manufacturing has been located in developing countries and less developed countries, such as China, India and Bangladesh, which, with their abundant resources and lower labour costs, have become major suppliers to developed countries, but simultaneously, have posed threats to their domestic T&A industries. Various protectionist trade regulations or policies have been put in place in order to protect the T&A industries in specific developed countries or regions (Nordas, 2004; Taplin and Winterton, 2004; Tewari, 2006). Severe industrial competition in the T&A sectors between developing countries has thus intensified for market access to these developed countries. Since 2005, international trade liberalisation has brought about new challenges for T&A manufacturers, as new sets of competitive solutions are needed to retain their viability in the global industry (United Nations, 2008; Tewari, 2006).

An increasing number of studies have attempted to identify the key attributes of the manufacturers’ competitiveness in the T&A sectors (Adams et al., 2004; Morris and Barnes, 2008; Pickles et al., 2006; Tewari, 2006), which include enhancing production specialisation, gaining access to markets, cooperation and coordination in global
outsourcing/production networks, product innovation related to R&D and marketing, design ability, full-package services and taking advantage of government incentives and foreign direct investment. Most importantly, some manufacturers’ superior capabilities have generated competitive advantages that allow them to respond to the dynamic environments and outperform others. However, few studies have explicitly demonstrated how the manufacturers are able to achieve the competitive advantages necessary to sustain their businesses in the T&A industries, or investigated the constituents of this competitiveness, and how they are harnessed in practice.

The development of Taiwanese T&A manufacturers can serve as an example of sustainable competitiveness, since they have intensified their efforts by continuously exploring new solutions and employing different capabilities and activities in order to retain their businesses in the global T&A industries. They have developed production networks, while simultaneously connecting with international buyers, they have developed new product development competences (Chen and Lin, 2006; Gereffi, 1999; Hamilton et al., 2005). In order to explore how these successful manufacturers in the T&A industries achieve their competitive advantages, this study will take into account the relevant theories and literature- strategic management, supply management and new product development (NPD), followed by the research framework for further investigation of the T&A manufacturers in Taiwan. It is thus anticipated that this study can contribute new knowledge to both academia and industry.

1.2 Research aim and objectives
This study attempts to explore how the manufacturers can sustain their competitiveness in the T&A industries while facing severe global competition. In particular, understanding how their NPD with related business practices such as supply management, can provide insights into their competitive strategies and how they have achieved competitive advantages.

Aim: To investigate how the T&A manufacturers in Taiwan sustain their competitiveness through NPD, with particular reference to a successful manufacturer in Taiwan used as a
case-study.

Research objectives:
1. To identify the resources/capabilities/knowledge deriving from the NPD process of the T&A manufacturer in Taiwan that can lead to competitive advantages.
2. To investigate how the T&A manufacturer in Taiwan generates competitive advantages through innovation/technological capabilities, marketing factors, internal management, and strategic collaboration in the context of NPD.
3. To identify the key competitive strategies that the manufacturer in Taiwan has adopted in order to sustain competitiveness in the global T&A industries.

1.3 Thesis structure
This thesis consists of seven chapters, each of which includes a number of sections and subsections.

Chapter 2 reviews the literature regarding the development of the T&A industries, and the crucial impacts on manufacturers that have intensified global T&A manufacturing competition. These include the impact of market demand, the co-ordination of buyer-driven value chains of manufacturing networks, the implication of advanced technology in manufacturing, and the reconfiguration of T&A production after quota elimination and the rise of regionalisation. The T&A manufacturers in Taiwan are particularly highlighted, because they have managed to sustain competitiveness while facing these global challenges. This study is thus focused on the further investigation of these manufacturers, in order to understand how they have achieved competitive advantages in the global T&A industries.

Chapter 3 discusses the important theories related to a firm’s strategies and competitive advantages. Firstly, it discusses the primary theories of strategic management, including transaction cost theory (TCT), resource based view (RBV), and a firm’s strategic positioning in the industry it operates in, in order to identify possible strategies and competitive advantages that are relevant to T&A manufacturers. Supply management
follows, and partnering relationships in particular are discussed to understand their formation and available supply options, as well as their impact on the strategic position of a firm in the supply chain/network, since a single firm cannot possess all the essential resources in contemporary strategic supply. NPD, including crucial success factors that relate to competitive advantages, is finally discussed in line with RBV and/or TCT. The literature review regarding these relevant theories is employed to construct a research framework, providing guidance for further investigation of the competitiveness of the manufacturers in the T&A industries.

Chapter 4 reviews the research methodology based on positivistic and phenomenological paradigms, and examines the two main research approaches, qualitative and quantitative, in which a number of methods are examined including assessing their advantages and disadvantages, in order to select the method that is most appropriate to the aim and objectives of this study. This is followed by an outline research design, explaining how this empirical study can be conducted and analysed. A single case study (a selected Taiwanese T&A manufacturer) is employed as the most appropriate research approach for this study, and the case study protocol is thus explicitly discussed. Data analysis methods, together with ways of ensuring research reliability and validity are also scrutinised in this chapter.

Chapter 5 contains in detail the empirical research results which form the heart of this thesis. It presents the main case study (the representative T&A manufacturer in Taiwan, New Wide Group) together with the pilot case study (Canterbury New Zealand, a sport/activity wear company). The relevant issues regarding apparel NPD derived from the pilot case study have been used to comprehend the activities in the apparel NPD process, and to form the themes for the main case study. These include the business background, business operations and development of the company, as well as the detailed process, strategy and management of NPD that are related to the manufacturer’s competitiveness.

Chapter 6 discusses the main case study against the construct from the literature review as proposed in the research framework in chapter 3. The NPD process derived from the main
case study is analysed by means of IDEF0 and RBV theory, to identify the capabilities/competences and possible competitive advantages of the company. Following this, the specified NPD success factors that can lead to competitive advantages are discussed, and the findings of this research are compared and contrasted with the existing literature. A number of key findings are also highlighted and summarised in each subsection of the discussion.

Chapter 7 forms the conclusion of the thesis. The research objectives are reviewed in the light of the research findings. It is hoped that adequate answers to the initial research questions have emerged. Research implications and limitations are also addressed, together with recommendations for further study. The results of this study are expected to provide a contribution to current knowledge for both academia and the T&A industries.
Chapter 2 Recent Developments and Challenges in the Evolution of Textile and Apparel Manufacturers

2.1 The background of the textile and apparel industries

The textile and apparel (T&A) industries, one of the oldest industries, is considered as a sunset industry in most developed countries. Nevertheless, they have contributed to every economy in the world and helped many countries to drive forward their economic development and upgrade their industrialisation (Kim et al., 2006). The T&A industries, especially in the apparel sector, are characterised as labour intensive, with low level innovations of machinery and low capital requirements. Due to these characteristics, it has the greatest number of employees in the global manufacturing sector (Kim et al., 2006). This labour intensive core of the T&A industries has usually been the driving force for cost reduction. Outsourcing production to subcontractors has become a common practice in the higher wage countries in order to achieve lucrative gains (Abernathy et al., 1999; Berger, 2006; Dickerson, 1995; Gereffi, 2005; Taplin, 2006).

Another important characteristic of the global T&A industries is the fact that it forms the threshold of industrialisation in developing countries (Nordas, 2004). These countries mainly in Asia, Latin America, Eastern Europe and Africa, have gained the opportunity for national economic growth through exports (Kim et al., 2006; Nordas, 2004; Pickles et al., 2006). Nevertheless, as Taplin and Witherton (2004) note, industrial development at this stage only enjoys cost advantage. As investments tend to focus on cost competition, it results in the migration of factories into cheaper labour markets to achieve advantages. This is also illustrated in Dicken’s (2003) “global shift”; as an industry declines in one country, it creates a growth opportunity for another, with the associated job creation. In the past few decades, the production activities of the T&A industries have thus been continuously relocating according to the economic development of nations (Abernathy et al., 1999; Dickerson, 1995; Gereffi, 2005; Kim et al., 2006).
Given the globalisation effects, international trade in T&A products has reached a higher volume than before (Datamonitor, 2010). In addition to the drive of production costs, the T&A industrial shifts were beset by a complex quota system under the Multi-Fibres Agreement (MFA). The quotas, as protectionist walls, were essentially established by Canada, the EU and US and Norway to sustain their national industries that were sensitive to imports from the developing countries. Quotas placed an overall limit on the increases of imports in particular product categories of textiles and apparel from developing countries by fixing a specific market-share which they were allowed to export to the developed countries (Curran, 2007; Nordas, 2004). Thus, trade restrictions became one of the most crucial driving forces of the international dissemination of production in the T&A supply chain and the development of T&A industries in specific countries. A system of production emerged, where low labour cost countries assemble apparel using textiles provided by the major outsourcing countries that hold production contracts with retail buyers, and the assembly countries then export the finished products. This pattern occurred when the four Asian dragons started to subcontract assembly to lower-wage developing countries in quota hopping mode from one country to another country with unused quota (Audet, 2004; Kim et al., 2006).

The quota system was removed in 2005, and currently there is no restriction on any developing countries exporting their T&A products. Developed countries meanwhile seek to restructure their sourcing and production networks under the new era. A new set of capabilities for countries, regions, and suppliers who are willing and able to play a significant role in the reconfiguration of the supply chains in the new scheme have received attention (Curran, 2007; Morris and Barnes, 2008; Pickles et al., 2006; Tewari, 2006). As global retailers from the developed countries tend to source from the countries that can offer full-package production and service (i.e. from fabrics to patterns, grading, cutting sewing and finishing, as well as transportation to the shop floors) (Gereffi and Memedovic, 2003), countries like China and Turkey seem to enjoy such preferences from buyers, having significant global market shares and resulting in industrial decline in some

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2 According to Tokatli (2008), the evolving full-package service for fashion retailers requires manufacturers’ capabilities of apparel design and design specification (i.e. manufacturers may involve preparation of collections)
smaller countries with lower wages (Curran, 2007; Morris and Barnes, 2008; Tewari, 2006; US International Trade Commission, 2004). According to a number of studies, what is at present required from global manufacturers is not only cost minimisation, but also a whole set of capabilities that include skills, management practices, linkages with suppliers and buyers with speed, and distribution capabilities (Berger, 2006; Pickles et al., 2006; Tewari, 2006; Thun, 2000).

2.2 Textile and apparel industrial development and its impacts on manufacturers
In the past few decades, the T&A industries have undergone global challenges. There are fundamental factors that shape the T&A industries and the development of manufacturers including the impact of demand patterns to manufacturing; the co-ordination of buyer driven value chains in relation to manufacturing networks; the implication of advanced technology in manufacturing production; the reconfiguration of production after the trade restrictions and the rise of regionalisation. These significant impacts have intensified the global competition of the T&A manufacturers (Buxey, 2005; Gereffi, 1999; Shelton and Wachter, 2005; Taplin, 2006; Tewari, 2006; Tokatli, 2003; Yuasa, 2001), which are discussed in the following sections.

2.2.1 The change of market demand
Competition in the market place has forced businesses to adopt appropriate means in order to respond to the changes of market demand. The fashion markets have become more volatile and demanding due to a combination of factors, such as fast changing tastes of consumers, the use of advanced technology and its applications to retailers and manufacturers, and the transformation of the organisation of production (Fernie and Azuma, 2004; Roberts, 2007; Ulrich, 2003). Market demand has become fragmented, moving towards a high level of segmentation together with the fast changes and shorter product life cycles within fashion seasons. Retail customers have become more conscious regarding product timing and prices. Flexible structures relating to quick response thus need to be adopted by retailers and manufacturers in order to respond faster to unpredictable market demand (Barnes and Lea-Greenwood, 2006; Doyle et al., 2006; Tyler et al., 2006).
In the late 1970s and 1980s, vertical integration was seen as strategically inflexible and bureaucratic as managerial costs were high and little interaction was involved with external organisations, especially in a highly volatile business environment, e.g. fashion, vertical integration was not advisable as competitive solution. The inflexible commitments of capital or asset investments, and little external information and capabilities create the risk of diminishing value returns (Harrigan, 1984; Richardson, 1996). International brand retailers emerged which sought to outsource production across a number of developing countries. This trend was also followed by international brand manufacturers, such as Levis, diversifying their home production to other overseas factories (Abernathy et al., 1999; Gereffi, 1999). They have concentrated their strategic efforts on downstream operations, such as branding, marketing, design and networks of retail stores both in domestic markets and abroad. Most of the physical production of their merchandise was (still is) subcontracted to overseas manufacturers with low costs. In essence, brand owners including manufacturers and retailers attempt to acquire advantages through “manufacturing without factories” (Gereffi, 1999; 2005). This de-integration of production activities allows them to act as “strategic brokers” (Gereffi and Memedovic, 2003, p5) or so called lead firms, which can manage and coordinate factories within their supply chain. This phenomena has gradually led to the “hollowing out” of manufacturing in developed countries including the US and Europe, as initially apparel and then textile manufacturers relocated their factories to developing countries, while keeping higher-value activities at home (Gereffi, 2005; Tokatli, 2007).

From the 1990s onwards, flexibility and global manufacturing operations prevailed as the sources of competitiveness in the T&A industries (Tewari, 2006; Yuasa, 2001). Reorganisation of mass production occurred as de-integrating highly hierarchical structures, downsizing and outsourcing (Kilduff, 2000). Thus, manufacturers of mass production had to restructure their operations by forming flexible production networks with other firms. This flexible specialisation production method together with technological advancements can enhance the production and competitiveness of manufacturers (Berger, 2006; Doyle et al., 2006; Humphrey and Schmitz, 2002; Porter, 1990). In the post mass production era, manufacturers appear to focus on not only reducing production costs, but also other areas that are equally important, such as retooling machinery, adopting IT systems, increasing a
variety of materials and improving quality (Abernathy et al., 1999; Yuasa, 2001), engaging in marketing, design and/or product development (Kilduff, 2005; Tyler et al., 2006) to differentiate their capabilities and products to gain the competitive edge and avoid cost competition.

The evolution of mass production and supply management practices have thus led to quick response in the T&A industries, which allows new products to reach retail outlets within a short time span by emphasising flexibility and product velocity to meet dynamic requirements in the market place. To achieve quick response requires focus on production flexibility through more frequent ordering of smaller quantities of products, as changing tastes of retail consumers are quickly identified at the point of sales, thus responding faster to a fragmented demand (Barnes and Lea-Greenwood, 2006; Christopher et al., 2004; Doyle et al., 2006). Most importantly, information sharing and collaboration among the supply chain members is the key to implementing flexibility and efficiency. This implies closer relationships where retailers work with a smaller number of suppliers to achieve responsiveness (Doyle et al., 2006; Tyler et al., 2006). Moreover, manufacturers are obliged to perform additional activities, such as quality control, packaging, ticketing and shipping, and above all to involve in product development process (Barnes and Lea-Greenwood, 2006; Doyle et al., 2006; Tyler et al., 2006).

2.2.2 Global value chains
The second fundamental impact on the T&A industries is the way of coordinating production together with distribution and governance systems, which relates to global value chains linking numerous suppliers to supply a variety of international markets (Gereffi, 1999; Gereffi and Memedovic, 2003; Palpacuer et al., 2005)

Managing the network of scattering production is not only driven by cost but also by legislation and trade arrangements. The Multi Fibre Agreement (MFA) accelerated the pace of the diffusion of apparel production across developing countries. As quotas were fully utilised in a country, buyers or manufacturers had to shift their production to other countries for available quotas (i.e. quota hopping), thus establishing new manufacturing bases (Kim et al., 2006). Despite quota elimination, many developing countries
continuously enter global value chain to gain access to markets through new bilateral or multilateral trade agreements (Palpacuer et al., 2005). The impacts of trade agreements and quotas will be further discussed in section 2.2.4.

The concept of global value chain emerged in the 1990 as a framework in the T&A industries (Gereffi, 1999; Gereffi and Memedovic, 2003; Humphrey and Schmitz, 2001). According to Gereffi (1999), there are two types of networks that international companies can engage in: producer-driven and buyer-driven chains. The former emphasises international manufacturers, who are the major players coordinating production networks with considerable capital expenditure in technology intensive operations, such as automobiles, high technologies and heavy machinery. The latter concerns large retailers and brand owners (branded marketers and manufacturers) with coordinating roles of arranging decentralised networks, which are usually located in developing countries with labour intensive characteristics (Gereffi, 1999; Gereffi and Memedovic, 2003). According Gereffi (1999; 2003) and Memedovic (2003) the T&A sectors form the ideal of global buyer-driven chain.

The T&A value chain as shown in Figure 2.1 comprises five major component networks (Gereffi, 1999; Gereffi and Memedovic, 2003): raw materials, textile components, apparel production, trade networks for export which act as intermediaries, and retail marketing networks at the interface of brands/retailers and customers. The entry barriers to production are relatively low, but as the apparel value chain flows downstream towards retailing operations, barriers are getting higher because these activities pertain to advertising campaigns, and other expensive promotional activities as well as technological investments. In upstream operations, textile production is more capital intensive than apparel, as significant capital outflows are essential for industrial upgrading such as spinning machinery, looms, and dyeing and finishing machinery (Abernathy et al., 1999; Gereffi, 1999).

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The T&A value chain is characterised by power asymmetries between manufacturers and retail buyers (Humphrey and Schmitz, 2001; Knutsen, 2004). According to Humphrey and Schmitz (2001, p 22), “…the buyer will specify precisely how particular standards should be attained by requiring and perhaps helping to introduce particular production processes, monitoring procedures, etc….” This demonstrates the importance of the notion of governance of the chain. Lead firms usually determine how other chain members will behave and conduct transactions (Gereffi, 1999; Humphrey and Schmitz, 2001). Due to the nature of T&A buyer-driven chains and increasing retail concentration\(^3\) in developed countries, only capable suppliers can enter or remain in the chain to serve these international buyers. Industrial upgrading thus becomes a crucial criterion for manufacturers becoming key suppliers to these buyers (Gereffi, 1999; Morris and Barnes, 2008; Palpacuer et al., 2005).

The first generation of the newly industrialised countries (NICs) in East Asia (i.e. Taiwan, Hong Kong, Singapore and South Korea) have managed to upgrade their capabilities in the

\(^3\) According to Morris and Barnes (2008), mergers and acquisitions have led to retail concentration, resulting in greater buying power in developed countries. This gives retailers considerable control power over the chain members.
value chain from cut-make-trim (CMT) operations to a sequential progression that includes original equipment manufacturers (OEM) offering full package services, to original design manufacturers (ODM), and/or to further original brand manufacturers (OBM). That is, some of them elevate themselves to brand owner status (Gereffi, 1999; Kim et al., 2006). Turkey is another good example of such upgrading (Tokatli, 2003; Tokatli and Kizilgun, 2004). These manufacturers, through learning, have upgraded themselves and become capable suppliers and/or intermediaries in the chain (Gereffi, 1999; Humphrey and Schmitz, 2002).

Gereffi (1999) suggests sequential phases of a company in industrial upgrading that are shown in Table 2.1.

**Table 2.1 Industrial upgrading**

<table>
<thead>
<tr>
<th>Level of upgrading</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Within factories</td>
<td>Upgrading from cheap to higher-value items, from simple to complex products, and from small to large orders</td>
</tr>
<tr>
<td>Within in-firm networks</td>
<td>Upgrading from mass production of standardised goods to the flexible production of differentiated merchandise</td>
</tr>
<tr>
<td>Within local/national economies</td>
<td>Upgrading from simple assembly of imported inputs to more integrated production (OEM and OBM), and involving a wider use of forward and backward linkages at the local/national level</td>
</tr>
<tr>
<td>Within regions</td>
<td>Upgrading from bilateral, inter-regional trade flows to a more fully developed intra-regional division of labour incorporating all phases of the commodity chain from raw material supply, production, distribution and consumption.</td>
</tr>
</tbody>
</table>

Source: Gereffi, 1999

Humphrey and Schmitz (2002) further suggest that the progress of manufacturers includes four types of upgrading: (i) process upgrading, which refers to improved production processes to achieve standardised quality, becoming more responsive with updated technology; (ii) product upgrading, which enables more sophisticated products thus increasing value; (iii) functional upgrading, related to acquiring new functions to increase overall skills and relocate less-value activities in other production locations (Humphrey and Schmitz, 2002) where large manufacturers are likely to take this advantage to serve as coordinators of production (Berger, 2006; Knutsen, 2004); (iv) “inter-sectoral” upgrading,
where manufacturers operating within networks expand horizontally into new production sectors.

Nevertheless, it is noted that not all manufacturers can successfully achieve upgrading. The backward linkages to textile production, and investment in advanced machinery and production facilities tend to be difficult for the T&A manufacturers in less developed nations to achieve, providing full-package production together with the integration of T&A supply chain (Knutsen, 2004; Morris and Barnes, 2008; Nordas, 2004). As Keenan et al. (2004) indicate, the countries that can provide full-package services are thus more competitive.

Under the governance of the buyer-driven chain, corporate social responsibility (CSR) in the T&A industries does not only apply to buyers but also to global manufacturing (Humphrey and Schmitz, 2001). The leverage of lead firms has been recognised by government and non-governmental agencies that are concerned with ethical standards in labour relations, the protection of the environment and the benefits to society (Carroll, 1999; Dickson and Eckman, 2006). In the fashion markets ethical trading has gathered considerable attention among consumers who are concerned with the process of apparel manufacturing as retailers are regarded as the guardians of business ethics in manufacturing (Dickson and Eckman, 2006). This leads CSR to value chain sustainability, in which the T&A industries have to create standards for firms and nations to be held accountable for their social and environmental performance due to the labour intensity of apparel manufacturing and the environmental impact of textile production processes, e.g. water waste and high usage of energy (Frederick and Gereffi, 2009). Government, academia and industry have been increasingly emphasising its context and implementation (Dickson and Eckman, 2006). CSR is considered as one of the best practices for businesses to achieve a good public image, competitive advantages and financial gains (Carroll, 1999). An increasing number of leading global retailers and manufacturers in the T&A industries attempt to generate more sustainable value chains by imposing improvements in labour and environmental standards in the most important supplier countries, such as India, Bangladesh, Pakistan and China (Frederick and Gereffi, 2009).
2.2.3 Technological advancements

The third major impact in the T&A industries is brought about by advanced technology systems that can alter communications, speed and production efficiencies, such as IT (Birtwistle et al., 2006; Kilduff, 2000; Varukolu and Park-Poaps, 2009). Kilduff (2000, 2001) argues that IT has a significant contribution to the reformation of retailing as well as T&A manufacturing. IT systems can enhance the operational and tactical effectiveness of manufacturers, and increasingly, IT is employed to further the links between retailers, manufacturers and suppliers. IT acts as the facilitator of the business processes and reshaping the networks of the T&A supply chain, allowing shortening the cycles of product development and repeat orders (i.e. replenishment), and improvements in the accuracy of product flows (Birtwistle et al., 2006; Giunipero et al., 2001; Kilduff, 2000; Nordas, 2004).

Retailers have adopted IT, such as electronic point of sales (EPOS), electronic data interchange (EDI), to implement quick response (QR) to increase sales. They gather sales information from each store, monitor sales, stocks and merchandise volumes, improve product development, as well as analyse and share this information with their manufacturers to achieve speed to market (Abernathy et al., 1999; Birtwistle et al., 2006). It is beneficial for the T&A manufacturers to adopt IT systems that their buyers require to enhance their information and product flows (Birtwistle et al., 2006; Giunipero et al., 2001). Nevertheless, Birtwistle et al. (2006) indicate that IT is not widely utilised by manufacturers. This can result from a number of facts that manufacturers tend to view retailers as adversaries, and lack relevant knowledge, capital investment and/or the uncertainty of the length of the relationships between retailers and manufacturers.

Advanced technologies have formed the central component of manufacturers’ competences or means to improving competitiveness (Mechling et al., 1995; Tracey et al., 1999; Varukolu and Park-Poaps, 2009). Mechling et al. (1995) argue that a company’s ability to compete in the global arena correlates significantly with the adoption of technology and its integration into manufacturing operations. In the T&A sector, manufacturing technology has been enhanced by computer aided design systems (CAD) and computer aided manufacturing (CAM), higher speed sewing machines with microprocessors, computer-controlled cutting and grading systems, pressing and fusing machinery. These automatic machineries with
advanced technology allow the pre-assembly operations, which represent the more capital intensive part of the T&A industries, to increase accuracy and quality (Abernathy et al., 1999; Carr and Latham, 2008; Nordas, 2004) so that manufacturers can possibly increase market share (Tewari, 2006). Nevertheless, the assembly stage still remains labour intensive, enjoying less benefits from the aid of technology, and usually implemented in the countries with lower labour costs (Audet, 2004), while pre-assembly operations are usually carried out by larger apparel manufacturers (Abernathy et al., 1999; Ghemawat and Nueno, 2006). Furthermore, the textile sector represents the bottleneck in the supply chain. Nordas (2004) notes that due to the capital intensive nature of textiles, large minimum orders are required, resulting in the difficulty of textile factories effectively responding to changing retail consumer preferences. Berger (2006) also indicates that fabric dyeing and finishing are the hardest part of apparel production, and thus usually the most difficult part of the supply chain for developing countries to achieve.

Textile R&D is another crucial skill for manufacturers to increase their product diversity and value, but higher investment is necessary (Kilduff, 2001). Innovation progress requires large financial investment and advanced technological knowledge that depends on highly specialised personnel. R&D and technological development are usually promoted by governments and prevail in developed countries (Audet, 2004; Keenan et al., 2004; McCurry, 2005). Taiwan is a case in point (McCurry, 2005); numerous new fibres have been invented, and functional and technical fabrics and apparel have reached new heights recently as intense competition has manufacturers striving to create new products that attain specific functions. These new products resulting from R&D and technological capabilities enable businesses not only to achieve functional advance, but also to enhance product value and marketing performance through product differentiation (McCurry, 2005). According to Audet (2004), this is becoming a new focus of T&A manufacturing competition. However, it can be very difficult for small manufacturers, especially the ones in developing countries, to compete.

2.2.4 Trade agreements and the post quota era
Trade agreements in the T&A industries have had an episodic history since the first agreement after WWII (Nordas, 2004; Shelton and Wachter, 2005). In 1947, the General
Agreement on Tariffs and Trade (GATT) was signed in order to liberalise international trade from tariffs and quotas. However, the T&A sectors were excluded from GATT. MFA, a deviation from GATT, was signed in 1974, allowing developed countries to protect a wide range of T&A products from developing countries through the quota system. A number of bilateral and multilateral agreements were adopted under MFA to provide the framework of T&A trade between developing and developed countries (Hurreeram and Little, 2004; Nordas, 2004).

Given the establishment of the World Trade Organisation (WTO), MFA was replaced by the Agreement on Textiles and Clothing (ATC) in 1995, where it was agreed that T&A quotas would be phased-out by 2005 (Curran, 2007; Nordas, 2004). The US, EU, Canada and Norway carried the restriction of MFA and represented the developed countries with multilateral agreements for the gradual elimination of the quota systems. It is also important to note that a significant development occurred in 2001 regarding the entry of China into WTO (Nordas, 2004). Given the phasing out of quotas in 2005, the T&A trades are liberalised among all WTO members; all developing countries can export to developed countries without quota restriction (Curran, 2007; Li, 2004; Taiwan CEPD, 2006). Nevertheless, a temporary (2005-2008) quota restriction, as a safeguarding mechanism, was applied to prevent the sudden surge of imports from China (Frederick and Gereffi, 2009; United Nations, 2008; USAID, 2009).

Given the elimination of quota, regional sourcing has become more important, which entails multiple bilateral and multilateral agreements to achieve the advantage of trade in major markets (i.e. access to the market without tariffs) (Nordas, 2004; Shelton and Wachter, 2005). Regional free trade agreements in the T&A sector have been well documented (Curran, 2007; Keenan et al., 2004; Shelton and Wachter, 2005; Taplin, 2006; Taplin and Winterton, 2004; Tewari, 2006; Tsang and Au, 2007) and the number of these agreements tends to increase even more after 2005 (Frederick and Gereffi, 2009; Tewari, 2006). A large number of WTO members have signed preferential trade arrangements, under the provisions set by WTO in its generalised system of preferences (GSP) (Frederick and Gereffi, 2009; Tewari, 2006; World Trade Organization, 2009). Examples include the North American Free Trade Agreement (NAFTA) between Canada, US and Mexico, which
was implemented in 1994, initiating a tariff free zone, which increased the supply from Mexico and Canada to the US for a certain period of time (Taplin, 2003; Tsang and Au, 2007). The African Growth and Opportunity Act (AGOA) was initially established between the US and selected Sub-Saharan African countries in 2000 and extended the period till 2015. The member countries are eligible in this agreement to enjoy duty free export of textile products to the US (Morris and Barnes, 2008). The Caribbean Basin Initiative was ratified by the US in 2005 as the Dominican Republic Central America Free Trade Agreement (DR-CAFTA) including Central American countries and the Dominican Republic to create an efficient production network (Oh and Kim, 2007). Other examples of bilateral agreements between the US and Cambodia or Jordan are also based on preferential schemes (Tewari, 2006).

A similar pattern is embedded in the EU as the European Trade Commission was engaged in a number of preferential agreements within the region, taking advantage of proximity to the markets and lower wages in North African countries, the Mediterranean basin (e.g. Morocco and Turkey), and Eastern Europe (e.g. Bulgaria and Romania) through Outward Processing Trade (OPT) agreements (Audet, 2004; Taplin, 2006). Moreover, the EU has also set preferential regimes for the least developed countries (LDCs) and African Caribbean Pacific counties (ACP), where both quota and tariffs are waived in the clothing sector (Curran, 2007). Since 2007, the EU has negotiated a free trade agreements with the Association of Southeast Asian Nations (ASEAN) (Burma, Brunei, Cambodia, Indonesia, Laos, Malaysia, Philippines, Singapore, Thailand and Vietnam) (European Commission, 2011), and some ASEAN members have achieved bilateral agreement with the EU based on LDCs, such as EU-Cambodia. It is noted that ASEAN is the third largest trading partner of the EU, and the EU, as the second largest trading partner of ASEAN, is the greatest investor in the ASEAN regions (European Commission, 2011).

These preferential trade arrangements between groups of developing countries and industrialised blocks have a profound impact in altering the balances of textile and apparel supply (Frederick and Gereffi, 2009; Tewari, 2006). For example, before 1999 60% of Sub-Saharan African exports were directed to the EU. However, when the US signed the AGOA agreement, the exports from the African region to the EU declined, while exports to
the US increased fourfold between 1999-2003 in the countries including Kenya, Lesotho, Madagascar and Swaziland (Tewari, 2006).

The rules of origin as stipulated by the EU and US are used widely in their bilateral and/or regional agreements (Audet, 2004; Curran, 2007; Nordas, 2004; Taplin, 2006; Tewari, 2006). The rules of origin require that the exporting country engages in double transformation\(^4\) in order to gain tariff free entry into the EU and US. However, given that developing countries and LDCs have either not upgraded their textile base or quality of fabrics is low by export standards, they have to rely on textiles that originate from the EU and US to conduct cut-make-trim (CMT) operations (Taplin, 2006; United Nations, 2008). This is usually seen in the cases in OPT in the EU, or production sharing arrangements in the US (Audet, 2004; Curran, 2007; Gereffi and Memedovic, 2003; Morris and Barnes, 2008; Tewari, 2006). The rules of origin can have a positive effect for some countries that can upgrade their textile sector, such as Turkey which is positioned as a top supplier to the EU (Gereffi and Memedovic, 2003; Taplin, 2006; Taplin and Winterton, 2004; Tokatli and Kizilgun, 2004).

This also explains the importance of textile production capabilities, leading to a major shift from protecting the apparel industry to protecting the textile industry and raw materials. Before the quota elimination, the protectionist rules were more restrictive in the apparel sector in both the US and EU as their textiles were more insulated (Frederick and Gereffi, 2009). Conversely, in the post quota era, it hinges on the fact that developing countries have striven for the establishment of textile industries to supply their own clothing production in government sponsored export processing zones, i.e. the backward linkages are required (United Nations, 2008). Empirical evidence in the study of Adhikari and Yamamoto (2006, cited in United Nations, 2008) reveals that a number of LDCs face serious constraints, as they have to import quality fabrics for export usage due to the lack of local supply.

\(^4\) Clothing needs to be sourced and made in the same country, e.g. importing a cotton shirt from Bangladesh, the fabric as well as assembly must be sourced from the same country. The same applies to knitwear; knitting and stitching a T-shirt must be carried out in the same countries, or within the borders of neighbouring countries that belong to the same free trade area (Audet, 2004)
In the post quota era, another important phenomenon occurred is that China emerges as the world leading exporter of both textiles and apparel, as the country can offer full-package production and service at compatible low cost despite the rules of origin and voluntary export restraints imposed by WTO (Curran, 2007; Frederick and Gereffi, 2009; Morris and Barnes, 2008). This significant development can be traced back to the open door policy of China in the late 1970s (Song, 2006). The T&A industries, as one of the pillar industries in China, enables China to become the biggest exporter among developing countries in the world (Zhang et al., 2004). Since China joined the WTO, it has claimed approximately 20% of the EU and US market share in clothing exports (USAID, 2009). According to the WTO 2008 report, between 1990 and 2007 China increased its clothing export by approximately 10 times in value, and 3.5 times in global market share; the combined China and Hong Kong market share accounted for nearly half (48%) of global clothing exports. In terms of textiles, China also represented 24% of the world export, growing approximately six times in value and three times in market share in comparison to 1990 (Morris and Barnes, 2008). The US Commission (2004, cited in Morris and Barnes, 2008) states that the competitiveness of China originates from a potent combination of low wages, high productivity, high quality and low production cost. China is regarded as “one of the best in making most garments and made-up textile articles at any quality or price level.” The T&A industries in China have upgraded with backward linkages, including textile factories, and supporting industries, which can be regarded as a strong advantage (Wu et al., 2006; Zhang et al., 2004).

China’s success of T&A industries can also be attributed to foreign direct investments (FDI), by investors who bring foreign management teams and experience to train and direct local factories, improving production methods and productivity that comply with world market specifications (Adams et al., 2004; Gerard et al., 2006; Lau et al., 2009). Hong Kong, Taiwan, Singapore, South Korea, the first generation of the Asian NICs, as well as Japan are the biggest investors in the T&A sectors in China, bringing valuable knowledge spill over to the Chinese manufacturers (Gereffi and Memedovic, 2003; Hamilton et al., 2005). With the economic growth of China, the WTO argues that China, with 1.3 billion population, has the potential to develop an immense domestic market. As
middle incomes rise spectacularly, the consumption power increases faster (Morris and Barnes, 2008). China together with other newly emerging markets such as Russia, India and Brazil is expected to become a much larger force in the world economy (Wilson and Purushothaman, 2003). In addition, China in recent years has launched a large number of domestic brands and retail operations (Audet, 2004). This upgrading has intensified the requirements for skills in design, retail marketing and merchandise management that are mainly coming from Taiwan, Hong Kong and South Korea (Adams et al., 2004; Audet, 2004; Gereffi and Memedovic, 2003).

2.3 The development of the T&A manufacturers in Taiwan
2.3.1 The first generation of the NICs in Asia
The Asian T&A industries play a significant role in the world’s production, which especially the majority of the large clothing exporters are based in Asia (Kim et al., 2006; Tsang and Au, 2007). Recent research attention has been paid to these developing countries due to their varied performance after quota elimination (Curran, 2007; Tsang and Au, 2007; USAID, 2009; Whalley, 2006). China together with a number of important exporting countries, such as India, Bangladesh, Pakistan, Sri Lanka, have been the major suppliers in both the EU and US. They account for approximately 58.5% market share of the EU and 69.5% of the US imports in 2007, gaining 33% and 39% growth in the period from 2004 to 2007 (USAID, 2009). Nevertheless, the first generation of the NICs in Asia (Hong Kong, Singapore, Korea and Taiwan) cannot be underestimated, as they are still major players in buyer-driven value chains, organising and coordination production network based on their accumulation of knowledge and experience and industrial upgrading (Gereffi and Memedovic, 2003; Jin, 2004; Kim et al., 2006; Thun, 2000).

The first generation of the NICs in Asia achieved a miraculous economic development from the 1960s to the 90s, which was originally attributed to the T&A sectors (Gereffi, 1999; Kim et al., 2006). After WWII, both Korea and Taiwan benefited from US economic aid, e.g. buying East Asian textile products, raw materials and deficit, and transferring technologies and administration. The financial help and government initiatives enabled both countries to become industrialised and export oriented. Coming after Japan, all these
NICs followed a sequence of industrialisation processes\(^5\) (Kim et al., 2006). These countries have experienced remarkable industrial development, becoming the centre of the T&A sector in the region (Gereffi, 1999; Gereffi and Memedovic, 2003; Jin, 2004; Kim et al., 2006). This success echoes manufacturing and industrial upgrading, as discussed in section 2.2.2, where the T&A development of these NICs demonstrates the production improvement strategy for other developing countries. This industrialisation process resulted in their GDP growth, but production migration as a consequence.

According to Hamilton et al. (2005), the T&A trade of the Asian first generation of the NICs commenced in the 1960s, when some of the US major retailers\(^6\) started sourcing in Asia, opening buying offices (Kim et al., 2006). Due to relentless retail competition in the US in the 1970s, a sourcing model emerged in East Asia where orders contained differentiated batches of fashion apparel with low labour costs. This rapid expansion of contract manufacturing led the national governments of the Asian first generation of the NICs to establish physical and financial infrastructures (e.g. shipping, ports, railways and banking) to facilitate the international trade. This allowed them to develop the capabilities to respond to big buyers’ specialised demands. The expansion of contract manufacturing in the Far East and retail expansion with product variety in the west, were the two sides of the same coin that reinforced the T&A manufacturing in these NICs (Hamilton et al., 2005; Kim et al., 2006). These Asian countries had to specialise and improve their production systems in order to serve the increasing diversification of products. Korea established large trading houses (Chaebol) that carried out orders from overseas buyers by vertical integration (Kim et al., 2006). Taiwan followed a different path of development; small firms focused on specialisation in diversified production categories supported by larger manufacturers that supplied intermediate goods (e.g. synthetic yarns, textiles and chemicals), together with shipping and insurance services (Hamilton et al., 2005). The Taiwanese manufacturing system was linked with dense local/social networks in a

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\(^5\) Industrialisation processes include: (i) exports of primary commodities; (ii) import-substituting industrialisation (ISI); (iii) primary export-oriented industrialisation exporting labour-intensive products (EOI) (e.g. apparel); (iv) secondary ISI (e.g. producing heavy machinery and chemicals) and secondary EOI to export high value products (Dicken, 2003).

\(^6\) Sears opened its buying office in Taiwan in 1967, JC Penney in 1971 and Target in 1971; at the same time, these retailers opened offices in Korea (Hamilton et al. 2005).
self-reinforcing circle of competition and cooperation among firms (Chen and Parker, 2007; Jin, 2004). In the late 1970s and the beginning of the 80s, the Asian first generation of the NICs together with Japan accounted for over 50% of apparel export to the US with a very high percentage of total value (Hamilton et al., 2005; Kim et al., 2006).

During the mid 1980s, the US was running an increasing trade deficit with the Asian first generation of the NICs and attempted to readjust this trading pattern (Hamilton et al., 2005; Kim et al., 2006). In 1985, the Plaza Accord that was signed by Korea, Taiwan and Japan under US negotiation released the national currencies of these three countries from being bound to the US dollar. This resulted in a significant appreciation of these Asian currencies7 (Gereffi, 1999; Hamilton et al., 2005), with the exception of the Hong Kong dollar which remained pegged to the US dollar. In the following years, the economies of Japan, Taiwan and Korea went through a spectacular growth8 (Kim et al., 2006). Their economic growth was reflected in their achievement of industrial upgrading and industrialisation processes. Nevertheless, GDP growth relates to the rises in wages, so that these countries could no longer provide cheap labour. Moreover, due to the effect of the MFA and quota systems, discussed in section 2.2.4, protectionist measures were triggered, imposing rigid restrictions on the Asian first generation of the NICs and promoting other Asian developing countries, e.g. Thailand and Indonesia (Gereffi, 1999; Kim et al., 2006). Both Japan and Korea, through their large trading companies, attempted to upgrade the majority of their businesses to OBM, developing into regional/national brands. Examples include Japanese Uniqlo, which has been developed as a well-known international brand, and a successful Korean brand, Deco, which is perceived as prestigious in East Asia (Jin, 2004). A great number of Taiwanese small and medium manufacturing companies relocated mainly to China and some other Asian developing countries. In addition to responding to the demand of the US and EU markets, these relocated manufacturers have been operating to cater for local demands. These relocated Taiwanese manufacturers thus have gained a number of benefits including low costs of land and operation, low tax, quota

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7 Between 1985-1987, the Japanese Yen appreciated by 40%, the new Taiwan dollar by 28%, and the Korea won by 17% (Gereffi, 1999)
8 Indicative percentages of GDP per capital in this period of rapid industrialisation (1973-1990) were Korea’s GDP increased by 934% and Taiwan increased by 665% (Kim, et al. 2006)
arrangement and access to both local and international markets (Chen et al., 1996).

The Asian first generation of the NICs have developed a number of common characteristics since the 1990s. For instance, in line with regional trade, they managed to invest in production facilities in other developing countries. These NIC countries thus devised a blueprint of coordinating and controlling their sourcing networks and focusing on value-adding activities, such as design and marketing, preserving their competitive edge (Gereffi, 1999; Gereffi and Memedovic, 2003). This blueprint is so-called triangular manufacturing, where the manufacturers of these NICs get the orders from buyers, organise materials and trims either at home or sourced from other countries depending on their origin, and ship them to the host country of manufacturing. These manufacturers in the host country can be affiliated companies or contract manufacturers, carrying out apparel production and then exporting directly to the destination countries of buyers (Gereffi, 1999; Thun, 2000). This triangulation in manufacturing has reconfigured the manufacturers of the Asian first generation of the NICs into intermediaries in the global supply chain, who can arrange production schemes in approximately 50-60 countries, including quotas under MFA/ATC (Gereffi, 1999). It must be noted that despite the common practice in sourcing patterns, there was a growing divergence of national development systems established in each country (Hamilton et al., 2005).

2.3.2 The competitiveness of Taiwanese T&A manufacturers
Taiwan has remained internationally competitive despite being a remote island with a relatively smaller population, few natural resources and high wages. The country has achieved developed status, as it entered the most advanced stage of development (IMF, 2009). Taiwan’s significant progression was recognised by the Global Economic Forum’s global competitiveness rankings, where it occupies 12th position in the world in 2009-2010 (World Economic Forum, 2010). Relying heavily on exports, the T&A sector has provided significant growth to the nation’s prosperity (Chen and Lin, 2006). In addition to the local diligent and highly-skilled human resources, small-medium enterprises appear to be the backbone of the Taiwanese economy. These businesses, by forming networks have demonstrated specialised skills and flexibility of production methods, facilitating Taiwan’s T&A industries, as the country has been upgrading its industrial base. This clustering
characteristic of extensive networks of collaboration (although there were never official clusters promoted by the government) entails flexibility, responsiveness and mutual support among the network members (Chen and Parker, 2007; Chen, 1996; Jin, 2004; Kao, 2007).

Nevertheless, facing the global competition from the developing countries, the impacts of trade regulations (in section 2.2.4), and the consequence of the Plaza Accord agreement (see section 2.3.1), Taiwan’s T&A manufactures had to relocate through the government’s initiative programmes of outward foreign direct investment in neighbouring countries with low labour costs since the late 1980s. These investments are directed to mainly ASEAN countries, namely Malaysia, Vietnam, Cambodia, as well as China due to the common language and culture (Chen et al., 1996). Furthermore, given the AGOA agreement, the investment in African states is also encouraged in order to enjoy the advantage of market access to the US (Taiwan Textile Federation, 2003). This entry mode of the Taiwanese companies to these host countries is mainly carried out through partnerships with local enterprises in joint venture arrangements. Some of the Taiwanese businesses have invested in wholly owned affiliate companies as they venture to integrate strategic decisions in production capacity (Chen et al., 1996). Simultaneously, the government has encouraged the investment into high-value products at home, such as high-tech fibres and man-made yarns, resulting in highly specialised production (Chen and Lin, 2006; Shaw et al., 1994), which usually require higher capital and technical investment than the apparel sector and makes it difficult to relocate facilities in developing countries (Nordas, 2004; Tewari, 2006). In triangular manufacturing, the labour intensive apparel assembly is partially contracted out, while fabrics of export quality are exported from Taiwan to overseas affiliated apparel factories. The upgraded Taiwanese T&A manufacturers since the 1990s have become the primary intermediaries in the global supply chain, as they have managed to become the masters of triangulation in the region (Gereffi, 1999; Gereffi and Memedovic, 2003; Thun, 2000).

Although this intermediary position could be easily cut off by other developing countries of low-cost and improved production seeking buyers’ direct contracts, Thun (2000) asserts that Taiwan has the potential to overcome this difficulty due to two major advantages. First,
Taiwan retains its edge in information linkages with supply chain members through the national technological development. While quick response systems are favoured by today’s retail buyers as in many cases these are imposed by them on their suppliers. Taiwanese manufacturers with high-tech and IT solution together with triangulation manufacturing expertise can effectively and efficiently manage the entire value chain. Secondly, as discussed in section 2.2.2, there are increasing CSR concerns by retail buyers regarding labour conditions in factories, as ethical sourcing has become an important issue in the industry. Taiwanese companies serve as the guardians of CSR for these well-known brands and retailers, and become their trusted suppliers to ensure production runs smoothly. In line with the reason that retailers follow the Taiwanese manufacturers, a Wal-Mart buyer explained “the only reason manufacturing moved from Taiwan was China’s low level of wages. We did not have any trouble in China because the Taiwanese went into China and built their factories. We were dealing with the same people” (cited in Hamilton et al., 2005, p 8). This echoes Tewari’s (2006) observation that cost seems not to be the only measure of manufacturing competitiveness. Other capabilities prevail that include and combine management practices together with speed, in relation to higher order skills such as consistency in quality, product design and development, and direct links with the distribution functions of global retailers (Berger, 2006; Pickles et al., 2006; Tewari, 2006; Thun, 2000). These capabilities have been demonstrated in the recent studies regarding Taiwanese T&A manufacturers (Chen and Parker, 2007; Chen and Lin, 2006). Furthermore, as discussed in 2.2.4, despite the enormous manufacturing and export scales, China’s success of T&A industries is sufficiently and partly attributed to Taiwanese manufacturing investment and the knowledge of global markets with its long history of serving these markets (Adams et al., 2004; Gereffi and Memedovic, 2003; Hamilton et al., 2005; Tewari, 2006). As a result, the Taiwanese T&A manufacturers have benefited from the growth of China.

Another pitfall for Taiwanese manufacturers would be the island’s remoteness from the major consumer markets, the EU and US (excluding China). Proximity to markets has drawn attention in retail operations due to the demand for quick response and merchandise replenishment. Nevertheless, according to a recent report from the United Nations (2008), proximity is not the key criterion for retailers as they exercise blended sourcing. High
fashion goods can be sourced in specialised countries and apparel commodity of stable demand can be sourced in long-haul countries. As declining exports from Mexico, Caribbean, Eastern Europe and North Africa indicate, proximity has a limited role in leveraging retail buyers’ decisions. This is also demonstrated in the increasing trade of T&A from Asian countries to the US market (Tsang and Au, 2007). East Asian suppliers including Taiwan with their full-package services and IT links reducing lead time of production and shipping, appear to out-compete even countries with shorter physical distances (Tsang and Au, 2007). As Berger (2006) notes, the emerging reconfiguration of the supply chain requires three major players: retailers, brand owners and the manufacturers which can provide full services to the two former. The T&A manufacturers in Taiwan appear to retain this competitive position.

Finally, it must be noted that Taiwan has not participated in any preferential trade agreements with either the US or the EU (UNCTAD, 2010). Despite this fact, Taiwan’s T&A industries are featured in the 2008 WTO figures (Taiwan Textile Federation, 2010), in which the island holds the 7th position in textile exports as a world leader in man-made technical fabrics for sport and activity wear. In the apparel sector the situation is more complicated: although it occupies 29th position, Taiwanese manufacturers’ relocation and triangulation strategies mean that they retain control of their apparel production but most of it is exported from other developing countries.

The competitiveness of the T&A manufacturing in Taiwan can be thus highlighted in the following table in line with the major factors that impacts the development of manufacturers as discussed in section 2.2.
Table 2.2 The competitiveness of the T&A manufacturers in Taiwan

<table>
<thead>
<tr>
<th>T&amp;A industrial development and its impacts on</th>
<th>Requirements for the competitiveness of T&amp;A manufacturers</th>
<th>Competitiveness of TW’s T&amp;A manufacturers</th>
</tr>
</thead>
<tbody>
<tr>
<td>The change of market demand</td>
<td>• Manufacturers’ flexibility (Barnes and Lea-Greenwood, 2006; Doyle et al., 2006; Tewari, 2006; Yusa, 2001) and specialisation (Berger, 2006; Humphrey and Schmitz, 2002) account for quick response to unpredictable market demands • Global buyers require manufacturers to acquire more capabilities in NPD and provide more services (Barnes and Lea-Greenwood, 2006; Doyle et al., 2006)</td>
<td>• TW’s specific networks offer specialisation and flexibility of production and faster response to fragmented demands (Chen and Parker, 2007; Chen, 1996; Jin, 2004; Kao, 2007). • TW’s manufacturer upgrading can provide value-added services (e.g. full-package, and product design and development) to buyers (Chen and Parker, 2007; Chen and Lin, 2006; Gereffi, 1999; Tsang and Au, 2007).</td>
</tr>
<tr>
<td>The global value chains</td>
<td>• Industrial upgrading is the key for manufacturers to become and remain key suppliers for international buyers (Gereffi, 1999; Morris and Barnes, 2005; Palpacuer et al., 2005), providing provide full-package services (Keenan et al. 2004; Morris and Barnes, 2008; Nordas, 2004). • CSR is incorporated in global value chain (Humphrey and Schmitz, 2001) as a major determinant of manufacturers’ competitiveness (Frederick and Gereffi, 2009).</td>
<td>• TW’s manufacturers through upgrading have become global intermediaries in buyer-driven chains, providing full-package service, which is closely engaged with global retail buyers in their production network and distribution arrangements (Gereffi, 1999; Gereffi and Memedovic, 2003; Hamilton et al., 2005; Thun, 2000). • TW’s manufacturers participate in major CSR initiatives as requested by buyers as the guardians of ethics in T&amp;A manufacturing (Thun, 2000).</td>
</tr>
<tr>
<td>Technological advancements</td>
<td>• Advanced technologies enable manufacturers to achieve and maintain competitiveness (Mehling et al., 1995; Varakoli and Park-Poaps, 2009). IT is crucial for manufacturers to respond to buyers' requests with efficient production process (Birtwistle et al., 2006; Giampiero et al., 2001). • Advanced textiles through R&amp;D enhance manufacturers’ competitiveness (Audet, 2004; Kilduff, 2001; McCurry, 2005), which many countries are striving for having textile backward linkage with apparel production (Berger, 2006 Nordas, 2004).</td>
<td>• TW has advanced technological background: IT enables manufacturers to respond faster to retail buyers orders by improving product/information flows (Thun, 2000; Tsang and Au, 2007). • Technological capabilities enable TW’s advanced textile production to create more value (Chen and Lin, 2006; McCurry, 2005; Shaw et al., 1994), and achieve backward linkage of textile production (Tsang and Au, 2007).</td>
</tr>
<tr>
<td>Trade agreements and the post quota era</td>
<td>• Free trade agreements provide advantages of access to markets for manufacturers, especially after 2005 (Nordas, 2004; Shenton and Wachter, 2005); having backward linkage with textiles is crucial for manufacturers’ survival • China emerges as the world leading exporter, and its success can be attributed to foreign direct investments with skills/knowledge transfer (Adams et al., 2004; Gerard et al., 2006; Lau et al., 2009)</td>
<td>• Although TW has not participated in any regional free trade agreements, T&amp;A manufacturers have successfully gained benefits through manufacturing relocation and transglution, supported by their textile linkages (Chen et al., 1996; Taiwan Textile Federation, 2003). • TW is one of the major investors in T&amp;A production in China (Adams et al., 2004; Gereffi and Memedovic, 2003; Hamilton et al., 2005; Tewari, 2006), which benefits its T&amp;A manufacturing from the growth of China</td>
</tr>
</tbody>
</table>

2.4 Summary

This chapter discusses the development of the global T&A industries and the principal ways in which recent developments have affected manufacturers. Trade regulations, technology development, the governance of value chain, the market changes and the consequent flexible specialisation of mass production are essential to a prevailing mode of manufacturing. These factors also imply that cost, free trade agreements, and proximity to markets are not the sole determinants by which buyers select their suppliers. Nowadays new capabilities in combinations are needed by manufacturers in order to respond effectively to buyers’ demands and to achieve competitiveness.

This chapter also looks into new strategic arrangements of production as they were originally set out by the first generation of the NICs in Asia. It draws attention to the competitiveness of the Taiwanese manufacturers by probing into their survival resilience.
As discussed in section 2.3.2, achieving their primary intermediary position in the global supply chain by effectively managing production networks, offering full-package service by industrial upgrading, maintaining close relationships with international buyers by understanding market demands, enhancing technological capabilities and CSR appear to be the prerequisites of competitiveness for the T&A manufacturers in Taiwan. These manufacturers have managed to sustain their strategic position and competitive performance in the global T&A industries for more than four decades by continuous business refinements to overcome various impediments. According to Ireland and Hitt (2005), to achieve and maintain a firm’s competitiveness requires strategies together with competitive advantages. Chapter 3 will further discuss the relevant literature regarding strategy formulation, NPD and supply management, which are instrumental to competitive advantages for the T&A manufacturers.
Chapter 3 Literature Review

This chapter places new product development – the focus of this research – in the context of the theories of supply management and strategic management. First it discusses the primary theories regarding strategic management in order to identify possible strategies and competitive advantages that relate to T&A manufacturers. Following this, supply management, particularly partnering relationships will be discussed in order to understand their formation and the available supply options and their impact on strategic positions of the firms in supply chain/network since no single firm can possess all the essential resources as it competes. The competitiveness of the T&A manufacturer also lies in its NPD; in respect of crucial success determinants will be discussed since they have positive relations with competitive advantages. Finally, the research framework is presented which will provide guidance for further investigation of the competitiveness of the T&A manufacturers.

3.1 Strategic management theories

Strategic management has a long history which can be dated back to the budgeting in the era of mass production (Aaker, 1998), and there are a variety of definitions reflecting dominant strategic thinking over the time (Nag et al., 2007).

“Strategic management entails the analysis of internal and external environments of firms to maximise the utilisation of resources in relation to objectives” (Bracker, 1980).

“Strategic management can be defined as the formulation, implementation and evaluation of managerial actions that enhance the value of a business enterprise” (Teece, 1990).

“Strategic management is about the direction of organisations, most often business firms. It includes those subjects of primary concern to senior management” (Rumelt et al., 1994).

Strategic management entails businesses taking strategic decisions to achieve better performance and competitive advantages. Strategy can be termed competitive strategy
(Porter, 1980a), and based on various frameworks of organisational configurations, the formulation of strategies is likely to be different in each company (Mintzberg et al., 1998). Successfully implemented strategies will offer a firm the ability to outperform current or potential rivals. There are a number of theories regarding strategic management that enable a firm to form competitive strategies, which are discussed in the following sections.

3.1.1 Industry perspective

The performance of a firm has to be understood against the industry in which it competes. Porter (1980a; 1980b) claims that industrial competition can drive companies to develop competitive advantages through forming strategies. When an industrial sector develops, competitive strategies have to adjust accordingly. The cardinal objective of a competitive strategy is either to alter competitive rules or manage to cope with them (Porter, 1980a; 1980b). According to Porter (1980a; 1980b), the rules of competition in any industry can be illustrated by the five force model, which defines the ability of a firm and its competitive position (see Figure 3.1).

Figure 3.1 Five force model

![Five force model diagram](source)

Source: Porter, 1980a, p 4; 1980b, p 31

It must be noted that the five-forces are not holding companies operating in an industry because companies can exert leverage upon industry structure through strategic selection. The bargaining roles of buyers and suppliers are important factors in the T&A industries. Buyer power is concentrated because buyers have the ability to command large volumes
(Gereffi, 1999), in particular when they engage in part of the production and outsource other parts from suppliers (Porter, 1980a). In today’s fashion market, retail buyers with the information input, understand consumer demand and are knowledgeable about actual market prices and production costs (Bruce and Daly, 2006), allowing them to command reduced prices over suppliers. On the other hand, powerful suppliers can also exert bargaining power over other members of the supply chain. As suppliers’ product is an important input to their buyers’ business, suppliers can raise their power due to buyers’ reliance on them (Porter, 1980a; 1980b).

Porter’s (1980a) generic strategies are also important to the strategic decisions of T&A manufacturers seeking to outperform others:

**Overall cost leadership**
A cost leadership strategy aims to gain reasonable profits and value through reducing costs, which may lead to increased competition of low wages and manufacturing productivity. However, in T&A manufacturing this strategy tends to be associated with the availability of cheap labour and seems inapplicable to economically developed nations, where manufacturers may rely on unique designs or create a series of related products against lower production costs. Nevertheless, cost can also be reduced through business restructuring rather than the manufacturing process: integrating functions or departments to reduce the operational expenses can serve as an alternative way for manufacturers to achieve this strategy (Li & Fung Research Center, 2009).

**Differentiation strategy**
Differentiation is the strategy used to create competitive uniqueness that leads to value created or added (Porter, 1980a). Differentiation advantage can be achieved in a number of forms including design, branding, technology, product development and services. As manufacturers enable to create avant-garde and innovative products by using new materials and components (i.e. the involvement of technology), and/or integrate with marketing, they can differentiate themselves as well as the products with a competitive edge. Burlington Industries, an American T&A manufacturer, has ventured into high-tech textiles (nano-tex)
and teamed up with Levi Strauss and other manufacturer brands in order to survive competition from imports (Parrish et al., 2004).

*Focus strategy*

This strategy aims to concentrate on particular customers, products or markets (Porter, 1980a), i.e. narrowly defined market segments or niches (Parrish et al., 2006). Focus is not a separate strategy, but has to be adopted along with cost or differentiation to compete against rivals with substitute products and new entrants. For instance, a number of US textile companies attempt to focus on products that are more capital and technologically intensive to differentiate themselves from those that are labour intensive (Parrish et al., 2004). In terms of production, horizontally integrated manufacturers focus on limited activities to benefit from production flexibility and economies of scale (Kilduff, 2000; Yuasa, 2001). However, such a strategy may restrict the market share of products or services, in turn increasing the risks that accompany a manufacturing focus, e.g. investment in machinery.

The generic strategies indicate the strategic positioning in the industry that a firm can choose. Additionally, Porter (1996) identifies three bases for positioning: (i) variety-based positioning refers to offering particular products/services for a wide range of customers to gain economic value; (ii) needs-based positioning aims to cater for specific customer segments with different needs; (iii) access-based positioning refers to configuring a different access to a targeted customer segment; these strategic positionings can be overlapping. A strategy is the creation of a unique and valuable position that requires a tailored set of activities to perform activities differently against competitors. It allows a firm to gain competitive advantages, which is different from operational effectiveness that usually involves management tools to improve productivity, quality and speed, although both strategy and operational effectiveness are fundamental to a firm’s performance. A strategy also needs trade-offs regarding products/services offered to customers (Porter, 1996).
3.1.2 Transaction cost theory

Transaction cost theory (TCT), propounded by Williamson (1979), explains a firm’s boundaries regarding the organisational management’s fundamental issues, “buy or make.” There are two major costs that a firm attempts to reduce—production and transaction costs. Production cost refers to the costs of manufacturing, distributing, managing and organising various activities; transaction cost consists of costs relating to negotiating, coordinating, monitoring and managing transactions for any exchange between transactors (Das and Teng, 2000; Poppo and Zenger, 2002), or transfer of resources between stages in a vertically integrated firm (Hobbs, 1996). Companies take the decisions to make in-house, i.e. internalising activities and vertical integration when transaction costs are high. Conversely, companies engage in buy decisions, i.e. outsourcing activities when transaction costs are low and/or production costs are high (Das and Teng, 2000). TCT can thus explain how internalisation of activities leads to vertical integration, and outsourcing (the use of contracts) leads to other forms of relationships, e.g. strategic alliances (Das and Teng, 2000). These governance mechanisms have a gradation of structures that lie between complete vertical integration and contracting out. Since transaction costs reside in the premise of cost reduction at all times, which operations and/or activities to keep in-house and which to outsource are crucial to a company’s decisions (Cousins, 2005; Cox, 1996; Hobbs, 1996).

Another important tenet of TCT is opportunism⁹ (Williamson, 1979). Opportunism is evident in all companies, as they strive to attain their objectives by acting with guile. An important managerial task is to protect the company from others that are opportunistic and this is particularly crucial when in collaborations with other firms. When a buyer has fewer alternative suppliers, it is a likely situation that an existing supplier may alter the terms of business relationships to its advantage due to opportunistic behaviour (Hobbs, 1996).

Asset specificity is proposed as a mechanism to facilitate strategic decision making (Williamson, 1983). It is usually defined as a firm’s specific resource investment in an economic exchange, which would have little or no value if it is used for an alternative

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⁹ Opportunism is defined by Williamson as self-interest seeking with guile. Companies in most circumstances will seek to exploit their partners to their own advantage.
Purpose (Hobbs, 1996). There are a number of types of asset specificities, including human (e.g. specialised skills, knowledge and management), physical (e.g. specialised machinery and technological systems that designed for a specific purpose), site (e.g. the physical locations of business offices and factories, which relate to the proximity of operations between partners) and dedicated assets (e.g. a discrete investment in a plant for the production or services for specific customers) (Williamson, 1983). When the assets can be specifically established in a company to create high value, they are high specificity, which usually involve high transaction costs or in the highest form, vertical integration occurs. By contrast, if the activities are with low transaction costs, their asset specificities are low and can be outsourced to spot markets (Cox, 1996; Hobbs, 1996; Richardson, 1996). According to Humphreys et al. (2001), low asset specificity tends to involve products of simple specification where less dedicated human resources and specialised physical equipments are required to conduct and monitor the inter-organisational business activities.

Asset specificity is related to the inter-firm relationships of a transaction, e.g. buyer and supplier relationships. It can explain the degree of association between two parties (Cox, 1996; Hobbs, 1996). Uncertainty existing in transactions imposes a danger so that transactors need to seek for safeguard, e.g. contrasts and trust (Poppo and Zenger, 2002). Asset specific investments, according to Cousins (2005), can raise a barrier against opportunism, as both parties increase their levels of dependence in the relationships, thus reducing transactors’ uncertainty, e.g. joint venture occurs when asset specificity and uncertainty are high (Kogut, 1991). As uncertainty increases, a firm with higher asset specificity investments may have to adopt vertical integration (Hobbs, 1996; Leiblein and Miller, 2003; Poppo and Zenger, 2002).

Another important association of asset specificity is the core competences of firms

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10 Uncertainty refers to external conditions that revolve around the transaction, and the potential of self interest in appropriating value from the transaction (Cousins, 2005).

11 Core competences are fundamental knowledge, ability, or expertise in a specific subject area or skills that a company possess. They are defined as “a bundle of skills and technologies that enables a company to provide a particular benefit to customers” (Hamel and Prahalad, 1994, p 219).
(Prahalad and Hamel, 1990; 1994). The specialised skills and capabilities that are proprietary to the firm must be kept in-house and they are related closely to core competence (Reve, cited in Cox, 1996 and Richardson, 1996). That is, core competences are associated with very high asset specificity. It is argued that firms’ core competences should not be subject to external transactions; middle and low asset specificities can be outsourced in a gradation of hybrid collaborations (Cox, 1996; Richardson, 1996).

3.1.3 Resource-based view

The resource based view (RBV) is constituted on the premise of achieving competitive advantage by an instrumental framework for applying a firm’s collective resources (Barney, 1991; Grant, 1991; Teece and Pisano, 1994; Wernerfelt, 1984). RBV employs a different perspective from the theories of Porter’s model of industrial competition and cost reduction achieved by TCT (as discussed in sections 3.1.1 and 3.1.2). It focuses on the company as its unit of analysis (Barney, 1991; Grant, 1991; Kogut and Zander, 1992; Teece and Pisano, 1994; Wernerfelt, 1984) by suggesting that a firm is a bundle of resources that create tangible and intangible values (Grant, 1996; Ireland et al., 2002). According to Das and Teng (2000) these values increase as the company obtains the ability to pool and apply its resources. Some resources are tangible, such as physical (e.g. equipment, raw materials) and financial assets, while intangible ones exist in the company’s reputation, knowledge and skill (Eisenhardt and Schoonhoven, 1996). These resources can be identified through broader categories: physical (e.g. physical locations and specialised machinery), human (e.g. abilities, skill and knowledge), and organisational (e.g. history, relationships, management systems and organisation culture) (Barney, 1995; Wernerfelt, 1984). Such fundamental resources are instrumental to the formation of the competitive advantage of a company, as they establish the basis of strategies that are unique in creating values (Barney, 1991; 1995; Das and Teng, 2000; Eisenhardt and Martin, 2000; Grant, 1991; Peteraf, 1993; Schroeder et al., 2002). Cousins (2005) claims that a firm adopting differentiation strategy is usually associated with the approach of resource configuration. A positive correlation between resources and competitive advantages has thus been suggested although RBV is criticised for a lack of empirical evidence (Priem and Butler, 2001).
Barney (1991; 1995) asserts that a company possesses competitive advantages by implementing a value-creating strategy which is not implemented concurrently by existing or potential competitors. Sustainable competitive advantages occur when these resources are heterogeneous and not perfectly mobile, and not all resources can result in sustained competitive advantages (Barney, 1991). According to Barney (1991), there are four main attributes of resources that create sustainable competitive advantages: valuable, rare, inimitable, and non-substitutable (VRIN). Valuable resources must have the ability to exploit business opportunities or eliminate threats. Resources are rare if they reside in a firm and cannot be concurrently implemented by many others. Inimitable resources can result from three key contexts, as explained in the following table. According to Barney (2002), when a company possesses rare, valuable, and difficult-to-imitate resources, vertical integration should be employed.

Table 3.1 Inimitable resources and their contexts

<table>
<thead>
<tr>
<th>Contexts</th>
<th>Explanation</th>
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<tbody>
<tr>
<td>Historic context</td>
<td>The historic context of a company can depend on unique previous conditions in time and space, thus rendering resources a unique trait that is inimitable by competitors, at least for a period of time. It can be particular conditions (time and space) of the formation of the company or the configuration of a management team with outstanding performance or a remarkable organisational structure which was embedded in the firm at an earlier stage (Barney, 1991). E.g. a company's positive reputation in the industry can be the consequence of its historical roots (Porter, 1980).</td>
</tr>
<tr>
<td>Causal ambiguity</td>
<td>Causal ambiguity refers to the resources by which competing firms are unable to pinpoint the sources of competitiveness. This poor understanding of how a successful firm implements its resources generates the inimitable element of the competitive advantage (Barney, 1991).</td>
</tr>
<tr>
<td>Socially complex</td>
<td>Socially complex refers to the resources, such as that a company's reputation and culture can be difficult to imitate (Barney, 1991).</td>
</tr>
</tbody>
</table>

Last but not least, resources need to be non-substitutable to sustain competitive advantages. Even if a resource is rare, potentially value-creating and inimitable, competitors might still be able to counter value-creating strategy with a substitute and thus sustainable competitive advantages of the firm will be eroded (Barney, 1991).

In line with RBV, resources and capabilities are the basic units of analysis. Grant (1991) distinguishes resources and capabilities and proposes these two are fundamental for a
firm’s strategy. Capability is viewed as a special resource of a firm to utilise other resources (Makadok, 2001). Resources refer to inputs into the production process, while capabilities are sets of resources that are capable of performing a task or activity (Grant, 1991; Teece and Pisano, 1994). Grant (1991, p119) asserts “while resources are the source of a firm’s capabilities, capabilities are the main source of its competitive advantages.” Nevertheless, only a few important capabilities can be grouped together to perform against competition (Grant, 1991). They are the foundations for core competences; capabilities are interchangeable with competence (Atuahene Gima, 2005; Leonard-Barton, 1992).

Core capabilities, according to Hamel and Prahalad (1990, p226), refer to the learning in the organisation with regard to coordinating a variety of production processes and implementing relevant technology, which correlates with organisational routines. A company is a network node of routines, i.e. a variety of processes, and top management monitors these processes and formulates strategy. Capabilities are created through these organisational routines that coordinate and integrate resources (Grant, 1991; Schroeder et al., 2002). The integration of knowledge derived from individuals within the firm can enhance the capabilities and production outputs. Through internal and external learning, a firm can develop resources that are difficult to imitate (Schroeder et al., 2002). This knowledge is viewed as a firm’s specialised resource, which is particularly identified as a source of competitive advantage (Conner and Prahalad, 1996; Corso et al., 2001; Grant, 1996) because it can create ambiguity while transferring (Grant, 1996; Simonin, 1999).

A number of researchers refer to the dynamic capability12, an extension of RBV, to acquire competitive advantages in a rapidly changing business environment (Eisenhardt and Martin, 2000; Makadok, 2001; Teece and Pisano, 1994; Teece et al., 1997). It is argued that dynamic capabilities are organisational and strategic routines, which enable firms to utilise internal and external competences with the reconfiguration of resources, knowledge and

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12 “Dynamic” relates to the ability to regenerate competences so as to align them to changing business conditions including speed to market, fast changes in technology and future competition; “capabilities” relates to the influence of top management in suitably adapting, by aligning internal and external resources and capabilities, to volatile market circumstances (Teece and Pisano, 1994; Teece et al., 1997).
capabilities to engender new strategies of value creation (Eisenhardt and Martin, 2000; O'Regan and Ghobadian, 2004; Winter, 2003). A firm needs dynamic capabilities in accordance to environment changes in order to retain competitive advantages (O'Regan and Ghobadian, 2004). This reconfiguration of resources can have positive effects on the NPD process as they can be used to generate new products and services (Eisenhardt and Martin, 2000). NPD is considered as a high-order dynamic capability, where a firm develops learning processes that can be expanded to more product/service offering to markets (Winter, 2003).

Furthermore, RBV theory does not limit resources to those derived solely from the firm itself. Studies have increasingly suggested that resources can be obtained through external acquiring (purchasing) or learning (Barney, 1999), or generated through inter-firm relations (Das and Teng, 2000; Dyer and Singh, 1998; Eisenhardt and Schoonhoven, 1996; Grant and Baden-Fuller, 2004; Gulati, 1998). The “relational view” thus proposes that competitive advantage can accrue from a network of companies (Duschek, 2004; Dyer and Singh, 1998; Gulati et al., 2000). The synergies generated by combining and reconfiguring resources and capabilities can form a potent idiosyncratic mix, lower transaction costs, and increase value generation. Relational rents\textsuperscript{13} are thus generated (Dyer and Singh, 1998). Duschek (2004) argues that the relational view is a blend of competences, resources, TCT and social networks, in which a company is viewed as a nexus of relations (Ireland et al., 2002).

Network resources are crucial to a firm to create competitive advantages through relation generating. As a company pools resources to the highest degree, it is possible at this stage to generate core competences (Duschek, 2004). In other words, competitive advantage is related to the network of a firm’s relations (Duschek, 2004; Dyer and Singh, 1998; Gulati et al., 2000). The competitive advantages derived from relational view can be gained through (i) relation specific assets investment that offers co-specialised resources, (ii)

\textsuperscript{13} Relational rents are defined as superior profits jointly generated in exchange relationships that cannot be generated individually by a single firm (Dyer and Sign, 1998).
knowledge sharing routines that enhance product innovation and decrease opportunistic behaviour, and (iii) complementary resources and capabilities that generate strategic compatibilities of resources (Duschek, 2004), and such opportunities are usually obtained through the strategic position of the firm in the networks (Gulati, 2000).

The theories discussed in this section provide a theoretical background of strategies and how to gain competitive advantages. They allow for various perspectives from which competitiveness can be viewed.

### 3.2 Supply (chain) management

Supply (chain) management can be viewed as a potential source of competitive advantage because it is closely related to collaborative buyer-supplier relationships (Chen et al., 2004; Cousins and Spekman, 2003; Harland, 1996; Krause et al., 1998). Supply management has become crucial due to the increasing global collaboration as companies’ interests have shifted away from vertical integration (Harland et al., 1999). Since the late 1970s, outsourcing has emerged in western economies as a potent strategy for survival in conjunction with keeping core competence in house (Prahalad and Hamel, 1990). These partnerships can shield partners from the perils of global competition as it is difficult for any single company to obtain all the necessary capabilities to tackle competition. Liker and Choi (2004) assert that partnerships are supply’s “lifeblood” as survival relies heavily on cooperation. It has been pointed out that the buyer-supplier collaboration constitutes the means of overall cost reductions, improvement in quality and new processes in product development (Liker and Choi, 2004; Tan et al., 2002). Longer-term commitments are recommended to the relationships between buyers and suppliers in order to gain opportunities arising from product improvement (Mills et al., 2004).

#### 3.2.1 The definition of supply (chain) management

There seems to be a difficulty in defining supply (chain) management clearly, as various concepts and terminologies are widely and interchangeably used. The literature regarding supply (chain) management as an academic discipline is still fragmented. Additionally, there are a variety of terms referring supply management, such as supplier integration,
buyer-supplier partnerships, strategic supplier alliances, network supply chain, lean chain, to name but a few (Croom et al., 2000; Storey et al., 2006; Tan, 2001). Croom et al. (2000), attempting to construct a taxonomy on the issue, have identified nine definitions within this field of study. With regards to defining supply management, Storey et al. (2006) note that there is a broad consensus among academic disciplines that underpin supply management but they are disparate in capturing its essence.

Researchers have identified potential linkages between supply management and its strategic applications (Cox, 1999; Harland et al., 1999; Ketchen and Giunipero, 2004; Storey et al., 2006). Traditional supply management mainly concerned the firm-based operational performance with adversarial buyer-supplier relationships, and it was elevated to strategic level, supporting a firm’s strategic positioning (Harland et al., 1999). Cox (1999) asserts that strategic position of a firm in the supply chain can appropriate value as well as the critical resources that are nearly inimitable, in order to outperform rivals. This relates to strategic thinking and effective supply management coincides with the firm’s competitive performance. Although the strategic aspect of supply management is still in its infancy, it can be further developed as a way of strategic thinking together with its relevant activities, which incorporate inter-organisational relationships within the chain. Inherent in this notion, strategic relationships can lead to a source of competitive advantages by sharing resources (Cousins and Spekman, 2003; Ketchen and Giunipero, 2004; Krause et al., 1998). According to Ketchen and Giunipero (2004), supply management is viewed as a collaborative inter-organisational arrangement that makes use of resources from its members in order to achieve shared objectives and firms’ value appropriation. To develop long-term collaborative relationships, the company must view supply management at a strategic level (Cousins and Spekman, 2003). For the purpose of this study, “partnering relationships” denoting the relationships in supply management is used, and where necessary other words emphasising particular supply activities.

3.2.2 The development of supply (chain) management
Due to the main focus of supply (chain) management especially in this study on managing its partnering relationships, it is important to briefly outline the historical context of supply
management. According to Wagner et al. (2002), the foundation of partnering lies in the total quality management (TQM) work of Deming that was adopted to restore the Japanese economy after WWII. Closer and fewer suppliers were suggested to collaborate in order to resolve common problems and achieve mutual objectives. From the 1950s to 1970s, arm’s length adversarial relationships with suppliers were mainly related to short-term arrangements resulting in cost reduction and timely delivery of components that facilitated the needs of mass production. As a result, supply management received little attention since sharing technology and expertise was considered a business risk (Tan, 2001). Global competition resulting in outsourcing and manufacturing efficiency in the 1980s encouraged businesses to embrace more strategic and collaborative buyer-supplier relationships for long-term advantages (Cousins, 2001; Tan, 2001).

Additionally, the recessionary influences and rapidly advancing technology occurring in the late 1980s and early 1990s, accelerated outsourcing, a tendency also facilitated by strategic thinking of core competences, as firms attempted to add value and reduce costs. This has a profound impact on vertical disintegration, resulting in firms seeking to establish more strategic and longer-term partnering relationships (Harland, 1996; Harland et al., 1999). Suppliers’ resources and capabilities are exploited to support product development and/or to meet the demands of buyers (McCutcheon and Stuart, 2000; Tan, 2001; Wagner et al., 2002). Moving toward the 21st century, buying firms are attempting to generate supply relationships. These partnering relationships, according to Harland (1996), have evolved from dyadic, to chain and to networks. Thus, networks of supply are crucial as business progress (Cousins and Spekman, 2003; Mills et al., 2004). These chains/networks compete against other chains/networks as companies collaborating in a network form relationships across an industrial sector by reversing their roles, i.e. a buyer can act as a supplier, and a supplier becomes a buyer, depending on their positions in the chains/networks (Cousins and Spekman, 2003). Suppliers are increasingly involved in supply management, as they are more willing to invest in specific capabilities that meet buyers’ requirements or even beyond, such as jointly developing products with buyers and establishing alliances and/or configuring complex networks (McCutcheon and Stuart,
While the strategies of outsourcing and supplier partnerships are widely embraced, manufacturing and production in a number of industries including the T&A sector in the developed countries have been hollowing out. The sourcing networks of retail buyers have spread out in a wide range of developing countries and heavily relied on those suppliers with appropriate capabilities (Palpacuer et al., 2005). Nevertheless, Wagner (2006) points out that many firms in the T&A industries are more frequently relying on arm’s length relationships rather than long-term partnering relationships between suppliers and buyers. Firms in most cases demonstrate little willingness to develop suppliers. Furthermore, although it is necessary and crucial for suppliers to pay more attention to and invest in the long-term relationships with their buyers, it appears that the majority of T&A manufacturers and suppliers tend to lack relative resources and capabilities to contribute to such synergies; only a few are able to gain the advantage of employing supply management with buyers (Lam and Postle, 2006).

Due to today’s complex outsourcing and buyer-supplier collaboration, firms have to adopt appropriate supply management practices and establish partnering relationships that are based on formal/informal and relational arrangements. The following section, based on TCT and RBV, will discuss how these partnering relationships can be formed in order to investigate the relationships applicable between buyers and suppliers.

### 3.2.3 Partnering relationships

A company’s survival and progress depends on its ability to generate and control core competences in house (Prahalad and Hamel, 1990). Skills of low and medium asset specificities can be outsourced by using a formation of partnering relationships with suppliers. Based on TCT, Cox (1996) constructs a model (see Figure 3.2) where high asset specificity results in vertical integration as the firm does not outsource vital strategic resources (e.g. core competences). Conversely, low asset specificity results in generic purchasing of dispensable components found in markets where adversarial relationships prevail. Between these two extremes, there is an area where governance structure makes
use of hybrids (Williamson, 1991) and/or quasi vertical integration\textsuperscript{14} (Hobbs, 1996). This area can be exploited by a gradation of partnering relationships that range from joint ventures/strategic alliances to preferred supplier schemes (Cox, 1996; Hobbs, 1996). In terms of manufacturing, Arnold (2000) further suggests that a high percentage of outsourcing can lead to more supply management activities. The strategic position of a manufacturing firm relies more on the abilities of its suppliers to gain a competitive edge.

According to Cox (1996), a firm’s strategic decision regarding outsourcing has to view its partnering relationships, not only based on suitability but also in relation to power symmetries/asymmetries and its position accordingly in the supply chain. Due to the lower asset specificity which can be found in alternative markets of supply, a buyer firm tends to exert its power over suppliers with arm’s length and adversarial relationships. In the medium asset specificity, a firm can employ network sourcing and/or strategic alliances as they form the superior stage of asset specificities before internalising through vertical integration, or merger/acquisition.

Figure 3.2 Partnering relationships based on asset specificity

Source: Cox (1996, p 63)

\textsuperscript{14} Quasi-vertical integration refers to a relationship between buyers and suppliers that involves a long-term contractual obligation where both parties invest resources in the relationship.
3.2.3.1 Network sourcing and network resources

Network sourcing refers to where buyer firms engage with multi-tiered partnering relationships in which first-tier suppliers develop partnerships with second-tier suppliers and these further develop relationships with subcontractors to implement supply objectives (Cousins and Spekman, 2003; Cox, 1996; Hines, 1995). Hines (1995) claims that network sourcing is a multi-sourcing method whereby the principal buyer, relying on specialised knowledge and skills of tiered suppliers, controls and monitors relationships in the network by developing not only first-tier suppliers but suppliers’ suppliers. The suppliers in any tier can be simultaneously competitors, striving for the principal buyer’s orders, but nevertheless, they can form a long-term relationship with their principal buyer (Hines, 1995). Network performance also depends on single and multiple sourcing; single sourcing refers to the firm sourcing from a sole supplier while in multiple sourcing, two or more suppliers are used. The two sourcing modes appear to have different advantages. For instance, single sourcing retains confidentiality from the more reliable suppliers and lower transaction costs. Multiple sourcing tends to be applied in cases of adaptation to changes in business environments in more volatile conditions as it retains higher levels of flexibility of managing partnering relationships (Harland, 1996; Hines, 1995).

Gulati et al. (2000) claim that a firm’s strategic positioning in the network relies on its ability to manage the network strategically and this affects the appropriate selection of partners. Dyer (1996) and Harland (1996) point out that network members can mobilise and share resources and information. Inter-firm specialisation accrues from the fact that the network membership restrains new entrants as ambiguity about the network’s strategic orientation and operations generates valuable resources that may be difficult to duplicate or even be substituted (Gulati et al., 2000). Hence, suppliers and partners’ specialisation can influence the strategic decisions and performance of the principal buyer in the chain (Cox, 1999; Hines, 1995), and/or in the network (Gulati et al., 2000).

The firm’s position in the supply chain is also of strategic importance since the controlling partners who usually are buyers can exert power on other members in the chain. The reason for companies’ existence is to appropriate value for themselves (Cox, 1999).
Companies become viable as they become dominant actors in the supply chain. This echoes Jarillo’s (1988) view that the central controller in the strategic network can efficiently organise and coordinate production and information flows. Strategic networks are usually engaged with long-term arrangements among network members in a variety of business functions (Chang and Harwood, 2001; Gulati et al., 2000; Mills et al., 2004). Companies need to acknowledge their positions in the chain/network in order to develop partnering relationships and apply particular strategies and operations (Cox, 1999; Gulati et al., 2000; Hines, 1995; Mills et al., 2004).

Central controllers have the ability to obtain and control critical resources that can be difficult to imitate as this allows them to build a structural hierarchy around dependent suppliers (Cox, 1999). Such perspective shares similarities with Dyer (1996) and Gulati et al. (2000)’s network resources that are controlled by a principal firm. The availability of these resources can influence the company’ strategic decisions since they are crucial in capturing opportunities. Acquiring critical resources within the network can provide strategic benefits. Network resources residing within the firm derive from its historic context and its unique path dependence as experience from past collaborations and specific partners’ identities are crucial. Network resources, in line with RBV, can offer inimitable and/or non-substitutable value as companies within a network of relationships forge specialised capabilities, which reinforce the possibilities of sustainable competitive advantages (Duschek, 2004; Gulati, 2000).

3.2.3.2 Strategic alliances
Strategic alliances, according to Cox (1996), refer to single sourcing relationships with suppliers and involve higher asset specificity investment. These partnering relationships tend to be more interdependent as they have mutual strategic objectives (Hobbs, 1996). Gulati (1998) defines strategic alliances as a business arrangement between two or more businesses in order to improve their competitive position and performance by sharing resources, specific assets, cost risks, or co-developing products and services. Alliances also aim to gain competitive advantage for the allies involved (Cousins, 2001; Gulati, 1998; Whipple and Gentry, 2000). Whipple and Gentry (2000) argue that the strategic intent of a
firm in forming an alliance is to understand how the internal core competence can be combined with the allies’ in order to maximise competitive advantage. Additionally, alliances can be formed domestically and/or internationally to achieve competences that improve the competitive position of allied firms instead of each firm individually pursuing its strategic objectives (Das and Teng, 2000; Eisenhardt and Schoonhoven, 1996; Ireland et al., 2002). Despite the high failure rate (approximately 50% of alliances fail (Lunnan and Haugland, 2008), companies have been increasingly relying on alliances for growth and competitiveness (Ireland et al., 2002; Kale and Singh, 2009; Whipple and Gentry, 2000).

According to Eisenhardt and Schoonhoven (1996), alliances tend to be formed when a business is vulnerable in its strategic position, i.e. the firm acknowledges difficulty in market circumstances and/or in the deployment of its business strategies. It thus needs to acquire critical tangible and/or intangible resources. Another reason for forming alliances is social interaction that leads to the firm’s interests. For instance, reputation and status (so-called social position) can generate trust and mutual awareness, providing the opportunity to form alliances, even without any contract forms (Eisenhardt and Schoonhoven, 1996; Gulati, 1998). A firm with a rich social position can enhance alliance opportunities and mitigate opportunism (Eisenhardt and Schoonhoven, 1996).

Whipple and Gentry (2000) suggest four major motives in alliance formation- financial, technological, strategic, and managerial. Financial motives are related to cost reduction and sharing risks in capital investments. Technological motives are associated with obtaining access to the R&D and advanced technology that can improve the NPD process and reduce lead time for bringing new products the market place. Managerial motive mainly refers to the improvement of supply management by reducing the number of suppliers and allying with key selected partners, resulting in better productivity solutions and quality improvement. Simultaneously, suppliers are able to obtain buyers’ technical and managerial support. Strategic motives involve gaining access to new markets, particularly when alliances are configured internationally. According to Das and Teng (2000), the most critical motive for forming alliances is to combine resources that will exceed the resources
generated internally and maximise the value of new products. Nevertheless, before forming alliances, companies must align their objectives with their allies and commit themselves to the shared vision of alliances. The alignment of alliances’ objectives forms a critical element of the successful outcome (Whipple and Gentry, 2000).

There is a variety of definitions in terms of alliance forms. Based on specific resources that alliances pursue, Das and Teng (1998) have classified alliances into financial, technological, physical and managerial alliances. Typically based on the equity in the relationships, alliances can be structured as joint ventures, minority equity alliances and non-equity alliances (Killing, 1988 cited in Das, 1998; Gulati and Singh, 1998). Joint ventures refer to the new business entity that is separate from allying firms. Minority equity refers to a partial integration in partnering business with an equity stake, and non-equity alliances are based on contractual agreements without any equity arrangement. An equity arrangement can facilitate collaboration and reduce opportunism in alliances (Teng and Das, 2008).

According to Ireland et al. (2002), and Teng and Das (2000; 2008), alliance formation can lead to learning. Successful alliances, based on collective learning, can gain complementary knowledge and skills that result in potential value and capabilities and increase high asset specificity. Acquiring complementary resources is a key driver to form alliances, and these complementary resources/capabilities become an important criterion for partner selection in alliances (Das and Teng, 2000; Shenkar and Li, 1999). Nevertheless, learning has its pitfalls, as companies can engage in learning races and the ally who learns faster dissolves the partnership (Hamel, 1991). That is, due to different absorptive capacity, learning ability cannot be equal between partners (Ireland et al., 2002). Learning in alliances also has barriers, such as cultural barriers when cultural distance can impede a partner’s ability to learn (Cullen et al., 2000), and managers’ past practices may also create a barrier to learning. Knowledge sharing is another important factor in alliance success, as the firm’s structure and its mechanisms for knowledge transfer can have a significant impact on the performance and progress of the alliance (Grant and Baden-Fuller, 2004;
Ireland et al., 2002; Lyles and Salk, 1996). Learning and knowledge must be coupled with complementarities in an alliance, i.e. an alliance must seek the fit between resource needs and resource procurement. Only useful and relevant resources can be effectively utilised in an alliance (Das and Teng, 2000; Teng and Das, 2008).

Among these partnering relationships, trust\textsuperscript{15} plays a significant role, due to opportunistic behaviour occurring in commercial exchanges (Barney and Hansen, 1994; Cullen et al., 2000; Das, 1998; McCutcheon and Stuart, 2000). It generates confidence for the firm in its partners (i.e. certainty in the relationships)(Das, 1998). Although contracts can act as a safeguard on asset specificity by facilitating controlling and monitoring of a partner’s performance, they can mitigate uncertainty especially in market conditions (Lee and Cavusgil, 2006; Poppo and Zenger, 2002). According to Gulati (1995), trust can avoid business risks that contracts alone cannot cover. It can reduce transaction costs even in situations where higher transaction costs are involved such as strategic alliances/networks (Gulati et al., 2000). In other words, it is not only contracts but also trust that can reduce uncertainty in a partnering exchange. According to Poppo and Zenger (2002), contracts and trust can complement each other in terms of the governance of the relationship. Furthermore, researchers suggest that trust encourages the continuity of relationships even in high uncertainty situations (Lee and Cavusgil, 2006; Poppo and Zenger, 2002). When trust is established, it can develop dependencies (McCutcheon and Stuart, 2000), and enhance mutual commitment as it diffuses as a fair exchange concept in partnering relationships and ensures that benefits accrue equal to partners’ contributions (Cullen et al., 2000). It can also engender longer-term and deeper relationships (Liker and Choi, 2004; Mills et al., 2004). Nevertheless, Cullen et al. (2000) point out that trust can be difficult to establish when there are cultural and organisational differences and communication problems. In addition, trust depends on differing perceptions of its value, as nations acknowledge it in relation to their cultural background, e.g. Japan is more willing to trust

\textsuperscript{15} Sako (1992, cited in McCutcheon and Stuart, 2000; Cousins, 2001), there are three levels of trust in buyer-supplier relationships: contractual trust where partners have to abide by to written or oral agreements; competence trust where the past performance of the partner indicates its reliability to the other partner; goodwill trust where both parties can develop mutual expectations that the other can surpass contract agreement to deliver extraordinary performance, which realistically is the most difficult to achieve.
its partners.

3.2.4 Supply options for partnering relationships
The appropriateness of partnering relationships is crucial for a firm to manage its supply. The orientation of partnering relationships can be observed from operational to strategic perspectives (Cousins, 2005; Mentzer et al., 2000). Operational orientation has shorter time duration as it focuses on operational efficiencies, utilising limited mutual resources in collaboration activities. Strategic partnering orientation concerns the relationships that accomplish longer-term strategic goals, and has the potential of improving the competitive position of a firm. Strategic commitments in the partnering relationships are a vital determinant of business success. In the strategic type of partnering relationships, each firm perceives the other as an extension of their own business as they jointly undertake strategic initiatives. Companies pursuing strategic partnering need to establish internal infrastructures in an incremental way as they proceed towards these partnering procedures (Cousins, 2001; 2005). According to Chen et al. (2004), companies adopting strategic supply options tend to promote open communication and close relationships with a limited base of collaborating partners.

Given a strategic perspective, Cousins (2005), making use of Porter’s generic strategies suggests that when the firm concentrates on cost reduction as its strategic orientation, a tactical direction of operations will be employed. While focusing on differentiation, the firm has to take a strategic and longer-term approach to manage its partnering relationships. The cost minimisation strategy relates closely with TCT, and differentiation derives from RBV indicate that competitive advantages can be generated from the strategic use of the firm’s resources/capabilities and through partnering relationships. Partnering relationships based on TCT and RBV do not necessarily collide, but rather complement each other as in some overlapping areas, e.g. in TCT where contracts are dominant, they need refinements as circumstances change which can be based on trust and cooperation as a safeguard against opportunism (Poppo and Zenger, 2002).

In Cousins’s (2005) modes of collaboration, advantages derive from cost reduction as the
firm concentrates on the formation of arm’s length contractual collaborations with its partners. These are operational orientated and comprise activities at a tactical level within a shorter time span, such as exchanging information regarding operation planning, production capacity, and developing forecasts on demand and sales. Conversely, a company pursues a strategic orientation, as this corresponds to the development of partnering relationships that focus on development of new market entry, sharing technologies, innovation and co-design and NPD arrangements. These are regarded as more compounded collaborations for capability development, and require capital investment. This leads to business process integration and overall management effectiveness.

It is argued that the formation of partnering relationships has to be aligned with the firm’s strategic intention. Companies that are cost or differentiation focused must align their supply management strategies to their supplier base (Cousins, 2005). Taking the buyer’s perspective, Cox (2004) in the same line of argument with Cousins (2005) argues that there is no single way of managing these partnering relationships, since ideal situations and reality in supply can be different. For example, lean supply is not suitable to the businesses with uncertainty and variability of demand. Thus, he suggests that buyers need to choose the most suitable partnering relationships that match their capabilities and resources in specific supply circumstances. Based on the level of involvement with suppliers and supplier competences, Cox (2004) proposes four fundamental supply options as shown in Figure 3.3 and discussed in Table 3.2.

**Figure 3.3 The supply options of buyers**

![Figure 3.3 The supply options of buyers](image)

Source: adapted from Cox, 2004, p 349
Table 3.2 Buyers’ supply options

<table>
<thead>
<tr>
<th>Supply Options</th>
<th>Descriptions</th>
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<tbody>
<tr>
<td>Supplier selection</td>
<td>It usually concerns low asset specificity and resorts to markets for the procurement of undifferentiated commodities. It is based on short-term adversarial relationships as the buyer can exercise all available options of suppliers in the market and receive the best trade-off among suppliers, (e.g. cost) with buyer’s limited involvement.</td>
</tr>
<tr>
<td>Supply chain sourcing</td>
<td>This option is similar to supplier selection but involves more transaction costs, time and resources as the company seeks multiple tier suppliers (i.e. not only the first-tier ones). Innovation can be generated through supplier competition.</td>
</tr>
<tr>
<td>Supplier development</td>
<td>It usually involves longer and more collaborative relationships between buyers and first-tier suppliers. Buyers act proactively so suppliers may be less competitive. This form of relationships usually requires both parties’ transparency over margins, production methods and costs of components as well as co-development of new products, rather than buyers engaging in searching, selecting and negotiating in every supplier tier.</td>
</tr>
<tr>
<td>Supply chain management</td>
<td>This option is similar to supplier development but the buyers are engaged with all levels of suppliers in the supply chain. Buyers require a great deal of resources and capabilities to manage their supply starting from raw material procurements. This option is extremely difficult to implement.</td>
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Source: adapted from Cox (2004)

Supply chain management, despite its high asset specificity, can be the most potentially advantageous option because it involves proactive and long-term collaborations between buyers and suppliers, which can deliver constant innovation advantage. Nevertheless, supply chain management can also be the most difficult option, in that very few firms can implement it. The formation of partnering relationships and the supply options appear to be crucial to a firm in terms of maintaining core competences and enhancing capabilities (Cox, 2004).

3.3 New product development

3.3.1 Introduction

According to Clark and Fujimoto (1991), new product development (NPD) has become the centre of competition for many companies in various industries. Brown and Eisenhardt (1995) also assert that firms which can deploy new products effectively to markets are more likely to succeed. NPD appears to be an important source of competitive advantage for survival and renewal of a company, especially in the markets with fast changing competitive conditions (Brown and Eisenhardt, 1995; Danneels, 2002; Eisenhardt and Martin, 2000). NPD has been recognised as critical to core competences/capabilities as it
strategically creates value by differentiating the business (Brown and Eisenhardt, 1995; Leonard-Barton, 1992). The core competences of a firm are closely related to core products since they form the foundation upon which principal components are transformed into valuable new products (Prahalad and Hamel, 1990). These core competences/capabilities, according to Teece and Pisano (1994), must be difficult to imitate as they become a “distinctive competence” of the firm. Dynamic capabilities as the subsets of the core competences/capabilities enable a company to develop new products and processes to respond to market changes (Eisenhardt and Martin, 2000; Teece and Pisano, 1994; Teece et al., 1997; Winter, 2003). According to Eisenhardt and Martin (2000), competitive advantage lies in the resource configurations that dynamic capabilities can create. NPD can be viewed as a firm’s capability that can coordinate and manipulate the resources and skills through a sequence of routines, such as learning and knowledge management, to create competitive advantage (Eisenhardt and Martin, 2000; Grant, 1991). That is, NPD is the mechanism of a company that creates, integrates, and reconfigures resources in order to achieve a competitive edge. Despite its high cost and failure rate (approximately 40-75%) (Stevens and Burley, 2003), NPD has been embraced as a central activity in numerous businesses including T&A manufacturers.

3.3.2 Textile and apparel NPD
NPD is generally viewed as “a set of activities beginning with the perception of marketing opportunities and resulting in the production, sale and delivery of products” (Ulrich and Eppinger, 2000, p2). It involves an overall process of converting business opportunities to new product launching based on market demands, marketing ideas and the development of technology (Crawford and Di Benedetto, 2006; Shepherd and Ahmed, 2000). According to Crawford and Di Benedetto (2006), NPD consists of opportunity identification and selection, concept generation, evaluation, product production and launch. At the initial stage, product ideas are generated through market information, research and development (R&D), and then elaborated into product concepts. Product evaluation including prototype making and testing, facilitates the detailed implementation of new products before manufacturing in which production control and schedules allow the producers to keep up with product demand. Product launch as the last stage of NPD, usually involves the
marketing strategy, using promotional campaigns to stimulate sales and increase business profits. Within the process, various resources and capabilities are involved (Verona, 1999).

T&A NPD shares similarities with NPD generally; additionally, it involves perpetually changing seasonal demands, product opportunities and specialised fabric applications (Choi et al., 2005; Powell and Cassill, 2006). In short, T&A products are characterised by textile technical knowledge and by seasonal line plans (i.e. many groups of new products for one season), which are directed by trends within a very short span of time. Approximately 3-9 months are required to conduct apparel NPD before product launch and another 3-6 months for textile NPD prior to apparel (Frings, 2002; Pitimaneeyakul et al., 2004).

New products of textile and apparel are mainly associated with the features (designs), functions (technical innovation facilitated by advanced technology), market input and marketing strategies, and they have gradually become the key attributes of the progress and competitiveness of T&A manufacturers (Choi et al., 2005; Crutsinger et al., 2005; Powell and Cassill, 2006). Furthermore, according to global market value, there is an average 9.1% annual growth of textile and apparel from 2004-2008 (Datamonitor, 2009), which indicates the opportunities and significance of NPD for textile and apparel, in particular with global marketplace challenges.

Yet, despite the importance of NPD to T&A businesses, only a handful of related studies have been conducted, and the number is low in comparison to NPD generally. Usually these NPD studies have been respectively concentrating on the textile (Choi et al., 2005; Powell and Cassill, 2006) and the apparel sectors (Crutsinger et al., 2005; Gaskill, 1992; May-Plumlee and Little, 1998; Pitimaneeyakul et al., 2004; Wickett et al., 1999), where the textile ones are far fewer than those about apparel. Most importantly, the existing research regarding T&A NPD has been carried out mainly in western developed countries based on buyers’ perspectives. Against this background, therefore, to generalise from these published studies and apply them in the context of T&A manufacturing might be
problematic; such speculations should be entered into cautiously or treated critically.

The following section will discuss the determinants of NPD success because there is a reciprocal relationship between NPD and the firm’s competence which results from resources and skills, as these resources and capabilities (in line with RBV) can form the variables of NPD success, and the commitments of resources can enhance NPD success (Danneels, 2002; Kandemir et al., 2006). Examining these factors can help this study to identify and understand the crucial resources and capabilities that can be utilised by a manufacturer for successful NPD, resulting in a firm’s competitiveness.

3.3.3 The determinants of NPD success
Montoya and Calantone (1994) and Song and Perry (1997) have identified that product superior performance results from NPD success that can derive from various factors. Gatignon and Xuereb (1997) further argue that NPD success tends to be closely associated with competitive advantage because a firm can implement its strategies in the context of NPD, resulting in superior product outcome or product innovation. That is, successful NPD is likely to contribute to a firm’s competitiveness.

A number of researchers argue that the overall success of NPD relies not only on innovative characteristics or business opportunities, but also on a convergence of different activities within NPD (Bruce and Cooper, 2000; Cooper and Kleinschmidt, 2007; Ernst, 2002; Henard and Szymanski, 2001). A range of researchers have attempted to identify these success factors including a structured NPD process, sharing common understanding of the process, optimal team skills, cross-functional teamwork, communication to management, top manager support, training provision, long-term strategy, cross-functional integration to name but a few (Cooper and Kleinschmidt, 1995; Lester, 1998; Lynn et al., 1999; Poolton and Barclay, 1998; Sun and Wing, 2004). Montoya-Weiss and Calantone (1994) have divided their identified factors into four major categories related to strategy, process, market environment and organisation. Issues such as management, organisation and teams as the determinants of NPD success have also been pointed out by Lester (1998). Given an overview of the statistical and empirical NPD studies, Ernst (2002) has further
suggested five main drivers of positive NPD performance: (i) process, (ii) strategies, (iii) organisation, (iv) teams and (v) the commitment of senior management. This classification echoes the findings of Cooper and Kleinschmidt (2007): strategy, management, process, and resources and people (the resources and people are considered as one driver).

Nevertheless, according to Sun and Wing (2004), the success factors of NPD can vary in individual countries or specific industries and tend to have different associations with different stages of NPD. In the automobile industry, the US suppliers are involved at an early stage while Japanese suppliers are engaged more in the design stage of NPD (Cusumano and Takeishi, 1991). Early supplier involvement in the design stage is a crucial factor to manufacturing industry (Wasti and Liker, 1997). Taking these various analyses into consideration, the determinants of NPD success can most usefully be categorised into three main categories for the purpose of this study, which are process, strategic and management factors. In addition, RBV and TCT will be employed in the discussion of these success factors in order to provide a theoretical foundation for the investigation of competitive advantages and strategies of T&A manufacturers.

3.3.3.1 NPD process
A number of researchers have highlighted the strong connections between NPD process and performance, with regards to RBV (Eisenhardt and Martin, 2000; Verona, 1999). Strategic guidance is required to implement activities in processes both internally and externally (Pitmaneyakul et al., 2004; Syamil et al., 2004; Verona, 1999). NPD processes can be viewed as organisational routines, since they bring together expertise from different resources along with joint experience, to create capabilities at firm level (Grant, 1991; Verona, 1999), or dynamic capabilities potential (Eisenhardt and Martin, 2000; Teece et al., 1997). That is, NPD processes are new capability generators that can entail competitive advantage. They consist of planning and implementing activities accounting for enhancement of product value, and NPD effectiveness (Brown and Eisenhardt, 1995; Eisenhardt and Martin, 2000; Syamil et al., 2004; Verona, 1999). As activities are planned and conducted before management’s approval, a number of successful companies have introduced the notion of stage-gate process to serve as the strategic impetus for NPD, e.g.
DuPont, P&G, Nike and 3M, have adopted this to achieve success (Cooper, 2001; Griffin, 1997; Trott, 2008).

**Figure 3.4 The stage-gates process models**

![Stage-gates process models](image)

Source: Cooper, 1990, p46

Although an NPD process can be traditionally conceived in a number of different stages as illustrated in Table 3.3, the activities involve strategic planning and management systems allowing a business to identify opportunities and effective execution for developing products. Some researchers have also indicated the limitations of the sequential processes, for example, the restriction of moving to the next stage without completing the previous activity (bureaucratic-oriented), lack of efficient means for communication with two-way interaction within the processes, marketing incorporated merely in the latter stage, time waste or no provision for focus (Bruce and Biemans, 1995; Cooper, 1994; May-Plumlee and Little, 1998; Trott, 2008; Yelkur and Herbig, 1996).
Table 3.3 New product development processes

<table>
<thead>
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<th>1</th>
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<th>5</th>
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<tbody>
<tr>
<td>Urban and Hauser</td>
<td>Opportunity identification</td>
<td>Design</td>
<td>Testing</td>
<td>Introduction</td>
<td>Life cycle management</td>
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<tr>
<td>Ulrich and Eppinger</td>
<td>Planning</td>
<td>Concept development</td>
<td>System-level design</td>
<td>Detail design</td>
<td>Testing and refinement</td>
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<td>Crawford and Di Benedetto</td>
<td>Opportunity identification &amp; selection</td>
<td>Concept generation</td>
<td>Concept/Project evaluation</td>
<td>Development</td>
<td>Launch</td>
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<tr>
<td>Cooper</td>
<td>Discovery</td>
<td>Scoping</td>
<td>Build business case</td>
<td>Development</td>
<td>Testing and validation</td>
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<tr>
<td>Bruine and Bliers</td>
<td>Idea generation</td>
<td>Marketing strategy</td>
<td>Business analysis</td>
<td>Product development</td>
<td>Market testing</td>
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<tr>
<td>Trott</td>
<td>Idea generation</td>
<td>Idea screening</td>
<td>Concept testing</td>
<td>Product development</td>
<td>Text marketing</td>
</tr>
</tbody>
</table>

Source used:

Such traditional process modelling appears inappropriate for T&A NPD, which usually involves concurrent processes with internal, external and joint activities. In particular, when the NPD process is associated with global or international cooperation, it requires constant interaction and communication among various departments and/or organisations (Powell and Cassill, 2006; Yelkur and Herbig, 1996). Pitimaneeayakul et al. (2004) suggest the NPD coordination of sales, marketing and production to increase the value of T&A products. Powell and Cassill (2006) support this point and further emphasise strategic applications in T&A NPD throughout its processes, including material creations, business
partnerships and marketing integration. Primary industrial or environmental changes and impacts drive companies to adapt their NPD process accordingly.

There are several studies regarding T&A NPD processes, which have been respectively discussed. The NPD for apparel appears to be based mainly on buyers’ perspectives (Gaskill, 1992; Goworek, 2010; Wickett et al., 1999). This may be because the focus of apparel NPD is inclined to be buyer-driven as well as design centred, leading to increasing attention to the study of the apparel design process (Regan et al., 1997; Sinha, 2000). For instance, a fashion retail product development model (see Figure 3.5) has been established by Gaskill (1992). A non-linear process of dual communication together with overlapping responsibility is the characteristic of this model. It depicts the sequencing and interaction of the events in the retail NPD process of apparel from an initial trend analysis ending with final line selection.

**Figure 3.5 Fashion Retail Product Development Model**

![Diagram of Fashion Retail Product Development Model](image)

- Solid arrows indicate the direction and evolution of product from concept to the final phase of line presentation.
- Broken arrows indicate the intervening forces which impact upon the development process: merchandising, target markets and trends

Source: Gaskill, 1992, p 20

Based on Gaskill’s model, Wickett et al. (1999) have proposed a modified version of this model (see Figure 3.6) of process expansion. They suggest that the apparel NPD should
commence from the research of a trend, rather than simply trend analysis, with alternative routes for product evaluations. This model highlights various decisions within the process by identifying information, design creativity and marketing function and external impacts, such as suppliers’ capabilities and global competition. The NPD activities can be conducted in-house or outsourced depending on retailers’ strategic decisions, so the engagement and evaluation of buyers and suppliers are crucial. Although it is claimed that in-house production in comparison to contractor production has better performance in terms of the time to market and quality control, managing external agencies, contractors or collaborative manufacturing appears to be a key task in the implementation of NPD (Pitimaneeeyakul et al., 2004).

**Figure 3.6 Revised apparel retail product development model**

![Apparel retail product development model](image)

Source: Wickett et al. 1999, p33

The design activity is often emphasised in apparel NPD: designers with agendas varying according to products and/or companies, and design communications, along with the tools and skills are regarded as particularly important. Design decisions with alternatives can
add value to businesses. Sinha’s (2000) fashion design process (see Figure 3.7) discusses activity or decision inputs and outputs from research and analysis to distribution based on the strong links between market place and design.

Figure 3.7 The process of apparel NPD

Source: (Sinha, 2000) p 373

Apparel NPD in particular involves concurrent process, and thus results in a number of issues, e.g. information flows, material availability, collaboration and buyer reliability (May-Plumlee and Little, 1998; Regan et al., 1997). Additionally, several roles in different organisations that are involved in the same apparel NPD have a high degree of congruence, which raises concerns regarding communication and integration (Goworek, 2010). Problem recognition within apparel design has been pointed out because it significantly affects product performance (Ragatz et al., 1997); for example, with a variety of materials and complex production, neglect of pre-costing is pointed out as a key problem for designers (Pitmaneyakul et al., 2004).

In terms of textile NPD, particular processes and models have not been specified due to its
complexity and the wide range of applications of textile products. Based on Crawford and Di Benedetto’s (2006) five stage NPD process, Powell and Cassill (2006) have examined the strategies that have been employed by textile businesses. For instance, within the textile NPD process, opportunity identification through different markets has been highlighted to understand the demand of the global market. Because of various developments and product applications, collaborations are usually found in textile NPD. The collaborations of R&D engineering, finance, design and marketing is suggested to create value-added products, which means the management of cross-functional integration has become an important determinant for textile NPD success (Choi et al., 2005; Powell and Cassill, 2006). As in apparel NPD, discussed above, designers, being the centre of a cross-functional team, communicate and interact with different departments in textile NPD (Powell and Cassill, 2006), and require extensive knowledge of technical aspects and quality assurance in order to assist the NPD for textiles (Studd, 2002).

Reviewing the aforementioned models is useful to identify a framework of T&A NPD process, and to comprehend the implementation of activities which may be relevant to a firm’s competence. However, it is evident that these models lack any reference of theoretical underpinning, and although detailed process guidelines and activities are provided, they need a more rigorous analysis based on the relevant theories in order to understand how a firm can generate competitive advantage.

3.3.3.2 Strategic factors
In order to adapt to the competitive environment, strategic orientation of NPD allows increasing improvement in product success and competitive advantage (Gatignon and Xuereb, 1997). Successful companies tend to adopt strategies at the initial stage of their NPD process to direct the subsequent process (Griffin, 1997). Strategy refers to the foundation for NPD, which enables a firm to generate and configure the capabilities and resources in a process (Verona, 1999). The current study focuses on marketing, product innovation/technological development, and NPD collaboration with partnering relationships as the key strategic factors of NPD.
(i) **Marketing factors**

Maximising fit with customer demand (product effectiveness) is one of the major NPD success parameters in marketing (Schilling and Hill, 1998). Market orientation and marketing function are considered distinct concepts of formulating marketing strategy for NPD (Baker and Sinkula, 2005). Market information that can be viewed as a research technique (Verona, 1999) generates market orientation that is associated with marketing function (an output of market orientation). In line with RBV, market orientation corresponds to a firm’s resources (Baker and Sinkula, 2005; Hunt and Morgan, 1995), and marketing function refers to a collection of capabilities containing complex procedures and skills that exert leverage upon resources (Baker and Sinkula, 2005; Moorman and Rust, 1999; Verona, 1999). The combination of both leads to competitive advantage (Baker and Sinkula, 2005).

The role of market orientation is to focus on customers, by acquiring customer relevant information, converting this to a plan and using this plan to respond to customer needs (Atuahence-Gima, 1995). A number of researchers have identified the positive relationship between NPD success and market orientation (Atuahence-Gima, 1995; Baker and Sinkula, 2005; Kahn, 2001), because market intelligence will be gathered and evaluated, thus instigating strategic decisions. Market orientation influences NPD activities; it enables NPD to be successful by achieving effective activities including design, production and delivery, which can promote new product performance and new product markets. It can also generate learning activities, resulting in innovations which are often seen in dominant companies (Chandy and Tellis, 2000).

Moorman and Rust (1999) discuss the generation of capabilities within marketing function since capabilities relate to (i) customers through the implementation of the marketing mix, (ii) financial performance by controlling costs, (iii) R&D through the coordination of NPD concept development. Marketing capabilities are thus seen as a critical source of knowledge (Day, 1994; Verona, 1999), supporting market orientation to generate strategic decisions such as how to segment market and differentiate products that can affect
customers’ perception of new products (Verona, 1999). Additionally, these capabilities coupled with market orientation can lead to core competences, enabling a firm to increase market share by effectively responding to market opportunities (Baker and Sinkula, 2005). Baker and Sinkula (2005, p 498), claim that in order to implement marketing strategies, companies must not only “identify new opportunities with customers”, but also “match identified opportunities with capabilities.”

Marketing strategies correlate with business strategies as their synergies lead to business success (Slater and Olsen, 2001). Marketing strategies refer to the strategic decisions regarding market segmentations and positioning, and the development of strategic positioning related to specific product, price, place and promotion (Hunt and Morgan, 1995). Different marketing activities coupled with NPD can be applied to three strategies: (i) innovative products develop on a continuous basis by implementing R&D and marketing excellence; (ii) incremental NPD lies in line with extensions in established markets accompanied by abilities in scale manufacturing and intensive distribution; (iii) low cost strategy focuses on generic products with efficiency in operations by managing supply chain relationships, reverse engineering and cost control (Slater and Olsen, 2001).

Applying marketing resources and skills together with effectiveness of conducting NPD activities is vital in responding to the market demand. At the initial stage of NPD, market research and evaluation can provide insight into sales opportunities and forecasting, which are beneficial to launching new products in dynamic markets (Kono and Lynn, 2007). Having market intelligence, including trend information regarding fabrics, silhouette, trends and colours, to apply to market orientation, allows the NPD of T&A manufacturers to continuously generate opportunities for customer satisfaction. In particular, acquiring fashion trends and market information directly from the market place can open up channels of communicating with customers and developing the appropriate products for them (Choi et al., 2005; Wickett et al., 1999). Market intelligence can be obtained by manufacturers through attending international trade fairs, using trend service companies or directly consulting buyers (Keiser and Garner, 2008). When there is a lack of market intelligence or
research time and effective communication with target customers, NPD can fail in the identification of product opportunities as this can be problematic in new product launch (Baker and Sinkula, 2005; Keizer et al., 2005).

T&A manufacturers and suppliers usually share or follow market intelligence and trend information from their retail buyers to develop new products. Manufacturers who are able to gather such information together with sales figures directly from the market place are preferred by buyers (Crutsinger et al., 2005). Nevertheless, manufactures may have problems in NPD activities (e.g. acquiring right materials for the coming trends), due to the lack of market related knowledge, and/or due to communication issues between them and buyers (Chen, 2005; Ogawa and Piller, 2006; Tyler et al., 2006). For instance, differences in language and culture can raise barriers of design specifications between buyers and suppliers (Chen, 2005). In other words, acquiring the market orientation and marketing capabilities enable T&A manufacturers to facilitate their NPD activities and communication with buyers to achieve successful results, which also becomes an important determinant of improving the relationships between buyers and manufacturers/suppliers.

(ii) **Product Innovation/technological development**

Product innovation as a crucial determinant of NPD success (Cooper and Kleinschmidt, 1995; Montoya and Calantone, 1994) provides opportunities for the growth and expansion of a firm, as well as competitive advantages in the industry (Danneels and Kleinschmidt, 2001; Garcia and Calantone, 2002). Product innovation enables adding value and/or advantage to the firm through an emphasis on product variety and upgrading, and later on product standardisation and cost (Garcia and Calantone, 2002). It can be viewed mainly from the customer’s and the firm’s perspectives; based on RBV, both the marketing and technological capability of a firm can lead to or greatly impact product innovation (Danneels, 2002; Danneels and Kleinschmidt, 2001). Innovation is formed by the integration of R&D, technology and marketing. According to the Organisation for Economic Co-operation and Development (OECD), (cited in Garcia and Calantone, 2002, p 112), innovation initiated by the identification of a new market and/or new service
opportunity for a technology-based invention, leads to development, production and marketing activities which strive for the commercial success of the invention. This definition has emphasised innovation on the performance of technological development, and the market research and introduction. Researchers such as Abernathy and Clark (1985), Song and Parry (1997) have underlined the competitive significance of technological capability to innovation, and the leverage of existing technology and R&D resources can enhance NPD results.

Technological capability refers to the firm’s ability to employ technically related resources, such as R&D, design and engineering knowledge, since each firm has its own firm-specific resources (Garcia and Calantone, 2002). Technological capability can become more valuable, rare and/or inimitable as it gets embedded in the organisational routines (Hamel and Prahalad, 1994). These routines accumulate technological knowledge and transform it into capability, allowing a firm to efficiently integrate new resources into its existing ones, and/or to evaluate and adopt new knowledge and skills to create innovation advantage (Danneels, 2002; Zhou and Wu, 2010). Organisational routines are related to the firm’s learning, which must possess the ability to acknowledge the value of new information, absorb and implement it (Prahalad and Hamel, 1990; Teece et al., 1997).

As a firm increases its technological capabilities, it increases its absorptive capacity, which fuels innovation because of its responsiveness to external information that can lead to new resources and/or capabilities; this engages knowledge exploration as the firm pursues new competences through learning activities. Furthermore, a firm can assimilate its existing knowledge and experience into the enhancement of new products through exploitation that involves a self-reinforcing learning for further development of existing competences (Benner and Tushman, 2003; Danneels, 2002). Both exploration and exploitation have a significant influence on the firm’s competences as they enhance the pool of knowledge (Danneels, 2002; Revilla et al., 2009; Zhou and Wu, 2010).

Zhou and Wu (2010), examining exploration and exploitation in the context of
technological capabilities of NPD, assert that strategic flexibility is positively associated with technological capabilities in terms of exploration. Strategic flexibility refers to the flexible use and reconfiguration of resources to turn them into a dynamic capability (Eisenhardt and Martin, 2000; Teece et al., 1997). As a result, the company can efficiently identify new advances in technology, applying them to generate innovation. The firms with strong technological capabilities are likely to devote their resources to exploitation in a faster mode because, by taking advantage of their accumulated knowledge, they can efficiently reinforce and/or extend their existing products (Zhou and Wu, 2010). Companies tend to engage with exploration alliances to enhance specialised knowledge, and exploitation alliances to obtain access to complementary resources (e.g. marketing and manufacturing), resulting in a positive impact on NPD (Rothenberg and Deeds, 2004). The accumulated knowledge helps to further refine new products, as the core products generate refinements for new products introduced faster to markets (Prahalad and Hamel, 1990).

Organisational routines can accumulate knowledge/capabilities but can also have reverse effects since routines embedded in a firm to improve operational efficiencies may lead to complacency (Zhou and Wu, 2010). Complacency closely relates to past experience (i.e. path dependency), which can restrict future processes and/or strategies that the firm plans to implement (Teece et al., 1997). Resistance to change in response to volatile environmental conditions can affect the appropriate allocation of resources. That is, path dependences can hinder the creation of new resources (Danneels, 2002; Teece et al., 1997; Zhou and Wu, 2010). In terms of product innovation, Danneels (2002) and Helfat and Raubitschek (2000) argue that historic trajectories of products can constrain a company’s options for future renewal.

It has been noted that IT plays a crucial role in facilitating activities regarding knowledge exploration and exploitation in the NPD process, both within and outside of the firms (Revilla et al., 2009; Song et al., 2006) although research has demonstrated that the investment in IT may not necessarily result in anticipated benefits (Sanders, 2008). The use of IT enriches information, illuminates knowledge, and enhances the volume of data
throughout the NPD process (Nambisan, 2003; Revilla et al., 2009). IT also automates tasks focusing on efficiency of transaction, storing and processing knowledge in networks, coordinating interfaces, and combining information. Most importantly, IT provides information to facilitate decision making and the exchange of idea (Sanders, 2008). Nevertheless, it is reported that IT has greater effects on knowledge exploitation (storing and distributing explicit knowledge\textsuperscript{16}) than on exploration (sharing tacit knowledge\textsuperscript{17})(Revilla et al., 2009).

As discussed in section 2.2.3, embracing new technologies and enhancing technological capabilities have been at the heart of the strategic orientation of the T&A businesses (Abernathy et al., 1999; Nordas, 2004), and usually these are adopted by those in the developed countries, in order to access the opportunities for new products and innovation (Keenan et al., 2004). Having such capabilities allows T&A manufacturers to refine and improve their existing products so as to gain a competitive edge (Abernathy et al., 1999; Keenan et al., 2004). Kilduff (2001) argues that technological changes can improve technological capabilities in T&A sector; the advancements in R&D and technological advancement increase product complexity and diversity and these new capabilities have to be assimilated by companies and accordingly commercialised. Innovative applications of NPD and progressive manufacturing systems are imperative for competition (Choi et al., 2005). Adoption of technological capabilities tends to be the prerogative of larger T&A manufacturers which have sufficient resources to invest in specialised machinery, electronic devices (Varukolu and Park-Poaps, 2009), and especially in IT systems (Jin, 2006) that can generate knowledge as they can identify and share information through the integration of business networks. Nevertheless, the motivation of manufacturers to establish such capabilities tends to be driven by external factors, such as buyers’ demands,

\textsuperscript{16} Explicit knowledge refers to the knowledge that can be articulated, codified, and stored in certain media, and can be readily transmitted to others. It is usually contained in the forms of manuals, documents, procedures and videos (Simonin, 1999).

\textsuperscript{17} Tacit knowledge refers to the knowledge possessed by an individual and difficult to express and communicate to others via words and symbols, i.e. difficult to be codified and articulated. It usually involves shared experiences and is deeply embedded in the daily organisation practices of learning, coordination and communication (Simonin, 1999).
rather than manufacturers’ choice (Jin, 2006; Varukolu and Park-Poaps, 2009). According to Varukolu and Park-Poaps (2009), this is likely to be caused by cost competition and lack of capital investment, or not being aware of its significance, which is similar to the finding of Birtwhistle et al. (2006) regarding manufacturers’ IT adoption as discussed in section 2.2.3. That is, T&A manufacturers may be restricted in product innovation and the development of network relationships, as they are in some cases reluctant to commit resources in the development of technological capabilities.

(iii) NPD collaboration with partnering relationships

Having in-house NPD is considered as a strategic weapon for a company. According to McCutcheon et al. (1997), a firm that attempts to be a leader in its industry usually spends more efforts on in-house NPD because the knowledge and skills generated by NPD are usually difficult to be duplicated. That is, the crucial activities relating to core components of new products tend to involve little collaboration. A firm can thus create its core competence (Prahalad and Hamel, 1990). Nevertheless, there are increasing studies regarding NPD collaboration with partners and/or suppliers, as NPD becomes a focal point of competition (Bonaccorsi and Lipparini, 1994; Emden et al., 2006; Perks, 2004; Petersen et al., 2005; Song and Di Benedetto, 2008; Wynstra et al., 2001). The leveraging of in-house and external resources and capabilities from these partnering relationships plays an important role in achieving competitive advantage.

As discussed in section 3.2.3, these partnering relationships can be formed according to asset specificities. In its high asset specificity context, NPD can be viewed as a core competence of the firm and the relevant activities need to be kept in house in a vertically integrated mode. The NPD activities with medium and low asset specificities can be outsourced to partners in the forms varying from strategic alliances to contractual arrangements. When joint NPD occurs, companies are relying on allies to procure complementary resources that are important to competitive advantages (Emden et al., 2006; Perks, 2004), and/or to achieve other purposes as discussed in the following table. Emden et al. (2006) assert that to form alliances in NPD, the alignment of partners’ capabilities...
and purposes are crucial to lead to long-term collaborations.

### Table 3.4 Key purposes of forming alliances in NPD

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Explanation</th>
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<td><strong>Entering new markets</strong></td>
<td>Alliance can accelerate the expansion of new products into an unfamiliar market and create more flexible business options for the new market.</td>
</tr>
<tr>
<td><strong>Obtaining new technology and sharing the R&amp;D</strong></td>
<td>R&amp;D is one of the highest-cost business processes within companies, but not all companies can afford such expense and provide the technology. Thus, an alliance can gain and share R&amp;D resources and cost as well as technological development to implement NPD</td>
</tr>
<tr>
<td><strong>Achievement of competitive advantage and prevention of rivals</strong></td>
<td>Alliances are obtaining competitive advantage through partners in order to sustain business against competitors; e.g. early availability of prototypes, standardization of components, quality achievement and consistency</td>
</tr>
<tr>
<td><strong>Reduce financial risks/Reduce development costs</strong></td>
<td>Companies incur a great deal of financial risk when they develop new products, particularly for small scale companies. Alliances can share costs.</td>
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</table>

Source: Bonaccorsi and Lipparini, 1994; Emden et al., 2006; Perks, 2004

Through NPD collaboration, companies can gain access and acquire assets and capabilities from partnering companies to coordinate and integrate bundles of unique resources throughout the NPD process. The involvement of partnering relationships can be observed in most activities of the NPD process, including market information gathering, exchanging technological skills and knowledge, co-design, manufacturing and marketing (Handfield et al., 1999). The early involvement of partners in the NPD process also appears to create better performance and competitiveness of a new product due to effective collaboration and direct communication to create new ideas, develop and share new technologies, reduce cycle times and overall cost, and improve quality of the NPD (Bonaccorsi and Lipparini, 1994; Petersen et al., 2003; Ragatz et al., 1997; Takeishi, 2001). In an empirical investigation, Eisenhardt and Tabrizi (1995) argue that partner involvement at later stages of NPD process usually occurs for the product lines of more stable demand.

Partnering specialisation and evaluation systems, proximity of alliance networks, mutual support and trust and technical synchronisation tend to be the foundation of forming NPD
collaborations (Bonaccorsi and Lipparini, 1994). According to Wynstra et al. (2001), there are short-term and long-term goals in NPD partnering relationships, especially between suppliers and manufacturers. Short-term goals are associated with a NPD project, where a partner is involved in order to enhance efficiency and effectiveness; efficiency refers to lead-time reduction and effectiveness refers to cost reduction and increased product value. Long-term goals usually involve longer-term collaborations and concentrate more on the alignment of technological development, accessing the partners’ knowledge. This argument relates to supply management principals as discussed in section 3.2.1 and supply options in section 3.2.4, where cost strategy can be linked to short-term operational efficiency and project effectiveness, and differentiation can be linked to long-term co-development, sharing resources (Cousins, 2005).

Alliance and other partnering relationships of NPD can often be found in the T&A industries. Parker (2000) identifies the fact that collaboration can facilitate the vertical linkages and mutual advantages of T&A manufacturers. Crutsinger et al. (2005) also suggest that various supplier-buyer relationships deriving from apparel NPD can significantly affect the NPD process and results. Specialisation and capabilities of allies can particularly enhance the NPD performance by adopting the right trends and efficiently responding to consumer demands. Buyers usually collaborate with the suppliers who have experience and reputation, and benefit from suppliers’ specialisation. On the other hand, suppliers in alliances may also obtain the benefits or advantage from buyers’ reputation, experience and stable orders. Such cases are found in the value chain of contemporary collaboration of global retailers and T&A manufacturers. For instance, MAS is a strategic partner for GAP, Victoria’s Secret and Marks & Spencer. It has upgraded its production capability so as to be able to form the alliance with these retailers and benefit from their steady orders and reputation as being their major supplier (IFC, 2007).

It has been noted that NPD collaboration tends to establish long-term partnering relationships, but mutual trust, commitment and understanding can be elusive (Das and Teng, 1999; Elmuti and Kathawala, 2001). A number of difficulties and drawbacks
encountered within strategic alliances in T&A NPD which are common to alliances in all industries appear to be; differing objectives among partners, different levels of commitment and investment, unequal input of effort and time, cultural incompatibility and conflicts, miscommunication, lack of transparency and trust, difficulty of sharing information and sustaining relationships, and unequal distribution of benefits (Parker, 2000). These issues can affect every activity in the NPD process and may cause incompatibility in manufacturers’ relationships with buyers.

3.3.3.3 Management factors
Management in NPD is associated with the strategic orientation of a firm. In line with RBV, this significant factor encompasses the intangible resources of experience, capabilities and tacit knowledge. It deploys strategic assets and leads the firm to identify and exploit opportunities (Grant, 1991; Verona, 1999). Effective NPD management practices and techniques are imperative to NPD success because they govern NPD activities and ensure the effective implementation of strategies (Cooper and Kleinschmidt, 1995; Islam et al., 2009; Montoya and Calantone, 1994; Schilling and Hill, 1998). The practice of management and leadership determines how an organisation interacts with the external environment and how it operates internally. Senior and/or top managers who are the organisational leaders with critical positions of NPD can make effective assessments of strategies and associated activities. They can also support and encourage individual and organisational learning that are associated with NPD (Islam et al., 2009; Sarin and McDermott, 2003). More significantly, when NPD involves international businesses, management which can effectively interface between internal departments and cross-functional teams, and external parties leads to product success (Boutellier et al., 1998; Brown and Eisenhardt, 1995; Cooper and Kleinschmidt, 1995; Ernst, 2002).

(i) The effects of top/senior managers
Top/senior managers have the strategic authority to identify the opportunities and to determine the objectives and long-term plans to guide firms for their accomplishment. Their strategic decisions are the drivers of NPD. The support and commitment of top/senior managers energise resources within a time frame, leading to successful NPD
In spite of their similar roles and functions, the differing knowledge and experience of top/senior managers can impact the performance of the organisation and its NPD (Sarin and McDermott, 2003). Both internal and external communications are identified as critical to successful products by increasing information flow and integration in the NPD process as a firm’s valuable resources (Brown and Eisenhardt, 1995). Specific or regular training and learning programmes to foster the application of newly learned information and capabilities are usually encouraged by top/senior managers to improve knowledge and innovation from human resources and bring new products faster to market. This fact has emerged as a key strategic variable (Islam et al., 2009; Sarin and McDermott, 2003). Knowledge has been recognised as a key source of long-term competitive advantage in terms of NPD (Corso et al., 2001), which can be acquired by the integration and interaction of individual knowledge and skills within the firm (Grant, 1996; Sarin and McDermott, 2003). Tacit knowledge within individuals can be converted into explicit knowledge and vice-versa, shared by team members. Organisational mechanisms and learning, e.g. appropriate training and routines, facilitate knowledge transfers (Islam et al., 2009; Madhavan and Grover, 1998; Sarin and McDermott, 2003). In the case of Uniqlo, the product managers allow the generation of NPD knowledge and capability by pooling market information and new ideas from team members on a regular basis, and evaluating the NPD processes. Simultaneously through efficient communication channels and operations, the feedback of team members has certain effects on the strategic decisions of top managers (Common Wealth, 2010a). Furthermore, in order to cope with complexity and changes to achieve more favourable NPD outcomes, top/senior managers may need to adapt the organisational structure (Barczak and Wilemon, 1998; Thomas, 1993), such as flatter structures that facilitate sharing information, learning and communicating in a more flexible manner (Islam et al., 2009). Conversely, a centralised and hierarchical structure usually inhibits internal learning and communication.
In addition to internal knowledge and information sharing, senior/top managers must be aware of and encourage inter-organisational learning (Islam, 2009; Sarin and McDermott, 2003). As illustrated in Gereffi’s study (1999), product upgrading of T&A manufacturers relies not only on advanced technology but also on opportunities to learn from others in supply networks; knowledge can be transferred and shared among the members in the network. Learning from serving different buyers can lead to the acquisition of NPD experience, knowledge and capabilities (Schroeder et al., 2002), which has been demonstrated in the case of the upgraded Turkish jeans companies (Tokatli, 2007). Having feedback from the lead customers is particularly valuable in the concept developing stage of NPD. Many improvements can also be achieved from learning from competitors, whose product performance provides benchmarking practices (Hamel, 1991). Furthermore, support industries, universities and government research centres can also provide external learning sources (Porter, 1990). Strategic partnerships enable the firm to integrate external knowledge and expertise can optimally exert leverage upon the existing resources and skills to enhance competitiveness (Grant and Baden-Fuller, 2004; Mowery et al., 1996; 2002).

(ii) The management of NPD teams

The management of NPD teams has also been emphasised as contributing to NPD success (Brown and Eisenhardt, 1995; Cooper and Kleinschmidt, 2007; Ernst, 2002; Holland et al., 2000; Montoya and Calantone, 1994). These teams include cross-functional teams that are groups of individuals from various departments, who are participating in various stages of the NPD process to improve NPD performance. The cross-functional integration in NPD finds its basis in RBV; NPD teams are seen as the human resources of a firm where skills, knowledge and expertise are integrated to create the firm’s capability for new products (Fredericks, 2005). These teams promote collaboration by sharing and integrating information and knowledge that are mainly related to markets and technologies. In particular cross-functional teams are involved in both internal and external communication by coordinating a variety of functional activities. Positive NPD outcomes, such as product innovation, lower cost, faster speed to markets and better design and quality can derive
from the capabilities of team collaboration and the combination of external knowledge obtained (Fredericks, 2005; Islam et al., 2009; Keller, 2001; Sarin and McDermott, 2003; Sethi et al., 2001). The cross-functional cooperation of R&D, marketing and manufacturing is demonstrated to have a positive impact on NPD (Song et al., 1997), especially the R&D and marketing synergy in the NPD process results in a higher level of NPD success due to the alignment of market information, technical capabilities and financial returns (Griffin and Hauser, 1996). Sethi et al. (2001) and Islam et al. (2009) have also indentified the advantage of product innovation is closely associated with cross-functional teams. Sun and Wing (2004) support this perspective and point out that the earlier involvement of cross-functional teams facilitates communication, services and resources obtained during the NPD process.

However, conflicts often occur and compromise team effectiveness, when team members have different goals for a joint activity. Conflicts can also arise between team members from different departments when task commitments are high (Porter and Lilly, 1996). Research has demonstrated that R&D and marketing perceive and interpret product characteristics differently, which can have effects on the NPD process and product performance (Atuahence-Gima and Evangelista, 2000; Griffin and Hauser, 1996; Wang and Montaguti, 2002). In spite of the high level of communication intensity between R&D and marketing, this does not necessarily lead to higher levels of mutual appreciation between the two parties. The marketing department (for instance) tends to take a negative attitude to the R&D input, which it sees as lacking credibility and certainty (Atuahence-Gima and Evangelista, 2000). These different perceptions tend to derive from the differences within the human factors of both departments, such as personality, cultural background, time orientation, and specific terminologies they use (Atuahence-Gima and Evangelista, 2000; Griffin and Hauser, 1996). Additionally, there are power asymmetries occurring between teams/departments because of different orientations of firms (e.g. technological or marketing driven in companies’ strategic decisions). Misalignment between R&D and marketing can hinder a firm’s NPD ability to respond to markets (Wang and Montaguti, 2002). It is claimed that moderate task conflicts tend to be beneficial, enabling critical
evaluation of options, but there is a need to avoid conflicts affecting relationships among teams and members (Holland et al., 2000). As a business is involved with external organisations, the diversity of team backgrounds including organisations, cultures, language and even nationalities can increase team conflicts, and this kind of conflict is usually difficult to resolve (Jackson et al., 2003). It is suggested that the enhancement of trust and commitment among team members as well as good management of team structure are important principles of team performance as they can mitigate the occurrence of conflict (Holland et al., 2000; Porter and Lilly, 1996).

Reward or incentive systems correlate with the performance of NPD teams (Edmondson and Nembhard, 2009; Holland et al., 2000; Sarin and Mahajan, 2001). The consensus regarding individual or group rewards tends to be directed towards equal rewards that are more appropriate when interdependence among team members is high, as this can achieve higher productivity. Conversely, dissimilar levels of rewards can result in impediments to effective team integration and collaboration, as inconsistencies in task reward schemes can be held accountable for many team failures. In an ideal world of teamwork, the contributions of individual team members or teams are not distinctive in the final products, so all members should share equal rewards (Edmondson and Nembhard, 2009; Sarin and Mahajan, 2001). Team-based incentives are identified as more effective than individual rewards, although the latter tends to be favoured, especially in western countries, where the desire for individual recognition has a dominant value. Additionally, in line with organisational fairness, there is a need to reward individuals differentially in a team setting because the amount of responsibility and effort in contributing to the NPD may vary due to the position or seniority of team members (Sarin and Mahajan, 2001). Differing or inappropriate team reward systems can lead to conflicts, lower levels of motivation and even competition within the team, resulting in negative NPD performance (Holland et al., 2000).

3.4 Research framework
The competitiveness of the T&A manufacturers is crucial since they face severe competition and numerous challenges, seeking the solutions for survival and growth.
According to Ireland and Hitt (2005), to achieve and maintain a firm’s competitiveness requires strategies and sources of competitive advantages. There are a number of strategic theories that can lead a manufacturer to gain its competitive edge. This is illustrated by Porter’s (1980a) generic strategies of cost and differentiation in a firm’s strategic positioning together with his more updated view of variety, needs and access-based positionings (Porter, 1996). As the units of analysis at the firm level, RBV provides the theory that a specific set of resources/capabilities of the firm can lead to competitive advantages (Barney, 1991; Grant, 1991; Teece and Pisano, 1994; Wernerfelt, 1984). A bundle of resources can generate capabilities which in turn engender knowledge of the firm (Conner and Prahalad, 1996; Grant, 1991), with which a firm can create valuable core competences that lead to core products (Prahalad and Hamel, 1990). The combination and reconfiguration of resources and capabilities that can be acquired internally and/or externally can result in dynamic capabilities as a potential source of competitive advantage in order to respond to the changing environment (Eisenhardt and Martin, 2000; Makadok, 2001; Teece and Pisano, 1994; Teece et al., 1997). Some resources/capabilities can be obtained through external acquiring (purchasing) (Barney, 1999) or collaboration since it is difficult for a firm to possess all the necessary resources/capabilities (Das and Teng, 2000; Eisenhardt and Schoonhoven, 1996; Grant and Baden-Fuller, 2004). RBV also extends to relations among firms that form networks where competitive advantages can be generated as firms operating in a strategic network become nodes of relations (Duschek, 2004; Gulati et al., 2000). In line with TCT, a manufacturer can make strategic decisions regarding make-or-buy and inter-organisational relationships according to asset specificities: keeping in-house those production activities that are of value, while outsourcing the activities that are low asset specific, and entering more complex relationships such as alliances where medium to high asset specificity is involved (Cox, 1996; Hobbs, 1996; Williamson, 1979).

NPD is the strategic means to achieve competitiveness in a business, and is viewed as a source of competitive advantage (Brown and Eisenhardt, 1995; Eisenhardt and Martin, 2000). A positive link between NPD success and competitive advantages has been identified (Gatignon and Xuereb, 1997), and firms’ resources are closely associated with
these NPD success factors (Danneels, 2002; Kandemir et al., 2006). NPD is developed as the central theme in this study together with the fundamental determinants relating to its success including process, marketing, innovation/technological development, internal management (top/senior managers and team management) and external collaboration with partnering relationships. These success factors coupled with the aforementioned strategic theories will be employed to identify the competitive advantages that can be generated by the T&A manufacturers.

Prior to the discussion of these success factors, there is a need to identify the firm’s strategic positioning, by means of which it creates a set of unique and valuable activities (Porter, 1996). They are related to the NPD activities to determine what resources/capabilities shall be possessed or acquired (Grant, 1991). In line with RBV, the NPD process in a firm can strategically guide activities in order to obtain competitive advantages. These strategic activities derive from resources/capabilities that are configured from internal, and external sources (Eisenhardt and Martin, 2000; Verona, 1999) (TCT maybe involved in the process as transaction costs occur). When the NPD activities involve high value resources (i.e. valuable, rare and difficult-to-imitate) (Barney, 2002), or high asset specificity, a firm may have to vertically integrate them (Cox, 1996; Hobbs, 1996; Richardson, 1996). Design is the central focus in textile and apparel NPD (Regan et al., 1997; Sinha, 2000; Studd, 2002), and tends to be manipulated by the buyers (i.e. brand owners or retailers) since T&A industries are buyer-driven (Gereffi, 1999). Manufacturers who have design capabilities are usually preferred by retail buyers (Barnes and Lea-Greenwood, 2006; Crutsinger et al., 2005).

Product innovation can be viewed as a source of competitive advantage (Danneels and Kleinschmidt, 2001; Garcia and Calantone, 2002), which require technological and marketing capabilities. Technological capabilities are employed to utilise technologically related resources (Garcia and Calantone, 2002) that can be generated into valuable, rare and/or inimitable resources. Technological capabilities are embedded in organisational routines that are related to the firm’s learning (Hamel and Prahalad, 1990; Teece et al.)
1997), resulting in knowledge accumulation and further innovation advantage by integrating new resources/capabilities (Danneels, 2002; Zhou and Wu, 2010). According to Zhou and Wu (2010), in terms of technological capabilities, exploration through new opportunities can create innovation advantage, and exploitation through existing knowledge/capabilities can refine new products. Both exploration and exploitation can be facilitated by IT (Revilla et al. 2009; Song et al. 2006). Nevertheless, the motivation of manufacturers to establish technological capabilities especially IT tends to be driven by external factors, such as buyers’ demands, and few manufacturers are willing to invest them (Birtwistle et al., 2006; Jin, 2006; Varukolu and Park-Poaps, 2009). As for marketing factors, marketing refers to the optimal match of customer requirements with products (Choi et al., 2005; Schilling and Hill, 1998). Marketing strategies together with NPD relate to the overall business strategy as their synergies are instrumental to business success (Slater and Olsen, 2001). To generate marketing strategies relies on market orientation and marketing function (based on RBV), and the combination of both can lead to competitive advantage (Baker and Sinkula, 2005). Market orientation is associated with gathering information/intelligence which can become a valuable resource (Baker and Sinkula, 2005; Hunt and Morgan, 1995), while marketing function refers to the generated capabilities that are related to the marketing mix, cost controlling, and product concept development (Baker and Sinkula, 2005; Moorman and Rust, 1999). These marketing resources/capabilities can generate knowledge, which is a crucial source to capture customers’ needs (Day, 1994; Verona, 1999). In the T&A sectors, manufacturers are inclined to follow retailers’ leads regarding trends identification and market intelligence, and issues in information sharing with their buyers and capabilities to achieve the tasks, resulting in problems in product launch (Chen, 2005; Ogawa and Piller, 2006; Tyler et al., 2006).

In terms of internal management, senior/top managers are an important intangible resource, in terms of RBV, regarding strategic decision making and activities governing the NPD process (Verona, 1999). They can energise resources through their guidance to enhance NPD success (Brown and Eisenhardt, 1995; Cooper and Kleinschmidt, 2007; Ernst, 2002; Montoya and Calantone, 1994). Senior/top managers can encourage organisational routines,
internal training and learning activities that converge individual knowledge (Islam et al., 2009; Sarin and McDermott, 2003) as a source of long-term competitive advantage (Corso et al., 2001; Grant, 1996). External learning through buyers, alliances and other members in supply networks can facilitate product upgrading and enhance the alignment of products with market demands (Mowery et al., 1996; 2002; Schroeder et al. 2002; Tokatli, 2007). To effectively achieve internal complex operational activities of NPD, top/senior managers may have to adapt organisational structure to facilitate communication or learning (Barczak and Wilemon, 1998; Islam et al., 2009). NPD teams are seen as human resources of a firm where skills, knowledge and expertise are integrated to form a firm’s capabilities (Fredericks, 2005). Team collaboration, especially cross-functional teams can achieve competitive advantage deriving from product innovation (Islam et al., 2009; Sethi et al., 2001), and marketing, R&D and manufacturing integration (Song et al., 1997). Nevertheless, conflicts may occur within team management that affect NPD outcome and the relationships among team members (Atuahence-Gima and Evangelista, 2000; Holland et al., 2000; Porter and Lilly, 1996). Incentive and reward schemes of teams correspond to NPD performance if they are allocated fairly (Edmondson and Nembhard, 2009; Holland et al., 2000; Sarin and Mahajan, 2001).

Forming partnering relationships in NPD can facilitate competitive advantages by combining resources/capabilities in line with RBV (Cousins, 2005; Das and Teng, 2000; Eisenhardt and Schoonhoven, 1996; Perks, 2004), and/or cost reduction, following TCT (Cousins, 2005; Cox, 1996; Williamson, 1979). Partnering relationships become a business imperative as they can be deployed in various stages of NPD to enhance outcomes (Bonaccorsi and Lipparini, 1994; Handfield et al., 1999; Petersen et al., 2003). According to supply management, partnering relationships not only facilitate operational effectiveness based on short-term relationships (Cousins, 2005; Harland et al., 1999; Tan, 2001), but also involve strategic orientation, developing longer-term partnering relationships that share resources to enhance competitive advantages (Cousins, 2005; Cousins and Speckman, 2003; Harland et al., 1999; Ketchen and Giunipero, 2004). According to Cousins (2005), forming partnering relationships needs to be aligned with business strategy. A business aims for cost
reduction advantages, the partnering relationships tend to be in a short-term operational form, while the business focus is on differentiation; these relationships are more strategically orientated and involve co-investment.

The strategic position of a firm in a chain/network thus becomes important as the firm can acquire critical resources through its partnering relationships to appropriate value (Cox, 1999; Gulati et al., 2000; Harland, 1996; Mills et al., 2004). Network sourcing involves the principal buyer with multi-tiered partnering relationships (Hines, 1995). The principal buyer has the ability to manipulate its chain/network members who possess specialised knowledge and skills, and manage the network strategically (Cox, 1999; Gulati, 2000). Strategic networks usually engage in longer-term arrangements (Chang and Harwood, 2001; Gulati et al., 2000; Mills et al., 2004), and network resources in line with RBV have the potential of sustained competitive advantage (Duschek, 2004; Gulati et al., 2000). Strategic alliances, involving higher transaction cost (Cox, 1996; Hobbs, 1996), can generate competitive advantage by sharing risks and resources invested in specific assets (Eisenhardt and Schoonhoven, 1996; Gulati, 1998; Ireland et al., 2002; Whipple and Gentry, 2000). Acquiring complementary resources/capabilities is the key motive to form alliances (Das and Teng, 2000; Shenkar and Li, 1999) that is important to competitive advantages (Perks, 2004), and usually learning is involved (Ireland et al., 2002; Teng and Das, 2008). The alliances of NPD allow a firm to generate competitive advantages and/or achieve objectives including reducing financial risks and sharing costs, entering and/or expanding business in new markets as well as sharing new technology and R&D (Bonaccorsi and Lipparini, 1994; Emden et al., 2006; Perks, 2004). Allies need to correlate their intentions with the accomplishment of common goals (Emden et al., 2006; Whipple and Gentry, 2000). Both trust and contracts have been suggested as safeguards against opportunism and to enhance certainty in partnering relationships (Lee and Cavusgil, 2006; Poppo and Zenger, 2002), and in particular, trust can reduce transaction costs (Gulati et al., 2000) and encourage longer relationships (Lee and Cavusgil, 2006; Poppo and Zenger, 2002).
To form appropriate partnering relationships is crucial for T&A manufacturers because this will impact their competitive performances. Cox (2004) proposes appropriate supply options in proactive and reactive modes for forming partnering relationships to correspond to buyers’ capabilities. Supply chain management is the potentially advantageous as well as the most difficult approach for buyers. Nevertheless, Wagner (2006) argues that in the T&A sectors, the majority of partnering relationships of supply management tend to be arm’s length, and manufacturers are reluctant to invest and share resources with buyers (Lam and Postle, 2006).

**Figure 3.8 The developed research conceptual model**

The above constructs indentified from literature review have been conceptually developed into a model as seen in Figure 3.8. This research framework provides a fundamental basis for the investigation of the competitiveness of T&A manufacturers. As discussed in section
2.3.2, Taiwan has managed to sustain its competitiveness in the global T&A industries for more than half a century. Despite now being classed as one of the developed countries (World Economic Forum, 2010), Taiwan has not relinquished its efforts to carry on with T&A manufacturing by strategically adopting new sets of capabilities. It can thus provide an ideal example for exploring the competitiveness of T&A manufacturers. To develop an understanding of how the T&A manufacturers in Taiwan sustain their competitiveness by adopting appropriate strategies that can lead to competitive advantages, further examination is required in the discussion chapter where the empirical evidence is compared and contrasted against the literature.

3.5 Summary
This chapter based on the literature review of chapter two has further discussed the literature relating to strategic theories, supply management and NPD in order to explore how the T&A manufacturers can sustain their competitiveness. It has drawn attention to the linkages between strategic theories, mainly RBV and TCT, and NPD together with supply management. In relation to this, NPD process, technological capabilities/innovation, marketing, internal management and partnering relationships have been discussed, as ways in which the sources of competitive advantages can be found. That is, these proposed NPD elements are found to be strategically relevant as they constitute an understanding of the abilities of competitiveness of the T&A manufacturers. Based on this, a research framework has been constructed for the discussion that will be based on an empirical investigation in which Taiwanese manufacturers are chosen as the focus due to their competitiveness.
Chapter 4 Research Methodology

Research methodology refers to the theory of how a research can and/or should be undertaken (Saunders et al., 2000). It concerns a systematic and procedural framework within which the research is conducted to identify the solutions to questions (Amaratunga et al., 2002). An examination of various research approaches for this study will be conducted in this chapter. Following this, based on the research aim and objectives, the most appropriate research method and research design will be discussed.

4.1 Introduction

This study was initially intended to investigate the competitiveness of the T&A manufacturers. Through the discussion in the literature review in chapter 2, the remarkable competitiveness of Taiwanese manufacturers seems to be confirmed. They have managed to sustain their businesses in the global T&A industries for more than half a century to cater for international buyers, even though Taiwan has recently achieved the status of a developed country. Nevertheless, few studies have provided detailed evidence regarding how the T&A manufacturers in Taiwan conduct their strategies and achieve competitive advantages in order to sustain their competitiveness. By reviewing the literature regarding strategic theories, supply management and NPD, the research is modified to be focused on the NPD theme in which a number of strategically relevant factors can be further investigated by empirical evidence in order to explore competitive advantages that the T&A manufacturers in Taiwan can attain. The research aim and objectives are thus specified.

Research aim: To investigate how the T&A manufacturers in Taiwan sustain their competitiveness through NPD, with particular reference to a successful manufacturer in Taiwan used as a case-study.

Research objectives:
1. To identify the resources/capabilities/knowledge deriving from the NPD process of the T&A manufacturer in Taiwan that can lead to competitive advantages.
2. To investigate how the T&A manufacturer in Taiwan generates competitive advantages through innovation/technological capabilities, marketing factors, internal management, and strategic collaboration in the context of NPD.

3. To identify the key competitive strategies that the manufacturer in Taiwan has adopted in order to sustain competitiveness in the global T&A industries.

Aim and objectives will be further assessed and examined through an appropriate research methodology in order to provide an in-depth understanding of conducting this research.

4.2 Research paradigms
To enable research design, methodological paradigms have to be considered. Positivistic and phenomenological paradigms are the two main research methodological paradigms (Amaratunga et al., 2002; Hussey and Hussey, 1997). Positivism applies the methods of natural science to the study of social reality (Bryman, 2008) and requires the formulation of hypotheses that test for generalisations and verification, while phenomenology is concerned with how individuals make sense of the world around them, seeking to understand and explain human experience or a phenomenon in a natural setting (Amaratunga et al., 2002), which emphasises the importance of personal perspective and interpretation. Positivistic research emphasises cause-and-effect explanations, i.e. the relationships between variables or separate aspects of reality are examined. On the other hand, the phenomenological paradigm allows the themes to emerge from the research without identifying any specific variables (Kane and O'Reilly-de Brun, 2001). The following table includes these two research paradigms, their approaches and main features.
The philosophical perspective of the researcher is also important when selecting a research paradigm, because the assumptions of one’s world view guide the investigation, affecting the way the research can be designed, conducted, and analysed (Creswell, 2009; Saunders et al., 2000). All the research paradigms in terms of approaches to knowledge consist of three distinct facets: ontology, epistemology and methodology (Rawnsley, 1998).

Ontology refers to what exists, which concerns assumptions about the structure and nature of reality (Easterby-Smith et al., 2008). It is concerned with the question of how the world is built: is there a real world out there that is independent of our knowledge of it, or is the world socially and discursively constructed and hence dependent from a particular time or culture. In fact, ontology is a specification of a conceptualisation, which indicates that the subject cannot be known without the knowing the reference that conceptualises it (Easterby-Smith et al., 2008; Rawnsley, 1998). In other words, ontology may be understood as a description of the concepts and relationships that can exist for a subject or a group of subjects. Saunders et al. (2000) assert that phenomena are created continuously from the perceptions and actions of social actors. Reality exists in specific meaning and relevance constructs that can be obtained in the observational field (Bryman, 2008).

Seeking understanding of the perspectives of the subjective reality enables the researcher to understand motives, actions and intentions of the subjects.
Epistemology, often used interchangeably with the theory of knowledge, concerns the origin and structure of knowledge (Rawnsley, 1998). What constitutes acceptable knowledge and how to obtain that knowledge are crucial in any field of study (Saunders et al., 2000). Epistemology is a set of assumptions regarding the most appropriate methods of inquiring into the nature of the world. It focuses on the nature of the relationships between the knower and what can be known (Easterby-Smith et al., 2008). The objects of study tend to have a separate existence to the researcher, and the experience and sensations derived by the researcher from the data collection create an understanding of the objects (Saunders et al., 2000).

Methodology is concerned with procedures for collecting information that is reliable and valid (Malhotra, 1996). In addition, Somekh and Lewin (2005, p346) define methodology as the "principles, theories and values that underpin a particular approach to research." Saunders et al. (2000) assert that methodology is an overall approach to research, linking with research paradigm and the theoretical and philosophical assumptions. A well defined and structured research methodology comprising philosophical standpoint can provide an understanding of the processes of scientific enquiry and serve as a set of rules for reasoning (Denscombe, 1998).

In line with the fact that NPD together with partnering relationships is crucial to the competitiveness of the T&A manufacturers, this study attempts to explore them in the context of a specific organisation and its supply network by adopting the phenomenological approach. Phenomenological approaches are based in a paradigm of personal knowledge and subjectivity, and emphasise the importance of personal perspective and interpretation, which will enable the researcher to understand subjective experience, gaining insights into people’s motivations and actions, and conventional wisdom through the researcher’s engagement in primary data gathering, observation and interpretation. In this study, ontology is employed as the world that is socially constructed within the specific time and place, and the reality is conceptualised by exploration in the context of the activities of the NPD and the network of partnering relationships of the
specific Taiwanese manufacturer in the T&A industries through documenting the practical reality of the people and issues involved.

4.2.1 Research approach- qualitative and quantitative approaches
Research approaches deriving from the positivistic and phenomenological paradigms can be categorised respectively into qualitative and quantitative approaches. The quantitative approach tends to be objective and involves collecting numerical data as statistical tests. By contrast, the qualitative approach tends to be naturalistic or interpretative, concerned with examining and reflecting on perceptions to gain understanding of social or human activities (Hussey and Hussey, 1997). Hence, quantitative research tends to be linked to the development of testable hypotheses and theories in order to justify generalisation (Creswell, 2009; Hussey and Hussey, 1997); qualitative research seeks to explore new phenomena, building a complex, holistic picture to describe and analyse a detailed point of view (Amaratunga et al., 2002; Creswell, 1994; Ghauri and Gronhaug, 2001). Table 4.2 illustrates the features of the quantitative and qualitative approaches together with their strengths and limitations. In view of its exploratory and phenomenological nature, this study adopts the qualitative approach, and this will be further discussed in the research design section.
Table 4.2 The features of Quantitative and Qualitative Research Approaches

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<td>· Inquiry from the outside</td>
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<td>· Cause and effect driven</td>
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<td>· Statistic design</td>
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<td>· Generalisations leading to prediction, explanation, and understanding</td>
<td>· Patterns, theories developed for understanding: the propositions may develop from practice, literature review and the ideas themselves</td>
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**Research Strengths**

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<td>To provide a wide range of data from a huge, statistically representative portion of the population</td>
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<td>The use of a standardised questionnaire or similar survey to represent data shown as percentages or within a table</td>
<td>To explore complexities that are beyond the scope of more controlled approaches</td>
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<td>To provide statistical reliability and validity, which may be determined more objectively than qualitative method</td>
<td>Rich, detailed and holistic</td>
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<td>Evaluation of quantitative measures could be used to compare outcomes</td>
<td>Flexibility with data collection times and methods</td>
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<td>Best strategy for discovery, exploring new areas and developing hypotheses</td>
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<th>Quantitative</th>
<th>Qualitative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Failure to ascertain deeper underlying meanings and explanations</td>
<td>Volume and complexity of data to analyse, which renders it time consuming</td>
<td></td>
</tr>
<tr>
<td>Issues are only measured if they are known prior to the beginning of the survey</td>
<td>The research results may only be suitable for the particular respondents</td>
<td></td>
</tr>
<tr>
<td>To require an advance formulation of specific hypotheses</td>
<td>Researcher bias can affect the data collection because it is more subjective than quantitative approach</td>
<td></td>
</tr>
<tr>
<td>Failure to take account of the unique characteristics of individual samples</td>
<td></td>
<td></td>
</tr>
<tr>
<td>In-depth explanation is limited</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: (Amaratunga et al., 2002; Creswell, 2009)

4.2.2 The methods of data collection

Data collection is a selective approach in research, determining the ways of collecting the relevant information (Churchill and Brown, 2004). It is important, because inappropriate methods of data collection could create biased results or research limitations (Creswell, 2009; Hussey and Hussey, 1997; Joseph et al., 2007). There are various data collection methods discussed in the following sections.

Primary and secondary data collection

Primary and secondary are the major types of data collected in qualitative and quantitative research, and both can provide solutions to research questions with different data collection
techniques (Hussey and Hussey, 1997; Joseph et al., 2007).

Secondary data refers to published information, and is mainly used to identify the key issues and information or evidence relevant to the research topic (Hussey and Hussey, 1997; Sapsford and Jupp, 1996). It consists of interpretations of the data that has already been collected or analysed, such as that in archives, encyclopaedia, books, documents, internet, journals, newspapers or films. The main function of secondary data is to refine research problems, develop an approach to resolve these problems, formulate appropriate research designs, look for the research solutions and help interpret primary data more insightfully (Malhotra, 1996). Applying secondary data enables (i) gaining background information, (ii) developing research ideas, (iii) identifying the gaps where other methods can be used to collect further information (Kane and O'Reilly-de Brun, 2001). Despite the advantages of “time” and “cost”, employing secondary data may raise concerns about accuracy and appropriateness, because it may have been collected for other purposes (Churchill and Brown, 2004; Saunders et al., 2000).

Primary data refers to empirical and first-hand information (known as original research data), which is employed when research aims for specific purpose and requires tailored evidence or when there is difficulty in gathering relevant information through secondary data (Churchill and Brown, 2004; Easterby-Smith et al., 2008; Hussey and Hussey, 1997). Because the information has not been filtered or interpreted, primary data without alteration remains its purest form of data (Cooper and Schindler, 2001). When primary data is required, despite their richness and credibility, it is vital to determine what is necessary and how to collect them (Churchill and Brown, 2004). There are various methods for primary data collection. The most common are questionnaire, interview, focus group, observation, case study, field work, diaries and critical incidents (Hussey and Hussey, 1997; Malhotra, 1996; Sapsford and Jupp, 1996; Saunders et al., 2000). The data collection methods for this study will be discussed in more detail in section 4.4.3.

4.2.3 Research reliability and validity

Validity and reliability are the critical concerns of data assessment and research credibility,
thereby ensuring accurate or appropriate data (Creswell, 2009; Hussey and Hussey, 1997).

Reliability refers to the extent to which a research procedure can be repeated and produce the same or similar results (Creswell, 2009; Yin, 2009). According to Joseph et al. (2007), it is related to the credibility of research results, or the consistency of the research findings. Qualitative and quantitative researches may employ different techniques to improve reliability. To enhance reliability for qualitative research requires the conduct of the research to be spread across multiple researchers, or similar observations and interpretations to be made in different studies (Creswell, 2009; Yin, 2003), while reliability in quantitative research depends on being able to replicate the results by a number of measurements or tests to achieve similar outcomes (Churchill and Brown, 2004).

Validity is concerned with accurate findings or results that exist in reality, which relates to the effectiveness of the research (Hussey and Hussey, 1997). Validity necessitates checking for the accuracy of the findings by employing certain procedures (Creswell, 2009). Validity of quantitative and qualitative research can be achieved in different ways. Validity in quantitative research requires that the accuracy of variables in a research project be measurable, while in qualitative research it concerns the issues involved in how the information to be gathered (Ruyter and Sholl, 1998). In quantitative research, two major kinds of validity are highlighted: internal and external. The former is concerned with the degree of relationship within variables; the latter refers to those findings or results which could be applicable to other studies (Cooper and Schindler, 2001; Creswell, 2009). In qualitative research, there are several ways of assessing its validity by using different sources or methods to generate data. To enhance qualitative validity, Creswell (2009, pp.191-192) suggests the following methods:

- applying triangulation of different data
- a number of researchers checking to determine the accuracy of data
- providing rich and various perspectives for the themes
- research bias clarification
- prolonged time in the field
Section 4.6 will further discuss how to achieve reliability and validity for this study.

4.3 Research design

Research design is regarded as a framework or planning guide for a study. Yin (2009, p26) has defined research design as “the logical sequence which connects the empirical data based on initial research questions to the conclusions.” Effective research design consists of specific procedures of selecting, collecting and analysing data in order to link research results and objectives (Chisnall, 2002; Creswell, 2009; Tull and Hawkins, 1993).

Research designs can be briefly generalised into three main types: qualitative, quantitative and mixed methods (Creswell, 2009). All three approaches can be effective, depending on circumstances, available resources and the abilities of the researcher. This study employs a qualitative approach in order to take advantage of an opportunity to gain special insight into the internal processes of a business. The researcher’s previous experience led to contacts within the T&A industries in Taiwan, providing an unusual degree of access into a selected company.

According to Miles and Huberman (1994), the main task of qualitative research is to explicate the processes by which people take action or manage a particular situation, and it allows the researcher to gain a comprehensive overview of the subjects in a study. To achieve the research objectives, this research uses explicit descriptions and explanations to explore how the T&A manufacturers in Taiwan sustain their competitiveness. A qualitative approach enables this study to gain in-depth understanding about “how” the competitive advantages can be generated through the competitive NPD and strategic relationships within the network. Furthermore, personnel involved in NPD and their responsibilities can vary from organisation to organisation, or they may only be in charge of a certain part of NPD rather than a whole process. To gain such explicit information regarding various activities involved the NPD process and strategic decision-making about supplier and partner collaborations also appears to be difficult to quantify. Therefore, qualitative research methods are appropriate for this study, and will allow the relevant information and
4.3.1 Case study approach
The purpose of this study is to explore the competitive strategies and advantages through the evolving NPD together with the partnering relationships of the T&A manufacturer in Taiwan, rather than to generalise from a standardised set of results. The aim of this study is to explore the real-life events of the NPD in a specific company that has sustained its competitiveness. Rich and detailed descriptions and contexts are required, and multiple data collection methods are employed. Therefore, case study is considered to be the appropriate research approach for this study, because it permits the researcher to gain more in-depth information and detail from a number of sources, in order to explore new and up-to-date findings (Denscombe, 1998; Yin, 2009).

Case study can be seen as a form of phenomenological study which can provide an extensive examination of instances of a phenomenon (Gerring, 2004; Hussey and Hussey, 1997). Yin (2009, p18) defines case study as “an empirical inquiry that investigates a contemporary phenomenon within a real-life context.” It allows researchers to explore or explain events such as individual life cycles, organisational and managerial processes, international relations, or industrial development. Case study can record and examine the existence of business activities and events to draw particular patterns. Hence, it is regarded as a research strategy that focuses on the comprehension of dynamics in order to establish new theories or modify existing ones (Denscombe, 1998; Dul and Hak, 2008; Easterby-Smith et al., 2008; Eisenhardt, 1989; Stake, 1995; Yin, 2009).

Case study is therefore taken as the most appropriate research approach for this study because it will be an effective way to gain understanding of complex issues of NPD and partnering relationships with multiple methods of evidence or data collection. By emphasising a specific context, case study can provide meaningful findings, permitting researchers to probe more deeply and in greater detail, and thus to discover new insights or gain different perspectives. Case study, like other research approaches, has its own strengths and limitations, and they are briefly highlighted in the following table.
### Table 4.3 Strengths and limitations of case study

<table>
<thead>
<tr>
<th>Case study</th>
<th>Strengths</th>
<th>Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A theory can be derived from case studies, which are based on the findings from several researchers or from the analytic generalisation of the case study, which is the comparison from previously developed theory and the empirical results.</td>
<td>Observation and interpretation of researchers can cause the bias in data analysis. Also case selection can also create the problem in terms of reliability.</td>
</tr>
<tr>
<td></td>
<td>Case study contains context-dependent knowledge, which can maintain the holistic and meaningful real-life events.</td>
<td>Difficulty in accessing the case and high time consumption of field work and data extraction</td>
</tr>
<tr>
<td></td>
<td>A large amount and various sources can be incorporated in case study. Sufficient and in-depth information can be obtained.</td>
<td>Difficulty in generalisation of the selected cases to develop general propositions because the individuality of each case.</td>
</tr>
</tbody>
</table>

Source: (Denscombe, 1998; Yin, 2009)

Given small sample groups, case study, in particular a single case study, cannot provide information sufficiently universal or applicable to permit generalisations in a broader context. Nevertheless, Flyvbjerg (2006) and Yin (2009) claim that case studies are capable of examining and generating the details in an example during the preliminary stages of a research. That is, the basis of a theoretical framework can be achieved through case study.

#### 4.3.2 Single or multiple case studies?

According to Yin (2009) and Easterby-Smith et al. (2008), a convincing case is capable of updating existing theories. An in-depth single case study can reveal insights into a specific instance of phenomenon (Stake, 1995; Yin, 2009), hence, this is the appropriate research approach for the present study because its purpose is to understand how NPD together with partnering relationships can contribute to the competitiveness of the T&A manufacturer rather than to identify similarities or contrasts among cases, which is usually achieved by multiple case studies (Yin, 2009).

Applying a single case study allows the analysis of a small number of embedded units to study different relationships within a case (Yin, 2009). This approach enables an analysis of complex processes, strategies, and management as well as various external relationships in an organisation that bear upon the NPD. Furthermore, adopting a single case study allows the researcher to employ a number of methods including documentation,
observation and interviews to identify key issues that occur within a unique setting and to answer specific questions. In addition, because of the time limitations of PhD research, a single case study provides an efficient way for the researcher to accomplish her project.

4.3.3 New Wide Group as the case study
A random case sample is not appropriate for the case study because qualitative samples need to be purposive in order to build or test a theory (Dul and Hak, 2008; Miles and Huberman, 1994). By providing examples of polar types, the sample for a case study can be selected based on theoretical purposes rather than statistical reasons (Eisenhardt, 1989). A single case study offers a wide range of sample selections within it, and the selection of appropriate units to be analysed is based on the specific research questions (Yin, 2009). The reason for employing New Wide as a single case study is that NPD and its process, strategies, partnering relationships and management have sustained its business and achieved global expansion, so that it can be seen as a critical case fitting well with the theoretical framework established in the literature review (Yin, 2009).

Furthermore, New Wide can be seen as a representative case study of the kind of firm that has made the Taiwanese T&A industries globally competitive, and therefore provides a suitable single case study along the lines suggested by Yin (2009). Although Taiwan is largely SME based, its typical network of manufacturers relies heavily on larger manufacturers (Chen and Parker, 2007) such as NW to sustain the competitiveness of the T&A industries, thus keeping the small factories in existence. With more than three decades of business development, New Wide Group has remained a leading T&A manufacturer in Taiwan. The company has demonstrated its strategic intent to become a key supplier of global retailers, such as Wal-Mart, JC Penny, Adidas to name but a few. It has undergone industrial upgrading with strategic planning, creating crucial capabilities that have allowed it to be linked into global supply chains/networks. New Wide Group has integrated textile knitting, dyeing & finishing together with apparel production deployed in triangular relations in a number of countries (e.g. China, Vietnam, Cambodia, Lesotho, Kenya and the US) (Chen et al., 2007; Cobb, 2008; Hsu, 2006). The company has enhanced its competitive edge through the implementation of a successful NPD. As
testimony to this capability, New Wide has received various awards, including one for best performer in new product development from China National Textile and Apparel Council (CNTAC) in 2007, the best supplier for Wal-Mart in 2008 and 2009, one of the annual top ten enterprises in Taiwan, and the exclusive licensing of apparel merchandise for the Shanghai Expo in 2010.

Based on exclusive access to this selected company with its willingness to participate in academic research, this case can provide detailed descriptions of T&A manufacturers’ strategic options. New Wide Group, to the author’s knowledge and according to the relevant studies, has to date been neither well documented nor investigated in terms of its strategic development. Such empirical investigation allows for exploration of the business dynamic of the company through a single case study. In order to conduct this in-depth case study, the researcher requires appropriate investigative skills and a case study protocol.

4.4 The case study protocol
A case study protocol is critical because it provides guidelines for a case study including the instructions, procedures and general rules to be followed (Yin, 2009). Having a case study protocol allows the data collection to be targeted at the objectives of the study and also avoids problems that may occur during the process. Yin (2009) stresses that the essence of protocol is to increase the reliability of case study. This study employs case study protocol, incorporating the following elements (Maimbo et al., 2005; Yin, 2009).

(i) Conducting an overview of the case study through reviewing literature and setting objectives to identify relevant topics and research questions to investigate.

(ii) Gathering the background information of the selected company prior to field procedures. This can be achieved by using secondary data including company documentation, industry related magazines and newspapers.

(iii) Preparing for data collection by formulating interview questions that reflect the purpose of conducting case study and research questions. These questions can be further modified through a pilot study, which will be discussed in 4.4.2.

(iv) Setting field procedures, which are planning processes for gathering data, including gaining access to appropriate organisations and interviewees, and obtaining sufficient
and relevant resources with a proper schedule and means for data collection. Using field procedures for gaining access to the company and its personnel will be discussed in the next section.

(v) Triangulating the data collected from different sources and evaluating the data collected, which will be discussed in 4.4.3

(vi) Writing the case study after field procedures. This will be constructed in line with the research questions and research framework and employing appropriate format and techniques that can facilitate data reporting.

4.4.1 Gaining access

A well-planned procedure is the backbone of the process of data collection. Gaining access to New Wide Group and to interviewees relevant to its NPD is the starting point of data gathering. Based on the recommendation and introduction of the researcher’s key contact who has been working in the Taiwanese textile industry, agreement was obtained from New Wide to conduct this research project. The executive of New Wide believed that this research could benefit both the parties involved. New Wide is one of the companies that the researcher approached and the only one that was willing to be involved with this research, and to give the researcher access to the areas she wanted to investigate. New Wide did consider that its business confidentiality would be jeopardised by this research.

Because of interviewees being heavily engaged in their daily tasks and the distance between the UK, the USA and Taiwan, the researcher had to cater for their schedules by rearranging interviews. Sometimes, the interviewees may change their plans or be unavailable for conducting the interviews, so that utilising on-line interviews or emails to collect the primary data is essential. Note also that all the targeted interviewees were willing to participate, such as the Vice President in the textile sector, so the relevant information had to be obtained through other interviewees who share his responsibility. The researcher attempts to receive both internal and external documentation through New Wide in order to have a business brief of the company. In addition, a pilot case study is also considered necessary in order to refine interview questions and assist conducting field procedure.
4.4.2 Pilot case study

A pilot case study is a prelude which is conducted to deal with the data collection issues that may occur in the further case study (Yin, 2009). According to Yin (2009), a pilot case study can reinforce case study protocol by refining questions, propositions and research designs. A pilot case study should be recorded with specific issues or themes in order to provide the blueprint for the main case study. When a pilot case study with revised interview questions has been achieved, the main case study can follow its amended interview questions and case study protocol (Perry, 1998).

According to Yin (2009), convenient access and proximity of interview location are the key to selecting a pilot case study. Among many companies with NPD for textile and apparel, the former manager of off-field product development of Canterbury of New Zealand (CNZ), Mrs. Heidi Benjamin, was willing to participate in this pilot case study because she was lecturing at the University of Manchester, where the researcher was studying and working at the time. CNZ was recognised as one of the leading companies in premium sportswear in the world, and its NPD is involved with managerial decision-making of apparel that Mrs. Benjamin participated. Although CNZ and New Wide specialise in different business operations, their apparel NPD process of (sport and activity wear) share the common ground. This can offer a chance for the researcher to gain better understanding regarding the activities involved the apparel NPD process. Certain issues derived from CNZ’s NPD process may indicate ways for the researcher to redesign and refine the interview questions, as well as to improve her interview techniques for the main case study.

Interview question design for pilot case study

Prior to the pilot case study, the original interview questions (see Appendix i) derived from the initial research questions and literature regarding New Wide, had been formulated. The pilot study is also used to develop suitably refined interview questions and appropriate interviewing manner and skills of the researcher. The questions for the pilot case study were modified (see Appendix ii), based on the initial information obtained from New Wide, literature review and the five main stages of NPD that were suggested by a number of
researchers (Crawford and Di Benedetto, 2006; Mital et al., 2008; Sinha, 2000): (i) business opportunity/research and analysis, (ii) concept development/synthesis, (iii) business analysis/product selection, (iv) production/manufacturing, (v) product launching/distribution.

These pilot interviews took place in Mrs. Heidi Benjamin’s office at the University of Manchester on 7th and 10th December 2009. Due to the nature of her work, there were several students and staff visiting Mrs. Benjamin during the interviews, necessitating pauses which have sectioned the whole. These interruptions made it difficult to estimate the exact time needed for the entire interview. However, only the time control was affected, and no questions were omitted from the extended interview. The interviewee offered detailed interpretations and explanations of product development and the business foreground in CNZ prior to 2009. In addition to acquiring this primary data, other relevant and supplementary secondary information was also gathered to form the pilot case study.

Based on the benefits of a pilot case study, the researcher is able to build up a more concrete framework of NPD. This fact notwithstanding, the same weighting of both cases is given to the apparel NPD process. Nevertheless, due to the different business nature of New Wide and CNZ, the interview questions needed to be modified for New Wide. Amendment of questions and interview skills proceeding from the pilot case study is thus required to facilitate further interviews. Furthermore, examining pilot case studies can be considered as the initial process of proposition forming (Perry, 1998), which may benefit the construction of the main case study.

4.4.3 Data collection of case study

Conducting a case study usually requires a number of data collecting methods (Eisenhardt, 1989; Yin, 2009). The data sources in this study consist of both secondary and primary sources, including archives, interviews, questionnaires and observation. This multiple data collection, also known as triangulation of data, can improve the validity of the case study (Voss et al., 2002; Yin, 2009). This can help the researcher to gain insights into New Wide and its NPD process and strategic business relationships by avoiding perspective bias.
Flexibility has to be exercised during data collection, such as adding questions during interviews to probe further into emerging themes, or obtaining data through different methods (Gummesson, 2000; Perry, 1998).

4.4.3.1 Secondary data -documentation
Secondary data is crucial to identify new patterns or relationships for research (Easterby-Smith et al., 2008; Saunders et al., 2000). The research questions of this study are mainly derived from literature, the documents that identify the research areas for this study. Additionally, the documentation regarding both pilot and main case studies including their business background, and relevant information about NPD and alliances can be acquired before or during field visits from two groups of sources.

(i) Internal sources: archives of both CNZ and New Wide Group, such as company information contained on their webpage, annual reports, company guidelines or instructions and company publications.

(ii) External sources: includes documents from outside the company, for example, articles or reports in newspapers, magazines, internet and other public media.

The documentation not only provides background information for the case study but is also an important source for data triangulation. Documentation collected from various sources enables the researcher to assess and verify the information she obtains during the field procedures so as to make inferences for further investigations.

4.4.3.2 Primary data- interviews
As one of the essential primary data collection methods, interviews are often employed in case studies, particularly exploratory ones, due to the focus on in-depth and real-life information regarding specific events or activities (Kvale and Brinkman, 2009; Yin, 2009). Interviews are recommended for used in the following circumstances (King, 1994, cited in Amaratunga et al. 2002, p25).

- The meaning of specific phenomena to the participants needs to be identified.
- Individual perceptions of processes need to be studied.
• Exploratory research is required.
• Qualitative data is needed to validate specific measures, or clarify and illustrate the meaning of the findings.

Interview provides primary information for this case study in order to directly acquire the insights of the key personnel, activities and decisions that are involved in the NPD process of New Wide. Interviews can reveal the interpretations and information from selected interviewees, making it possible to explore and gain insights into the subject that is being studied (Amaratunga et al., 2002; Gubrium and Holstein, 2001; Kvale and Brinkman, 2009). Like other data collection methods, interview has its strengths and limitations, which are outlined in the following table.

**Table 4.4 Strengths and limitations of interview**

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Limitations</th>
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</thead>
<tbody>
<tr>
<td>Allowing an interviewer and interviewee to explore the meanings of the questions and answers</td>
<td>Extremely time-consuming in terms of collecting information</td>
</tr>
<tr>
<td>Recording verbal and non-verbal conversation</td>
<td>An expensive way to collect data</td>
</tr>
<tr>
<td>Obtaining further or personal information or sources</td>
<td>Bias may exist between interviewer and the interviewee</td>
</tr>
<tr>
<td>Interviews may allowing a higher degree of confidence in the replies as opposed to the questionnaire responses</td>
<td>The difficulty to undertake the verbal responses in data transformation: flawed interpretation resulting in misunderstanding</td>
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There are a number of specific interview steps to be followed. They include conducting pilot interviews, contacting the selected key personnel within the companies, setting up the interview schedules (including arranging date, time and place), preparing interview guides, and questionnaire designs together with amendments, and selecting proper interview tools. Moreover, conducting an interview requires specific capabilities on the part of the researcher, including addressing appropriate questions and interpreting answers, being a good listener and being adaptive and flexible. They are also essential to avoid bias
Following New Wide’s agreement to participate in this study, the researcher has to arrange the interviews with a number of key personnel within the organisation, including the executive, the Vice President of the apparel sector, the manager of the Management of Information System (MIS), and two project planning specialists. Additionally, New Wide’s newly merged company Rainbeau (in the USA) also agreed to be interviewed. Both their President and Vice President, and the directors of sales, production and sales agreed to be interviewed. Rainbeau deals directly with apparel designs and sales with its key accounts including Wal-Mart, Wal-Mart Canada and Target. Such business relationships with retailer customers and apparel design activities are the main reasons for interviewing Rainbeau so as to explore the progress of New Wide’s NPD. Due to the geographical distance of New Wide and Rainbeau and the company’s time constraints regarding interview schedules, the researcher has to travel to Taiwan and the United States to acquire the primary data from interviews.

In order to meet the aim and objectives of the research, it is critical to select the most appropriate type of interview and design the relevant questions. A number of studies have dissected the typology of interview. For instance, Hussey and Hussey (1997) and Robson (2002) suggest three main types of interviews: unstructured, semi-structured and structured. Yin (2009) has identified in-depth interview, focused interview and structured interview. Based on these classifications, four main interview techniques are highlighted in Table 4.5.
Due to the qualitative and exploratory nature of this study, semi-structured and in-depth interviews are employed. This will allow more time for responses, while questions emerging from the relevant topics can also be addressed during interviews. To establish rapport with the interviewees and fill in the gaps in knowledge regarding the company’s business relationships and NPD activities, unscripted questions are also be utilised for the interviews, alongside scripted questions which serve as the guiding scripts for the researcher. According to Oppenheim (1992), unscripted questions may be raised before or after structured questions. Based on the interviewees’ responses, the researcher, with the relevant information, can further adapt questions for successive interviews. This flexible approach allows the researcher to extract relevant details (Gubrium and Holstein, 2001).

Furthermore, it is claimed that pilot interviews should be seen as prerequisite of interview protocol development to facilitate question design and time control (Perry, 1998; Yin, 2009). With the emerging themes and key issues derived from the pilot case study, interview questions were revised accordingly (see Appendix ii). The interview questions for the personnel in Rainbeau were also adapted (see Appendix iii) based on the results of

<table>
<thead>
<tr>
<th>Type of interview</th>
<th>Description</th>
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<tr>
<td>Structured interview</td>
<td>It involves standardised and predetermined research questions and answers, which is similar to conducting survey questionnaires.</td>
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<tr>
<td>Unstructured interview</td>
<td>It is a flexible and unstructured method, which is usually applied to the beginning of a research project to get a broad picture of a situation. It enables interviewees to elaborate their ideas freely, to develop an overview for empirical research.</td>
</tr>
<tr>
<td>Semi-structured interview</td>
<td>It contains overall structure instructions but also has unscripted questions. Most interviews in qualitative studies are semi-structured, such as focus groups or individuals, in order to reveal various aspects of the research topic and discover in-depth information through the flows of questions raised.</td>
</tr>
<tr>
<td>In-depth interview</td>
<td>It is a kind of qualitative data collecting method, usually unstructured with open-ended and discovery oriented questions. Given one-to-one or with group respondents and interviewers, it requires special interviewers’ techniques to gain insights into the explicit answers of interviewees’ interpretation and understanding regarding the research topic.</td>
</tr>
</tbody>
</table>

Source: (Gubrium and Holstein, 2001; Hussey and Hussey, 1997; Robson, 2002)
pilot interviews. The questions for successive interviews with New Wide were modified (see Appendix v) in accordance with the initial interviews with Mr. Huang, and pilot interview questions. Such an approach provides an opportunity to enhance the reliability of this study. In order to clarify the questions and allow interviewees to prepare relevant documentation and information, these interview questions for New Wide and Rainbeau had to be emailed to interviewees before conducting the interviews.

It is acceptable to omit certain questions if the relevant information is acquired via the elaboration of interviewees’ answers (Gubrium and Holstein, 2001). This approach has been adopted by this study because the information can be restated within unscripted questions. It is likely to be more flexible and focused on the interviewees if researchers are able to add or remove questions as appropriate to the situation. This enables the researcher to obtain the respondent’s perceptions (Oppenheim, 1992). Most importantly, Perry (1998) claims that such interviewee perceptions based on their specific experience and understanding together with other methods can provide data triangulation for a case study. Based on the collected information, the researcher can use probe questions in the following interviews so as to allow the themes or issues to emerge. These methods allow this study to capture a variety of insights into the NPD activities and the formation of business relationships of New Wide with more clarity.

To gain unbiased information for interpretation, note taking and tape recordings are considered appropriate as data recording procedures (Gubrium and Holstein, 2001; Hussey and Hussey, 1997). These two tools are useful to preserve information as well as comment on the reliability and the value of the data source (Creswell, 2009). Oppenheim (1992) also suggests conducting an appropriate and effective in-depth interview, the duration of which should be gauged at around one hour. The interview contents obtained then need to be transcribed and verified with the interviewees to ensure research reliability.

4.4.3.3 Primary data -observation
Observation is another primary data collection method, and is useful as supporting evidence in a study. It involves directly obtaining information by observing how the
participants actually perform or act (Denscombe, 1998; Joseph et al., 2007), and is suggested to be applied to empirical research to increase its reliability (Yin, 2009). Several strengths and corresponding limitations are shown in Table 4.6.

**Table 4.6 Strengths and limitations of observation**

<table>
<thead>
<tr>
<th>Observation</th>
<th>Strengths</th>
<th>Limitations</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Researcher has firsthand experience of participants.</td>
<td>Researcher may be seen as a distraction.</td>
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<tr>
<td></td>
<td>Researcher can record information as it is revealed</td>
<td>Unseen thoughts cannot be observed</td>
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<tr>
<td></td>
<td>Unusual aspects can be noticed during observation</td>
<td>Difficulty in controlling variables in natural settings</td>
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<tr>
<td></td>
<td>Useful in exploring topics that may be uncomfortable for participants to discuss</td>
<td>Researcher may not have good concentration and observation skills.</td>
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<tr>
<td></td>
<td></td>
<td>Difficult to record and interpret activities</td>
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<td></td>
<td></td>
<td>Observer’s bias</td>
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</table>


It is vital to employ observation in this in-depth case study because it directly provides the supporting evidence of how the relevant people function, think and communicate within the NPD process. By attending several meetings as a non-participant observer during the visits to both New Wide and Rainbeau, field notes and photographs were taken to compare with the data gathered from other sources, and these can reinforce the validity of the study. The researcher had to obtain permission to conduct observation, and establish rapport with the participants and key personnel. In order to avoid biased interpretation and to validate the data, the information gained from observation needs to be interactively verified with documentation and interview content.

**4.4.4 Interview transcription and further contacts**

Immediately after interviewing, the data has to be transcribed. Further information through emails or online interviews with interviewees can be solicited to gain a better and deeper understanding and to validate the data obtained from other sources. In order to increase research reliability, each interview transcription and other collected data should be sent to the interviewees to verify. Those personnel who are associated with New Wide’s NPD and are not available to participate physically in an interview are approached through email.
They are usually referred by other interviewees to provide relevant information.

### 4.5 Data analysis

In view of the qualitative nature of this study, data analysis has to be conducted with an emphasis on the inductive approach. By examining particular patterns within data, qualitative data analysis achieves the extraction of the ideas and thoughts from the representative or comparable context or data to draw empirical conclusions (Creswell, 2009; Yin, 2009). The following figure illustrates the process of analysing qualitative research.

#### Figure 4.1 The analysis of qualitative research

![Diagram of qualitative research analysis process]

Source: Creswell (2009, p 185)

Data analysis is usually considered the most difficult part when conducting a case study, because analytical techniques have not yet been clearly defined (Eisenhardt, 1989; Yin, 2009). According to Yin (2009), data analysis comprises examining, categorising, tabulating or recombining the evidence to form the propositions of case study. There are...
five techniques for data analysis of case study: (i) pattern matching, (ii) explanation building, (iii) time-series analysis, (iv) logic models and (v) cross-case synthesis. Miles and Huberman (1994) propose a concurrent flow of activities to analyse the qualitative data including data reduction, data display and conclusion drawing. A number of manipulation techniques are listed as follows:

- putting information into a variety of arrays;
- making a matrix of categories and placing the evidence into such categories;
- creating data displays to examine data, i.e. flowcharts and graphics;
- tabulating the frequency of different events;
- examining the complexity of tabulations and their relationships;
- putting information in chronological order or other appropriate scheme.

These data analysis procedures share certain characteristics in terms of the process of setting the themes, sorting and categorising data, and interlinking them into a logical pattern. The pilot and main cases of this study will employ this analysis procedure. Qualitative data analysis relies heavily on a researcher’s knowledge and understanding to categorise the data, to make an assumption about the logical linkages between these data and turn them into specific themes.

Data analysis for this study begins as soon as the data is collected. It is important to note that the overlapping of data collection and data analysis enables researchers to make adjustments in order to probe themes that can emerge during data collection (Eisenhardt, 1989). This study may have to continue collecting data while data is being analysed, to validate the data as well as to establish themes. This can be achieved by adding or modifying questions for the subsequent interviews with New Wide and Rainbeau. Because both have several departments that are involved with the NPD process, certain personnel may be referred by interviewees, or some interviewees may have to take further interviews to offer additional information when the data has been analysed. Eisenhardt (1989) also remarks that field note taking is a vital means for justifying the overlaps between data...
collection and analysis, which is likely to be applied to the case study. Interview transcripts and the data from interviewees’ email correspondence and documentation will all be transcribed to create the database for this case study.

4.5.1 Data coding
Data coding is organising information into various categories based on the research questions (Miles and Huberman, 1994; Yin, 2003). This is essential in case studies. There are three stages that have been suggested for data coding (Voss et al., 2002):

(i) open coding: analysing, summarising data with category codes or detailed properties;

(ii) axial coding: refining the codes in new constructs for further interpretations;

(iii) selective coding: gathering related codes into a defined category or theme.

The data coding of this study follows this procedure. The coding of information related to competitive strategies and NPD are dependent upon major research questions. All the collected descriptive data starts with open coding. Analysing interviews and secondary data can identify a number of specific codes (i.e. key words), for instance, all the information that is associated with sales staff or sales department is coded as “sales team.”

Figure 4.2 Open coding process
Because of the quantity of information, the result may be a long list of codes. To deal with this, NVIVO, a coding computing tool, is employed by this study. The free node of NVIVO is used to code and categorise the gathered data, mainly New Wide and Rainbeau’s interview and email transcripts and relevant documentation. This process is illustrated in Figure 4.3.

**Figure 4.3 Screen shot of open coding by free nodes of NVIVO**

During the initial stage, coding is provisional and requires comparison between the codes. That is, revising or refining these codes is necessary to achieve better data constructs with analytic units. Axial coding can be used to modify these codes; for instance, some codes can be merged (customer attraction can be merged into the customer relationships code). Following this, tree node, shown in Figure 4.4, the categories and themes for the case study can be systematically and efficiently constructed through these identified key nodes.
The researcher can arrange and configure tree nodes, which is a selective coding process, allowing the categories and themes of the case study to emerge. Coding enables the researcher to generate detailed descriptions and interpretations of themes, and these will be used to explore the major findings or subjects in the case study.

4.5.2 Integrated definition for function modelling (IDEF0)

Based on the research objectives, the NPD process is the essential part of this case study. A process analysis can support the comprehension of the NPD in terms of the strategic mechanism and management results. Yin (2009) suggests the use of computer-assisted tools for analysing a case study, which can be applied to this study. Visio as an appropriate computing software is employed to analyse NPD process with IDEF0. The IDEF is a family of modelling techniques originally developed by the US Air Force in the mid-1970s to improve manufacturing systems with the aid of computers. Each type of IDEF is distinguished by its own number, e.g. IDEF0, IDEF1, and IDEF0 has been identified as one of the most useful business modelling techniques, because its hierarchical deconstruction of activities can present a detailed and well interpreted process (Aguilar-Savén, 2004; Perumpalath, 2005).
IDEF0 is thus employed to facilitate the analysis of NPD process in this case study. It contains developing structural and graphical processes or complex systems, where the inputs, controls, mechanisms and outputs are contained in the template (see Figure 4.5)(Aguilar-Savén, 2004; IDEF, 2009). Inputs show what is required before an activity can occur; controls are the constraints on an activity; mechanisms represent what enables an activity to take place, and outputs show what is produced by the activity. IDEF0 can be further deconstructed into lower-level activities which are placed in a left-to-right sequence and connected with the output flows, as demonstrated in Figure 4.6 (Aguilar-Savén, 2004; IDEF, 2009; Perumpalath, 2005).

**Figure 4.5 A basic IDEF0 technique template**

![Diagram of IDEF0 technique template](source: Perumpalath, 2005, p 15)

**Figure 4.6 Example of IDEF0**

![Diagram of IDEF0 example](source: Aquilar-Saven(2004), p 137)

Although IDEF0 is an effective analytical tool providing an explicit overview and details of the process, the activities can only be presented in a sequence, and the length of time
involved in each activity cannot be specified (Aguilar-Savén, 2004). The IDEF0 outcomes are presented in a series of highly systematic and structured charts, which allows the researcher to identify and analyse the various impacts, decisions or directions at different stages of NPD; the information, business relationships, relevant issues, competitive strategies, and activities within the NPD process.

4.6 Reliability and validity of case study research

Reliability and validity, as defined in section 4.2.3, are crucial to the outcomes of this study. Table 4.7 illustrates a number of strategies to enhance validity and reliability in case study (Yin, 2009).

Table 4.7 Tactics for ensuring validity and reliability of case study

<table>
<thead>
<tr>
<th>Validity</th>
<th>Tactics</th>
<th>When the tactics occurs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construct validity</td>
<td>● Use multiple sources of evidence</td>
<td>Data Collection</td>
</tr>
<tr>
<td></td>
<td>● Establish a chain of evidence</td>
<td>Data Collection</td>
</tr>
<tr>
<td></td>
<td>● Have key informants review draft case study report</td>
<td>Composition</td>
</tr>
<tr>
<td>Internal validity</td>
<td>● Do pattern matching</td>
<td>Data analysis</td>
</tr>
<tr>
<td></td>
<td>● Do explanation building</td>
<td>Data analysis</td>
</tr>
<tr>
<td></td>
<td>● Address rival explanations</td>
<td>Data analysis</td>
</tr>
<tr>
<td></td>
<td>● Use logic models</td>
<td>Data analysis</td>
</tr>
<tr>
<td>External validity</td>
<td>● Use theory in single case study</td>
<td>Research Design</td>
</tr>
<tr>
<td></td>
<td>● Use replication logic in multiple case studies</td>
<td>Research Design</td>
</tr>
<tr>
<td>Reliability</td>
<td>● Use case study protocol</td>
<td>Data Collection</td>
</tr>
<tr>
<td></td>
<td>● Develop case database</td>
<td>Data Collection</td>
</tr>
</tbody>
</table>

Source: (Yin 2009, p 41)

The purpose of reliability in a case study is to minimise error and bias, and to ensure repeatability. According to Yin (2009), enhancing reliability has to be carried out during data collection. A number of methods to improve reliability are suggested for this case study; for example, selecting appropriate samples, documenting details of procedures with notes and tapes, gathering data by using as detailed a process as possible, and having interview contents checked by the interviewees. Most important is using case study protocol to document details and establish a database to increase reliability (see section 4.4). Furthermore, because interview and observation can cause problems of reliability, tactics for decreasing bias suggested by Miles and Huberman (1994) are also taken into
account. First of all, a pilot case study is conducted to pre-test the interview questions, so that the pilot interviews increase the reliability of the main case study. Secondly, longer periods of observation, conducting more interviews off-site and returning for further interviews, and interviewing a wide selection of relevant personnel, are also used to enhance reliability.

Validity in case study is associated with research quality, which refers to the accuracy of the reality reflected by the case (Hussey and Hussey, 1997; Miles and Huberman, 1994; Yin, 2009). To improve construct validity, this study will employ triangulation (various data collection methods used in combination) including documentation, interviews, and observations with filed notes, which is a crucial validating method using independent measures that agree with the findings or results of a study (Miles and Huberman, 1994). In addition to this, interview transcripts and case study drafts have to be examined by the key personnel involved in the case study. To enhance internal validity, overlapping data collection and analysis will be carried out. Revisiting the company and conducting further interviews or emails are necessary for this study. Selecting an appropriate case is crucial to increase external validity and the reason for employing New Wide is discussed in 4.3.3.

4.7 Summary
Various approaches to research methodology have been discussed in this chapter. In accordance with the research aims and objectives, an in-depth case study is considered the most appropriate method for exploring strategies and competitive advantages derived from NPD together with partnering relationships. This research is based on the selected manufacturer in the T&A industries in Taiwan, New Wide. This company has been chosen according to theoretical sample selection and will be presented in exploratory and descriptive ways. The issues underlying this case study, including advantages and problems, have also been identified. A well-designed case study protocol and a pilot case study are outlined to facilitate the conduct of this research. The most suitable data analysis methods together with ways of ensuring research reliability and validity, have also been discussed in this chapter.
Chapter 5 The Case Study

This chapter presents the main case study that is largely based on the construct of research framework and the themes deriving from the pilot case study which has apparel NPD in common with the main case study as discussed in section 4.4.2. The main case study discusses, in addition to business background, development and dynamics, primarily the NPD and its process as well as integrated apparel NPD via the firm’s ally. A number of key factors regarding NPD expertise and competitiveness as well as internal management are particularly highlighted.

5.1 The pilot case study: Canterbury of New Zealand

5.1.1 The introduction

The information in the pilot case study was gathered through Canterbury New Zealand (CNZ) and the reasons for this have been discussed in section 4.4.2. Accordingly, secondary data including internal and external documents of CNZ have also been obtained.

5.1.2 The background

Company profile

Brand name: Canterbury of New Zealand
Address: 1st Floor, Houldsworth Mill, Houldsworth Street, Reddish, Stockport, Cheshire SK5 6DS
The current owner: JD Sports
Level of the market: premier sportswear

Company business background

Canterbury was founded in New Zealand in 1904 by John Lane, Pringle Walker and Alfred Rudkin, who made wool apparel and uniforms during World War I in Canterbury province; it was known as the Lane Walker Rudkin (LWR) group. Before long it started producing rugby kits, and continued to do so for more than seven decades. Today the company is recognised as one of the leading brands of premium sportswear in the world, and is well known for its rugby jersey (Canterbury of New Zealand, 2008a; Canterbury of New Zealand, 2008b).
Due to its global expansion, Canterbury’s business attracted a number of investors, the most recent major one being the Kuwait Finance House, Bahrain (KFH). However, the investment only lasted for half of the decade; in 2009, JD Sports bought the assets of the Canterbury European and International businesses and global distribution rights, and therefore CNZ has become one of JD Sports’ marketing properties (BBC News, 2009; Dow Jones Newswires, 2009).

**CNZ’s major markets**

CNZ was a wholesale brand owner and had 19 offices throughout its global business located in Australia, New Zealand, USA, Japan, South Africa, and several European countries (Inside Retailing, 2009). The major business was divided into Canterbury International and Canterbury Europe; South Africa and Japan were under licence and separated from the rest of the Canterbury business Group (Rossingh, 2009).

JD Sports had offered its financial support to North America and Australia, and took a 51% capital share in New Zealand. This buying strategy enhanced JD Sports’ business control and further developed Canterbury’s global iconic brand name (Dow Jones Newswires, 2009; Scheidnes, 2009). Due to a financial crisis resulting from its over expansion, Canterbury Europe together with its global rights were sold to JD Sports in 2009 to retain its market position in the sport and life style apparel categories in the UK (BBC News, 2009; The Daily Post (New Zealand), 2009). Although JD Sports successfully merged with CNZ, the business operation in New Zealand and Australia went under licensing after 2009 (Dominion Post, 2009).

**Target Consumers**

The traditional CNZ target consumers were sports fans, namely men in the 30 to 40-year-old age group. Due to the brand extension, the retail strategy of CNZ was to attract the 20+ age groups of both male and female, and expected to increase sales from female shopping for its partners (Bridge, 2005). Its target customers were upper middle class with
an independent school background, who are able and willing to pay for premium brand product, a market segment of lifestyle products with a sporting heritage. Lifestyle, off-field ranges became its focus of product expansion, and females were also brought into its business consideration. In 2006, the head of design started infusing fashionable brand attributes into female wear ranges (Taranaki Daily News, 2006).

**Main products**

According to its targeted markets, CNZ mainly focused two major categories of products: on-field sport (80%) and off-field sport (20%) or lifestyle products. Rugby kit and wear were originally the main on-field products of CNZ and the rugby jersey was its most successful signature item. However, the heyday of Canterbury’s products was characterised by a wide range of apparel from suits to underwear that were made in New Zealand in the 60s (The Daily Post (New Zealand), 2009). From the 70s, the main product was transformed into sportswear and lifestyle apparel, serving for the world markets (Canterbury of New Zealand, 2008a; 2008b).

In the North American market, the sales of CNZ were led more by its lifestyle range of products rather than by rugby wear, because America was not rugby oriented. CNZ had previous business involvement in Nordstrom, Bloomingdales, Barneys and other high-end retailers to sell its lifestyle products, which resulted in inappropriate branding images. However, these high-end retailers perceived CNZ as being too old for jeanswear brands and too young for lifestyle brands. CNZ therefore oriented its lifestyle brand toward polo rather than rugby in order to reinforce its lifestyle products in the US market when JD Sports bought CNZ (Scheidnes, 2009).

To further differentiate its products in the sports market, JD Sports attempted to bring more fashionable sportswear into CNZ’s product ranges (Inside Retailing, 2009). In autumn 2010, CNZ launched a new fashion collection with NoChintz, an interior design company, to design and promote its new products. It attempted to rebrand the images of CNZ from rugby shirts toward a “preppy” style of casual wear in order to highlight the brand and
products in the high street market (Binns, 2010).

5.1.3 Product development

The NPD of CNZ was impacted by the fashion phenomena, and so the lead time of NPD was reduced to decrease the inventory risks and enable them to satisfy its customers with “fresh” products on a regular basis. Its NPD was basically conducted by means of a range of scheduled meetings and activities following its seasonal time line (see Table 5.1).

Table 5.1 Canterbury timeline of product development

<table>
<thead>
<tr>
<th>Date</th>
<th>Autumn Winter 08</th>
<th>Spring Summer 09</th>
<th>Autumn Winter 09</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jun-07</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>July</td>
<td>3rd Adoption Meeting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aug</td>
<td></td>
<td>Research for S/S 09</td>
<td></td>
</tr>
<tr>
<td>Sept</td>
<td>Place bulk sample orders</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oct</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nov</td>
<td>Bulk Samples Due</td>
<td>Design Brief S/S 09</td>
<td></td>
</tr>
<tr>
<td>Dec</td>
<td>Product Launch to sales teams</td>
<td>1st Adoption Meeting</td>
<td></td>
</tr>
<tr>
<td>Jan-08</td>
<td></td>
<td>2nd Adoption Meeting</td>
<td>Research for A/W 09</td>
</tr>
<tr>
<td>Feb</td>
<td>Sell to retailer A/W 08</td>
<td>3rd Adoption Meeting</td>
<td></td>
</tr>
<tr>
<td>Mar</td>
<td>Bulk Samples orders</td>
<td>Design Brief for A/W 09</td>
<td></td>
</tr>
<tr>
<td>Apr</td>
<td>Retail orders placed to suppliers</td>
<td>1st Adoption Meeting</td>
<td></td>
</tr>
<tr>
<td>May</td>
<td>Bulk Samples Due</td>
<td>2nd Adoption Meeting</td>
<td></td>
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<tr>
<td>June</td>
<td>Product Launch to sales teams</td>
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<tr>
<td>July</td>
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<td></td>
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<tr>
<td>Aug</td>
<td>Deliver to retailer/</td>
<td>Sell-in-to retailer S/S 09</td>
<td>3rd Adoption Meeting</td>
</tr>
<tr>
<td>Sept</td>
<td>sale launch to retailer customers</td>
<td>Retail orders placed to suppliers</td>
<td></td>
</tr>
<tr>
<td>Oct</td>
<td>sell to retailer customers</td>
<td></td>
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<tr>
<td>Nov</td>
<td></td>
<td>Bulk Samples Due</td>
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<tr>
<td>Dec</td>
<td></td>
<td>Product Launch to sales teams</td>
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<tr>
<td>Jan-09</td>
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<td>Feb</td>
<td>Delivery to retailer/</td>
<td>Sell-in to retailer</td>
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<td>Mar</td>
<td>sale launch to retailer customers</td>
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<td>April</td>
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<td>Retail orders placed to suppliers</td>
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<td>sell to retailer customers</td>
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<tr>
<td>Dec</td>
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</table>

Source: adapted by the author through interview and internal documentation of CNZ
In CNZ, on-field and off-field products were implemented by respective NPD teams. It had design-in-house for the sportswear and employed freelance fashion designers based in London for up-to-date trends and design capabilities for its off-field ranges.

“We needed expertise in fashion to build up that product area and those who are based in more fashionable areas are based in London while we are based in the north of Stockport.... Usually they are more updated with the trends and they are working for fashion brands while our experience is involved with sports” (Heidi Benjamin, 07/12/2009).

In addition to these regular meetings, there were numerous informal meetings conducted by various departments or groups. For example, the NPD team worked closely with designers; they usually had product design discussion and evaluation on a weekly basis during the design period.

“... we use email to everybody who is off-shore, and telephone regularly. Because the departments are mixed within the company, if a designer wants to speak to a technical person or marketing person, he/she will just go to talk to them in person .... Within the design period, at the peak of design period, I mostly likely to visit them every week. They are based in London...” (Heidi Benjamin, 07/12/2009).

5.1.3.1 Market research

The market research together with the competitive shop reports conducted by the NPD team was initiated around one year before selling products to its retailers. Sometimes, the NPD team visited major cities, international sportswear trade shows and Premiere Vision (PV) to acquire mainstream market information. This was the primary source held by CNZ to analyse its market positions and consider how its products should be designed.

During the market research, the NPD team looked for design inspiration; its heritage range was inspired by various sources related to rugby and how it used to be played. These inspirational concepts were then employed by designers to redesign its new ranges; some designed apparel was named after particular rugby players, and the ranges were often named after specific New Zealand islands. These heritage ranges were retained in its lifestyle collection to reinforce its brand image.

The NPD team had to analyse the information regarding competition and inspiration from the marketplace and convey them to designers, and attempted to gain inspiration from the
existing branded retailers. It usually bought a range of samples from other shops and then obtained costing and manufacturing references from its suppliers, and also purchased apparel that sold well at other retail outlets because it might be appropriate to adjust cut and fit for its new designed products.

“We do a lot of sample buying and we would go to the stores and buy products; ...anything we are interested in, we would buy it so we can take it directly to our suppliers and have them shown to see if they have the capabilities to make similar products or treatments; ...we might buy it for fit. We would have our technical team to create the specification for the new fits that we are looking for rather than make it up; we would use something we know already worked....So basically we are taking experience from the experienced brands rather than creating specifications or patterns by ourselves” (Heidi Benjamin, 07/12/2009).

The NPD team together with designers usually engaged in samples collecting from other well-established brands. They attempted to proceed with a detailed inspection of measurements, fitting, design details and laundering complications. After the inspections, sets of prototypes were developed and in a succession of NPD meetings, product amendments were discussed and designers followed up the process.

5.1.3.2 Design brief meeting
After bringing back and analysing the market information, a brief meeting was usually held by the NPD team with the designers in order to establish new design concepts. These meetings, which were undertaken to plan regular product ranges, usually took place approximately two months before and after the beginning of the year: November meetings organized for S/S collections and March meetings for A/W collections. In design brief meetings, the NPD manager indicated the current trend and inspiration for designers to develop collections further. Designers could also approach a number of trend forecasting companies and attending PV to gain trend information. The NPD manager would provide the market feedback from previous sales in order to assist designers in adopting and designing their new products to meet the sales targets and requirements.

“I would look at the sales from the previous seasons and analyse what sold well and why and what didn’t sell well and why. Using the good sellers I would make sure we replace them with something very similar for the next seasons. We learn from the things that didn’t sell and find out why; maybe they are just late to the market but they are good styles, if so and we would still produce them” (Heidi Benjamin, 07/12/2009).
The off-field product ranges of CNZ were adopted through product triangle plans (see graph 5.1). The core basic products accounted for 40-50% of the whole collection, which consisted of 30 styles; the headline products with the highest prices were less than 10% of the collection which were solely image pieces for window display. The rest were the semi-basic and value added products which were set by the contemporary themes (Benjamin, 2008).

**Figure 5.1 The triangle product plan**

![Product Triangle Plan](image)

Source: provided by Heidi Benjamin, 2008

The NPD team also suggested the use and applications of fabrics, finishes and brand logos based on its previous experience (Benjamin, 2008). Within this meeting, the design brief was consolidated in order to guide subsequent activities of NPD.

### 5.1.3.3 Product adoption meetings

(i) **The first adoption meeting**

Once the design brief concepts were developed, designers had to commence their design with this information. Target pricing was also given to both the designers and the suppliers before the first adoption meeting, and after the meeting designers made their designs fir more effectively with the company’s business plans and suppliers’ feedback.

In the first product adoption meeting, the NPD team and designers agreed the themes
together with the designers’ first design sketches for the new collection, and held one big presentation to demonstrate their initial design ideas for the next season. Usually three major adoption meetings took place within the NPD process of CNZ, in which marketing directors, sales representatives, product development teams, technical staff, sourcing teams and design teams had to participate.

Throughout the main adoption meetings, the various product concepts and design solutions may cause conflicts, particularly between sales representatives and the NPD team. Nevertheless, the NPD team usually had the final call on the selection decisions.

“We would have several meetings throughout the design calendar which the heads of sales from all the major markets are invited to, they will give input into the development processes....However, the only downside is the sales people are very immediate....They don’t know and don’t have the background to predict what may sell next season, so they may dismiss something in new colours and new silhouette because they focus on what’s happening now. Yes, in general the product management team input from sales people and we decide what we are going to do with that input” (Heidi Benjamin, 07/12/2009).

(ii) The second adoption meeting

The second meeting normally took place 3-4 weeks after the first adoption meeting. Within this meeting, the designers presented the 90% of their designed apparel and details of CADs, which were refined based on the previous Canterbury’s business strategies and product range choice. The prototypes were then manufactured by its suppliers after this adoption meeting and were expected to be implemented and received within six weeks (Benjamin, 2009).

The prototype together with bulk samples were usually made at the same factories. Sometimes suppliers outsourced or manufactured for Canterbury by themselves, or when designers were available, they would coordinate the production with manufacturers. The prototype apparel could be produced within less than six weeks production lead time.

“...the samples are made at the same factories where we attempt to place bulk production; it usually takes around six to eight weeks to make....Some factories can do it in four weeks, and some can do it in two if you stay there with the factories for two whole weeks,... the designers can go over to the factories and be with them every day and have their full attention for a couple of weeks ” (Heidi Benjamin, 07/12/2009)
In order for suppliers to make prototype samples, the NPD team had to send the suppliers the precise specifications for the design to be computer digitised and then made into patterns to use for the samples.

(iii) The third adoption meeting

After receiving prototype samples, the NPD team and the key personnel of CNZ would arrange the third adoption meeting to evaluate and finalise the products. Two or more key suppliers may be invited to join this meeting in order to make the production process more efficient and effective.

“..... In the third adoption meeting, we would be reviewing the prototype samples which have arrived, we make comments on them and we finalise the selections based on that.... sometimes, we would have representatives of our big suppliers; they would come and join the meetings because they are taking feedback so as to speed up the process” (Heidi Benjamin, 07/12/2009).

Bulk production, usually requiring 6-8 weeks, was carried out by its suppliers after the final adoption meeting. The bulk of apparel was then sent to CNZ’s warehouse.

5.1.3.4 Manufacturing phase

(i) The relationships with suppliers

CNZ did not have its own factories to manufacture its products so it relied completely on outsourcing. A number of sourcing agents located in various regions were employed to deal with the manufacturing process because it is difficult to know specialised factories and suppliers in countries away from CNZ. These agents negotiated prices, capacities, scheduling of production and conducted quality inspections at the factories before shipment. Nevertheless, in some regions, CNZ cooperated directly with factories, so both direct and indirect sourcing was employed by CNZ. The relationships between Canterbury’s NPD team and its suppliers were crucial and were usually built on word of mouth recommendation where suppliers had proved to be reliable in terms of production and communication.

(ii) Manufacturing prelude

Prior to bulk manufacturing, numerous product details had to be confirmed: decisions
regarding colours, yarns and fabrics were the earliest that had to be made, and provided to 
suppliers or manufacturers to produce textiles, trimmings and accessories.

“…we always decide our colours very early on so the suppliers could dye a yarn if we are knitting stripes or they could dye fabrics for 
the solid base of the garments. So the first manufacturing process would be selecting fabrics, selection yarns…..” (Heidi Benjamin, 
07/12/2009).

There were certain manufacturing principles that Canterbury adopted according to the 
varying capabilities of suppliers and the time and price factors. The products that contained 
more complicated components were sent to manufacturers in the Far East who can provide 
detailed handwork at an effective cost, while the core and basic items were produced 
nearby, in Europe so that time to marketplace could benefit from proximity.

(iii) Issues occurred in manufacturing process

Once manufacturers received the fabrics, the cutting and sewing process began. As the 
pattern was provided at the sample stage, amendments were often made based on 
Canterbury’s feedback and instructions. A few embroidery details and embellishments 
could be added to apparel, e.g. positioning of details such as adding trims to certain parts 
of jerseys, stitching labels on the back of the neck or taping around collars, special wash or 
wear-out effects thereby eliminating the need for pressing. All of these factors affect the 
sequence and scheduling of manufacture. The final manufacturing process is packing.

Before delivery of final products, Canterbury dispatched quality controllers to randomly 
examine the products, but even such random checks cannot guarantee total quality, some 
problems may still occur. Canterbury or its suppliers were responsible for the end products 
which were sometimes not satisfactory. Quality issues could create and/or worsen business 
relationships between Canterbury and its suppliers, with corresponding effect on its brand 
and business reputation.

“Quality is of huge importance to us; if you get quality issues, you damage your brand; you damage the relationships with your 
suppliers because you have to accept customers return…. On this occasion the fault was the factory’s, but we didn’t check, we didn’t put 
enough quality checks to catch the faults” (Heidi Benjamin, 07/12/2009).
5.1.3.5 Product launching
As soon as manufacturing was completed, the bulk products were then delivered to the worldwide warehouses of Canterbury and its sales agents. During this product launch period, CNZ’s sales agents and its sales representatives had to promote the new products to their retail buyers to gain further orders, where would then be consolidated and placed with their suppliers. The manufacturing process usually required three months followed by delivery of the finished products to reach retail shops or warehouses. This whole product launching process, from communication with retailers, manufacturing and delivery, took approximately six months.

(i) Sales people
Because it sold internationally, Canterbury had two sources of sales people: employed sales staff, and agents who were mainly commission based. In order to establish or reinforce the relationships with buyers, these sales people obtained target retailer customers through formal and informal channels, including physical visits, telephone contacts, public events, showroom visits, online searching or competitor research and investigation. They functioned so as to connect the marketing team, the NPD team of Canterbury and its retail customers. The sales representatives from different regions brought back customer feedback to the NPD team while the design processes were being conducted.

"Canterbury has a SALES TEAM employed by Canterbury, they also have sales AGENTS, again they are employed by Canterbury on a commission basis only and many of them sell for other brands as well...The sales function is mixture of all of these types of sales people and it is dependent on the country they work in" (email: Heidi Benjamin 21/06/2010).

(ii) Distributors
A range of worldwide distributors dealt with the product delivery and retail sales for CNZ, so, the end products were directly delivered to Canterbury designated warehouses. Canterbury’s retail customers could decide the number of deliveries and the product arrival schedules in accordance with the quantity of their orders.
(iii) **Product success**

Even after more than 18 months of product planning, designing, production and delivery, the products could not be seen as successful products until they were retailed successfully. More than 1,000 pieces per style and colour way sold to retailers was considered by CNZ as product success. These successful products could be carried forward with slight amendments to the next season. Usually approximately 20% of new products would be included in the new collection.

**5.1.4 Business relationships and strategies**

**Internal product co-development**

In Canterbury’s various market regions, each licensed country had its own NPD teams who determined their new products but on a relatively small scale compared to Canterbury International. Accordingly, these teams in licensed countries came to England twice a year to order new collections. The product launch meetings helped CNZ to offer new products to different markets.

“...the USA and the countries of licenses could buy them from Canterbury of New Zealand if they wanted it to. Meanwhile, they also have their own product development teams but they are small, so usually they buy our lines as well... companies from Japan, Australia, and South Africa all come to our product development meetings of product launches, and they buy the collection, maybe 50% or 75% of it. The product launching meetings are usually twice a year” *(Heidi Benjamin, 10/12/2009).*

**External NPD**

When a product was involved with external parties, for example, co-branding with a department store or launching a sports celebrity collection, the NPD team, the designers and the buyers would co-develop new products. These joint product meetings were an attempt to get the buyers involved with the design process and thereby secure their orders.

The buyers’ input could influence the product designs and the branding strategies for various markets, because how end customers’ perception of its brands and products varied from country/region to country/region. This was crucial for Canterbury’s strategic decisions of NPD.
(i) **Sponsorship of NPD**

Before Canterbury was sold to JD Sports, its business had expanded into different categories of sportswear. One of its key strategies was to sponsor high profile international tournaments in port to promote its brand and products by providing its state-of-the-art sportswear to the world’s top sports teams.

“...the sponsorships are our branding vehicle for our company to increase its ability to market itself globally” (Heidi Benjamin, 10/12/2009).

CNZ developed ranges of new products providing for various sport sponsorships. When the marketing department signed a sport sponsorship, the NPD team had to create specific ranges of sportswear and casual wear incorporating the athletes or teams they sponsored. For example, Michael Campbell and Canterbury held a partnership collection in 2006, which helped Canterbury to position its brand in golfing (Canterbury of NZ, 2007). These sport sponsor apparel designs were also taken into its whole product collection to strategically promote new products. Despite being lucrative for business, such strategy represented an enormous investment that rarely paid off.

“...the sponsorships are very costly and we normally would not be able to balance the cost from our product sales. This was one of our major finance problems....financially it’s a drain on the company and you could never break even and sell enough shirts to cover the cost for the sponsorships” (Heidi Benjamin, 10/12/2009).

Such sponsorship investment coincided with the economic downturn during 2008-2009, this resulted in Canterbury’s European business going into administration. Its sponsorship contracts with the rugby teams in the UK and Europe were discontinued in 2009 (Deverall, 2009).

(ii) **R&D product co-development**

R&D was another key drive for the marketing of activity/sportswear, so that Canterbury incorporated R&D with its NPD, resulting in its successful sponsorships of Ireland’s rugby teams with its advanced IonX jerseys. Research indicated that this avant garde fabric can stimulate oxygen-enriched blood flow, thus supplying more energy to the muscles. To market its new products with this contemporary technology, Canterbury conducted
co-operative R&D with Loughborough University based on the advanced technology in the UK. IonX fabrics became the technological breakthrough in the athletic market at that time, and several rugby teams bought the product rights through the sport sponsorships. This further promoted Canterbury as the market leader of technical sportswear, enabling it to gain more profits (Chittenden and O’Reilly, 2007; Parker, 2007).

(iii) Co-branding product development

Canterbury also sought for brand cooperation in life-style range. From 2004, the company established business relationships with a number of department stores, such as Harrods, Harvey Nichols and House of Fraser in the UK; Bloomingdales, Barneys and Fred Segal in the USA (Fitzgerald, 2008; McEldowney, 2005). CNZ then launched an exclusive range called “Canterbury for Harrods” which was a successful brand collaboration. Furthermore, Canterbury formed joint brand collaborations with Italian retailers. As a result of co-branding NPD, CNZ gained the marketing benefits that came from the names of famous retailers.

“We did work with a couple of superior customers, such as Harrods. What we did for Harrods is to develop a label called “Canterbury for Harrods”......On occasions, we have done a couple of what we called joint branding on the labels, inside the neck labels and the swing tickets to support the important retailers. In addition to this, we did a couple of collaborations with Italian retailers as well” (Heidi Benjamin, 07/12/2009).

To conduct brand collaboration with exclusive ranges, CNZ simply redesigned the existing designed ranges to create the new products. This type of product could only be found in the shops of its collaborating retailers. However, such unique NPD cooperation was difficult to sustain because the small quantity required usually failed to meet the required minimum orders.

(iv) Relationships with the key accounts

In terms of business relationships with buyers, Canterbury collaborated with sale agents as well as individual retailers, mainly the famous department stores in the UK. These retailers were crucial to CNZ because of the high sales figures. The strategy adopted was thus that the NPD team of Canterbury worked closely with these key accounts. This enabled CNZ
not only to obtain valuable sales information, but also to acquire and consult the marketing information including the performance of its competitors so as to produce appropriate products for its buyers.

“We work very closely with what we call our key accounts....If you focus on them and give them good customer service, that is 80% of your sales in the UK. So this is done regularly by the design and development team to get their ideas as input into the designs for the next season. We would also ask them what sold well, what didn’t sell well and use that information for our design for next season. We also ask them about what our competitors are doing; they are very good at getting information because they see everybody’s brand in one store. They know all the design strategies for the brands, so they are a very good source of information....” (Heidi Benjamin, 07/12/2009).

5.1.5 Emerging themes

The expansion of new products

When CNZ was founded, its business focus was on rugby kits, and the new product ranges were then developed into a number of sportswear categories. Its business also moved into casual wear and women’s wear. Product extension can increase the market opportunities through improved NPD capabilities. The product expansion required various strategies of NPD to facilitate its achievement.

The NPD process

In this pilot case study, the information regarding the NPD process of CNZ, despite the overlapped seasonal product developments (see Table 5.1), is demonstrated in Figure 5.2 and mainly consisted of the activities, strategies and management issues as discussed follows:
Figure 5.2 The NPD process of Canterbury of New Zealand

<table>
<thead>
<tr>
<th>People conducting the activity</th>
<th>Time to next activities</th>
<th>Results</th>
<th>Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market research</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Design brief meeting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The first adoption meeting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The second adoption meeting</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Prototype sample production</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The third adoption meeting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bulk sample production</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Product launching &amp;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication with retailer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>customers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manufacturing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distribution</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retailer outlets</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(i) Market research

During the market research period, the current sale results and the competitive shop reports were collected with marketing plans for the product development for the next season. Product inspirations, sample buying and cost inquiries were also conducted at this stage in order to assist the designers or the NPD teams to create the design overview.
(ii) **Design brief meeting**
This stage was mainly conducted by the designers and the NPD team. This meeting mainly consolidated product range plans from a diversity of sources including trends, market information, fabric usages and sales results.

(iii) **Adoption meetings**
In order to cater for customers in each market region and meet the company’s sales targets, communication between the relevant staff, key suppliers and buyers was included within this stage. Three key adoption meetings were in the product selection stage, the goal of which was to get the right apparel bulk production and then delivery to the designated warehouses in order to launch new products through the sales people or distributors.

(iv) **Manufacturing phases**
The relationships with suppliers became the major issue because they could affect the process and outcome of manufacturing. The designed products approved by the adoption meetings were then sent to manufacture, the processes of which were varied slightly according to their designs. The resulting relationships with suppliers can be reinforced through production quality and delivery, although each supplier tended to have specific production capabilities.

(v) **Product launch**
Sales agents or sales staff and the distributors played important roles as the NPD coordinators at this stage because CNZ’s business was internationalised and wholesale based. Depending on buyers’ requirements, this process needed approximately nine months, including communication, consolidation of the final orders, manufacturing and delivery.

**The strategies for NPD**
The strategies for NPD of CNZ were primarily derived from:

(i) **Internal product development**
The products of CNZ were developed not only to cater for its European businesses but also for international markets. Although CNZ had various product development teams dealing with various markets, the businesses in licensed regions acquired a certain proportion of products from the UK. Additionally, the internal collaboration of various NPD teams could
increase the efficiency and decrease the costs of NPD.

(ii) **External product development**
The NPD in CNZ was involved with business cooperation or alliance, which can be categorised into a number of external relationships:

- Sponsorship product development;
- R&D product co-development;
- Co-branding product development;
- Relationships with key accounts.

**Management of the product development**
Management of the NPD of Canterbury involved several aspects.

(i) **The people**
- Internal: NPD team, marketing team, sourcing team, technicians, quality controllers and sales people.
- External: freelance designers, cooperating organisations, key sales account customers, sales agents, the distributors and suppliers and manufacturers.

(ii) **Communication**
Communication went on between activities and people within the NPD process.

(iii) **Approaches to management are likely to be adapted according to:**
- Business objectives (the target market and customers)
- Market research
- The key account customers (the retailers)
- The external organisation or parties

**5.1.6 Amendments to interview schedule**
The interview approach used for this pilot case study is expected to be adapted for the main case study. It was broken down into approximately eight sections due to interruptions; the actual interview time was estimated at 100 minutes in total. The pilot interview questions derived from the integration of literature review and research questions, and the researcher’s interpretation of NPD, were designed, applied and modified. Some original questions were too complicated for the interviewee to answer because they were not
adequately clarified and needed amendment into comprehensive and straightforward sentences (see Appendix ii). In addition, certain explanations of questions were also required during the interviews to avoid the interviewee misunderstanding them.

As a result of the in-depth pilot interviews, the researcher is able to develop a more concrete framework regarding NPD, and more appropriate interview protocol and questions as well as interview techniques. A number of main themes were emerged: business operation, and the process, strategy and management of NPD, which can be applied to the main case study. Due to the business orientation of the pilot case, the approach of constructing questions is slightly different from the main case study which is the T&A manufacturer based in Taiwan. In spite of this fact, the same weighting in both cases is given to the apparel NPD process for sport and casual wear that are mainly made by knitted fabrics.

5.2 New Wide Group
5.2.1 Introduction
This section presents an in-depth case study of a specific T&A manufacturer in Taiwan, New Wide Group (see section 4.3.3). With its long experience in textile development together with R&D and trend forecast operation, New Wide (NW) embraced in-house manufacture and in particular the design of apparel with 60% joint share of its overseas ancillary company, J.J.’s Mae. Inc. Figure 5.3 presents an outline of their network relationships resulting from the integration of textile and apparel NPD.
This in-depth case study was conducted based on primary and secondary data, including interviews, email communication, observation and documentation. The interviews were conducted between August 2009 and September 2010 and were followed up by email contacts with the relevant key personnel. The departments and personnel of both NW and J.J.’s Mae. Inc. who were involved in NPD and willing to participate in the interviews are highlighted in Figures 5.4 and 5.5.
Figure 5.4 The departments and personnel interviewed in New Wide

Figure 5.5 The departments and personnel interviewed in Rainbeau
All the interviews for this case study were transcribed and categorised into several main sections; the case study is structured as follows.

5.2.2 **Company background**: history, business and industry position and company structure.

5.2.3 **Company dynamics**: the goals and the changes of business development, and the impacts of the changes.

5.2.4 **New product development process**: the activities, people, places, time and issues involved within the process.

5.2.5 **J.J. Mae. Inc., the allied business of NW’s apparel NPD**: the background and business development, NPD and its process including the involved activities, personnel and issues.

### 5.2.2 Company background

#### 5.2.2.1 Company profile and history

<table>
<thead>
<tr>
<th>Company</th>
<th>New Wide Group, Taipei head office</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address</td>
<td>6th floor, No.96, Sec. 2, Chung Shiao E. RD., Taipei 100, Taiwan</td>
</tr>
<tr>
<td>Business</td>
<td>Textile and apparel manufacturer</td>
</tr>
<tr>
<td>Founded</td>
<td>1975</td>
</tr>
</tbody>
</table>

The number of employees approximately 10,000 staff

New Wide Enterprises Co. Ltd. originally started as a textile trader and developed into manufacturing of circular knitted fabrics. The company was founded by Mr. Tony Huang and Mrs. Angela Chuang, husband and wife business partners; the former was the president and the latter the general manager of the company. It originated as a small family trading business and then a textile manufacturer. As its business steadily grew from the early 1980s, NW expanded into knitting, dyeing, apparel production, and trading and sales in a number of overseas countries, leading to the development of textile and apparel integration. This manufacturer was renamed as New Wide Group in 2003 as textile and apparel division were integrated into its business. It remained privately owned, and achieved success and recognition in the industries, e.g. receiving an award as one of the best suppliers of Adidas in 2010, and Wal-Mart in 2008 and 2009 (Chen et al., 2007; Cobb, 2008).
5.2.2.2 Company structure

NW Group’s founders, together with their son, Mr. Sunny Huang, the company’s executive, were the custodians of the entire business group. The headquarters of the administration was in Taipei, operating as the group’s global logistics hub with a number of administration departments (see Figure 5.6): the general manager’s office that managed MIS (Management Information System), HR (Human Resources) and PR (Public Relations), financial audit department, sales and marketing department and R&D department. CSR (Corporate Social Responsibility) committee department was newly established in 2008 to comply with business ethics in respect of people, society and environment, and to enhance NW’s image of social responsibility. In order to utilise business resources, in 2010, NW Group decided to reorganise its business group into three parts under the governance of the administration office (New Wide Group, 2010a). These three divisions including knitted fabrics, apparel and trading and business alliances together with the head of administration are illustrated in the following figure.
Knitted fabric and trade division: This was NW’s fundamental and original business operation based mainly in Asia. Each textile business base had a sales department to deal with individual customers. It was under two key operation centres: the group headquarters in Taipei and the overseas main office in Changzhou, China, which comprised sales, administration and R&D departments. The former mainly dealt with American and European markets, and the latter concentrated on the Chinese domestic market. The marketing department was located in the Taipei office, while the R&D and apparel design departments together with production were in the Changzhou office. The Shanghai, Hong Kong and Beijing offices represented its on-going expansion of sales departments in response to market demands (Chen et al., 2007; New Wide Group, 2010a).
Table 5.2 Knitted fabrics division

<table>
<thead>
<tr>
<th>Organisation</th>
<th>Location</th>
<th>Initiated Year</th>
<th>Initiated Reasons</th>
<th>Composited Departments</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Wide Enterprise Co.Ltd.</td>
<td>Taipei</td>
<td>1975</td>
<td>Business funding</td>
<td>Sales, Global marketing, R&amp;D, Administration</td>
</tr>
<tr>
<td>Kunshan New Wide Textile Co.Ltd.</td>
<td>Kunshan</td>
<td>2002</td>
<td>The very first operation base in China/Taiwanese business peers settlement</td>
<td>Sales, Administration</td>
</tr>
<tr>
<td>Shanghai New Wide Textile Co. Ltd.</td>
<td>Shanghai</td>
<td>2002</td>
<td>Shanghai is the internationalized city for global marketing</td>
<td>Sales, Administration</td>
</tr>
<tr>
<td>Changzhou New Wide Knitting &amp; Dyeing Co. Ltd.</td>
<td>Changzhou</td>
<td>2003</td>
<td>To establish a high quality factory with certification for branded retailing customers; Changzhou is the textile industrialized city which has been promoted by the Chinese government</td>
<td>Sales, Production, R&amp;D, Design, Administration, Financial</td>
</tr>
<tr>
<td>New Wide Hong Kong International Ltd.</td>
<td>Hong Kong</td>
<td>2005</td>
<td>Hong Kong is a key international trading center for global marketing</td>
<td>Sales</td>
</tr>
<tr>
<td>Changzhou New Wide Knitting &amp; Dyeing Shanghai Office</td>
<td>Shanghai</td>
<td>2006</td>
<td>Shanghai is the internationalized city for marketing</td>
<td>Sales</td>
</tr>
<tr>
<td>Beijing New Wide Textile Co.Ltd.</td>
<td>Beijing</td>
<td>2007</td>
<td>Beijing is the capital of China for domestic marketing</td>
<td>Sales</td>
</tr>
</tbody>
</table>

Apparel and trade division: This was another developing division which had been expanding the business territory into the American and African continents since 2003. The basic in-house manufacturers were located in China, and Lesotho, and allied factories were in Kenya, Vietnam and Cambodia; the trading business branches were operated in Taipei, Shanghai and Kunshan, and the United States, dealing with its apparel sales (Chen et al., 2007; New Wide Group, 2010a). A core centre of production procedure control (PPC) was within the Taipei office responsible for the entire apparel orders and production procedures.

“We have a center of production procedure control, called PPC, which deals with completed manufacturing procedures for 15 apparel sales teams because this is the most efficient way to control and schedule in-house apparel manufacturers” (S. Huang, 16112009).
Table 5.3 Apparel & trade division

<table>
<thead>
<tr>
<th>Business</th>
<th>Location</th>
<th>Initiated Year</th>
<th>Initiated Reasons</th>
<th>Composited Departments</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Wide Garment</td>
<td>Taipei</td>
<td>2003</td>
<td>Apparel business founding</td>
<td>Sales, Production Procedure Control, Administration</td>
</tr>
<tr>
<td>Kunshan New Wide Garment Co.Ltd.</td>
<td>Shanghai</td>
<td>2003</td>
<td>Shanghai is the internationalised city for global marketing</td>
<td>Sales</td>
</tr>
<tr>
<td>Kenya Protex Garment Co.Ltd.</td>
<td>Kenya</td>
<td>2003</td>
<td>Benefits from AGOA trading regulation for free tariff to export to the USA</td>
<td>Kenya Protex fty I and II</td>
</tr>
<tr>
<td>Lesotho New Wide garment Co.Ltd.</td>
<td>Lesotho</td>
<td>2004</td>
<td>Benefits from AGOA trading regulation for free tariff to export to the USA</td>
<td>Ever Unison Garment(EUG) fty., Santikon Textile (STK) fty., Administration</td>
</tr>
<tr>
<td>Kunshan New Wide Garment Co.Ltd.</td>
<td>Kunshan</td>
<td>2005</td>
<td>Apparel production training centre; quick sample production for Taipei and Kunshan, Shanghai sales departments; quick response production</td>
<td>Sales, Kunshan Fty. Sample production, Administration</td>
</tr>
<tr>
<td>Cambodia New Wide Garment Co.Ltd.</td>
<td>Cambodia</td>
<td>2006</td>
<td>Initially joined business for special tariff to the EU and then merged as own business to quickly supply the production with high standard quality</td>
<td>New Wide fty., Granditex fty., Administration</td>
</tr>
<tr>
<td>J.J’s Mae. Inc.</td>
<td>USA</td>
<td>2006</td>
<td>New Wide's finance support and J.J's Mae's direct contact with Wal-Mart</td>
<td>Sales and apparel design</td>
</tr>
<tr>
<td>New Wide Industrial Dallas Co.Ltd.</td>
<td>USA</td>
<td>2008</td>
<td>Merged new business to mainly cater for JCPenny</td>
<td>Sales</td>
</tr>
</tbody>
</table>

Business Alliances: To increase the variety of its current product, expand the market segments, and mitigate the production risks, since 2003, NW had been collaborating with various textile and apparel related businesses with a certain percentage of share investment. This enabled NW not only to integrate textile and apparel production, but also to satisfy its customers to sustain its business in the industry.

The initial apparel alliance of NW was with a manufacturer in Kenya as it launched its apparel manufacturing business. At the same time, by collaborating with three textile knitting manufacturers, Kunshan Leadrong, Kunshan New Nuance and Changzhou Tiah Yin Knitting companies, NW inaugurated its in-house apparel production in China and Kenya. The establishment of Cambodian factories followed to cater for the rapid demands from their buyers in 2006. Simultaneously, NW financially supported J.J.’s Mae. Inc. (Rainbeau), an opportunity to further expand its business in the USA. In 2009, NW incorporated with Huge Bamboo Enterprise to support mainly Adidas and Easyoga that owned by Green Vogue, Ltd., which NW invested in 2006, represents an attempt to progress its NPD toward retail business. NW also allied with Shanghai Newtech Fabric Print Co. Ltd. to gain access to Cooltrans technology (New Wide Group, 2010a; New Wide
Table 5.4 Business alliance division

<table>
<thead>
<tr>
<th>Business Location Initiated Year</th>
<th>Initiated Reasons</th>
<th>Ratio of the Joint Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kenya Protex Garment Co.Ltd.</td>
<td>Kenya 2003</td>
<td>Benefits from AGOA trading regulation for free tariff to export to the USA</td>
</tr>
<tr>
<td>Kunshan Leadrong Knitting Co.Ltd.</td>
<td>China (Kunshan) 2003</td>
<td>Specialising and completing knitting process to further develop the whole supply chain</td>
</tr>
<tr>
<td>Kunshan New Nuance Knitting Co.Ltd.</td>
<td>China (Kunshan) 2003</td>
<td>Specialising and completing knitting process to further develop the whole supply chain</td>
</tr>
<tr>
<td>Cambodia New Wide Factories</td>
<td>Cambodia 2006</td>
<td>Initially joined business for special tariff to the EU and then merged as own business to quick supply the production with high standard quality</td>
</tr>
<tr>
<td>JJ's Mac. Inc.</td>
<td>USA 2006</td>
<td>New Wide'sinance support and JJ's Mac's direct contact with Wal-Mart</td>
</tr>
<tr>
<td>Changzhou Taih Yin Knitting Co.Ltd.</td>
<td>Changzhou 2007</td>
<td>Specialising and completing knitting process to further develop the whole supply chain</td>
</tr>
<tr>
<td>Huge-Bamboo Enterprise Co.Ltd.</td>
<td>Vietnam 2009</td>
<td>Being Adidas supplier that can benefit from Generalised System of Preferences because Vietnam is the member of ASEAN; quick supply/reponse between Vietnam and Cambodia</td>
</tr>
<tr>
<td>Kenya New Wide Garment Co.Ltd.</td>
<td>Kenya 2009</td>
<td>Benefits from AGOA trading regulation for free tariff to export to the USA</td>
</tr>
<tr>
<td>Easyoga (part of Green Vogue. Ltd.)</td>
<td>Taiwan and Shanghai 2010</td>
<td>To further develop retail business within the supply chain</td>
</tr>
<tr>
<td>Newtech Fabric Printing Co. Ltd.</td>
<td>Shanghai 2010</td>
<td>To gain the sustainability through CoolTrans</td>
</tr>
</tbody>
</table>

5.2.2.3 Competitors and market shares

NW’s major competitors were those manufacturers who specialised in textile or apparel production and remained in the industry. They, like NW Group, had originally established their businesses since the golden period of the four so-called Asian dragons in the 60s, for example, the ECLAT textile co. in Taiwan and Fountain Set Limited in Hong Kong. NW’s greatest competitors were the manufacturers in world leading textile and apparel export countries, China in particular, with its industrial upgrading and the use of its abundant natural and human resources as well as cost advantages.

“...our biggest competitors, Chinese manufacturers were used to be restricted by international regulations or political issues from developing their business. Since the new government policy had been released, they had been trying to connect with business in the western developed countries rather than relying on us as the business mediators or coordinators. Because of the impacts of high technology and the textile trading liberation, they are capable of manufacturing the products with lower prices to compete with us....” (T.
Despite the approximately 14% decrease of the global textile and apparel trade in 2009, Taiwan remained one of the crucial exporting countries, with 9.4 billion USD against the total 526.7 billion of world trade. With textiles in particular, Taiwan was ranked as the 6th largest exporting country, giving it 3% of the total revenue of the global textile trade (Taiwan Textile Federation, 2010). According to a 2009 turnover survey of Taiwanese enterprise by Common Wealth, a respected Taiwanese economic periodical (2010, pp214-232), only 52 textile and apparel enterprises were among the top 1000, and only the top eight among these 52 had an annual turnover exceeding 10 billion NTD (approximately 0.32 billion USD) in 2009 (Common Wealth, 2010b). NW could has been ranked as one of the top 10 textile and apparel enterprises in Taiwan according to its annual sales revenue report (see table 5.5), if its total business revenue had been taken into account.

**Table 5.5 New Wide’s annual sales revenue**

<table>
<thead>
<tr>
<th>Sales Revenue of New Wide Group from 2006-2010</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010 (Target)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FABRIC &amp; Dyeing</td>
<td>3,446,232,794</td>
<td>4,631,856,063</td>
<td>5,596,356,000</td>
<td>5,187,161,000</td>
<td>6,405,000,000</td>
</tr>
<tr>
<td>Garment and Trade</td>
<td>1,531,137,354</td>
<td>4,135,329,843</td>
<td>4,898,891,023</td>
<td>5,085,193,000</td>
<td>8,101,756,000</td>
</tr>
<tr>
<td>Total</td>
<td>4,977,370,148</td>
<td>8,767,185,906</td>
<td>10,495,247,023</td>
<td>10,272,354,000</td>
<td>14,506,756,000</td>
</tr>
<tr>
<td>(Unit: NT$)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1:32 (US: NTD)</td>
</tr>
</tbody>
</table>

Source: NW annual report 2010

Table 5.5 shows NW’s sales turnover from 2006-2009 and indicates that its apparel business had been dramatically increasing and gradually became equal to that of fabrics. The year 2007 was the turning point for its apparel business, with apparel turnover significantly more than doubled. Despite the standstill total turnover in 2009, two-digit percentage of annual sales growth every year before 2008 represented its business success in the face of the declining economic climate.

NW oriented itself to the customer-driven market, mainly concentrating its business on
leading T&A importing countries (Chen et al., 2007). Having initiated business with American followed by the European markets, they had been expanding the business into China due to the great demand for textiles and the potential trading benefits resulting from new trading regulations. In terms of apparel, the USA market was their main business focus because of NW’s long-term relationships based on their textile business. The European market was also a target, with 30% of their total apparel sales business against 70% in the USA market.

5.2.2.4 Product offerings and target buyers

Fabrics and apparel were NW’s two main products. Their fabrics were provided for use in fashion and sport wear; however, the sport sector was overtaking the fashion fabrics due to the advantages and value of functional fabric applications. NW Group made concerted efforts in R&D to produce new textiles; they had been creating 3,000 plus varieties of fabric every year in order to cater for various customer demands. Additionally, functional fabrics such as the following were the focus of their innovation development (New Wide Group, 2010a; New Wide Group, 2010b):

(i)    Eco Natural Fabrics: organic cotton, bamboo, soybean, milk, seashell
(ii)   Performance Fabrics: anti-UV, temperature control, wicking
(iii)  Anti-Bacterial and Odor Fabrics: X-static, bamboo, charcoal, sundia
(iv)   Recycled Polyester Fabrics: environmental friendly, wicking, anti-UV

Apparel launched after the fabric development was mainly intended for the worldwide retailers of sportswear/active and casual wear (Chen et al., 2007; New Wide Group, 2010b). NW extended its product categories to fashion apparel in order to reduce the risk stemming from focused product manufacturing, and to reinforce the relationships with retail buyers. A variety of products thus had to be developed to cater for fast changing demands.

“….New Wide being specialized in production sportswear and active wear. However, we are not satisfied with the success of these types and have tried to lower the risks in development of the particular category of apparel, we are approaching the fashion apparel development…Fast fashion has become the trend, so therefore we are now asked for less quantity, a wider variety, lower price and quicker delivery in today’s fashion market” (T. Tu, 07042010).
Based on these new products, NW was able to supply a very diverse group of buyers from their target markets. Its key customers who were the brand owners and/or retailers of mainly active/sport wear, or lifestyle apparel, including Adidas, H&M, Kappa, Lacoste, M&S, Puma, Reebok, etc. in Europe; Abercrombie & Fitch, Danskin, Express, Hollolster.co, JCPenny, Liz Claiborne, New Balance, Tommy Hilfiger, etc. in the US; Li Ning, Anta, Xtep and Septwolves in the Chinese market; Greg Norman and Uniqlo, etc. in other markets (New Wide Group, 2010a). In addition to these direct business contacts, specific trading agents were also NW’s main customers. In order to extend its business and to gain reputation, NW Group attempted to establish potential business relationships with other renowned brand owners and retailers in its target markets.

“...we want to establish more relationships with European retailers of both fashion and sportswear so we will keep going to some more trade fairs, such as Expo...what we really gain from them is our business reputation from collaborating with their brand names. For example, if some retailing customers notice that you are the manufacturer serving for Lulu Lemon, they will come to you for their product development without any hesitation” (J.Chen and I. Wang, 02042010).

5.2.3 Company dynamics
5.2.3.1 Business goal
The business goal of NW was to move beyond OEM and to gain more added value and profits with a completed in-house NPD. To achieve its business objectives in the following areas, NW may have to rely on its self-learning and on expert recruiting.

(i) To acquire direct business channels with brand owners and retail buyers to avoid the profits claimed by the middlemen or traders.
(ii) To establish rapport relationships with European buyers in order to expand their business in European markets.
(iii) To train and foster apparel design teams to cater for their customers by providing design service and knowledge.
(iv) To cooperate with more third party/outsourcing manufacturers, or establish their own manufacturers for apparel production to efficiently and effectively supply market demand.
(v) To further invest in R&D and quality assurance systems in order to enhance sales.
(vi) To cultivate a number of teams with production and marketing expertise to provide quality service to customers and gain understanding of their demands in order to
provide the right products.

5.2.3.2 Business development

To compete with other T&A manufacturers in the newly developed and developing countries, e.g. China and India, NW further developed its business. The following were the reasons cited for their development.

“...we Taiwanese manufacturers have been losing the battle since the last decade because of the increasing costs of wage and resource...Two decades ago, the successful enterprise CEOs were either European or Americans; ten to fifteen years ago, they were replaced by Japanese, Singaporese, Hong Kongese and Taiwanese. Lately, most of them are Chinese because they are now in their 40s and 50s and went through the western ways of training and learning two decades ago....” (T. Tu, 07042010).

Table 5.6 The timeline of New Wide’s business development

<table>
<thead>
<tr>
<th>Time</th>
<th>Business modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>The early 70s</td>
<td>A textile trader</td>
</tr>
<tr>
<td>1975</td>
<td>Knitted fabric manufacturer with expertise in dyeing and finishing</td>
</tr>
<tr>
<td>2003</td>
<td>Integrated textile and apparel manufacturer</td>
</tr>
</tbody>
</table>

New Wide Enterprises Co. Ltd originated as a textile trader. To pursue higher profits by expanding production capability, NW then became involved with the textile dyeing and finishing of knitting manufacturing. With more than two decades of textile production experience, NW Group decided to carry out apparel production in 2002. In order to maximise profits, its textile business was extended to apparel manufacturing with specialisation in knitted fabrics.

NW was categorised as a dyeing-knitting intermediary in the T&A industry (Chen et al., 2007). Given business diversification with technology driven production, NW undertook a wide range of roles, not only being a manufacturer but also an intermediary across various market segments, and integrating its production resources and processes rather than solely focusing on manufacturing.

“...We positioned ourselves as a “technique oriented” manufacturing company to cater for customers' needs...According to academic definition, our current business is defined as dyeing-knitting intermediate...the one of them who attempts to deal with the businesses between T&A manufacturers and retailers” (S. Huang, 13082009).
“In order to gain more profits and value by integrating with the fashion industry, we are attempting to abandon the textile manufacturer role who is always receiving the orders from our apparel or textile manufacturer customers of the supply chain...” (G. Lin 23032010).

“...Our business of apparel production tends to be more complicated, not only on account of dealing with problems resulting in the development processes but also the various types of customers, such as final buyers, middleman traders or buyer agents...” (T. Tu, 07042010).

**Fabrics expansion**

To further develop its textile business, NW’s R&D department was established in Taipei in 1999. Concomitantly, trend forecasting was integrated into their fabric design through the collaboration with an external trend forecasting company, Wang Shin-Ru Concept, Co. Ltd. Branching out overseas was a milestone for NW, which demonstrates that their capabilities were beyond manufacturing.

NW also established a textile core base in Changzhou with an R&D centre and textile design, and cooperated with a number of businesses to extend their textile development, teaming up with approximately three hundred third-party textile manufacturers based near Taipei, to complete textile dyeing and finishing processes, and share investment and business collaboration with a number of large-scale textile manufacturers. Furthermore, several overseas offices including Kunshan, Shanghai, Changzhou, Beijin and Hong Kong (see Table 5.2) were set up to deal with its textile sales.

This expansion was aimed at specific markets or customers. Changzhou New Wide Knitting & Dyeing Co. Ltd. was established from the exclusive fabric project cooperation with the Chinese government to produce innovative fabrics in China. This base became their own production centre, dealing with 30-60% of their whole dyeing and finishing processes and it was also operating principally to provide international brand owners and/or retailers with the quality assurance of manufacturing (Chen et al., 2007).

A further manufacturer collaboration was that with Qingdao Ji-Fa Group, a large scale knitting company that the Chinese government co-founded. They set up a joint venture as Qingdao New Wide Textile Co. Ltd in 2004 to cater for the Korean and Japanese markets.
This expansion aimed to improve profitability by combining Taiwanese R&D techniques and Chinese labour production with lower cost. However, this alliance ended in 2008, because of profit sharing issues.

Despite this unsuccessful business collaboration, NW continued their business expansion in association with external upstream manufacturers. Not only AsahiKasei, a Japanese chemical and material company, but also DyStar, a textile dyeing company in Germany with a 150-year history, signed contracts with NW separately in 2008 and 2009 to co-develop innovative fabrics. NW further teamed up with Flycool. Co. Ltd. and Newtech Fabric Print Co. Ltd. to produce their specialised fabrics at lower temperature during the printing process to save production energy. Their innovative products were exhibited at the Shanghai Expo in 2010. Nevertheless, only Newtech remained in this alliance with NW. The co-share agreement with Flycool failed due to their financial debt (New Wide Group, 2008).

**Apparel integration**

2003 was a crucial business year for NW, as it initiated apparel NPD. Due to varied customer demands, and a desire to produce not only the fabric but also apparel, NW integrated apparel production into its business group (Chen et al., 2007). This can achieve more profit because a complete in-house production offered the opportunities to extend the range of products, and its buyers can also benefit from the reduction of total production costs with bargaining power.

However, in terms of achieving apparel NPD, NW faced a range of difficulties due to its lack of experience and know-how. A great deal of investment was also required: NW invested in Africa due to the free trade agreement between Africa and the USA, and cheap labour. There were also advantages resulting from manufacturing clusters in Kenya, where a number of leading Taiwanese yarn and textile manufacturing companies had established factories following the encouragement provided by the Foreign Trade Association of Taiwan setting up an Africa Business Association. By teaming up with these manufacturers,
NW then established its apparel manufacturing network: Kenya Protext Apparel was the very first overseas apparel manufacturer that NW invested in, with a 70% joint share. The Shanghai sales office was established for their apparel trade in 2003 (Chen et al., 2007). In 2009, with the profits it had earned from this initial factory without needing to draw upon more of its own capital, NW further launched the affiliate factory, Kenya New Wide.

“Kenya was our first overseas apparel manufacturer whose performance was outstanding. New Wide is a company that tends to be financially conservative, and we don’t favor fast expansion in business. Establishing our overseas manufacturing territory has been a recent move; in fact, as recently 2003, in accordance with the fast changes of the global fashion markets. We ensure we seize the source of stable orders and then expand our production. Kenya is one of the best examples. Our financial strategy is reinvestment of profits to further development. Thus, the capital investment of the second plant in Kenya is from the profits the first one made, and we still retain some profits after deducting the establishment cost....” (S. Huang 13102009).

Having acquired apparel production experience, NW then established its own apparel manufacturers in Lesotho and Kunshan, and formed the alliance with the factory in Cambodia. In 2004, the Ever Unison Apparel (EUG) factory and the Santikon Textile (STK) factory were set up in Lesotho to bolster its growing apparel business in the USA. To extend its existing business with American buyers, NW invested in two apparel business intermediates in the USA: a 60% share invested in J.J.’s Mae. Inc. in San Francisco; and acquired a new company, NW Dallas, which built upon the good relationship it had with the existing sales teams of a Dallas based import trader which was closing down. While its textile business in China had been dramatically expanding, NW decided to establish China NW Apparel in Kunshan in 2005 to conduct sample making and extend apparel production demands (Chen et al., 2007).

The European market was also important for NW, which relied on its ally in Vietnam to extend textile production in addition to its Chinese factories. In order to cater for global fast fashion demands with production replenishment, in 2006 NW amalgamated with the Cambodia Grandtex factory, and then established its own factories to train more employees, creating a new workforce to expand its production. The motivation behind establishing this network with high-standard facilities was to establish credibility with the fashion-oriented buyers to cater for rapid supply. It differed from the standard production in Africa where
there were lower costs but longer lead time (Chen et al., 2007).

Excluding trimmings and woven fabrics outsourcing, NW attempted to complete the majority of apparel production in house. This allowed them to gain knowledge and quality assurance, which could more readily reinforce customer relationships, and to avoid losing orders based on the comparative ease of outsourcing.

**The impacts from policies of trade and government**

Due to the characteristics of the T&A industries and the effects of globalisation, the policies of trade and government affected NW’s global business development; GSP reinforces the trade within particular regions, especially after quota elimination. With the impacts of government policy, the T&A manufacturers selected the location of their production factories mainly based on three key determinants: tariff, low-wage labour and the proximity to markets (Zhu, 2008b). NW was no exception: Kenya and Lesotho manufacturing plants were established due to cheaper labour and the African Growth and Opportunity Act (AGOA), which offered tariff-free export to the USA. With the growth of the T&A industries in Africa, the Chinese government attempted to increase the trade between China and Africa instead of America, which was expected to exceed 100 billion USD (Chen et al., 2007).

According to WTO statistics, the EU was another key textile and apparel importing region; some agreements involved textile trades between certain countries and the union members, which could benefit from lifting of tariffs. For example, the EU enjoyed free tariffs with the LDCs, e.g. Cambodia which is a member of Association of Southeast Asian Nations (ASEAN). China also joined the ASEAN Regional Forum (ARF) and benefited from the free trade with ASEAN. This had a great impact on textile and apparel trading and manufacturing, which led NW to set up manufacturers in Vietnam and Cambodia:

“…..Vietnam is one of the Association of Southeast Asian Nations (ASEAN); their manufactures can benefit from tariff advantages with the European Union. In addition, the finished fabrics from Huge Bamboo (Vietnam) can be shipped to our Cambodia apparel manufacturers to produce apparel, which is efficient because they are very close to each other” (S. Huang 13102009).
Government policies were usually intended to facilitate the development of primary industries; the Taiwanese government for instance tended to subsidise the enterprises of IT towards internationalisation. It also attempted to upgrade the textile industry by integrating high-tech operation into businesses in order to achieve better value (Zhu, 2008b). In 2009, NW thus obtained government sponsorship to conduct an integrated textile supply-chain project with IT to enhance the industrial competitiveness (see VFM in section 5.2.6):

"It plays a critical role in our industry, such as regulation support and protection. You can see the T&A industry in Korea founded by their government has been increasingly improving..." (S. Huang 13082009).

"....we have government sponsorship to motivate this program because they want to integrate the upstream and downstream of the T&A industry by utilizing domestic raw materials, knowledge and technology to enhance the competitiveness of Taiwan’s textile industry....The funding we received from the government mostly is spent to IT fabrication" (G. Lin, 23032010).

In terms of overseas business, NW Group was also impacted by the Chinese government’s new legislations which appealed to overseas investors at the beginning of the 90s. Investment was made by the developed countries to facilitate the domestic development in China during the economics of macro-controlling. However, NW did not enter the Chinese market until 2000 due to the uncertainty. Having benefits from the experience of other manufacturers, NW established its business bases in China in 2002. In addition to this, NW had to set up a fabric quality assurance system in order to meet the Chinese government standards. Following this, the R&D centre and textile dyeing and finishing factory were established in Changzhou.

"This was initiated by Chinese government according to the economics of macro-controlling, which prevents business activities from being over acted. When it was first introduced in 1993, some policies were too harsh for the investors...Realising the importance of foreign investors, the Chinese government reoffered an investment chance with various attractive regulations to win them back. Our time of entering was when New Wide received their offer and accumulating experience from others, which was around the end of first macro-controlling. We planned and entered the Chinese market in 2000, but established our own manufacturers in 2002..."(S. Huang 13102009).

In the face of increasing competition, and to establish rapport with mainland China, the recent Economic Cooperation Framework Agreement (ECFA) between Taiwan and China was implemented in June 2010. This would significantly impact NW’s future business development due to tariff freedom and direct trade. NW would then face severe textile competition with the Chinese manufacturers and may lose the advantages of
synthetic yarn production in Taiwan:

“We Taiwanese manufacturers still possessed the advantages of filament developing before signing ECFA; however, since we have conceded this agreement, the Chinese textile manufacturers can easily purchase functional advanced raw materials from Taiwan” (J. Chen and I. Wang 02042009).

“ECFA will directly impact our business in terms of tariff so if the customers place their requests, we can easily ship the fabrics to mainland China…” (S. Huang, 23032010).

5.2.3.3 Business risks

Had NW solely focused on textile manufacturing, it would have had to face risks in order to sustain their business, machinery and stock investments, business collaboration, focusing on particular customer segments, on-time delivery and product quality issues. Once involved in apparel production, a great investment risk for them was the need to purchase a wide range of machinery and facilities to satisfy various demands because fashion trends are difficult to predict. Furthermore, many retail buyers tended to reduce production lead time and minimise product orders in order to decrease the risks in holding stocks; such risks would therefore transfer to their suppliers.

To avoid these risks, NW collaborated with others, particularly the manufacturing experts, because a wide range of resources, and operational experience and know-how were needed to succeed in the T&A industries. Despite NW’s collaboration with numerous third-party and allied manufacturers, on-time delivery and product quality assurance became its major challenge. This was because there were no formal agreements to regulate the operations of its business partners or suppliers thus could result in the risks that NW might lose its reputation or recoup the cost of production.

“These relationships are based on our conventional team work and cooperation with each other. Although it seems flexible to our business, from a business perspective there are risks involved, such as our inability to complete products for customers on time because we are not able to restrict or regulate our suppliers or business partners” (J. Chen and I. Wang, 02042010).

“The on-time delivery is a risk that an apparel manufacturer has to undertake…. ” (Sales assistant in J. Chen and I. Wang, 02042010).

Hence, NW attempted to diversify its business to avoid risks from market focus by supplying two hundred plus customers from various market segments, although it had been concentrating on developing business relationships with leading international retailers in
the USA, Europe as well as in China. Simultaneously, NW was concerned with integrating textile and apparel NPD to reduce the risks of being textile focused. Another reason for this might be that the more middlemen there were between NW and retail buyers, the longer time it took to receive payments. So to reduce such risk, NW attempted to directly deal with international buyers and to involve itself in retail to be close to the marketplace.

5.2.4 New Wide’s new product development
NW’s new products contained three main categories which were developed in order: in-house fabric and apparel NPD, and allied apparel NPD with J.J. Ame. Inc..

5.2.4.1 Fabric development and its process
NW’s fabric business had been established over a long period, and was seen as its core competence. New fabric development was principally undertaken by product planning specialists, R&D teams and the marketing Vice President. It was based on two main seasons: Fall/Winter and Spring/Summer, but sometimes NW would have to develop more categories in accordance with the demands of customers in its target markets. For example, two main additional seasonal product groups, Holiday and Back to School, were added in for American customers. However, when Back to School was added to the existing two, it didn’t meet customers’ expectations and required a great deal of effort. This line was withdrawn because the new fabric launching time was too close to the seasonal one. Therefore, NW produced an extensive range of fabrics based on the two major seasons to respond customer requests.

The assistant Vice President of R&D and sales, who was elected from the sales managers, together with the R&D department, evaluated the fabric NPD for each season. Based on seasons, new fabrics were categorised into sport/activity and fashion sections, and at first were developed simultaneously. In 2008, NW decided to launch sport/activity fabrics for customers two seasons in advance, they were approximately six months ahead of their fashion ones, e.g. 2010 August launched fabrics for 2012 Spring/Summer sport/activity and 2011 Autumn/Winter fashion. NW tried to promote its innovative fabrics to achieve higher
profits because the fabrics for activity/sportswear embodied specific properties and applications, and involved specialised know-how, and thus required quick launch to market. Fashion fabrics could be more unpredictable, because buyers preferred to place their orders at the very last stage due to the fast fashion effect. Therefore, NW was willing to pay more attention to sport/activity fabrics than fashion ones. The following figures illustrate the annual schedule and process of fabric NPD.
<table>
<thead>
<tr>
<th>Sales managers/marketing Vice president</th>
<th>R&amp;D department</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Jan</strong></td>
<td><strong>Co-task</strong></td>
</tr>
<tr>
<td>Visit ISPO</td>
<td></td>
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<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Feb</strong></td>
<td></td>
</tr>
<tr>
<td>Joint meetings of marketing and R&amp;D</td>
<td></td>
</tr>
<tr>
<td>Attend Intertexle Beijing Apparel Fabrics</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mar</strong></td>
<td></td>
</tr>
<tr>
<td>S/S sport trend discussion</td>
<td>S/S fashion design completed</td>
</tr>
<tr>
<td>Fabric initial design</td>
<td>S/S fashion fabric moodboards completed</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Apr</strong></td>
<td></td>
</tr>
<tr>
<td>Joint meetings of marketing and R&amp;D</td>
<td></td>
</tr>
<tr>
<td>S/S fashion design completed</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>May</strong></td>
<td></td>
</tr>
<tr>
<td>Joint meetings of marketing and R&amp;D</td>
<td></td>
</tr>
<tr>
<td>S/S sport trend &amp; theme categorization</td>
<td></td>
</tr>
<tr>
<td>Fabric technicians completed development</td>
<td></td>
</tr>
<tr>
<td></td>
<td>A/W fashion trend &amp; theme categorization</td>
</tr>
<tr>
<td><strong>Jun</strong></td>
<td></td>
</tr>
<tr>
<td>S/S sport fabric design completed</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Jul</strong></td>
<td></td>
</tr>
<tr>
<td>S/S sport fabric moodboards completed</td>
<td></td>
</tr>
<tr>
<td>A/W fashion fabric design completed</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Aug</strong></td>
<td></td>
</tr>
<tr>
<td>Visit Outdoor Retailer Summer Market</td>
<td></td>
</tr>
<tr>
<td>Fabric catalogues completed &amp; sent to customers</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sep</strong></td>
<td></td>
</tr>
<tr>
<td>Joint meetings of marketing and R&amp;D</td>
<td></td>
</tr>
<tr>
<td>A/W sport trend discussion</td>
<td>Receiving PV report</td>
</tr>
<tr>
<td>Fabric initial design</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Oct</strong></td>
<td></td>
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<tr>
<td>Joint meetings of marketing and R&amp;D</td>
<td></td>
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<tr>
<td>S/S fashion trend discussion</td>
<td></td>
</tr>
<tr>
<td>Fabric initial design</td>
<td></td>
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<td></td>
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<tr>
<td><strong>Nov</strong></td>
<td></td>
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<tr>
<td>Joint meetings of marketing and R&amp;D</td>
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<tr>
<td>A/W sport trend &amp; theme categorization</td>
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<tr>
<td>Fabric technicians completed development</td>
<td></td>
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<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dec</strong></td>
<td></td>
</tr>
<tr>
<td>A/W sport fabric design completed</td>
<td></td>
</tr>
</tbody>
</table>
Figure 5.8 New Wide fabric development process

(i) Product planning meetings

NW’s fabric NPD comprised “two main seasonal collections where the initial time is around March/April and Sept/October and end points are four to five months after that”

(J.Chen and I. Wang, 02042010).
The fabric NPD began with product planning meetings based on the theme development, R&D evaluation, trend forecasting and marketing. The sportswear fabrics are normally designed ahead of the fashion ones: the discussions of sportswear fabrics in March were for the orders of next Spring/Summer; the discussions of fashion fabrics at the beginning of April were for the following Autumn/Winter seasons. The appropriate material suppliers and production sites were also taken into consideration during the evaluations.

The themes for NW’s fabrics were developed by sales managers and the marketing Vice President, the R&D team including the R&D manager, designers, project planning specialists and technicians, and their external trend forecast consultant. To implement the theme development, NW not only relied on project planning specialists to gather trend information through various external workshops and resources, but also cooperated with Mrs. Wang Shin-Ru, who had had a long-term relationship with NW since 2002. Her first-hand information was mainly acquired from key fashion exhibitions and trade shows to identify marketing and production potential. NW’s fabric designers, project planning specialists and the marketing Vice President would conduct a meeting with Mrs. Wang approximately every two weeks in the first two months of fabric NPD.

**Figure 5.9 Product planning meeting with Mrs. Wang**

![Product planning meeting with Mrs. Wang](image)

Source: Photo taken by the author

These product planning meetings were combined with the current trend forecasts to filter
the appropriate design concepts in order to develop the products that are suitable for NW’s customers. During these initial product meetings, marketing information could also be gained from the feedback of the marketing Vice President, who normally visited NW’s major customers and international trade fairs. During each Monday meeting, the sales teams had to report the market information or requirements they had received from buyers. The marketing Vice President would integrate all this market intelligence into an NPD report. The market and trend information, together with the fabrics he selected from the top sales of the previous season, were presented to the R&D department in order for them to recreate new fabrics. Simultaneously, the R&D technicians could determine the resources they would require, including materials, production manufacturers and suppliers to conduct NPD.

In addition to these planning meetings for new fabrics, there were other exclusive product projects to plan, particular for well-known retail buyers, such as Adidas, that would provide their trend forecasting information for NW to develop exclusive fabrics for their own use. A number of famous Chinese brand retailers, such as Li Ning and Septwolves Group also demanded fabrics designed exclusively for their apparel.

(ii) Product prototypes/ fabric samplings

The sport fabric development relied heavily on the R&D department to produce function-oriented fabrics, while the fashion fabric development was involved with both the R&D department and sales teams.

“Because the high technology and knowledge regarding R&D have a great impact on our new sports' fabrics, which require technical development and are therefore more difficult to produce, our R&D department have full responsibility to develop new fabrics. On the other hand, fashion fabric development is involved with not only R&D but also sales teams. Due to a wide variety of new fashion fabrics, the sales teams can help us to meet the new product demands” (J. Chen and I. Wang, 02042010).

Once the product themes had been identified, marketing, production, and R&D departments together with the Changzhou production base needed to communicate closely and evaluate the new fabrics that they planned to produce. This was the start of determining fabrics and colours for further development and design to meet the customer
requirements identified by the sales teams. It is noted that during the fabric sample design process, colour tends to be the final determinant for sport fabrics because “sportswear retailers usually had their own preferences in colours” (J. Chen and I. Wang, 02042010).

After receiving this discussion feedback together with other fabric swatches from overseas trade fairs, the fabric designer commenced her fabric design. In so doing, she had to obtain inspiration for her design by integrating information from these various sources: (i) trade fairs, (ii) internal meetings of marketing and trend forecasting, (iii) researching the trend direction from other manufacturers” (email J. Chen 14052010).

Based on the fabric designs, the R&D teams had to obtain available yarns and materials from their suppliers in order for the R&D technicians to develop a series of product trials. Occasionally, NW acquired particular yarns from customers’ assigned suppliers to develop specific fabrics. Despite the preference for cooperating with domestic suppliers because of the quick supply, NW needed to seek other international suppliers or specialists who produce such advanced yarns.

In order to do so, NW R&D department in Taipei established various relationships with its yarn suppliers, primarily the domestic suppliers, e.g. Shin Kong textile, Co. Ltd, Nan Ya Fiber Co.Ltd., and the international specialised yarn producers, e.g. Cocona and Outlast. The resulting new fabric development mutually benefited both NW and these yarn suppliers; NW could promote suppliers’ yarns with free advanced yarn supply, while the yarn suppliers were able to share NW’s up-dated trend information and add new fabrics into their product categories. This co-development of fabrics could reinforce NW’s NPD capability. Thus, NW attempted to gain relationships with the leading suppliers through signing contracts to become one of their product representatives.

These fabric samples requested by buyers were then processed in the appointed Changzhou production base, or in the third party manufacturers according to the instructions of R&D technicians.
(iii) Product prototype/ fabric sample testing

Due to the complex nature of fabric production, it was difficult to complete the whole sample development at once. These initial samples had to be put through a number of trials conducted by R&D technicians who were based in the Taipei or Changzhou production centre. Various sample testing methods were needed because of customer standards or the production regulations of the regions where customers were based. The final fabrics needed to be approved by the assistant Vice President of R&D and sales, and there was a need to establish the production Standard Operation Procedure (SOP), as the internal accreditation system of the technical know-how. This initial sample, as well as testing, also had to be achieved in accordance with NW’s production schedule, which was usually within one month.

Testing costs were high, and so once fabrics were developed and tested, there was usually no further development unless customers specially requested it. These new fabric samples and their construction details were all then kept on NW’s internal database as their product development knowledge for any further production.

(iv) Marketing and promotion

NW considered their fabric NPD the strength of their business. Approximately 3,000 fabric types were developed by their sales teams and R&D technicians every year, of which four hundred per season were innovation or trend leaders.

Having received the approved fabric samples, the R&D project planning specialists then categorised them into appropriate themes and added these fabrics to the seasonal trend boards to present to customers. There were two types of trend boards: seasonal and weekly ones. The former contained 400 plus new swatches based on the identified trend themes: “four main themes for sport fabrics and another four to six main themes for fashion fabrics followed by sub-category fashion vocabularies.” (email I.Wang 17082010) They were made for the purpose of trend prediction and to promote R&D and design capabilities. Despite the high costs of production, these seasonal trend boards had to be completed before the sales
people sent them out to NW key customers every February and August. They would also be presented by the marketing Vice President to specific VIP buyers before the launch in key trade shows, such as PV.

NW’s marketing department together with their sales teams attended several primary trade shows every year to promote their products and attract potential buyers. These trade shows they participated in were based in Asia, including Intertextile Beijing in March, Intertextile Shanghai in October, and China Knitting in August. Together with its allies, NW took part in the World Exposition 2010 in China; additionally, they were attempting to join in Premiere Vision (PV) and International trade fair for sporting goods and sports fashion (ISPO).

In communicating directly with customers to acquire orders through attending these events, sales teams were the link between the promotion and commercialisation stages of NPD. In order to sell new fabrics, sales teams were provided with new fabric samples and guidance from the marketing and R&D departments as well as the project planning specialists. They had to comprehend fully how fabrics were developed from the current trends, the fashion terminology applied and matched to the new fabrics, and the business strategies that competitors might apply.

In addition, the weekly trend board consisted of approximately 30-50 new fabrics which were amended by sales teams, R&D department and the cooperating manufacturers, based on customers’ requests or preferences. These further developed fabrics were then ready for the commercialisation stage and shared between one customer and another unless the key retailer customers required confidential NPD results.

“...each week we and the sales teams can develop around 30-50 various fabrics together with the third party manufacturers. In fact, the majority of these new fabrics are derived from customers’ ideas or designs...We sometimes share these new fabric ideas with other retailing customers unless they are their business confidential know-how restricted by certain customers, and not to be revealed to the public” (J.Chen and I. Wang, 02042010).
Project specialists were dealing with 2011 spring/summer seasonal boards: Miss I.Wang is on the left and Mrs. J. Chen is on the right.

Figure 5.11 New Wide’s seasonal trend boards/weekly moodboards

09/10 Autumn/Winter seasonal sport trend

09/10 Autumn/Winter seasonal fashion trend boards:
Nevertheless, NW always promoted not only new fabrics, but also those already made. At the beginning of fabric NPD, in order to gain more value from the developed fabrics, the top 20 sale fabrics of the last season were passed to the project planning specialists from the marketing Vice President, to remake for a collection aimed at buyers who were in other or lower market levels, or had not yet placed their requests.

Sales teams may receive a number of enquiries from the customers of mass-market or value retailers regarding the fabrics produced for certain famous brand owners. When established branded buyers adopted NW’s fabrics, other retailers would follow. Despite the minimal profit they might gain, NW had to retain the NPD for these brands since this could promote them in terms of reputation and production.

“...if some retailing customers notice that you are the manufacturer serving for Lulu Lemon, they will come to you for their product development without any hesitation. These fashion followers like to search for the fabrics or similar fabrics that these famous branding retailers have been applying” (J.Chen and I. Wang, 02042010).
(v) Commercialisation

To increase profits and sales from the new or innovative fabrics, commercialisation, in addition to R&D, was the key process to support NW in sustaining its business. This process concerns detail discussion with buyers before sample production.

New trend boards were regarded as the initial communication tools, its customers would select the fabrics mainly from trend boards or sample cards. These fabrics were chosen according to the market demand and specific requests; price and fabric weights were buyers’ major concerns. The majority of NW’s brand buyers had their own fabric designs, so they came to NW solely for the production process. Thus, the further detailed communication conducted by NW’s sales team with its customers was usually concerned with pattern change, aperture reduction or fabric density increase and followed by fabric colours and weights. The finalised design specifications were passed to either the R&D team or technicians to make fabric modification, and then to the manufacturers to produce the samples. The majority of final fabrics were different from the originals.

“....Our sales staff passes on the fabrics from their customers and asks us to further develop their original products for them....If our customers fancy our ideas, they will ask our sales teams to adjust or amend these fabrics for them...Most of the time, the end products that customers request are varied from our original designed fabrics” (J.Chen and I. Wang, 02042010).

(vi) Production

Sample production and final confirmation

Most fabric samples were produced in NW’s Changzhou production base or its third party and allied factories. Some were produced by the manufacturers that the buyers specified if particular techniques were required. Occasionally, the technicians of the sales teams might have to obtain different fibres from the suppliers to modify the developed fabrics to fit customer requirements of price or quality. This process of obtaining special yarns would take “2-4 weeks for yarns delivery in comparison to 2-3 days for the normal yarns request” (email D. Lin 21072010). This shows that NW could outsource its fabric production based on its established knowledge: “...we seize the R&D know-how in terms of fabric production so that complete outsourcing can be applied to our business” (S. Huang 161109)
To ensure sample quality, NW’s R&D technicians were dispatched to supervise and assist the production process. Based on customers’ requests, special production arrangements may have to be made with these third-party manufacturers because samples usually required only a small amount of production space. This can result in sample making being the most time-consuming process of the fabric NPD.

“….Well, it takes so much time to produce samples, because the quantity of samples is usually small, we need to arrange production space in a manufacturer just for that particular design sample” (J. Chen and I. Wang, 02042010).

Having received the finalised samples, NW’s buyers would confirm their bulk production orders if they were satisfied with the sample results. This usually took approximately two weeks to finalise before bulk production. Fabric types, designs and fabric properties as well as SOP were NW’s major determinants of the production processes.

The common culture and language between Taiwan and China result in effective communication which facilitates quality control processes, as the dyeing and finishing processes of NW’s NPD were conducted mainly in both countries. These third-party manufacturers in Taiwan and allied factories in China established long-term relationships with NW to implement knitting process. Despite the scale of SME or family business, the majority of these manufacturers had specific production capabilities. To meet buyers’ requirements, NW’s sales managers had to select the appropriate manufacturing partners and determine the allocation of NPD activities. NW had an internal assessment procedure which assigned these manufacturers different levels by evaluating their product quality, production capabilities, delivery and capacity, financial circumstance, business operation and management, business relationships and credibility. This internal evaluation system allowed NW to directly manage and coordinate with various manufacturing partners.

“All our textile production in Taiwan is 100% outsourcing...We have a number of third-party factories that were dealing with our dyeing preprocess. We internally labeled them three classes: A, B and C in terms of production quality; A is the best among these three...” (S. Huang 23032010).

Meanwhile in China, NW implemented its dyeing and finishing process in its own factories to ensure that fabrics met the quality requirement requested by the government policy.
With increasing business, NW had to collaborate with third-party manufacturers in China, but attempted to retain the higher-value or higher-profits process of production in-house rather than outsourcing. Other activities in the process, such as knitting, were mainly carried out by its allies in Vietnam, Kunshan Leadrong, and New Nuance Knitting Co. Ltd.. Despite the fact that quality control could be ensured by using the same manufacturers, bulk production could be transferred to other third parties who made better offers in terms of production costs. During the bulk production, NW’s technicians from the sales teams were responsible for the orders, randomly checking to ensure the quality from the designated manufacturer. Some buyers would also dispatch their own quality controllers to do this job.

This entire fabric NPD process required five to six months to complete, while the fabrics modified from existing samples usually only required approximately 28 days: the first week was for communication with customers and inquiry for yarns dyes and finishing materials requests; two weeks for sample making and confirmation, and one week for the bulk manufacturing. Fabrics could be accomplished faster if specific arrangements were made.

“The fabric production is around 3-4 weeks, I would say. Sometimes in a special case, we can manage it in 2 weeks.” (S. Huang 16/11/2010).

The distribution process followed the bulk production was based on two types of arrangements that buyers preferred: Free On Board (FOB), where NW was responsible only for the production and distribution before shipment, and Cost, Insurance and Freight (CIF), where NW had to be responsible for the entire distribution, including the insurance and transportation fee, until fabrics reached the final destination. These fabrics were usually shipped by sea to either NW’s apparel manufactures or others that their buyers assigned. NW may arrange distribution by air when necessary.

5.2.4.2 Apparel NPD and its process
Given the fundamental textile NPD knowledge and skills, NW successfully moved in to apparel production without a long-term struggle. “In 2003, New Wide launched their own apparel
NPD with two strategies: self-learning and recruiting experts” (T. Tu, 07042010). Not only its textile production capabilities, but also experience of international textile exhibitions and trade fairs encouraged NW to undertake this step.

(i) Market development
Given its business and reputation, NW had a wide diversity of communication channels through which buyers could approach them. Its main concerns regarding the relationships with buyers were “selecting and evaluating appropriate customers based on their business reputation, financial capabilities and product offering” (T. Tu, 08092010).

The competitive advantages that NW attempted to gain from apparel NPD were low cost and product specialisation. Due to its fabric expertise, NW’s apparel NPD mainly focused on the composition of knitted fabrics, e.g. sportswear and active wear. In order to increase its market opportunities, NW attempted to incorporate fashion wear into its NPD.

At the initial stage of launching its apparel NPD, NW implemented in-house manufacturing for the apparel originally designed by its customers. To reduce the risks in manufacturing investment and gain competitive advantages, NW then tried to improve its capabilities through increasing its product categories, e.g. producing female fashion apparel. Participating with its customers in some parts of the design process could also gain more experience. Forming apparel design teams to interact directly with customers was one of its business goals, because this can add value to its NPD, and being able to conduct the complete apparel process allowed maximum profits to be achieved.

The whole apparel NPD process consists of “the idea forming, the final design confirmation, product sourcing, sample making, the final order confirmation and then the production process” (T. Tu, 07042010). However, NW’s apparel NPD only involved discussing the final design and negotiating the costs with its customers, controlling the complete manufacturing and the transportation. They required the design coming from its buyers.
NW had two major categories of apparel: Spring/Summer and Autumn/Winter. The numbers of orders varied according to buyer’s demands; more higher-end customers may have more variety of designs within each season. Six-month lead time was approximately estimated for NW apparel NPD (see figure 5.12), including two months for distribution and three to four months for manufacturing.

**Figure 5.12 The two main apparel NPD schedules of New Wide**

(ii) **Production communications**

The production communication which usually required a couple of months determined the NPD procedures of NW. Two to three months prior to the finalisation, a succession of production activities were conducted: price quotation, sample making and price finalisation. Sometimes, orders for repeated products and replenishments with trivial alterations or modification for certain items may be received after buyers’ first orders. Manufacturers’ production is closely associated with the sales results.

The numerous production communications could be conducted in different ways; face-to-face was the preference of NW. Having received buyers’ requests, NW’s sales teams usually assisted buyers’ designers in designing the initial apparel samples made either in-house (in Taipei and Kunshan factories), or outsourced to small manufacturers.

“...Because we have been receiving quite a large number of manufacturing enquiries, the capacity of our sample making is not enough... We usually outsource our samples production to those small-scaled or family manufacturers, but this is only for initial samples.... These few pieces of samples before manufacturing production are usually made by apparel sample technicians, so the apparel quality is much better and more reliable than machine made” (T. Tu 09082010).
A number of samples and price quotation were offered to its buyers. Initial samples were usually made by technicians followed by successive apparel samples with several modifications of details and process examination, and then buyers would place their final confirmation. NW was not alone in producing samples, as other competitors were simultaneously engaged in a similar process.

It is interesting to note that different sample terminologies stemming from customer requests were adopted in NW’s apparel NPD process, including first developed samples, meeting samples, proved samples and production samples and the final one, shipping samples. NW had to send its buyers the full colourway samples after the final confirmation. Some buyers would try to increase the final quantity to get a better order price; therefore, some reduction on final price after sample confirmation could happen. Once the final orders were confirmed, bulk sample production could commence.

“... we have a number of sample development stages: the first is called new developing samples, where we have to accomplish approximately 95% of what they request because there are some more details, such as sizes, colors or fabrics to be amended and additionally this sample production process doesn't need to be examined.....we are allowed to make some selections for them. Secondly, if they like your first sample and they are willing to place their orders with you, we then start the proven sample stage, which requires a variety of proofs on the samples, including quality and size.” (T.Tu, 09082010).

Approximately 70% of NW’s apparel was implemented in its in-house NPD of textiles and apparel. Although its total production prices could be higher than other manufacturers’, the stable quality assurance resulting from this complete production could provide them with a competitive edge. NW apparel NPD also relied on a number of third party manufacturers who specialised in fabrics; some of them were recommended by its buyers or by their reputation within the industry, because NW’s production was restricted by the types of circular machinery and production capacity needed.

“...it will be difficult for us to complete knitted fabrics in house in comparison to woven ones, because the latter have less specifications or divisions of final products while the former is done by the contemporary circular machines that can produce various fabrics according to the degree of the advanced technology. You can’t have all the varieties of machines in one company...This leads us to search for subcontractors to complete the orders we receive” (T.Tu, 07042010).

By offering such complete production, NW and its buyers could also gain advantages of
total-price procurement. Accessory suppliers were also crucial to apparel NPD because apparel manufacturers were usually requested to implement full-packaged production including purchasing trimmings and accessories, e.g. hangers and swing tags, as well as to offer compatible prices. To achieve in-house apparel production, it was efficient for NW to manage production schedules by centrally control administration which dealt with procurement and production capacity. This was different from its fabric production system.

(iii) Apparel manufacturing

It required 30-45 days to complete NW’s apparel manufacturing: three weeks for fabrics and accessories/trimmings production, and dispatch to apparel manufacturers; another one to two weeks for apparel assembling and quality examination. Manufacturing capacity and time were two key considerations in NW’s deployment of its apparel production: seven in-house manufacturers including allied factories were strategically employed to cater for their customers. To meet the demand of fast supply, it attempted to compress unfixed time schedules (e.g. those involving sewing and assembly that depended upon manpower), rather than fixed time schedules, (e.g. transportation and machinery production). Although the actual manufacturing lead time could be reduced by an exclusive arrangement, dedicating production space to a particular customer was difficult to achieve. To remain efficient, NW usually kept similar manufacturing processes in the same factory.

“....The only way to accomplish this is to decrease other un-fixed schedule rather than fixed... Interestingly, these are involved with human resources, such as sewing, assembly and finishing processes. We can attempt to get ten to eight day sewing schedules from an original 14 days, but again, the production problems and quality risks would occur...because their capabilities remain at the particular standards and outcomes. That's why we currently embrace customers from similar categories in the same factory. That is to say, the production in the same factory results in similar standards” (TTu.09082010).

Orders of small quantity accounting for a couple of thousand pieces and more style variety could lead to a degree of inefficiency. Hence, there was a need to increase production capacities and enhance capabilities for product variety. This can be achieved through cooperation with other apparel factories, as NW attempted to begin collaboration with a small number of subcontracting factories in order to satisfy increasing demand for variety by retail buyers.
(v) **Quality assurance**

Being distanced from their buyers, a succession of sample quality inspections within the manufacturing process became important, e.g. samples of prior-bulk (TOP samples) and mid-bulk production and shipping samples to ensure the NPD results. Usually, buyers selected their manufacturing partners according to the standard of quality control. “…the higher-tier retailer customers they are, the more sample inspections they request…” *(T.Tu 09082010)*. Quality assurance was a significant factor enhancing NW’s competitiveness, enabling it to become a specific buyer’s NPD partner. In addition to the inspections conducted by manufacturers, buyers would assign “their quality controllers or third party inspectors to do random checks on the apparel quality and working environment, “or “send these production samples to notarisation companies to do some quality testing, such as colour fastness, flammability, tensile strength and dimensional stability, prior to or during these bulk productions if they have the need” *(T.Tu 09082010)*.

In a similar vein, according to buyer or international standardisation and government regulation, NW established the central manufacturing assessment of its “third party manufacturers based on the criteria including human rights, public safety, working hours, environment and since 9/11, the policy against terrorists, because the most significant problem occurring in the supplier relationship is quality!” *(T.Tu 09082010)*. To ensure the production quality, NW’s apparel Vice President would evaluate these third party manufacturers before assigning manufacturing tasks. The most appropriate factories were then selected based on the production criteria.

The quality of NW’s apparel production was usually evaluated by its quality controllers or QC staff “governed by central office and in charge of the whole product quality for every sales team ,and performed as an independent unit of management” They supervised the manufacturing process within factories to ensure product quality. When bulk manufacturing failed in quality inspection, NW would rather remake most of the apparel and then ship by air in order to maintain its reputation in spite of paying high transportation costs to deliver on time.
(v) Distribution
Most of NW’s retail buyers preferred apparel to be sent directly to each shop floor rather than warehouses or ports in order to reduce their costs and risks within any process or stage of product development before the products reach the end customers. There were two major types of distribution, dealing with samples and final apparel to respond quickly to customers’ enquiries: express carriers were employed to dispatch their samples, while particular cargo companies transported the bulk products. Despite NW having preferred distributors, its buyers could designate specific carriers to manage distribution. Nevertheless, collaborating with insurance companies was necessary to avoid the various distribution hazards. The distribution process was usually arranged while procurement was proceeding.

“We employ various carriers to dispatch our samples, for example, UPS, FedEx and DHL for efficient supply. In terms of bulk product shipping, we cooperate with some cargo companies shipping through air and sea; most of the time customers indicate their preference to carry their apparel. Maersk Line and NYK (Nippon Yassen Kaisha) Line are the carriers that we have been cooperating with. Simultaneously, due to the problems resulting from shipping, such as delays, missing products, wrong delivery places and fabric color deterioration, we enclose assurance of shipping and products through the company like Pacific and Taiwan insurance companies” (T. Tu, 09082010).

5.2.5 J. J.’s Mae. Inc. (Rainbeau)
Buyers could mitigate risks and gain bargaining power in terms of inventory or production by reducing the numbers of their suppliers and manufacturers, choosing partners from the large-scale or capable suppliers. To be able to survive in the T&A industries, it is important for the manufacturers to ally with certain partners. It is noteworthy that “capital” and “teamwork” are two critical issues while teaming up with a partner” (S. Huang, 13102009), while business cultures sharing the same code and value of work tended to determine business relationships. NW allied with J.J.’s Mae. Inc. to reinforce its apparel NPD.

5.2.5.1 The background and development of business
J.J.’s Mae. Inc. and NW established the alliance in 2006, because of the former’s financial difficulty in sourcing in Africa. Based on their previous relationships, J.J.’s turned to NW for help, while the USA market that NW supplied was in the same region where J.J.’s business was located. It thus became NW’s NPD ally mainly undertaking apparel design.
Originally founded as a fabric manufacturer in 1980, the initial success of J.J.’s was in introducing cotton/lycra fabrics to the mid-tier market in the USA during the 1980s. In 1987, it started providing apparel production services to brand retailers, such as Adidas, Nike, Liz Claiborne and DKNY. Its business relationships extended to large mass market retailers including Target, Wal-Mart, Kmart and Khol’s, and these retailers then became J.J.’s major customers. Unlike the other apparel operation of NW in Dallas, J.J.’s provided not only sales and production but also design service for its buyers (email from J.Hsu 04122009).

“...there are two main ways to deal with product sales. One is like what we are doing: we present our designs to our customers and they make the decisions to select what they need for the coming season in their market categories. The other way is like the other New Wide’s business in Dallas where their major customers namely JCPenny have their own apparel designs and only source production negotiating for better prices and qualities levels....” (J.Hsu, 2812 2009).

In 2000, J.J.’s Mae. Inc. launched Rainbeau, its own private label of active wear. This brand aimed at mid-market level department stores on the east cost of US, e.g. Dunhams, Boscov’s, etc. These retailers lacked the necessary volumes of production required to launch their in-house private label apparel so they had to rely on suppliers like Rainbeau to provide their merchandise. Because of its expertise and reputation in apparel product development, Rainbeau took the place of the name J.J.’s Mae. Inc. In 2004, Rainbeau became the exclusive licensee of Capezio, a specialised dancewear brand, including Allegro and Future Start as sub-brands, the former targeting mature customers and the latter younger dance talents. By so doing, Rainbeau was able to gain the opportunity to enter new market segments and reinforce its business image, although Capezio seemed not to make enough profit. Nevertheless, when Rainbeau was acquired by NW, it was decided to keep Capezio.

“...We were thinking of stopping this business with Capezio at the beginning of this year but we are still carrying on. The reason for not doing so is because it is risky solely design and manufacture for Wal-Mart. We want to have more variety of customers to support our business...” (J.Hsu, 28122009).

To help maintain Rainbeau’s business in the USA, NW dispatched several professionals to assist and monitor the co-development of new products, including the Vice President, Jefferson Hsu, the Chief Operating Officer, Abel Liu, and the Accounting Manager, Ben Tsai. The success of this alliance was revealed when their business experienced
double-digit percentage growth, with the expectation of doubling the original figures in 2010. Rainbeau further cooperated with Iconix to produce an exclusive label, Danskin, for Wal-Mart by offering staple items with updated trends. Rainbeau was thus rewarded as one of Wal-Mart’s best supplier of 2008 (New Wide Group, 2009).

5.2.5.2 Target Market
Rainbeau’s apparel NPD capability impacted its market positioning and the reputation of the business. Its NPD was for licensed brand and private labels in the US retail markets, and focused on life-style and activity basics, mainly catering for females aged 18-50.

Rainbeau established strong relationships with retail buyers in two principal market segments: the mid-tier and mass markets, by offering complete apparel NPD. It also provided the buyers with small quantity orders with Rainbeau’s own designs (e.g. Capezio). Design recommendation and production were provided for private labels because these buyers, who were usually large retailers, required original designs at competitive prices. Rainbeau offered the design service, helping customers to manage NPD, so that its designers were crucial; not only the design capabilities but also the finely tuned sense of costing and marketing were required. When Rainbeau became familiar with its buyers’ requirements, the buyers would gradually shift their design authority to Rainbeau. Although design was considered as the business strength of Rainbeau, retailers were not willing to pay more than their target costs.

5.2.5.3 The NPD and its process of J.J. Mae. Inc.
(i) Design concept development and market research
Rainbeau’s NPD appeared to be one season/year in advance of market launch was usually presented as a ranged set with a particular title. It comprised three main seasonal lines: Spring/Summer, Holiday and Fall/Winter, the NPD of which overlapped. “Fall/Winter was considered as their fundamental collection, Spring/Summer came second and holiday was the shortest season for design, lasting only for 40 days” (J.Hsu, 02072010).

Colours and fabrics were the very early factors shaping the design concepts. Apparel
designs conceived with new concepts were derived from the creativity of the designers as well as market research. The design teams usually attended various trade shows, consulted trend forecast services, and visited textile factories and retail shops in metropolitan cities, particularly the leading brand stores.

“...Actually we start with colours because they come out very early; colours for spring/summer probably come out in Nov...We figure out one season advance and some other people do two seasons in advance...A lot of time we get the information from textile mills...Also we go to some shows, like Premiere Vision that forecasts textiles and colours....” (E. Kim 28122009).

Figure 5.13 Trend sources/service that Rainbeau adopted

Design concepts were interchangeable between designers, because they could be reinterpreted into different lines, and could be adapted according to different marketing perspectives. The design team began the design process while previously designed products were launching in the marketplace, so sales information could be integrated promptly into the current design process. Regular internal communication between designers and various departments was crucial to determine the succession of the NPD process, which is illustrated in the following figure:
(ii) **Design process**

All Rainbeau’s departments participated in the design process; the design concepts were presented at every Monday meeting to gain internal feedback. Sales and design teams in particular worked more closely together, e.g. sales shared their customers’ demands to designers and received fashion information from designers. The President and Vice President were two main supervisors, assessing all comments in the meetings in order to come up with suggestions for designers, who were thus able to present design proposals with different sets of prices for buyers. Simultaneously, the sourcing department evaluated design proposals to search for the appropriate suppliers. It was noteworthy that Rainbeau’s product replenishment was one of its NPD strengths, capable of offering its retail buyers design and range plans of apparel including the appropriate quantities for each item, so long as sales information from each store was provided.

In addition to these regular meetings, designers would arrange other meetings to obtain information about suppliers, buyers and the current market. Meetings with the Vice President were beneficial to designers and buyers needing to select appropriate fabrics, because of his experience of working for Li & Feng, the largest trader in Hong Kong. His knowledge and capability could help Rainbeau when conducting NPD, e.g. sourcing appropriate supplies.
(iii) Product selection

The number of meetings prior to design finalisation was determined by buyers: usually three key meetings with buyers as well as numerous internal communications between Rainbeau’s design and sales teams: “assortment alignment meeting (AAM), assortment definition meeting (ADM) and assortment finalization meeting (AFM). The intervals between each meeting were approximately 1-2 weeks” (email from E. Kim, 14072010). Following these meetings, buyers could still express further requirements. In the AAM, as the triggers of NPD, Rainbeau presented its original design concepts with several design alternatives. According to buyers’ requirement, Rainbeau demonstrated the actual apparel with selected fabrics and two or three different colour ways in ADM. When coming to AFM, Rainbeau had to offer the samples of full colour ways, as well as cost quotation to buyers. Nevertheless, between AAM and ADM, some buyers’ product development teams also attempted to design and source for themselves because they can gain higher margin.

Despite having their own design teams, buyers preferred having various sources for their design references from the suppliers, as the capabilities of suppliers lay not only in manufacturing but also in design. During these meetings, buyers usually favoured the suppliers who shared their common culture and language, due to the ease of communication and understanding. These were the competitive advantages that Rainbeau had while dealing with the American buyers.
“... the drawback of these manufacturers is they lack design capabilities. However, most fashion retailers like Wal-Mart have their design teams that can be in charge of their own designs. Why do they still need importers like us, Rainbeau,... Their main purpose is to gain the market information from outside resources; they love to have other design ideas besides theirs.... During our design presentation, you can see that Caucasians prefer dealing business with other Caucasians rather than Asians.... The presentation performance outcome relies heavily on their conversations and cultural connection” (J.Hsu,28122009).

“Samples” and “sourcing”, in addition to design, were the fundamental elements in attaining buyers’ orders. In order to present them to buyers promptly, all of the samples were made by Rainbeau’s in-house technicians and sample makers.

“We make all the samples here; we have the pattern room and we have a lot of fabrics here, sewers and cutters. Everything is done in-house.” (E. Kim 28/12/2009).

“...Designers then have to make some tag packs with their sketches and pass them to the tech teams to review and then make them into patterns. When the patterns are set, the sample makers will make them into samples within our sample room. Rainbeau always makes the initial samples in house, which you could call the prototype samples.” (J.Hsu,02/07/2010).

Simultaneously, Rainbeau’s sourcing department worked closely with designers, searching for appropriate suppliers who could offer suitable quotations, this could affect the design outcomes. Designs, particularly for a limited quantity of orders, had to be altered to meet buyers’ requirements. The entire sourcing process, approximately one to two months, would be accomplished when buyers finalised the designs with the design team of Rainbeau. The major criteria of suppliers that Rainbeau’s sourcing teams considered included suppliers’ production costs, previous production experience, production capacity, distribution and the current economic conditions.

Based on suppliers’ expertise, Rainbeau established a number of relationships with efficient and reliable supplies. It preferred having a variety of networks with reasonable prices and the standard to meet production criteria in order to increase the opportunity of gaining orders.

“... we need to have a couple of manufacturing suppliers to deal with our orders because their expertise varies and we rely on their dissimilarity to support our business. The same business principle applies to our customers... We used to cooperate with a Singapore supplier who only had three or four manufacturing networks and now with New Times, who used to be the agent of Jones New York and is probably one of the top three largest suppliers with strong business relationships with manufacturers in Hong Kong... we need such suppliers like New Time. Because New Wide’s African factories are mainly in charge of mass quantity production, Chinese ones are for
their domestic market and Cambodian ones are for the demands of fashion wear with short lead time; we don’t want all of our business partners to have similar business capabilities, we prefer some suppliers with wide networks….Rainbeau is a small scale company which can’t benefit them as much as others do, while New Times is a newly launched business and desires customers so that we can gain more competitive prices” (J.Hsu,28122009).

Fabrics, accessories and other items supplied by it partners, e.g. NW were usually sent into the sample-making room to be made up at any time (see Figure 5.16). In addition to the alliance of NW, Rainbeau outsourced to New Times, a trading company in Hong Kong, and other small agents in Singapore. Prior to manufacturing in factories, Rainbeau had to inspect sourcing materials for sample making, and samples had to be approved by its design team and buyers.

**Figure 5.16 Rainbeau’s sample production room**

(iv) **Manufacturing**

Once the order was confirmed, Rainbeau immediately purchased its fabrics from the manufacturers it had sourced or allied with. Figure 5.17 demonstrates the NPD schedule after its orders have been confirmed.
Figure 5.17 An example of Rainbeau’s apparel NPD time plan after design confirmation

### Master Time & Action Plan – New Wide (Protex)
**Walmart Danskin – Color Block Tee with Hair Ties (Fall 2010)**

<table>
<thead>
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<td>8-Jan</td>
<td>Rainbeau</td>
<td>5</td>
</tr>
<tr>
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<td>Print / Embroidery Approval</td>
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<td>5</td>
</tr>
<tr>
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**Source:** Rainbeau’s sourcing department document

The lead time of apparel production was within 120 days: approximately 40 days for...
fabrics production, 40 days shipping to apparel manufacturing sites, and 40 days apparel production. However, their buyers now favoured shortening the lead time to 100 days or less. The six-week production of fabrics included colour lab-dip, shade band, print and quality evaluations. Each process required an approval document for the preproduction process, one of which is illustrated in figure 5.18. The trimmings required in the apparel production were simultaneously made and set to apparel manufacturing sites. Rainbeau’s production team supervised both the fabric and apparel production:

“... Each color can be reviewed by a spectrometer to get electronic color readings. For our WM programs, they review color visually (physical review) and electronically...the next step is for the mill to make production fabric. Each lot has a swatch submitted to make sure that it matches the approved lab dip. These are called the shade band. PP is Preproduction samples. They are made by factory after we give them the graded pattern. It is their job to take the pattern and make it in their production environment fabric to make sure they meet the specs of the apparel required”(C. Stillman 16122010).

Figure 5.18 Standard example of Rainbeau's quality certification

Preproduction
Preproduction (P.P.) was the first apparel production in an assigned factory prior to bulk production. It could take place with uncertain time before actual production depending on the time when the products can meet buyers’ standards. During this process, the production team, working closely with the designers, was responsible for altering design details, based
on the buyers’ requests. The regular meetings of revision and follow-up processes were still carried out even after the buyers had placed orders. The production department had to coordinate the technicians and factories to produce samples in time. All the P.P. samples had to be approved by Rainbeau and its buyers in terms of sizes and patterns; this process tended to be completed within 2-3 weeks followed by approximately two week inspections. After P.P. had been approved, the bulk production of fabrics and trimmings could commence.

TOP samples were the last product modification stage for buyers, which were produced in the factories before the final bulk production to ensure the customer orders and satisfaction. They were the manufactured apparel “from the first lot of the bulk that run through the sewing line that are checked to make sure they meet specification and that everything in production process matches customer expectations” (email from C.Stillman, 17012011). The TOP samples should be completed within approximately one week to avoid production delay. However, obtaining fabrics and trimmings in time for bulk production appeared to be the major issue due to the problems associated with regional sourcing and production.

“...It usually takes a week to manufacture; it can’t be too long because after all we have to carry on the bulk production. However, to complete TOP sample making requires the finished fabrics and accessories; the time of waiting for them to arrive is quite consuming and this is the key to determine the total time for TOP production. Accessories can be made in Taiwan, China, Dubai and other places and the main fabrics are made in China; it takes time for them to ship to our apparel manufacturing location. Such delivery waiting time from any of them can cause the delay of the TOP production” (J.Hsa,02072010).

**Bulk production**

The lead time of apparel bulk production was usually 3-4 weeks; however, it could be manipulated because it involved manual assembly production rather than being machine based. Working on the principle of practice makes perfect, once manual labourers became accustomed to a procedure they can be trusted to do it correctly and efficiently every time thereafter. Thus, manufacturers prefer receiving large-quantity orders; quality inspections could take place at any point during the bulk production.
Quality inspection

However, due to sheer volume of production, apparel inspections could only be conducted randomly, which could result in buyer dissatisfaction. Rainbeau authorised apparel quality inspections to be undertaken by a third party company, Specialised Technology Resources, Ltd. (STR), and the results were directly reported to buyers. Manufacturers’ quality assurance (QA) staff could also carry out inspections in line with their customers’ standards in order to ensure the quality results.

“I don't normally go to factories to visit that often. We depend on Factory QA and independent auditing service (STR) to go in and ensure factories are meeting our quality requirements. They do inspections on every shipment that is sent. Each shipment must pass random inspection before it is allowed to leave factories…” (email from C.Stillman, 28012010).

“...We can’t one hundred percent guarantee that our total procurement materials will meet customers standards even if we do quality checking....” (T. Tu,09082010).

(v) Distribution

Distribution followed as soon as the manufacturing process was completed. It also had a crucial impact on NPD; any product damage or delay during transportation could lead to penalties or extra costs for apparel manufacturers. Rainbeau experienced such risks, thus further vitiating its relationships with buyers even though the distribution failure might be caused by factors outside its control. The larger the quantity of the product orders, the more responsibilities and risks apparel manufacturers may encounter. In order to minimise the problems occurring during distribution, Rainbeau’s customer service team, under the control of the production team, had to coordinate with sales teams and facilitate the distribution process.

“...I also manage the Customer Service Department. This area works closely with Sales to make sure we understand all our customers requirements. Sales will get the order, but then Customer Service needs to find out all the rules and regulations and expectations.... It is an important part of the whole process and we need to stay in touch with sales to make sure we know all the requirements” (Email from C.Stillman,28012010).

5.2.6 Key factors of competitiveness deriving from NPD

The integration of textile and apparel NPD was seen as NW’s primary competitive strength in sustaining its global business; its alliance with Rainbeau is extremely important for such integration, allowing NW’s full-package service to satisfy their retail customers. In
addition to this, a number of key factors including R&D knowledge and experience, internal management system, IT system, international recognition by reputable quality assurance institutions, and its efforts to integrate supply network to the very end of upstream activity that distinguish NW’s NPD performance, are particularly highlighted and discussed in the followings.

5.2.6.1 The knowledge and experience of NPD

NW’s NPD experience and knowledge affected the decisions of in-house production and outsourcing. NW captured the R&D know-how and the management of NPD relationships with other manufacturers to accomplish its NPD.

“…We seize the technique know-how to ensure they are not able to gain the same production results without us. It takes a great deal of time and experience to select the manufacturers in order to manage the relationships with retail customers…” (S. Huang 16112009).

(i) The significance of R&D

Fabrics were seen as “the core element of the whole businesses in the textile and apparel industries, like CPU of Intel in the IT industry” (G. Lin 23032010). NW’s R&D together with fabric design was acquired to improve conventional fabric production in order to gain added value. This differentiated NW from others in the T&A industries (Li, 2008).

To respond to various market demands, NW expanded its product categories, such as spandex with cotton and nylon particularly for activity wear in the USA market in the early 1990s. It thus became a medium sized enterprise in Taiwan with capital up to approximately 700,000 USD (Chen et al., 2007). NW initiated fabric R&D, establishing its first R&D centre and department in Taipei in 1999. Approximately 1,000 innovational fabrics were created annually to attract buyers. However, due to its business expansion and its increasing cost, NW had to set up an overseas network to manage its R&D (Chen et al., 2007; Hsu, 2006).
With their R&D expertise, NW was recommended to join a textile innovation project sponsored by the Chinese and Taiwanese governments. This opportunity accelerated NW’s launch of its R&D and relevant business in China. The breakthrough of this NPD project was soybean protein fabric, called the “green fibre of the 21st century”. This environmentally friendly innovation does not pollute or damage the environment as the auxiliary materials and additives used are non-toxic, and most of the auxiliaries and semi-finished fibres can be recycled (Chen et al., 2007; Hsu, 2006; Shih et al., 2010).

This innovation resulting from the R&D collaboration proved NW’s NPD capabilities to the Chinese government, and helped its business development in the Chinese market. Having received the 2007 National Science and Technology Progress Award in China, soybean fibre, however, remained at the in-house testing stage due to difficulties with bleaching and dyeing, and the pilling problems of knitted yarns. Despite this unsuccessful production, NW benefited from the reputation gained in R&D capability, and thus in 2009 successfully launched the R&D centre in Changzhou as an overseas NPD base.

“...Despite failing to succeed to produce good quality of fabrics owing to the low quality of greige, we gradually lost the main business focus of this new product. However, we did gain an eminent reputation in terms of R&D since this innovation project which was supported by both Chinese and Taiwanese government” (S. Huang 13082009).

Conforming to European and American standards, the new fabrics from this new R&D centre can offer its buyers the quality assurance required by international standardisations,
such as the American Association of Textile Chemists and Colourists (AATCC), the American Society for Testing and Materials (ASTM) and the International Organization for Standardisation (ISO). Its major customers, including Adidas, Wal-Mart and Liz Claiborne, soon recognised NW as one of their best fabric suppliers, and hence NW was employed to develop new fabrics for other world-wide retailers (Shih et al., 2010; Zhu, 2008a).

(ii) New Wide’s R&D suppliers and business partners
Having outstanding R&D performance, NW began to enjoy close cooperation with its suppliers and business partners. In order to obtain added values of functional and advanced fabrics, NW had to rely heavily on its R&D and these well-known fibre suppliers (Xu, 2009). Such collaboration was beneficial to both sides, and cases in point were Elex fabrics, Cocona® fabrics and Flycool. The former was co-invented by NW and Ruxiang Co. Ltd in China; Ruxiang supplied Elex yarns for NW to create new functional fabrics. Cocona Inc., originally from Colorado, USA, was the major producer of Cocona® fibre; NW sought Cocona’s agreement to license the new fabrics in 2008; they created innovative fabrics containing evaporative cooling, odour absorption and UV protection. Based on their R&D collaboration, NW became the representative of Cocona® in Taiwan, which benefited both companies’ commercial growth in terms of NPD.

Another R&D partner, Flycool Co. Ltd. was the key supplier of Flycool yarns that were able to create instant cool and dry feelings to consumers’ skins, which saved energy as well as being environmentally friendly. Flycool simultaneously teamed up with DuPont Sorona to produce a new generation of biological and chemical fibres, which can reduce energy usage and decrease by 60% of carbon dioxide released during the production process. Through the alliance with NW, Flycool can promote the products directly to brand retailers. Furthermore, NW paved the way not only towards further R&D applications in sports and fashion wear but also entry to the Chinese market (Economic News, 2010; Song, 2010).

(iii) New Wide’s further R&D investment
Due to the significant R&D to NW, an average annual 3% of capital investment was input
directly into its R&D, and by the end of 2010, NW was taking a further step, with the launch of the R&D institute in Changzhou, China. This institute had the advantages of being near to NW’s factories, and of cooperating with Chinese academic institutions conducting a wide diversity of R&D projects and offering internships. Simultaneously, textile and apparel designs of the graduates after completing their internships in NW were undertaken in this R&D institute.

“We have decided to change the name of the R&D Dept. of Changzhou New Wide to ‘New Wide Textile R&D Institute.’ This institute will maintain close relationships with a number of research organizations and academia with various projects, such as China Textile Institute and Donghua University. This institute will be our important innovation base to sustain our R&D capabilities, including new skills, technology and materials” (S. Huang 16112009).

(iv) Marketing strategies integrating with R&D

In addition to continuously reinforce its R&D knowledge and capabilities, the marketing strategies were integrated into NW’s NPD: being the 2010 Shanghai World Expo licensed T&A manufacturer was NW’s milestone of NPD. With the co-developed advanced fabrics made with Flycool yarns, NW was promoted as one of “Taiwan Five Textile Tigers”(China Apparel, 2010; Song, 2010), and collaborated with Newtech Co. Ltd., Flycool Co. Ltd., Taiwan DuPont and Taiwanese textile organisations to market new products. They not only succeeded in sales of exclusive T-shirts with Expo logos, but also obtained the opportunity to present their NPD capability to global buyers in the Expo.

In an attempt to move beyond an OEM role, NW discerned the OBM opportunity through NPD alliance. With similar business culture and prospects concerning the future development, NW invested in Easyoga, becoming one of its key suppliers. Easyoga created four major lines with cutting-edge and eco-friendly images: LA.VENDA, Bertii, Lespiro and Charlotte series. Their apparel was designed by European and Asian designers using Taiwanese advanced fabrics to aim at higher-end markets of activity wear in Asia. Simultaneously, Easyoga’s retail channels in major Asian countries were set up, including flagship stores in Shanghai, Tokyo, Taipei and Seoul, and franchising business, mainly in gyms and sports shops (Easyoga, 2010).

“…we are interested in brands. We have invested in Easyoga because it is a growing and successful brand which has already made huge profits before inviting us on board…We do support them by fabrics, but they have their rights to source from other companies if
there is a need. Their decision regarding material suppliers is based on pursuing the maximum benefits for the company and the brand.” (S. Huang 13102009).

5.2.6.2 Internal management of NPD

“...a manufacturer must rely on “management” rather than purely production, because the current technology can embrace sufficient information to gain the pricing transparency of raw materials, production and shipping costs and so on. ...All these production performances result from great management” (T. Tu 07042010). As a result, NW paid close attention to its management of its staff training and collaboration. An internal management system was also established for staff to follow. Daily operations were unified; a five-division management system was put in place: the primary task was assigned by the head office and required prompt execution; the secondary was announced by higher authorities and executed by operation departments, while the tertiary required discussion between higher authorities and operations. The fourth-level was proposed by the authorities and determined by operations, and the final-level task was directly executed by operations without communication or discussion. Guidelines were provided for internal learning, e.g. R&D skills/terminology and foreign languages, and experience exchanges. Internal job rotation and training courses were employed to facilitate NW’s internal learning. Annual meetings of all departments including overseas branches were an additional key to learning and sharing experiences.

In addition to internal learning, alliances were another knowledge resource by means of which NW could improve its NPD capabilities. Without fully merging with a number of businesses, NW allowed their allies to retain shares, so as to continue contributing their NPD expertise into the amalgamated assets. NW could also acquire knowledge from these allies, and at the same time further expand production business, co-manufacturing in Kenya and Cambodia being an example.

“...we don’t totally merge other business, but rather invest in them, share our experiences and help them to solve their problems to make the whole team stronger. On the other hand, we also have gained from them and maximised benefits from such business alliances....” (S. Huang 23032010).

5.2.6.3 The management of New Wide’s sales teams

Internal collaboration among departments in terms of management was a key affecting
NPD performance, in particular the management of sales teams.

"...I prefer to say that the key success of our new fabrics development is our sales teams...." (S. Huang 13102009).

NW’s sales teams, the cross-functional teams, were the facilitators who accelerated the NPD process. Within the NW Group, there were 20 fabric sales teams: four in Shanghai, one in Beijing, three in Changzhou, two in Kunshan, one in Hong Kong, and nine in Taipei, while there were 15 apparel sales teams: seven in Taipei, two in Shanghai, two in Changzhou, one in Kunshan, two in Dallas and two in Los Angeles. Each of them operated respectively according to customers’ product categories, retail brands and business locations.

(i) The internal relationships between fabric sales teams and R&D

Internal relationships between NW’s fabric sales teams and the R&D department were cultivated in order to respond effectively to buyers’ needs. The R&D assistant Vice President, who was concurrently the sales assistant Vice President, coordinated these two departments during the commercialisation process of NPD. There were regular meetings between sales teams and the R&D department; although normally only sales managers were involved with the regular NPD meetings, the sales staff were allowed to participate in the R&D activities whenever they needed to do so.

“Each of their sales teams had their own expertise in certain kinds of fabrics production with fabric development knowledge and experience,” (email from J. Chen 14052010) and they shared resources among themselves, which enabled NW to offer fabric redesign or redevelopment to their customers. They were the bridge between R&D and customers which dealt with quality and prices. In so doing, they established a good rapport with their customers and suppliers, and simultaneously, internal relationships with the R&D department.

"Nowadays our customers know what they really want, so they can consult our sales teams regarding that. However, if they have an enquiry about new fabric development, they could contact us for the solutions in terms of R&D of yarns and fabrics. Actually, our sales teams do have the knowledge of fabrics and they can help and guide our customers to redesign or develop the products they want... Generally our sales teams are capable to handle customer enquiries unless the new fabrics are involved with new materials or development skills of technology, then they will turn to us...... Not only to create new products which is as similar as possible to their requests at competitive prices, but also to provide them with considerate service are the key to establish professional interaction and
maintain business relationships... What the sales teams are trying to do is share the supplier resources among themselves...” (J. Chen and I. Wang, 02042010).

(ii) The relationships between sales teams and factories

Relationships between sales teams and other textile factories determined NPD outcomes, such as production quality and on-time distribution. In addition to their internal assessments of manufacturers, the fabric sales teams attempted to establish long-term relationships with their preferred factories due to the efficiency of the production schedule. Nevertheless, sometimes they would collaborate with new manufacturing partners based on the recommendation of new sales staff.

“...some fabric sales teams are in the process of establishing long-term relationships or business cooperation with certain manufacturers, thus they are able to work with their own preference of manufacturers... It takes a great deal of time and experience to select the manufacturers in order to manage the relationships with retailing customers. Sometimes, our new recruited sales staff can also recommend some good manufacturers for production...” (S. Huang 16112009).

To simultaneously and effectively manage factories and customers, good communication skills were necessary for sales staff. To be flexible in communication with buyers or external/third party factories, NW’s sales teams normally contained younger and older sales assistants. The former tended to be good at English and a third foreign language so as to be able to communicate with foreign customers or manufacturers, while the latter spoke Taiwanese dialect, and were able to deal efficiently with the local manufacturers. To ensure the good NPD results, the fabric sales teams had constantly to monitor the entire manufacturing process, including sample and bulk production through email and telephone calls and sometimes by personally visiting factories and suppliers.

“Sales teams normally keep tracking the feedback from the manufacturers and suppliers by calls and emails. There is a product controller within their sales teams, who is responsible for the entire manufacturing process. These controllers sometimes spend days staying with the third party manufacturers in order to ensure the product outcomes because numerous defect results may occur during the process. When the bulk production starts producing small amounts of fabrics, these quality controllers go there to evaluate the fabric quality...” (J. Chen and I. Wang, 02042010).
(iii) Profit centre system vs. value centre system of sales teams

“...Although we are a textile and apparel manufacturing company, the two sales models function differently.” (S. Huang, 161109).

Each fabric sales team operated as if it were part of an individual factory, and the team manager as the factory director in charge of a number of sales assistants. The sales assistants mainly dealt with customer enquiries and production follow-up procedures with their collaborating factories. By adopting the profit centre system, each of these fabric sales teams was independently in control of decision making and shared the profits among the team members. This system also allowed fabric teams with their own resources to compete with each other; a certain percentage of profits had to be paid to their headquarters in order to fund the central administration, education, training, financial, R&D and logistics that supported the sales operation.

However, the profit centre system failed in the practice of apparel NPD due to its in-house production and the complicated procedures. Each apparel sales team comprised a sales manager and a number of merchandisers who linked between customers and their production centre. Since apparel PPC caused problem with a fair distribution of profits among sales teams, a value centre system thus arose. In contrast to fabric sales teams, the management of apparel sales teams tended to be centralised and governed by the vice president, sharing the total profits earned by all sales teams and PPC. The apparel sales teams also shared the operational function of sourcing and production.

(iv) Conflicts in management of sales teams

Concerted efforts had been made to integrate NW’s fabric and apparel operations to achieve its in-house production of NPD. Due to the respective sales teams of fabrics and apparel and the varied sales systems, the management of the sales teams was significant. The Vice Presidents of both apparel and fabric divisions arranged their teams to collaborate with each other, e.g. specific fabric sales team supporting the other apparel sales team, to maximise their profits according to their NPD specialties and market regions or customers they served.
However, the varied management systems of textile and apparel sales teams can cause internal conflicts of operation or profits, apparel sales for instance may have to collaborate with other fabric suppliers due to internal fabric costs offered from fabric sales being higher. In order to solve their internal conflicts, three management strategies were applied to NW’s sales teams: rotating jobs among fabric and apparel sales teams; establishing internal communication activities to share their experiences regarding dealing with problems; and standardising operation and evaluation systems within NPD.

“In order to solve the problem in terms of vertical integration, we have attempted to manage integration in three aspects:

(1) Role rotation: fabric and apparel teams exchange their role to understand each other better. This can enhance their relationships and interactivities.

(2) Informal communication platform: we organize a number of activities to increase harmonious friendships among the upstream and downstream teams. These open discussions offer feasible ways of dealing with difficult scenarios.

(3) Establishment of a credible evaluation system: we divide a project into detailed formulations and set up certain standard rules. Rooting the required standards into our organisation can dramatically decrease controversial issues.” (S. Huang, 13102009)

5.2.6.4 The management of IT

In order to directly communicate with its suppliers and buyers to facilitate NPD, in addition to aforementioned sales teams, NW employed advanced IT applications to acquire all sources of information: the Value-added Fashion Marketing (VFM) plan was implemented. VFM is a government sponsored program with IT integration. NW adopted this means of information provision, promoting itself as a major global supplier of textile and apparel NPD. This VFM was conducted by several participating teams, including Wang Shin Ru studio, Net Fusion IT company and Taiwan Textile Research Institute, providing the members of NW’s NPD with its fashion trend information analysis (such as colours, patterns, textures, styles and fashion vocabulary), the market resources gained from attending all the exhibitions, trade fairs and media and expert knowledge. Most importantly, the results of NW’s R&D were kept in the database within VFM and shared with internal departments and external allies as well as buyers. This IT system is advantageous for the performance of NW’s NPD and the T&A industries in Taiwan.

“...In order to gain more profits and value by integrating ourselves within the fashion industry, we are attempting to abandon the textile manufacturer role who is always receiving the orders from our apparel or textile manufacturer customers of the supply chain...We are now establishing this VFM platform to provide customers with the added-value service through IT capabilities since our apparel
customers lack the knowledge and information of textiles. In fact, we have government sponsorship to motivate this program because they want to integrate the upstream and downstream of the T&A industry by utilizing domestic raw materials, knowledge and technology to enhance the competitiveness of Taiwan’s textile industry” (G.Lin, 23032010).

There were three objectives of NW’s VFM plan: information integration, NPD integration, and marketing and service integration (New Wide Group, 2010c). NW’s VFM system served as a direct communication tool of NPD both internally and externally. It contained NW’s annual NPD information: fabric structures, standards, ingredients and specifications; customers could review all NW’s products through this platform, and request samples. Because VFM adopted communication with IT means and concepts, e.g. a block or tag, this could benefit buyers, using NW’s sales and efficient NPD process. Fabric categorisation by means of VFM was NW’s key strategy: a “fuzzy index” of product categories resulted in a correlation analysis module, providing buyers with a wide selection of fabrics. As regards internal usage, VFM allowed NW’s designers, merchandisers, and marketing or sales managers to monitor the entire NPD process and obtain the relevant updated knowledge, while externally communicating with the participants of NPD.

5.3 Summary
This chapter has presented the in-depth information of the main case study together with the pilot case study. The issues regarding apparel NPD derived from the pilot case study have facilitated the researcher’s understanding of the activities involved in the apparel NPD process and to refine the interview questions for the main case study, in order to enhance research reliability. This together with the use of literature review has allowed her to form the appropriate themes and structures for the main case study, which include the business background and development, the NPD process, and strategic development and management that are related to NPD. The following chapter will re-visit the literature, in light of the research framework, together with the empirical case study to analyse and discuss how the strategies and competitive advantages can be achieved by the T&A manufacturer in Taiwan.
Chapter 6 Analysis and Discussion

6.1 Introduction
The competitiveness of the manufacturers in the T&A industries is crucial as manufacturers have been facing severe global competition and other significant challenges. This study has attempted to explore how the T&A manufacturers can sustain their competitiveness. Taiwan is one of the countries that have managed to remain competitive in the global T&A industries, and a representative Taiwanese T&A manufacturer is thus chosen to conduct an in-depth case study for this research. This chapter, based on the theoretical framework constructed from chapter 3, will analyse and discuss the empirical case study, New Wide Group, comparing and contrasting the existing literature to explore how the manufacturer can generate strategies and competitive advantages in order to sustain competitiveness in the global T&A industries.

6.2 Strategic positioning and required resources
In order to outperform rivals, a firm needs to form a competitive strategy. According to Porter (1996), strategy formulation requires appropriate strategic positioning as discussed in section 3.1.1. Strategic positioning also requires trade-offs in terms of selecting activities (Porter, 1996). Variety-based positioning has been adopted by NW since the company is a manufacturer of knitted fabrics which serves a wide range of customers with a variety of products. Particularly in textiles, NW produces approximately 60 variations of new fabrics every week to cater for different customers’ needs. Additionally, NW adopts access-based positioning to serve particular customers with a specific set of activities. It provides exclusive textile ranges, where cutting edge R&D and design are applied with exclusive service for specific customers like Adidas, since a well-known sports brand demands advanced fabrics for its high performance sportswear. Furthermore, NW has allied with Rainbeau where the company can access Wal-Mart by making use of Rainbeau’s market intelligence, design and sales capabilities with fabrics delivered directly from NW’s allied factories or production base. NW also adopts strategic needs-base positioning that traditionally focuses on specific market segments, where the demands of customers in each market group have different characteristics. By upgrading its textile capabilities and
integrating apparel production, NW has approached retail brands, such as Abercrombie & Fitch, Hollister and Tommy Hilfiger, which serve a similar market segment. These retailers enjoy global brand reputation and recognition such that any manufacturer would want to do business with them in order to enhance its reputation. NW has enhanced its NPD with trend forecast, design, marketing capabilities and production in order to serve these customers. The combination of these positioning options enables a manufacturer to construct and perform different activities or implement activities in different ways, which can satisfy a diversity of its buyers as well as outperform its rivals, leading to a valuable and unique position for gaining competitive advantages (Porter, 1996). Moreover, despite the fact that NW has recently incorporated needs-based positioning with T&A NPD integration, providing services to branded retailers, the company has remained focused on its specific capability of manufacturing knitted fabrics rather than expanding to woven fabrics, since very different sets of activities and capabilities may be required.

These three strategic positionings are closely associated with generic strategies (Porter, 1996). It shows that NW, by focusing on the development of its knitting expertise and role as a manufacturer, has adopted both cost and differentiation strategies at the same time. For example, cost strategy is applied as NW reduces its capital investments on knitting machinery and other production facilities, by outsourcing its knitting production with numerous small factories and allied manufacturers to produce a variety of fabrics in order to cater for a wide range of buyers (i.e. cost is related to variety-based positioning). NW also differentiates itself through innovative fabrics and apparel NPD together with marketing strategy and technological capabilities providing full-package service to brand retailers (i.e. differentiation is related to needs/access-based positioning). According to Uggla (2004), institutional association with a leading brand name can accelerate business development, because the brand offers a differentiated advantage to its suppliers (Desai and Keller, 2002). This is the reason that NW strives to serve influential brand manufacturers/retailers, such as Adidas, Abercrombie & Fitch, Hollister, and Tommy Hilfiger to reinforce its strategic positioning.
Furthermore, Grant (1991) refers these generic strategies to a firm’s resource position. A firm, while making a strategic decision, has to take its available resources into consideration and generate the appropriate capabilities. For both cost and differentiation, NW has the resources to access low cost textile materials through partnering suppliers, low-wage labour in its apparel factories and large production scales, and simultaneously the company deploys the resources/capabilities to gain reputation through design services, innovative textiles and extensive commercialisation processes. Additionally, NW performs its activities configured in different ways where part of its apparel design processes are carried out through Rainbeau in San Francisco, which aims to serve specific customers in the USA, together with the other sales office in Dallas. These configured activities are employed according to strategic positionings (Porter, 1996), and generate capabilities by transforming preliminary resources (Grant, 1991). This in turn generates specific sets of resources that can be sources of competitive advantages (Barney, 1991; Grant, 1991; Makadok, 2001; Teece and Pisano, 1994). NW manipulates its existing resources (human, physical, organisational) to create different valuable capabilities, such as textile R&D and marketing, and apparel manufacturing, through planned activities, and in turn generates knowledge in both textile and apparel. These NPD activities are organisational routines inherent in business processes that are the sources of capabilities to integrate resources (Eisenhardt and Martin, 2000; Grant, 1991) and knowledge, resulting in competitive advantages (Conner and Prahalad, 1996; Grant, 1996).

In addition to internal resources, external resources through partnering collaboration can generate NW’s capabilities (Emden et al., 2006; Perks, 2004). The company tends to integrate complementary resources e.g. allied textile knitting factories and an apparel design ally by learning different capabilities. It thus creates dynamic capabilities by the reconfiguration of both internal and external resources (Eisenhardt and Martin, 2000; O'Regan and Ghobadian, 2004; Teece and Pisano, 1994; Winter, 2003). The combination and reconfiguration of resources in the complex NPD network of NW (e.g. coordination of textile R&D, in-house and allied textile and apparel factories, and overseas sales and design teams) has the potential for competitive advantage. According to Eisenhardt and
Martin (2000), such reconfiguration of resources can be observed in the NPD process. The following section will discuss the NPD process, as well as evidence analysed from the case study in order to understand how resources/capabilities can be generated and reconfigured into sources of competitive advantages.

The key findings are summarised as follows:

- This study is consistent with literature that strategic positioning options that are used in different sets of activities to cater for diversified demands are closely related to the firm’s resources and capabilities.

### 6.3 The NPD process

According to a number of researchers (Eisenhardt and Martin, 2000; Verona, 1999), the NPD process can be viewed as a generator of resources/capabilities since processes contain planning and implementing functions, which play a crucial part in integration and coordination to enhance product performance, such as increased value, and effectiveness in production and markets. NW has invested heavily in both textile and apparel NPD as well as in their integration. Specifically, NW has formed a specific and crucial alliance with Rainbeau in apparel NPD to strengthen its T&A NPD integration and obtain more advantages (see Figure 6.1).
In order to comprehend the activities involved in the NPD process, the NPD process of NW will be identified and analysed by the primary five stage model (Crawford and Di Benedetto, 2006; Sinha, 2000), with IDEF0 method (see section 4.5.2). In order to understand the strategic perspectives of NPD activities and the potential competitive advantages that can be generated, there is a need to capture the NPD process in a theoretical framework together with empirical evidence. Therefore, this study attempts to relate RBV with an in-depth analysis of NW’s NPD process, together with TCT, where strategic decisions are related to the formation of partnering relationships. In line with both theories leading to competitive advantage at firm level and external relationships, RBV may well be the starting point for capturing resources, and capabilities applied in NPD processes, while TCT relates strategic make-or-buy decisions. The generic resources including human, physical and organisational ones will be identified and analysed in each stage of NW’s process for the resulting strategic outcomes.
6.3.1 The analysis of NW’s NPD process

Figure 6.2 Overview of NW’s fabric NPD
Figure 6.3 Research and analysis of NW's fabric NPD A1

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**Market identification**

- The dynamics of fashion industry; (opportunities, economic impacts…)
- Trading regulation;
- Knitted fabrics focus

**Trend forecast**

- Trend information; Trade shows and exhibition;
- Biweekly meetings; Third party trend forecast company;
- Taiwan H.Q.: Marketing vice president; Project planning specialists; Designer; IT department;
- Customer profiles and information;

**Strategy formulation**

- Product developing direction; Trend direction;
- Horizontal business expansion; Schedule of fabric NPD;
- Potential fabrics to develop; Participating international trade fairs or exhibitions;

**Strategy evaluation**

- Production know how; New Technology; New materials; Government legislation;
- Availability of material suppliers; Availability of production sites; Investment of various types of machinery;
- Taiwan H.Q.: Marketing vice president; Founders; Executive;

---

**NO.:** A1

**TITLE:** Research and Analysis
Tactical decisions relating to the coming season (1 year forecast and planning), e.g. selecting target markets, suppliers/partners and NPD direction are usually made at this stage by senior managers (e.g. founders, CEO, the marketing Vice President and the assistant vice president of R&D and sales).

Tactics are based on internal and potential external resources; internal resources as well as costs are evaluated in order to decide what external resources may have to be acquired to generate or reinforce capabilities.

Trade and government regulations may also impact tactical decisions.

**Human resources** - (i) R&D department, project planning specialists and designers acquire fabric knowledge; (ii) the marketing Vice President transmits market information and key-account buyers’ demands; (iii) senior managers including founders, CEO and the marketing Vice President evaluate tactical decisions; (iv) IT department generates information regarding past sales information

**Organisational resources** – (relationships) (i) contracted party (trend forecaster) disseminates market information and forecasts trends; (ii) relationships with fabric buyers; (iii) contacts with apparel buyers; (iv) relationships with yarn suppliers; (v) external fabric manufacturers (tactical decisions are viewed within the longer term relationships with textile factories as the company relies on them to deliver quality, value and time)

**Capabilities** created: (i) alignment of demands and planning for satisfying buyer requirements; (ii) absorptive capacity from forecasting and evaluation from past performance; (iii) learning to be proactive with buyers; (iv) exploring possible dynamic capabilities through planning procedures

**Resources (VRIN)** may gain: (i) valuable resource: NW with strategic plans of
forming alliances and/or networks provides integral product propositions to fabric buyers, which generates business opportunities; (ii) rare resource: the combination of human and organisational resources in absorbing new information and conveying information into new fabric planning; (iii) imperfectly-imitable: reputation of fabric development is embedded in NW’s path dependency. Causal ambiguity is enhanced through systematic trend forecasting and fabric development knowledge (e.g. R&D).
Figure 6.4 Synthesis of NW's fabric NPD A2
Synthesis of NW’s fabric NPD A2

<table>
<thead>
<tr>
<th>Types of Resources</th>
<th>New Wide’s resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical locations</td>
<td>(i) R&amp;D centres in Taipei and Changzhou (China); (ii) Changzhou production base for fabric sample making;</td>
</tr>
<tr>
<td>Specialised machinery</td>
<td>(i) production machinery for fabric samples; (ii) testing equipments;</td>
</tr>
<tr>
<td>Skills/Abilities</td>
<td>(i) create fabric design concepts; (ii) design planning; (iii) making fabric prototype/samples</td>
</tr>
<tr>
<td>Knowledge</td>
<td>(i) fabric knowledge; (ii) trend information; (iii) market information; (iv) sales feedback</td>
</tr>
<tr>
<td>Physical locations</td>
<td>reputation for innovative fabrics</td>
</tr>
<tr>
<td>Equipment for fabric property testing</td>
<td></td>
</tr>
<tr>
<td>Prototype production engineering</td>
<td></td>
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<tr>
<td>Prototype production engineering</td>
<td></td>
</tr>
<tr>
<td>Management systems</td>
<td>Quality standardisation system</td>
</tr>
<tr>
<td>Organisational culture</td>
<td>Cooperation of teams (textile designers, fabric planning specialists, R&amp;D engineers)</td>
</tr>
</tbody>
</table>

- This is the most time-consuming and costly stage of NW’s fabric NPD so obtaining appropriate resources can improve efficiencies in time and cost, as well as obtain product differentiation advantage.
- **Human resources** – (i) R&D department, project planning specialists and designers who possess fabric knowledge and experience responsible for design concepts, which is facilitated by the marketing Vice President who provides market information; (ii) sales teams for sales feedback mainly from key account buyers
- **Physical resources - (machinery)** (i) diversified circular knitting machinery; (ii) equipments for fabric property testing; (iii) prototype production engineering **(physical location)** - (i) R&D centres in Taipei and Changzhou for new product planning and prototype development; (ii) Changzhou base for sample production
- **Organisational resources - (history)** reputation for innovative fabrics (approximately 800 innovative fabrics/annually) **(management system)** quality standardisation systems that are usually required by specific market demand from fabric buyers **(relationships)** (i) a range of yarn/fibre suppliers that NW collaborates with (e.g. Shin Kong and Nan Ya in Taiwan and Cocona and Outlas in the US); (ii) relationships with 300+ fabric manufacturing plants in TW and overseas fabric manufacturers for efficient fabric prototypes. There are transaction costs incurred at this stage, where NW collaborates with third-party factories making fabric samples, either from Taiwan or overseas. Contracts are not viewed in their absolute form since there are alliance formation and long-term relationships
involved between NW and its 300+ manufacturers (relational view).

- **Capabilities** created: (i) core competence- innovation capability reinforces NW’s expertise in new fabric creation and this also allows NW to attract new buyers; (ii) market intelligence/sales inputs generate accumulated knowledge which provides improved and more appropriate fabrics to buyers; (iii) dynamic capabilities derive from in-house R&D and partnering with a trend forecaster and a number of textile factories

- **Resources (VRIN)** may gain: (i) valuable resource: NW can produce and present innovative/commercialised fabrics together with relevant trends to fabric buyers; (ii) rare resource: the combination of fabric development talents from designers, engineers, planning specialists and sales teams enables NW to meet fabric buyer demands at different levels; (iii) imperfectly-imitable: reputation of innovative fabrics is embedded in NW’s path dependency, which can create a nearly inimitable resource with a combination of valuable and rare resources.
Figure 6.5 Selection of NW’s fabric NPD A3
Selection of NW’s fabric NPD A3

<table>
<thead>
<tr>
<th>Types of Resources</th>
<th>New Wide’s resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical</td>
<td>Physical locations</td>
</tr>
<tr>
<td></td>
<td>Specialised machinery</td>
</tr>
<tr>
<td>Human</td>
<td>Skills/Abilities</td>
</tr>
<tr>
<td></td>
<td>Knowledge</td>
</tr>
<tr>
<td>Organisational</td>
<td>History</td>
</tr>
<tr>
<td></td>
<td>Relationships</td>
</tr>
<tr>
<td></td>
<td>Management Systems</td>
</tr>
<tr>
<td></td>
<td>Organisational culture</td>
</tr>
</tbody>
</table>

- New fabric prototypes for marketing promotion and commercialisation are carried out at this stage.
- Time, cost and quality are NW’s main concerns at this stage for determining whether production will be conducted in allied textile factories or by contracting out.
- **Human resource**- (i) the marketing Vice President and sales teams gather market knowledge/intelligence; project planning specialists, based on updated market information, plan for both seasonal and high-performance technical fabrics catering for a wide range of buyer demands; (ii) technicians in R&D department, and sales teams bring fabrics to be commercialised in the marketplace. Market feedback from the sales teams together with their collaboration with R&D technicians permits frequent launches of new fabrics, resulting in product diversification; (iii) sales teams at this stage act as the node of the cross-functional players, since they facilitate communication with marketing and production operations for commercialisation purposes. They provide suggestions of alternative fabrics to buyers, negotiate prices, control costs in fabric NPD and schedule lead time for production and distribution. Simultaneously, they cooperate with apparel sales teams to implement apparel NPD in affiliated apparel factories if buyers request it.
- **Physical resources**- **(specialised machinery)**- fabric production machinery, testing equipment and prototype production engineering; **(physical locations)**- the R&D centres in Taipei and Changzhou arrange new product planning, and Changzhou’s production base carries out prototype
production.

- **Organisational resources- (relationships)** (i) 300+ small textile factories located near company’s HQ and three allied factories in China carry out textile sample production, together with Changzhou base; (ii) valuable input from key account buyers is taken into consideration for the prototype development process. The majority of fabric buyers are well aware of the leading brand owners’ choices and follow their lead in fabric selection, as this can benefit their sales as well.

  (management systems) (i) VFM (information system) is used to integrate both NW’s internal and external communications to increase direct sales; (ii) profit centre system enhances sales teams’ performance/commercialisation, and each sales team is specialised in a certain type of fabric production to serve specific buyers.

- **Capabilities** created: (i) profound knowledge of market mechanisms; (ii) technological capabilities to provide innovative products to key accounts (brand owners); (iii) managerial experience in the coordination of sales, prototype production, and selection of production plants; (iv) core competence leads to core products and their diversification to satisfy various demands.

- **Resources (VRIN)** may gain: (i) valuable resource: successful commercialisation enhances opportunities to serve a wider range of buyers, mitigating threats; (ii) rare resource: aligning with buyers’ requirements, sales teams possessing fabric and market knowledge are able to perform the complex task of communicating with buyers, providing appropriate solutions of fabric choices, and at the same time, coordinate sample production with R&D centres and select appropriate production sites; (iii) imperfectly-imitable resource: the collaboration of sales teams and R&D centres creates the complicated internal process of NPD that leads to causal ambiguity. The reputation of NW enables the formation of a local production network extending relationships with 300+ small textile factories which can produce rapidly for key account/brand owners. This also enhances NW’s reputation over other smaller buyers. These facts are also sources of social complexity.
Figure 6.6 Production of NW’s fabric NPD A4

- A32: Buyers’ final confirmation
  - Time; Cost; Quality

- A41: Bulk production arrangement
  - SOP; Factory assessment
  - Managers of sales teams; Allied factories; In-house factories; Third-party factories
  - Quality inspection
  - Factory determination (manufacturing partners)

- A42: Bulk production
  - Quality; Time

- A51: Factories;
  - QC of New Wide’s sales teams;
  - Buyer’s QC;
  - QC of New Wide’s sales teams;
  - Buyer’s QC;
Bulk production of fabrics is conducted primarily in Taiwan and China where advantages related to culture, language and location proximity are the key determinants of selecting appropriate production locations, because they are associated with intricate communication, which can impact production results, e.g. quality.

- **Human resources**- (i) sales team leaders who possess production knowledge and experience, allocate production sites of textile factories (in allied factories, affiliated factories or contracting-out factories) according to time, cost, capacity and specialisation, with regard to buyers’ specifications; (ii) sales teams ensure product quality during production (quality assurance)

- **Physical resources- (production locations)** in-house and allied factories that produce higher value fabrics to achieve higher profits

- **Organisational resources- (relationships)** – (i) allied textile factories in China (Kunshan Leadrong, New Nuance and Taih Yin) for bulk production together with subcontracting factories in China and Taiwan. NW is impelled to ally and outsource textile production because market demand for production specialisation and capacity require diversified textile machinery and quality levels. Hence, assessment of textile factories and quality becomes essential. Sometimes buyers’ QC is assigned to investigate and ensure product quality. Nevertheless, dyeing and finishing processes are mainly carried out in house; (ii) forming an alliance with Huge Bamboo textile manufacturer in Vietnam producing fabrics exclusively for certain buyers (e.g. Adidas). Transaction costs are incurred, since contracting out bulk production together with using allied textile factories are needed to carry out production; (iii) NW has allied with New Tech for eco-printing fabrics.
(management systems) (i) internal assessment system for selecting collaborating manufacturers is mainly based on their production capacity and quality; (ii) each fabric sales team monitors production and collaborates with production engineers, and their respective suppliers and factories, as the orders are assigned to various factories; (ii) SOP system provides textile factories that NW employs with the standardised process to produce fabrics with certain quality assurances for buyers

- **Capabilities** created: (i) having R&D knowledge, SOP systems and a coordinated network of production, NW acquires strategic flexibility in fabric production to supply diversified buyer demands; (ii) through allied/contracting-out fabric factories, NW makes use of complementary resources to generate its dynamic capabilities; (iii) fabric production has a long history in NW that can lead to core competence (i.e. path dependent reinforcing knowledge)

- **Resources (VRIN)** may gain: (i) valuable resource: NW’s textile production forms a complex network of allied factories, producing an increasing variety of fabrics. This can increase business opportunities and enhance business reputation in the textile sector.
Figure 6.7 Distribution of NW’s fabric NPD A5
Distribution of NW’s fabric NPD A5

<table>
<thead>
<tr>
<th>Types of Resources</th>
<th>New Wide’s resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical</td>
<td>Physical locations</td>
</tr>
<tr>
<td></td>
<td>in-house apparel factories</td>
</tr>
<tr>
<td></td>
<td>Specialised machinery</td>
</tr>
<tr>
<td>Human</td>
<td>Skills/Abilities</td>
</tr>
<tr>
<td></td>
<td>(i) fabric distribution arrangement; (ii) apparel production arrangement</td>
</tr>
<tr>
<td>Organisational</td>
<td>Knowledge</td>
</tr>
<tr>
<td></td>
<td>Relationships</td>
</tr>
<tr>
<td></td>
<td>(i) allied textile factories; (ii) allied apparel factories; (iii) subcontracting apparel factories; (iv) apparel factories that buyers specified</td>
</tr>
<tr>
<td></td>
<td>Management Systems</td>
</tr>
<tr>
<td></td>
<td>coordination of distribution</td>
</tr>
<tr>
<td></td>
<td>Organisational culture</td>
</tr>
<tr>
<td></td>
<td>enhanced flexibility with managing production and distribution</td>
</tr>
</tbody>
</table>

- The apparel factories are usually specified by apparel buyers, and the distribution carriers are also arranged before textile distribution. Nevertheless, NW’s sales teams can propose to retail buyers that they use their vertically integrated apparel factories together with the incentives of arranging distribution to reduce total lead times. Thus, buyers have two options, either arrange apparel production themselves or delegate production to NW.
- **Human resources**- sales teams in charge of the arrangement and distribution between textile and apparel factories (either in-house and/or specified by buyers)
- **Physical resources**- allied textile factories and in-house apparel factories enhance the flexibility of production and on-time complete apparel assembly
- **Organisational resources**- (Relationships) subcontracting apparel factories that are assigned by in-house apparel sales teams or retail buyers. Transaction costs for subcontracting apparel production to factories specified by buyers.
- **Capabilities** created: dynamic capabilities enhance overall business performance as NW has the ability to manage network sourcing (i.e. both textile and apparel production and distribution) for buyers.
- **Resources (VRIN)** may gain: (i) valuable resource: NW can enhance business opportunities by providing buyers with extra services of apparel production together with distribution. This can mitigate business threats.
Figure 6.8 Overview of NW’s apparel NPD
Figure 6.9 Market research and development of NW’s apparel NPD C1
Market research and development of NW’s apparel NPD C1

<table>
<thead>
<tr>
<th>Types of Resources</th>
<th>New Wide’s resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical</td>
<td>(i) Kunshan apparel factory (China); (ii) affiliated apparel factories (EUG and STK) in Lesotho; (iii) vertically integrated apparel factory in Cambodia; (iv) HQ sales offices in Taipei (Taiwan); (v) overseas sales offices in Shanghai and Kunshan (China); (vi) overseas sales offices in San Francisco and Dallas (USA)</td>
</tr>
<tr>
<td>Specialised machinery</td>
<td></td>
</tr>
<tr>
<td>Human</td>
<td>(i) strategic decisions; (ii) the ability to learn apparel NPD; (iii) the ability to manage and coordinate apparel production</td>
</tr>
<tr>
<td>Knowledge</td>
<td>knowledge of apparel production</td>
</tr>
<tr>
<td>Organisational</td>
<td>reputation from fabrics transmitted to apparel NPD</td>
</tr>
<tr>
<td>History</td>
<td>(i) the clusters of Taiwanese manufacturers in Kenya and China; (ii) joint venture Kenya factories; (iii) relationships with retail buyers that have been established in textile operations; (v) apparel design performed by an important ally (Rainbeau)</td>
</tr>
<tr>
<td>Relationships</td>
<td>(i) CSR system; (ii) VFM systems; (iii) production network management</td>
</tr>
<tr>
<td>Management Systems</td>
<td>textil e and apparel NPD integration and resource sharing</td>
</tr>
</tbody>
</table>

- Top management commitments to integrate textile and apparel NPD and combine resources of textile and apparel
- The majority of NW’s apparel business was first brought in by its textile buyers who focused on sport or activity wear; these are the original and primary apparel categories that NW produced. To achieve product diversification, NW initiated the production of fashion wear.
- In-house apparel factories are set up strategically in relation to NW’s target markets (namely the US and EU markets). For example, to obtain free tariff advantage, the African apparel factories (Kenya, Lesotho) are mainly established to cater for the American markets (based on AGOA), while manufacturing in the ASEAN countries is for the European ones.
- **Human resources** - senior managers including founders, CEO, the marketing Vice President and apparel Vice President determine strategic direction; these strategic decisions include the establishment of in-house and allied apparel factories, and overseas sales offices in various countries resulting in strategic networks.
- **Physical resources** - (Physical locations) (i) Kunshan factory mainly for apparel samples; (ii) factories (EUG and STK) in Lesotho established through the experience of Kenyan factories; (iii) apparel factories (initially joint venture
(20% shares) then merged in-house) in Cambodia for the EU market; (iv) NW’s sales offices in Taipei (Taiwan), Shanghai, Kunshan (China) and Dallas (USA)

- **Organisational resources- (history)** the reputation among retail buyers based on fabric NPD (relationships) (i) the clusters of Taiwanese manufacturers in Kenya and China; (ii) joint venture of Kenya factories (70% shares) to obtain the knowledge and management of apparel manufacturing and to avoid the risk associated with independent investment. NW thus acquires the knowledge and capability to establish its in-house factories to obtain complete control of apparel production in a vertically integrated arrangement; (iii) relationships with existing buyers who have brand visibility enhance NW’s reputation and allow it to attract other buyers; (iv) an apparel design ally in the US (Rainbeau) generates opportunities of acquiring both textile and apparel orders from US retail buyers.

- **(management system)** fostering corporate social responsibility (CSR) and business ethics is also crucial in attracting buyers to collaborate with NW. The CSR department in NW was established in 2008 responding to global concerns about ethical sourcing.

- **Capabilities** created: (i) learning through the absorptive capacity of the firm to gain a new field of expertise, which consequently allows exploiting options; (ii) dynamic capabilities in association with apparel production that is vertically integrated; (iii) knowledge of integrating textile and apparel NPD to enhance the value of the firm and deliver value to its buyers;

- **Resources (VRIN)** may gain: (i) valuable resource: two-fold NPD (textile and apparel NPD integration and resource sharing) increases business opportunities while simultaneously decreasing threats; (ii) rare resource: the valuable resource is also rare because not many manufacturers can achieve T&A NPD integration and production network management; (iii) imperfectly-imitable resource: the complexity of two-fold NPD including production network management creates causal ambiguity, where its implementation enhances NW’s reputation among buyers as well as suppliers.
Figure 6.10 Apparel production communication with apparel buyers C2

**NODE: C2**

**TITLE:** New Wide production communication with apparel buyers

**NO.:**
Apparel production communication with apparel buyers C2

<table>
<thead>
<tr>
<th>Types of Resources</th>
<th>New Wide resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical</td>
<td>Physical locations</td>
</tr>
<tr>
<td></td>
<td>(i) central production centre in Kunshan; (ii) apparel factories (Kunshan, Lesotho and Cambodia); (iii) sample making in Kunshan and Cambodia</td>
</tr>
<tr>
<td></td>
<td>Specialised machinery</td>
</tr>
<tr>
<td>Human</td>
<td>Skills/Abilities</td>
</tr>
<tr>
<td></td>
<td>(i) cross-functional communication; (ii) apparel sample specification and production; (iii) accessories and trims procurement; (iv) experience for serving retail buyers</td>
</tr>
<tr>
<td></td>
<td>Knowledge</td>
</tr>
<tr>
<td></td>
<td>Coordination of textile and apparel production</td>
</tr>
<tr>
<td>Organisational</td>
<td>History</td>
</tr>
<tr>
<td></td>
<td>Relationships</td>
</tr>
<tr>
<td></td>
<td>(i) subcontracting apparel factories for sample making; (ii) relationships with suppliers; (iii) joint venture factories in Kenya; (iv) relationships with New Wide’s existing buyers</td>
</tr>
<tr>
<td></td>
<td>Management Systems</td>
</tr>
<tr>
<td></td>
<td>(i) the integration of textile and apparel production; (ii) centralised profit-sharing system of apparel sales teams; (iii) centralised production control</td>
</tr>
<tr>
<td></td>
<td>Organisational culture</td>
</tr>
<tr>
<td></td>
<td>collaboration of textile and apparel sales teams</td>
</tr>
</tbody>
</table>

- Approximately 70% of NW’s apparel production together with fabrics is conducted in-house utilising company resources.
- **Human resources-** (i) apparel sales teams communicate with buyers and in-house textile departments; (ii) in-house sample makers in Kunshan factory.
- **Physical resources-** (physical locations) (i) central production centre in Kunshan for purchasing trims, accessories, and arranging apparel sample making and some bulk production; (ii) in-house (vertically integrated) apparel factories (Kunshan, Lesotho and Cambodia); (iii) in-house sample making in Kunshan and Cambodia apparel factories.
- **Organisational resources-** (relationships) (i) a number of contracting-out apparel factories near sales offices for sample making; (ii) relationships with compatible suppliers to acquire efficiently materials for sample making; (iii) joint venture factories in Kenya; (iv) experience and relationships with NW’s existing buyers can reduce the number of apparel sample making (preproduction samples).
- **(management system)** (i) integration of textile and apparel production; (ii) centralised profit-sharing system of apparel sales teams; (iii) centralised production control in the apparel division involving multilateral (network) sourcing (including textile, trimmings, accessories) responding to buyers’ demands.
Because of the limited capacity of apparel production carried out by seven vertically integrated and allied factories, some of NW’s apparel bulk production has to be outsourced to satisfy demand. Transaction costs arising from contracting out production and alliances.

Capabilities created: (i) knowledge of in-house apparel NPD; (ii) learning (absorptive capacity) from communicating with buyers and allied factories; (iii) dynamic capabilities of managing production allocating in in-house and allied apparel factories to cater for demand.

Resources (VRIN) may gain: (i) valuable resource: NW can exploit apparel NPD knowledge in a combination of faster lead time for sample making and bulk sample production. This generates opportunities for business growth because NW can also provide its own fabrics.
Figure 6.11 Manufacturing of NW’s apparel NPD C3

C24

70% in-house production of fabrics and apparel

Conditions of factories;

Standards of factory assessment based on buyers’ requests;

Manufacturing factories; Vice president of apparel; Buyers or their assigned inspectors;

Apparel manufacturing

C31

Apparel manufacturing arrangement;

Materials and fabrics dispatched to apparel manufacturing sites;

Selected factory approval;

Factory assessment C311

Cost; Production space;

Apparel quality;

Manufacturing factories; Central production centre of New Wide;

Quality inspections of various samples based on buyers’ requests;

Cut, sew and assembly C312

Bulks of apparel;

Quality approval

C32

Notarisation companies;

Manufacturing factories; Central production centre of New Wide (Quality controllers and inspectors); Buyers’ QC; Notarisation companies;

C41

Standards of factory assessment based on buyers’ requests;

Apparel manufacturing

C31

Apparel manufacturing 70% in-house production of fabrics and apparel

New Wide’s Apparel Manufacturing

NODE: C3  TITLE: New Wide’s Apparel Manufacturing  NO.:
Manufacturing of NW’s apparel NPD C3

<table>
<thead>
<tr>
<th>Types of Resources</th>
<th>New Wide’s resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical</td>
<td>(i) Centralised production centre in Kunshan (China); (ii) apparel factories in Kunshan, Cambodia (Asia), Lesotho (Africa)</td>
</tr>
<tr>
<td></td>
<td>Specialised machinery</td>
</tr>
<tr>
<td>Human</td>
<td>(i) Inhouse apparel NPD; (ii) the ability to select and evaluate appropriate factories; (iii) quality control of apparel production</td>
</tr>
<tr>
<td></td>
<td>Skills/Abilities</td>
</tr>
<tr>
<td></td>
<td>Knowledge</td>
</tr>
<tr>
<td>Organisational</td>
<td>(i) Centralised production centre in Kunshan (China); (ii) apparel factories in Kunshan, Cambodia (Asia), Lesotho (Africa); the former in Asian regions have the advantage of timely distribution, since all of NW’s textile manufacturing sites were in Asia, enabling fast supply of raw materials for apparel production. The African factories, including joint venture factories, undertake the majority of apparel production involving lower labour costs, while sourcing materials from Taiwanese factories in the African region together with NW’s textiles.</td>
</tr>
<tr>
<td></td>
<td>History</td>
</tr>
<tr>
<td></td>
<td>(i) Joint venture factories in Kenya; (ii) Notarisation companies; (iii) relationships with suppliers;</td>
</tr>
<tr>
<td></td>
<td>Relationships</td>
</tr>
<tr>
<td></td>
<td>(i) Standard assessments of factories; (ii) Central production control;</td>
</tr>
<tr>
<td></td>
<td>Management Systems</td>
</tr>
<tr>
<td></td>
<td>Organisational culture</td>
</tr>
</tbody>
</table>

- Total quality assurance (apparel production quality, on-time delivery) affects the relationships with buyers
- **Human resources**- (i) Vice President of apparel assesses, approves and selects factories (including in-house, allied and subcontracted) in relation to time, cost, production capacity and quality levels; (ii) in-house quality controllers and inspectors assure quality standards are met in all production stages.

- **Physical resources-(physical locations)**(i) Centralised production centre in Kunshan (China) for sourcing trims, accessories and arranging apparel bulk production; (ii) apparel factories in Kunshan, Cambodia (Asia), Lesotho (Africa); the former in Asian regions have the advantage of timely distribution, since all of NW’s textile manufacturing sites were in Asia, enabling fast supply of raw materials for apparel production. The African factories, including joint venture factories, undertake the majority of apparel production involving lower labour costs, while sourcing materials from Taiwanese factories in the African region together with NW’s textiles.

- **Organisational resources-(relationships)** (i) Joint venture factories in Kenya; (ii) notarisation companies for apparel inspection and quality approval with certificates offering approved quality; (iii) relationships with compatible suppliers to efficiently acquire materials for bulk production. Transaction costs incur from joint venture in Kenya.

(Management system) (i) Standard assessments of factories; (ii) centralised production control in the apparel division involves the apparel manufacturing
process, and multilateral/network sourcing (including textiles, trimmings, accessories) to satisfy buyers’ demands.

- **Capabilities** created: (i) knowledge deriving from learning apparel manufacturing process and quality assurance procedures to respond to buyers’ demand; (ii) dynamic capability deriving from manipulating manufacturing plants in a variety of countries benefiting production lead-time and cost reduction from GSP.

- **Resources (VRIN)** may gain: (i) valuable resource: deriving from in-house apparel factories that use own fabrics to respond quickly to buyers’ orders. Especially factories located in different countries enjoy the benefits of GSP to reduce production costs, which can generate business opportunities in the US and EU; (ii) rare resource: internal management of centralised production control requires a mix of physical, human and organisational resources to coordinate and implement production activities in order to meet buyers’ targets.
Figure 6.12 Distribution of NW’s apparel NPD C4

Title: New Wide’s Apparel Distribution

NODE: C4  TITLE: New Wide’s Apparel Distribution  NO.:
Distribution of NW’s apparel NPD C4

<table>
<thead>
<tr>
<th>Types of Resources</th>
<th>New Wide's resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical</td>
<td>Physical locations</td>
</tr>
<tr>
<td></td>
<td>Specialised machinery</td>
</tr>
<tr>
<td>Human</td>
<td>Skills/Abilities</td>
</tr>
<tr>
<td></td>
<td>ability to arrange distribution</td>
</tr>
<tr>
<td></td>
<td>Knowledge</td>
</tr>
<tr>
<td></td>
<td>market feedback from retail buyers</td>
</tr>
<tr>
<td>Organisational</td>
<td>History</td>
</tr>
<tr>
<td></td>
<td>(i) relationships with specific distribution carriers;</td>
</tr>
<tr>
<td></td>
<td>(ii) relationships with insurance companies</td>
</tr>
<tr>
<td></td>
<td>Management Systems</td>
</tr>
<tr>
<td></td>
<td>Organisational culture</td>
</tr>
<tr>
<td></td>
<td>Coordination of sales teams with buyers</td>
</tr>
</tbody>
</table>

- **Human resources** - sales teams in charge of delivery schedules with buyers, which are planned as soon as bulk samples have been confirmed. Sales teams also receive feedback from retail buyers after product launch in retail.
- **Organisational resources** – (relationships) (i) specific distribution carriers that NW collaborates with; (ii) insurance companies ensure delivery.
- NW may receive replenishment orders from their buyers if the initial sales of on-time delivery, apparel quality and reasonable retail price are successful, and the relationships between NW and buyers are close.
- **Capabilities** created: (i) knowledge obtained through feedback of retail buyers; (ii) learning from success/failure of product launches.
- **Resources (VRIN)** may gain: valuable resources can be gained through information transmitted backwards since NW acquires first-hand information and is able to improve and implement product replenishment, thus enhancing the cooperation opportunities with retail buyers.
Figure 6.13 Overview of Rainbeau’s (NW’s allied) apparel NPD
Figure 6.14 Research and analysis of NW’s allied apparel NPD B1
Research and analysis of NW’s allied apparel NPD B1

<table>
<thead>
<tr>
<th>Types of Resources</th>
<th>Rainbeau's resources that New Wide can utilise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical</td>
<td>Physical locations: business office in San Francisco, US</td>
</tr>
<tr>
<td></td>
<td>Specialised machinery</td>
</tr>
<tr>
<td>Human</td>
<td>Skills/Abilities: (i) identifying business opportunities; (ii) providing full-package design service; (iii) specifying seasonal apparel lines; (iv) market information and feedback through close relationships between sales department and US retail buyers</td>
</tr>
<tr>
<td>Knowledge</td>
<td>Apparel NPD; design for private labels and licensed brands</td>
</tr>
<tr>
<td>Organisational</td>
<td>History: apparel design and production of private labels (Rainbeau)</td>
</tr>
<tr>
<td></td>
<td>Relationships: (i) forming minority-equity alliance with NW (NW has controlling investment); (ii) long-term relationships with retail buyers in the US</td>
</tr>
<tr>
<td></td>
<td>Management Systems: keeping business autonomy despite forming a minority equity alliance</td>
</tr>
<tr>
<td></td>
<td>Organisational culture: Close cooperation and coordination of design agenda</td>
</tr>
</tbody>
</table>

- Rainbeau’s business success relied on their apparel NPD for private labels, targeting mainly the mid-tier and mass markets of lifestyle and activity apparel in the USA. Rainbeau and NW shared similar business interests in terms of the targeted market and product categories since both companies come from similar historical paths in textiles. Rainbeau offers the US retail buyers apparel production together with design and sampling services, using NW’s textile expertise. NW has invested in Rainbeau with a controlling interest, incurring higher transaction costs.

- **Human resources** (i) both Rainbeau’s President and Vice President (assigned by NW) explore business opportunities with US retailers; (ii) apparel design and sales departments specify seasonal lines for US buyers

- **Organisational resources- (history)** design ability together with arrangement of production to implement apparel NPD for private labels. 

  (relationships)-- (i) the alliance formation with NW provides textile materials support for apparel NPD; (ii) long-term relationships with some well-known US retailers due to Rainbeau’s NPD capability and business history

  (management system) Despite NW’s majority equity in the alliance (quasi vertical integration), Rainbeau retains its business autonomy with alternative options for its business revenue.

- **Capabilities** created: (i) forming an alliance with Rainbeau generates NW’s dynamic capabilities, by setting up business in the US to reinforce its relationships with the US buyers and benefiting from Rainbeau’s design and sales capability; (ii) NW can acquire knowledge of apparel design and sales activities for serving a particular market; (iii) absorptive capacity of NW
regarding design knowledge can be transmitted back to its HQ to enhance further business development in the US as well as other regions.

- **Resources (VRIN)** may gain: (i) valuable resource: this NPD alliance increases NW’s business opportunities and competitive edge against competition; (ii) rare resource: the combination of specific physical, human and organisational resources of NW and Rainbeau shapes NW’s NPD capabilities and reinforces its competitive position in the US market (the specific resources committed in the alliance are considered as higher asset specificity); (iii) imperfectly-imitable resource: trust and NPD collaboration in this alliance results in a socially complex relationship, which also creates causal ambiguity in market development.
Figure 6.15 Synthesis of NW’s allied apparel NPD B2

- **Title:** NODE: NO.: B2 Rainbeau Synthesis
- **Design concept development:**
  - Knowledge of buyers’ requirement;
  - Design inspiration; Previous designs; New colour direction; New fabric swatches;
  - Design dept.; Sales dept.; President/Vice president; All departments; Trend information providers;

- **Internal design confirmation:**
  - Internal design proposals and feedback;
  - Pricing ranges of retailers’ market segments;
  - Specification of colours, fabrics and silhouette; Design quantity of replenishment;
  - Sales and design coordination; B21

- **Design for licensed brand and private labels:**
  - Current market feedback; Current sales figures/monthly or weekly from retailer’s each shop;

- **Internal design proposal and feedback:**
  - Cost; Time; Availability of materials

- **Design for licensed brand and private labels:**
  - Design dept.; Sales dept.; Sourcing dept.

- **Internal design confirmation:**
  - Design dept.; Sales dept.; Sourcing dept.
Synthesis of NW’s allied apparel NPD B2

<table>
<thead>
<tr>
<th>Types of Resources</th>
<th>Rainbeau's resources that New Wide can utilise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical</td>
<td>Business office in San Francisco, US</td>
</tr>
<tr>
<td></td>
<td>CAD system; IT system</td>
</tr>
<tr>
<td>Human</td>
<td>Skills/Abilities</td>
</tr>
<tr>
<td></td>
<td>(i) information compatibility with buyers; (ii) design concept establishment and specification; (iii) design evaluation and confirmation; (iv) material procurement based on design specifications;</td>
</tr>
<tr>
<td>Knowledge</td>
<td>(i) design knowledge; (ii) product modifications and replenishment; (iii) updated market information; (iv) sales figures and merchandise analysis from retail buyers</td>
</tr>
<tr>
<td>Organisational</td>
<td>History</td>
</tr>
<tr>
<td></td>
<td>(i) trend information provider; (ii) the key fabric ally (NW); (iii) alternative sourcing options provided by agents in HK and Singapore</td>
</tr>
<tr>
<td></td>
<td>NPD process is cosupervised by New Wide</td>
</tr>
<tr>
<td></td>
<td>cooperation of internal sales, design and sourcing department; NW monitoring NPD process</td>
</tr>
</tbody>
</table>

- Apparel synthesis forms the NPD process that Rainbeau knows well and NW has acquired due to their alliance formation. However, NW acting as a valuable ally provides Rainbeau with updated fabrics for developing design concepts, as these are required by buyers.

- **Human resources**- (i) design and sales departments which have the design and market knowledge are involved in the identification of key concepts, design ranges and specification including quantity, based on the requirements of key customers; (ii) Rainbeau’s President and Vice President are responsible for the final confirmation of design specifications; (iii) sourcing department is responsible for material procurement based on the design input provided by the in-house design department; (iv) sales department obtains market feedback on weekly/monthly sales figures from retail buyers, allowing for further design refinements and replenishment plans

- **Organisational resources (relationships)**(i) trend forecaster contracted for updated fashion information; (ii) the key fabric supplier, NW (Rainbeau’s ally); (iii) apparel manufacturer partners are NW, and a sourcing company in Hong Kong (New Times), together with some small agents in Singapore (i.e. its key sourcing area is Asia)

- **Capabilities** created: NW has the absorptive capacity regarding understanding design practices through Rainbeau’s experience with the US buyers which generates apparel NPD knowledge; (ii) NW can enhance its knowledge regarding the US market since analysed sales reports are regularly provided by retail buyers.
- **Resources (VRIN)** may gain: (i) valuable resource: apparel design synthesis process is a source of valuable resources for the manufacturers in the T&A industries. Having such resource can generate opportunities for cooperation with retailers. NW has obtained the opportunity to serve the US large retailers through its ally, Rainbeau; (ii) rare resource: design expertise is generated by designers and facilitated by sales department and sourcing department resulting in strategic mix; (iii) imperfectly-imitable resource: Rainbeau’s design process together with its complex relationships with retail buyers and NW leads to causal ambiguity. This also generates Rainbeau’s NPD reputation as well as NW’s that leads to social complexity.
Figure 6.16 Selection of NW’s allied apparel NPD B3

<table>
<thead>
<tr>
<th>NODE</th>
<th>TITLE</th>
<th>NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>B3</td>
<td>Rainbeau's Selection</td>
<td>B31</td>
</tr>
<tr>
<td>B33</td>
<td>Initial communication with buyers</td>
<td>B32</td>
</tr>
<tr>
<td>B32</td>
<td>B31</td>
<td></td>
</tr>
<tr>
<td>B33</td>
<td>B31</td>
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<tr>
<td>B34</td>
<td>B31</td>
<td></td>
</tr>
<tr>
<td>B41</td>
<td>B31</td>
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</tbody>
</table>
The capability of apparel design and efficient sample manufacturing adds value to Rainbeau’s service provision to buyers.

Rainbeau deals with two types of buyers; those without design capabilities are typically small-medium businesses with lower volume orders. These retailers prefer private labels in a full-package service of design and production. The other type of buyers has their own design departments, and their orders are determined according to price negotiations, design modification, and service provision.

Rainbeau is able to suggest alternative fabric options to buyers since it has regular fabric input from NW.

**Human resources** - (i) the coordination of sales and design departments facilitates direct communication with buyers in order to modify design specification; (ii) in-house sourcing department acquires appropriate materials for in-house production of samples; (iii) design department efficiently collaborates with apparel technologists and sample makers to produce specified samples for buyers

**Physical resources** - (physical location) in-house sample making in San Francisco

**Organisational resources (relationships)** (i) NW continuously provides new textiles for Rainbeau’s design suggestions, and efficient sample making to buyers; (ii) close relationships with US retail buyers; (iii) Rainbeau, since it retains autonomy from NW, sources from a range of suppliers and their networks (mainly in Asian countries, such as Hong Kong, Singapore) to implement buyers’ requests in terms of cost, quality and delivery time.
- **Capabilities** created: NW can gain market knowledge through Rainbeau’s direct communication with retail buyers.

- **Resources (VRIN)** may gain: (i) valuable resource: Rainbeau and NW explore opportunities providing new products to retail buyers in alternative ways; (ii) rare resource: the combination of sales and design personnel, in-house sample making and the textile ally generate rare resource; (iii) imperfectly-imitable resource: the complexity of efficient production of apparel samples (including apparel design specification and appropriate fabric supply) serving the US retail buyers creates causal ambiguity.
Figure 6.17 Manufacturing of NW’s allied apparel NPD B4

**NODE:** B4  **TITLE:** Rainbeau’s Manufacturing  **NO.:**

**Apparel Preproduction**
- Quality of fabric and accessories;
- Approved samples sent to assigned apparel factories;
- Fabrics and accessories ordered arrival at factories;
- Buyers: Apparel Manufacturers/factories; Production department; Designers;
- Bulk fabrics and accessories arrival;
- P.P. samples confirmed;
- Time; Quality;

**Bulk Production**
- Approval on initial apparel bulk production B421;
- Production department; Apparel factories;
- Production inspection;
- Top samples confirmed;
- Time; Quality;

**Bulk Production**
- Apparel bulk production B422;
- Apparel; factories; Production dept; Quality inspectors;

**B34**
- Approved samples sent to assigned apparel factories;

**B41**
- fabs and accessories ordered arrival at factories;

**B42**
- Bulk fabrics and accessories arrival;
- Production department; Apparel factories;
- Production inspection;
- Top samples confirmed;

**B51**
- Apparel bulk production B422;
Manufacturing of NW’s allied apparel NPD B4

<table>
<thead>
<tr>
<th>Types of Resources</th>
<th>Rainbeau's resources that New Wide can utilise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical</td>
<td></td>
</tr>
<tr>
<td>Physical locations</td>
<td>production department in San Francisco, US</td>
</tr>
<tr>
<td>Specialised machinery</td>
<td></td>
</tr>
<tr>
<td>Human</td>
<td></td>
</tr>
<tr>
<td>Skills/Abilities</td>
<td>(i) arrangement of apparel manufacturing; (ii) sample approval; (iii) inspection for apparel manufacturing;</td>
</tr>
<tr>
<td>Knowledge</td>
<td>knowledge of apparel sample production at different stages;</td>
</tr>
<tr>
<td>Organisational</td>
<td></td>
</tr>
<tr>
<td>History</td>
<td></td>
</tr>
<tr>
<td>Relationships</td>
<td>(i) allied apparel manufacturer (New Wide); (ii) close relationships with apparel manufacturers/sourcing agents; (iii) contracting-out companies for apparel manufacturing inspection</td>
</tr>
<tr>
<td>Management Systems</td>
<td>sample approval procedures</td>
</tr>
<tr>
<td>Organisational culture</td>
<td>coordination of cross-functional teams including production department (apparel technologists) and design teams, related to buyers for sample approvals</td>
</tr>
</tbody>
</table>

- Confirmation of various preproduction samples that can be forwarded for production in bulk batches. Inspections of production are usually conducted by the production department or contracting-out companies.

- **Human resources**- (i) design and production departments responsible for the approval of apparel preproduction bulk samples; (ii) production department together with quality inspectors monitoring bulk production process in factories to ensure production quality in apparel manufacturing. This requires apparel production knowledge and relationships with manufacturers.

- **Organisational resources-(relationships)** (i) allied manufacturer (NW); (ii) close relationships with apparel manufacturers/sourcing agents; (i) and (ii) are the major partners to accomplish Rainbeau’s apparel manufacturing.

- **Capabilities** created: (i) knowledge is generated from learning preproduction sample procedures and bulk production specifications. This tacit knowledge can be converted into SOP procedure in NW, turning it into explicit knowledge; (ii) dynamic capability refers to alternative apparel manufacturing options in addition to those of NW that can facilitate Rainbeau’s production coordination.

**Resources (VRIN)** may gain: (i) valuable resource: the alliance of Rainbeau and NW can retain longer relationships with retailers due to Rainbeau’s design speciality and production arrangement and NW’s in-house apparel manufacturing; (ii) imperfectly imitable resource: the implementation of apparel manufacturing involves different relationships in supply especially in Far East which is far from the US competitors, leading to causal ambiguity. It may also generate positive reputation for both buyers and suppliers as it is socially complex.
Figure 6.18 Distribution of NW’s allied apparel NPD B5

- Manufactured bulk apparel ready for delivery;
- Specification of delivery dates and destination;
- Delivery risks (damages caused or delay during delivery);
- Buyers; Distribution carriers; Rainbeau; Customer service team (Production department); Insurance companies;
- Delivery
- Retail
- Customers
- Buyers’ retail staff; Rainbeau’s Sales teams;
- Price; Quality; Time
- Sales feedback; Product replenishments; Relationships with buyers;
- NO.: B5

NODE: B5  TITLE: Distribution  NO.: B5

250
Distribution of NW’s allied apparel NPD B5

<table>
<thead>
<tr>
<th>Types of Resources</th>
<th>Rainbeau's resources that New Wide can utilise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical</td>
<td>Physical locations</td>
</tr>
<tr>
<td></td>
<td>customer service (production department) in San Francisco, US</td>
</tr>
<tr>
<td></td>
<td>Specialised machinery</td>
</tr>
<tr>
<td>Human</td>
<td>Skills/Abilities</td>
</tr>
<tr>
<td></td>
<td>(i) the arrangement of distribution with carriers and production factories; (ii) on-time delivery; (iii) acquiring sales feedback from buyers;</td>
</tr>
<tr>
<td>Organisational</td>
<td>Knowledge</td>
</tr>
<tr>
<td></td>
<td>History</td>
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<tr>
<td></td>
<td>Relationships</td>
</tr>
<tr>
<td></td>
<td>close relationships with retail buyers</td>
</tr>
<tr>
<td></td>
<td>Management Systems</td>
</tr>
<tr>
<td></td>
<td>customer service arrangements</td>
</tr>
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<td></td>
<td>Organisational culture</td>
</tr>
<tr>
<td></td>
<td>the coordination of customer service teams, sales and design department responsible for replenishment plans of retailers</td>
</tr>
</tbody>
</table>

- **Human resources** - (i) customer service team (part of production department) responsible for the arrangement of distribution with carriers and production factories to ensure on-time delivery; (ii) sales teams facilitate product replenishment by acquiring the sales feedback from buyers
- **Organisational resources** – (relationships) – close relationships with retail buyers
- Given the sales results (weekly and monthly), Rainbeau is able to achieve the replenishment plan for its buyers as discussed in B2. The sales figures would either feed into buyers’ designs for the next season starting from B22, or be applied to replenishment of the stocks for the current season, which is activated from B34.

The in-depth analysis of the NPD process has identified a number of crucial (dynamic) capabilities, (e.g. textile and apparel design, and in-house R&D with external collaborations), and knowledge (e.g. tacit knowledge of fabrics, and market/technology knowledge) together with available internal and acquired external resources deriving from partnering relationships at each stage of the NPD process. They can generate valuable, rare and/or imperfectly-imitable resources that may lead to competitive advantages. These resources/capabilities/knowledge will be brought forward to the following discussions.
6.3.2 Textile and apparel NPD integration

Following the analysis of NW’s NPD process, it appears that NW has generated and configured capabilities through its internal and external resources (Eisenhardt and Martin, 2000; Teece et al., 1997; Verona, 1999). These capabilities and resources have impelled NW to vertically integrate its textile and apparel NPD. This strategic extension is called “Yi Tiao Long” in Mandarin, referring to the NPD process from textile R&D, textile and apparel design, manufacturing, to sales and distribution (New Wide Group, 2010a). NW has benefited considerably from providing full-package services to retail buyers and thus gaining direct orders. In order to increase its business opportunities, NW, in line with vertical integration of T&A NPD, has strategically approached its customers in different ways as discussed in section 6.2. Vertical integration of T&A NPD enables NW to capture more value through targeting particular customer segments such as brand retailers (need-based positioning), in combination with specific services or methods to serve selected buyers (access-based positioning). In addition, NW has continued to serve undifferentiated customers with an extensive range of fabrics (variety-based positioning). This allows NW to differentiate itself from other competitors through vertical integration (Porter, 1980), providing diversified products and value-added services for a wide range of buyers, thus sustaining relationships with retail buyers. NW’s business success, deriving from a combination of capabilities and competitive resources is demonstrated on Table 5.5, where the company has dramatically increased sales in both textile and apparel. This may seem contradictory with the rigidities of vertical integration, but that was related to the inflexibility of mass production of past decades as discussed in section 2.2.1.

Nevertheless, vertical integration\(^\text{18}\) can still be a difficult task which depends on companies’ capabilities and the industry in which they operate (Rothaermel et al., 2006). In the T&A industries, cases such as Zara (Fersra et al., 2005) and Benetton (Richardson, 1996) have successfully implemented vertical integration through capturing resources and capabilities of design, manufacturing, and retail operations to increase their retail sales. NW, despite not being a retail brand but a manufacturer, has forward integrated apparel

\(^{18}\) According to Hobbs (1996), vertical integration refers to two or more sequential phases that are conducted and controlled by a company.
NPD, connecting it with its textile tapered integration\(^{19}\) (Hobbs, 1996). NW has kept its textile R&D in-house at Changzhou and Taipei, and knitting fabrics in allied manufacturers together with 300\(^{+}\) small factories supplementing production of smaller batches of orders. Dyeing and finishing of fabrics are mainly carried out in its Changzhou production base. This vertical integration with a combination of outsourcing has enhanced NW’s ability to diversify its new products, supplying a great variety of fabrics to textile and retail buyers. This is consistent with the implications in the existing literature that companies can simultaneously seek to vertically integrate valuable technological knowledge (e.g. R&D and the dyeing and finishing process) and to strategically outsource (e.g. contracting-out knitting factories). The balance of both vertical integration and outsourcing can lead to competitive advantage and product success (Rothaermel et al., 2006).

NW has also internalised apparel production and controlled distribution to retail buyers, incorporating apparel manufacturing in Cambodia, China, Kenya and Lesotho. Apparel manufacturing is viewed as a low value asset in comparison to other activities in NPD, and Taiwan is no longer a key apparel production region. Branded manufacturers in advanced countries relinquished manufacturing facilities by concentrating on higher-value activities (i.e. high asset specificity investment (Humphreys et al., 2001)) rather than lower-labour-cost apparel manufacturing, eventually becoming manufacturers without factories (Gereffi, 2005). NW has adopted a similar approach by focusing on textile innovation/specialisation, but paradoxically, it has vertically integrated apparel NPD. According to TCT, vertical integration occurs when a firm decides to internalise activities that involve those asset investments and capabilities which are very highly specific (Hobbs, 1996; Leiblein and Miller, 2003; Richardson, 1996). Indeed, apparel design involves high asset specificity and value which NW has striven to vertically integrate through its ally. However, apparel manufacturing is not considered a high asset specificity investment since the majority of apparel companies such as retailers and branded manufacturers tend to outsource their apparel production. According to the asset specificities that comprise four

\(^{19}\) Tapered vertical integration occurs when a firm obtains a proportion of inputs from its suppliers and the remainder from its own production (Hobbs, 1996; Porter, 1980)
principal components (Williamson, 1979) in terms of apparel manufacturing, human assets involve low skilled labour; physical assets involve apparel sewing machinery which is not considered highly sophisticated; site assets relate to building factories in those developing countries and LDCs; and dedicated assets relate to the specific trade agreements with developed countries for as long as these trade agreements are running. The characteristics of the first three low asset specificities contradict NW’s strategic decision to vertically integrate apparel manufacturing.

The key to this decision is that NW seeks a channel for its fundamental textile NPD, not being with satisfied playing a secondary role in upstream operations serving only branded manufacturers and apparel sourcing agents. It attempts to appropriate more value by offering full-package services to retail buyers and branded owners since NW’s size allows it to enter direct negotiations on production with them. Furthermore, vertically integrated apparel production can mitigate the uncertainty that is associated with disruptions in T&A production in order to be consistent with retailers’ required delivery times since speed of responsiveness to market demands together with consistency in quality are paramount (Barnes and Lea-Greenwood, 2006; Doyle et al., 2006). This is compatible with the fact that although vertical integration incurs high production costs, it can benefit from centralised governance that reduces uncertainty to lower levels (Hobbs, 1996; Leiblein and Miller, 2003; Poppo and Zenger, 2002).

It is noted that NW initiated vertical integration of apparel NPD through establishing an alliance with Kenyan factories and acquiring production knowledge to build its own apparel factories in other countries. This is consistent with RBV, which postulates that production experience through learning opportunities (Barney, 1999) can increase the probabilities of vertical integration, as the firm in its historic trajectory accumulates related knowledge (Leiblein and Miller, 2003). This allows NW to further establish its own apparel factories in other countries such as Cambodia and Lesotho, which benefit from not only low labour costs but also free tariff to the target markets of developed countries (Chen et al., 2004; Morris and Barnes, 2008). Furthermore, NW has allied with Rainbeau in order
to strengthen the relationships with its retail buyers as well as acquire the apparel design knowledge and capability to complete its vertical integration of textile and apparel NPD.

Design is recognised by numerous researchers (Abecassis-Moedas, 2006; Borja de Mozota, 2003; Bruce and Bessant, 2002; Regan et al., 1997; Sinha, 2000; Studd, 2002) as a strategy to enhance NPD outcomes and product advantages because it can determine the resources that need to be acquired by controlling successive NPD activities. Design activities tend to be controlled by brand owners and retail buyers who administer design specification since the T&A industries are essentially buyer driven (Gereffi, 1999). Nevertheless, manufacturers who possess design capabilities can enhance their relationships with buyers, because retail buyers also prefer their key suppliers to possess such capabilities in order to facilitate their management of the NPD process (Barnes and Lea-Greenwood, 2006; Crutsinger et al., 2005). NW’s design processes through Rainbeau or through their purpose built the textile R&D institute in Changzhou, provide evidence that manufacturers can be successfully involved design capability/services. Additionally, the vertical integration of apparel design has benefited NW because Rainbeau’s linguistic and cultural similarity to the US buyers can lead to direct communication and establishes trust, which can offer NW business opportunities and a significant competitive edge, considered as valuable resources. The combination and configuration of both Rainbeau’s and NW’s specific physical, human and organisational resources shape their NPD capabilities, which can be deemed NW’s rare resource. The socially complex relationships within the alliance and with retail buyers create causal ambiguity of NW’s NPD success, which can be viewed as imperfectly-imitable resource. This is consistent with Barney (2002), who claims that a firm should vertically integrate VRI resources to sustain its competitive edge. This is also in agreement with the literature which states that vertical integration conducted concurrently with alliances can appropriate maximum value from a diversified portfolio of products that fit market demands through a unique combination of resources/capabilities (Rothaermel et al., 2006).

The strategic integration of both textile and apparel NPD of NW increases the incentives of
To reinforce the trust of retail buyers, NW initiated its CSR department, where the committee monitor ethical sourcing and codes of conducting manufacturing operations, e.g. the labour conditions in apparel factories. It pays attention to environmental issues such as manufacturing waste and energy savings, and this can be seen in NW’s Eco-friendly fabrics, produced by allying with Newtech fabric Co. Ltd. and Flycool Co. Ltd., which makes NW more visible and competitive. This is in line with the literature where according to Thun (2000), being the guardian of CSR is one of the major reasons that international retailers trust Taiwanese manufacturers, since their reputation is associated with ethics in manufacturing by consumers (Dickson and Eckman, 2006).

The key findings are summarised as follows:

- This study has provided an empirical evidence of a T&A manufacturer’s NPD process in line with RBV theory.
- This study agrees with that T&A manufacturers can enhance their competitiveness and make buyers to prefer them through acquiring design capabilities as well as CSR.
- The significance of vertical integration of textile and apparel NPD to the manufacturer in the T&A industries has clearly emerged in the case study, because it enables manufacturers to provide full-package services to retail buyers and serve a wider range of buyers (i.e. acquiring different strategic positionings).
- This study supports the combination of vertical integration and strategic outsourcing because the balance of the two leads to competitive advantage.
- This study agrees with TCT that uncertainty leads to vertical integration, but does not support that only very high asset specificity can be vertically integrated.
- This study agrees with the premise that valuable, rare and difficult-to-imitate resources should be vertically integrated.

6.4 Product innovation and technological development

Product innovation as a source of competitive advantage increases growth opportunities for a firm to generate value-added products. It is also instrumental in product upgrading followed by the benefits of product standardisation and cost economisation (Danneels and Kleinschmidt, 2001; Garcia and Calantone, 2002). NW has engaged in textile R&D,
establishing the R&D centres in Taipei and Changzhou to coordinate NPD activities in order to generate innovative fabrics. The application of innovative fabrics enables NW to access particular customers’ needs as well as attract new customers. NW’s innovative fabrics do not merely derive from textile engineering, but also from extensive fashion textile knowledge engendered by forecasting specialists who infuse and inspire NW’s textile design with cutting-edge information regarding colours, particular knitting patterns and new yarn blends. Creative collections of innovative fabrics allow NW to convince its buyers of its capabilities in R&D, design and engineering. Additionally, the knowledge generated regarding fabric design and property specifications together with the instructions of textile production engineering lie within NW’s established system of standard operation procedures (SOP). All testing of fabric properties is undertaken in the textile laboratories in NW’s R&D centres, which facilitates standardisation of textile production with quality assurance. Thus, NW can make use of its allied textile factories and small contracting factories to economise on physical production sites and facilities, and simultaneously retain production flexibility for product diversification (Yuasa, 2001).

Two crucial dimensions-technological capabilities and marketing—are particularly emphasised regarding innovation in the literature because innovation requires interaction with markets coupled with marketing commercialisation, and technological capabilities to generate inventions (Danneels and Kleinschmidt, 2001; Garcia and Calantone, 2002). Technological capabilities are examined in this section while marketing factors will be discussed in more detail in the following section.

Technological capabilities have a positive impact on a firm’s competitive edge (Hamel and Prahalad, 1994; Song and Parry, 1997), relying on a firm’s ability to acquire and employ technological resources regarding its R&D, design and production (Garcia and Calantone, 2002) in order to generate possible valuable, rare and/or difficult-to-imitate resources (Barney, 1991). This is illustrated by NW’s textile NPD, since its R&D centres (physical resources) together with R&D engineers and designers (human resources) create innovative fabrics followed by further refinements by incorporating other human resources,
such as fabric designers, project planning specialists, textile engineers and sales teams within its NPD process (organisational resources). These resources can generate NW’s dynamic capabilities (Teece et al., 1997), creating new products responding to various demands. Additionally, NW has made use of its backward linkages by collaborating with specialised yarn suppliers, both domestic and international, to co-develop yarns for functional and innovative fabrics. These technological resources are valuable since they generate the capabilities to create innovative fabrics and refine fabrics in alignment with different customer needs, thus enhancing NW’s business opportunities and solidifying its reputation among buyers. In addition, capabilities engender rare resources because the particular combination of NW’s physical, human and organisational resources including external relationships is difficult to configure and implement. The technological resources are also difficult to imitate since the combination of resources can lead to causal ambiguity, potentially restraining competitors from comprehending the intricacies of these resources. Innovative textile expertise together with technological capabilities corresponds to NW’s core competence, since this strategic and central capability in creating core products leads to particular benefits to customers (Hamel and Prahalad, 1994).

Technological capabilities are embedded in organisational routines (Hamel and Prahalad, 1994; Teece et al. 1997) that are related to the firm’s learning or absorptive capacity, where it accumulates new technological knowledge to create innovation advantage (Danneels, 2002; Zhou and Wu, 2010). NW has acquired such knowledge through utilising its human resources in NPD in a number of ways. It instigates learning in trend and fashion forecasts through investing in a trend forecast specialist to enhance its product design with up-to-date product knowledge. NW also teams up with an academic institute in Changzhou, conducting R&D to develop textile technological capabilities in its R&D centre in the same city, which in turn boosts its R&D reputation. It co-develops yarns with its specialist suppliers by sharing valuable technological and market knowledge, and then converts new yarn blends to knitting processes that can be performed in its own production centre in Changzhou, allied textile manufacturers or small contracting-out factories which can produce fabrics in small batches for further experimentation. These textile factories can
also enhance their own capabilities through learning from NW, and benefit the textile NPD reputation in the industry. Thus, they can generate more opportunities for collaboration with other leading manufacturers. Meanwhile, NW’s absorptive capacity regarding apparel design is fulfilled by its alliance with Rainbeau which relies on NW’s continuous fabric supply deriving from technological capabilities/knowledge. This knowledge accumulation and sharing in NW’s network resource becomes an organisational routine, which can strengthen product innovation and hinder opportunism, since both collaborative parties in the network gain benefits (Duschek, 2004; Gulati et al., 2000). These findings are all in agreement with the literature, that technological capabilities can increase the absorptive capacity of a firm which can explore new knowledge through its learning in order for further NPD (Benner and Tushman, 2003; Danneels, 2002; Zhou and Wu, 2010).

Furthermore, NW’s NPD agrees with the point made by Barney (1991) that unique resources can be generated from a firm’s historic place and time as a potential competitive advantage. Given the fact that path dependency can generate inertia, the firm might rely on its past development and/or resist changes, hindering the creation of new resource/capabilities and thus constraining further NPD (Danneels, 2002; Helfat and Raubitschek, 2000; Zhou and Wu, 2010). NW has accumulated past knowledge in textiles, but instead of being complacent, it has been progressively learning and incorporating apparel NPD. It has successfully allocated resources with an optimal use as seen in the case of Rainbeau. The company has gained advantages by learning apparel design and simultaneously providing its own fabrics as finished apparel to retail buyers. NW has thus developed new capabilities by deploying existing textile resources that generate a bundle of new resources and consequent capabilities in T&A integration.

NPD innovation is closely related to exploration and exploitation in the context of technological capabilities. Explorative activities convert into competences, and assimilated knowledge triggers exploitative processes that enhance product extension and refinements as well as competences (Benner and Tushman, 2003; Danneels, 2002; Zhou and Wu, 2010). NW, with its technological capabilities, exercises explorative innovation at the R&D stage.
where new NPD ideas derive from the knowledge of trend forecasts of fashion design, and cutting-edge textile engineering experience with new yarns and fabrics. Exploration leads the company annually to create approximately 800 innovative fabrics, through dynamic capabilities with its in-house R&D and external knowledge and capabilities inputs, which in turn fortifies its textile technological expertise. This also demonstrates NW’s strategic flexibility by reconfiguring resources in textile R&D, design and the dyeing and finishing process, while concurrently allying with textile factories. It agrees with the literature, where dynamic capabilities resulting from strategic flexibility and resource reconfiguration can lead to innovation (Eisenhardt and Martin, 2000; Teece et al., 1997). The accumulated NPD knowledge together with the facilitation of allied textile factories has led to NW’s exploitation of a range of options in further developing new fabrics (approximately 3,000 new fabric/annually) to add more product value to the company, which is consistent with Prahalad and Hamel (1990)’s argument regarding the refinement and improvement of core products as the firm develops technological capabilities.

To achieve the advantages of NPD and product innovation, a firm can deploy IT in its NPD process to facilitate exploration and exploitation by sharing information and knowledge internally and externally (Revilla et al., 2009; Song et al., 2006). NW has invested in a customised ERP platform named VFM, which was partially sponsored by the Taiwanese government to help domestic T&A industries to acquire and share valuable market and product information in order to upgrade their NPD and improve product fit with their buyers. NW’s archives regarding fabrics and apparel are stored in VFM as explicit knowledge (Simonin, 1999), and shared this product knowledge within the organisation and with its buyers and business partners. Through this IT platform, NW internally communicates with various departments, by directing the information flows of new products at the initial stage of R&D so as to create innovation advantage and to constantly launch new products. This allows the company to further plan, monitor and control the ensuing NPD processes (Choi et al., 2005), and also facilitates NW’s T&A NPD integration as seen in Figure 6.19, where both production and information flows are deployed concurrently in various stages of NPD processes. The configuration of
appropriate resource allocation in different physical locations is facilitated by IT systems, as NW can effectively respond to its NPD needs. Rainbeau, which interacts with the US retail buyers, extends the use of VFM to monitor sales, and obtain and share market information from retailers, triggering replenishment procedures as the fashion season progresses; NW through Rainbeau can efficiently provide appropriate products with full-package service for retail buyers. Most importantly, IT helps NW to interact externally with its suppliers through product information sharing, and directly promote its new products to buyers, rather than waiting for buyers’ enquiries, which can reinforce rapport. This echoes the claim that IT can bring advantages for manufacturers by providing services that reinforce their relationships with retail buyers (Abecassis-Moedas, 2006; Birtwistle et al., 2006). Although several researchers argue that the use of IT cannot be considered as an exclusive competitive advantage since it can be acquired from markets (Christofferson, 2002; Jones, 2006; Sanders, 2008), Barney (1991, p114) argues that IT as “machines-managers” systematic interaction can be infused into the firm’s decision making process and efficiently facilitate information flow within the organisation, which can generate a source of competitive advantage.

A number of researchers (Birtwistle et al., 2006; Jin, 2006; Varukolu and Park-Poaps, 2009) argue that IT systems are usually imposed on manufacturers by buyers and a not many manufacturers are willing to invest them since manufacturers may lack knowledge or commit few financial resources to technological developments. Conversely, NW has proactively invested in technological capabilities including IT, since the company has acknowledged their significance.

The key findings are summarised as follows:

- This study confirms the literature that product innovation can be a source of competitive advantage that adds value to products and engenders business opportunities.
- This study has proved that valuable, rare and imperfectly-imitable resources can be generated by the firm’s technological capabilities and can lead to a firm’s competitive advantage.
• This study also agrees with the absorptive capacity of a firm, by which it can accumulate technological knowledge, resulting in the capabilities of exploration and exploitation that enhance NPD performance and a firm’s competence.

• This study does not support the literature that T&A manufacturers seem to be reluctant to financially invest in IT systems. The empirical evidence indicates that the manufacturer in Taiwan is proactively incorporating IT into its NPD process, and sharing such resources with its business partners, as well as buyers, thus enhancing rapport with them.
Figure 6.19 New Wide's integrated textile and apparel NPD and information flows

Textile and apparel integrated NPD (Two-fold NPD)

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Rainbeau

263
6.5 Marketing factors
Marketing plays a crucial role in NPD in relation to the effectiveness of responding to customers’ requirements. It allows successful product launch in dynamic markets and enhances business opportunities for further NPD as well as market development (Choi et al., 2005; Kono and Lynn, 2007; Schilling and Hill, 1998). Strategic marketing tasks refer to the optimal match of NW’s textile and apparel products with its strategic positioning options as discussed in section 6.2. This has enhanced NW’s business opportunities. NW has recognised the importance of marketing in relation to its sales opportunities, so it has established the post of marketing Vice President in its organisation with marketing and NPD related responsibilities including evaluating the feedback from customers in both formal/informal reporting systems regarding previous seasonal sales, trend forecasting, and product innovation and commercialisation processes. He is in charge of strategic decisions regarding the development of potential new products, product launch as well as market selection. In terms of the strategic perspective of the business, NW has incorporated marketing into its overall business strategies where the marketing Vice President is also on the board of directors with extensive executive authority over business decisions, R&D and marketing in line with NPD. This is consistent with the literature which suggests that marketing strategy coupled with NPD can be closely associated with the firm’s strategy (Slater and Olsen, 2001) where the synergy of marketing planning and implementation, and NPD contribute greatly to market development and to explore business opportunities (Baker and Sinkula, 2005; Slater and Olsen, 2001).

Market orientation and the marketing function are two important aspects of marketing strategy in terms of NPD. Regarding RBV, market orientation is associated with a firm’s market resources (Baker and Sinkula, 2005; Hunt and Morgan, 1995), while marketing function refers to the capabilities that exert leverage upon resources to implement complex marketing processes (Baker and Sinkula, 2005; Moorman and Rust, 1999). The combination of both can lead to competitive advantage (Baker and Sinkula, 2005). NW makes use of market orientation, organised and disseminated by the marketing/sales department and project planning specialists. Both textile and apparel sales teams gather formal/informal reports regarding previous sales and specific customers’ enquiries for use
in evaluating what has constituted product success/failure in order for these to be put forward to the planning process for the next season. The marketing Vice President is responsible for the sales assessments as well as communications with key customer accounts in order to improve product performance and services to NW’s buyers. NW also gathers market intelligence from various sources including visiting international trade fairs (e.g. Premiere Vision), employing professional trend forecasters, and consulting specialised yarn suppliers. NW pools this bundle of market resources to generate its marketing function. The project planning specialists, who obtained market intelligence from the trend forecaster, marketing/sales department, and the technical input from R&D technicians, have created product concepts and facilitated annual innovative and weekly new fabrics samples catering for NW’s various buyers. They together with sales teams’ promotion skills lead to crucial marketing capabilities, accomplishing the company’s marketing strategies through continuously launching and promoting new fabrics.

According to Slater and Olsen (2001), successful marketing strategy involving NPD contain three strategic options: it can generate innovative products through R&D and marketing integration; it can evolve products by fortifying new product features which is facilitated by economies of scale in production and distribution that lead to more sales opportunities; it can offer generic products with low costs through different operation procedures. Due to its strong combination of R&D capabilities and the marketing function, NW can proactively promote innovative fabrics and provide product suggestions to its buyers. In particular, NW’s fabric sales teams with the fabric knowledge and market information can collaborate with fabric engineers and specific textile factories, immediately refining fabrics with respect to fabric colours, properties and target costs, etc. to cater for their buyers’ demands in the NPD selection process. They can directly communicate with buyers (without consulting fabric designers), and simultaneously effectively monitor agreed scheduling of production and distribution, thus enhancing product commercialisation performance and increasing sales. This is also observed in Rainbeau’s sales teams, with apparel knowledge and market intelligence interacting with other internal departments, who can suggest new product ranges and conduct
replenishment plans for retail buyers. Such knowledge refers to the accumulation of market orientation and marketing capabilities, which can influence customers’ perceptions and their buying decisions, resulting in product effectiveness together with efficiency (Day, 1994; Verona, 1999). It also agrees with the literature that the combination of market orientation and marketing planning and implementation can lead to competitive advantage (Baker and Sinkula, 2005), because in terms of T&A manufacturers, these marketing related resources/capabilities/knowledge are valuable, rare and difficult to duplicate (Barney, 1991).

Due to the significant contribution of sales teams to marketing performance, NW has provided a fertile platform for sales to flourish as the company has invested in sales offices/show rooms in a number of cities including Taipei HQ (Taiwan), Beijing, Changzhou, Shanghai, Kunshan (China), Hong Kong, Dallas and San Francisco/Rainbeau (USA) to serve its international buyers. The sales offices in the US create exclusive access to retail buyers (e.g. the Dallas office is set up mainly for JCPenny, and Rainbeau serves Wal-Mart and other mid-tier department and chain stores) with a faster response to buyers’ orders due to their proximity to the market and marketing activities. In particular, Rainbeau with its in-house designers and sample technicians can efficiently and effectively produce apparel preproduction samples for sales teams to present to retail buyers in order to secure retailers’ orders. In addition to the US and Europe as its major target markets, NW has extended its business to the domestic Chinese market, and as a result of government incentives it has established business and production operations there. As China is gradually becoming one of the world’s largest economies with regard to domestic consumption growth and retail/ brand development as discussed in section 2.2.4 (Audet, 2004; Morris and Barnes, 2008), NW has taken advantage of this opportunity, for instance, serving Li-Ning, a premier sport brand in China, and forming a joint venture (40% investment) with Easyoga, launching collections of yogawear in a number of Asian countries including China. In 2010, NW acquired the exclusive licensing rights to produce and distribute merchandise of activity/sportswear at Shanghai World Expo, where the company benefitted from marketing exposure to both domestic Chinese and international
The above evidence proves that NW’s market orientation and marketing capabilities have successfully facilitated the implementation of marketing strategies in NPD. Nevertheless, this seems to contrast with the literature which implies that T&A manufacturers tend to follow retail buyers’ market intelligence or do not acquire market visibility, and lack of specific knowledge/capabilities and information sharing (Chen, 2005; Ogawa and Piller, 2006; Tyler et al., 2006). NW’s NPD success in marketing also lies in its strategy of lessening the cultural and linguistic impediments to communication between buyers and manufacturers (Chen, 2005). NW possesses valuable human resources such as the marketing Vice President who is fluent in English and holds important contacts with all the key accounts in the US and Europe, coupled with sales staff in each sales team who are fluent in English and have fabric technological knowledge, thus facilitating communication with international buyers. NW’s sales offices in the US are managed by Americans, as the company assigns “foreigners to foreigners” in its marketing function in order to build up a trust-based interaction and relationship with its US buyers. Additionally, NW has proactively acquired market and trend information through trend forecast specialists. It has also implemented the IT communication platform of VFM as discussed in 6.3 not only internally by sharing market information, but also externally at the marketing interface of its new products, allowing buyers freely to place their product enquiries and having NW as preferred suppliers (Crutsinger et al., 2005).

The key findings are summarised as follows:

- This study agrees with the literature that marketing strategy can form a part of the business strategy of a firm.
- This study is consistent with the literature in finding that the combination of market orientation (resources) and marketing function (capabilities) can generate knowledge as well as competitive advantage.
- The empirical evidence in this study has shown the proactive role of the T&A manufacturer in its marketing practice, which does not agree with the literature that manufacturers tend to follow retailers’ leads in market intelligence and do not have
sufficient marketing visibility.

6.6 NPD Management
6.6.1 Top/senior managers
It is claimed in the literature that management is an intangible resource that leads the company to identify and explore opportunities by determining objectives and plans and direction in order to be successful in achieving its aims (Grant, 1991; Verona, 1999). Strategic decisions deployed by senior/top managers form the driving force of NPD. Strategic management within the context of NPD ensures appropriate governance of NPD practices, making effective assessments of strategic directions and monitoring various activities to accomplish NPD. In addition to leadership, top/senior managers have to demonstrate their support and commitment to deploy suitable resources in order to energise NPD that leads to NPD success (Brown and Eisenhardt, 1995; Cooper and Kleinschmidt, 2007; Ernst, 2002; Montoya and Calantone, 1994). They usually encourage and support individual and organisational learning to enhance NPD performance (Islam et al. 2009; Sarin and McDermott, 2003).

NW’s strategic management of NPD confirms the above literature. Top/senior managers are involved with the company’s strategic identification of business opportunities, such as the significant textile capabilities that have emerged as core competences to generate innovative fabrics, thus investing heavily in its R&D centres, and cooperating with numerous experts from the industry and academia. The integration of T&A NPD has occurred since NW’s senior managers have had the foresight to upgrade the company’s textile innovation capabilities, as well as the acquisition of apparel NPD, linking it with retail demand for full-package services. In line with government’s recommendations with regards to the AGOA trade agreement with the US (Chen et al., 2007), top/senior managers have also planned to establish apparel production capability through external resources-forming an alliance with an apparel manufacturer in Kenya. This has enabled NW not only to benefit from free tariffs, but also to generate knowledge regarding apparel production through learning from its ally, so that NW could further build its own apparel factories in other countries, such as Lesotho. Moreover, top managers have sought to acquire apparel
design knowledge to expand business opportunities, especially in the US, where the alliance with Rainbeau has enabled NW’s learning to emerge as a valuable resource to reinforce the full-package services. NW in turn has acquired the capability to establish the apparel design centre in its textile institute in Changzhou to satisfy more specific and diversified market demand. NW’s top/senior managers have to take strategic decisions regarding allocation of its production and formation of partnering relationships. For instance, NW has acquired apparel factories in Cambodia using the fabrics from its allied Vietnamese textile manufacturer to serve the European market. NW can thus benefit from production lead time resulting from a shorter physical distance between textile and apparel factories, coupled with cost reduction deriving from free tariff within ASEAN countries, as well as between Cambodia and the EU.

The above have demanded critical judgement and appropriate evaluation by top/senior managers to formulate strategies that guide the future direction of NW, which is deemed imperative for the accomplishment of business objectives, since the company’s viability depends on them. Furthermore, top managers have engaged in monitoring the effectiveness of the company’s complex NPD operation. For instance, the marketing Vice President monitors market orientation (trend forecasting, trade fairs and customer visiting) and marketing function together with sales (showroom planning, product commercialisation and sales teams). In the case of Rainbeau, NW has assigned one of its directors with executive authority to facilitate the apparel NPD in the US and monitor apparel production and sourcing activities in order to deal with American buyers. To enhance NPD flexibility, NW has reflected this in its organisational hierarchical structures, where in the volatile business environment, the company has adopted a flatter governance structure that enables information sharing, learning and communication (Islam et al., 2009), which can be observed in Figure 5.3. Despite the complexity of NPD operations, top managers’ leadership manifests the coordination of internal activities as well as matches them with external partnering relationships in a variety of collaborations, responding to environmental challenges. Additionally, different sales systems in textile and apparel divisions are also determined and planned by the executive board, in order to facilitate and
Top managers are closely associated with NPD performance in encouraging organisational learning through training programmes that foster the application of information and generate knowledge and innovation of human resources in the organisation (Islam et al., 2009; Sarin and McDermott, 2003). This allows the firm not only to bring products faster to the market, but also to increase information flow internally and externally in its NPD process as this has become a valuable resource for the firm to reinforce the product outcomes (Brown and Eisenhardt, 1995; Verona, 1999). NW’s senior managers have paid considerable attention to organisational learning. They have established a five-level management system where the chain of command provides specific guidelines for internal learning, such as learning relevant textile and apparel terminologies in both English and Chinese, organising meetings where managers and team members share experiences for continuous improvements of the NPD process, internal job rotation programmes so as to learn different operations of other divisions, and formal training courses to acquire knowledge regarding fashion trends, fabric development and market intelligence. Additionally, NW has organised annual meetings of all departments and overseas divisions where experiences are shared and knowledge is assimilated. This is in line with the literature where tacit knowledge from individual NPD members can be transferred through training and learning routines, and/or converted into explicit knowledge which can be shared by members (Madhavan and Grover, 1998; Sarin and McDermott, 2003).

In addition to these internal learning activities of knowledge and information sharing, external learning opportunities are also crucial. The knowledge acquired from external sources can be integrated with internal knowledge which can lead to opportunities that generate competences as top/senior managers take these partnerships into account in their strategic decisions (Islam et al., 2009; Sarin and McDermott, 2003). NW has teamed up with a number of universities in China and the Textile Institute in Taiwan, creating numerous pioneering fabrics, which has been assimilated in its NPD knowledge, thus improving its operational effectiveness. Taking advantage of its supply network, NW has
the opportunity of learning from its allied partners, as discussed earlier in this section. It has managed successfully to upgrade its products and production functions in its NPD processes by incorporating this newly acquired knowledge (Gereffi, 1999; Tokatli, 2007). The combination of external and internal knowledge which can be generated both at strategic and operational level is instrumental in maintaining NW’s competitiveness (Porter, 1996). According to Schroeder et al. (2002), these resources obtained through internal and external learning are difficult to be imitated. Given the knowledge formation in NPD, NW has generated a key source of long-term competitive advantage (Corso et al., 2001).

The key findings are summarised as follows:

- This study agrees with the literature that the top/senior managers are a valuable resource for a firm to identify and explore opportunities and engage with strategic planning for successful NPD accomplishment.
- This study also supports the argument that organisational learning that can generate valuable knowledge as a source of competitive advantage is closely associated with top/senior managers.
- This study also agrees that flatter organisational structures adopted by top/senior managers to facilitate learning and communication.

### 6.6.2 The management of NPD teams

NPD teams including cross-functional teams refer to the human resources of a firm in RBV where skills, knowledge and expertise are combined and integrated in order to generate capabilities for NPD (Fredericks, 2005). NPD teams promote collaboration in assimilating knowledge and sharing information both internally and externally, as well as coordinating NPD activities, which leads to positive NPD outcomes (Islam et al., 2009; Edmondson and Nembhard, 2009; Fredericks, 2005; Keller, 2001). Cross-functional teams are pointed out that are closely associated with competitive advantage of product innovation (Islam et al., 2009; Sethi et al., 2001) as well as R&D, marketing and manufacturing synergy (Song et al., 1997). In the synthesis and selection stage of fabric NPD, NW has pooled crucial knowledge, skills and expertise from different departments in order to create new and appropriate products for its buyers. It has been noticed that the sales teams of NW have become the node of cross-functional teams. Given the market intelligence, textile sales
teams communicate with internal departments including textile R&D technicians and designers, and externally with suppliers and buyers to implement commercialisation procedures resulting in numerous new fabrics that buyers require. Their inputs also contribute to NW’s fabric development of annual innovation and commercialisation. Additionally, they monitor fabric sample production and provide suggestions of alternative fabrics to buyers while negotiating pricing with them. Textile sales teams also have to collaborate with apparel sales teams as buyers may wish to place full-package orders in which both textile and apparel need to be aligned by making internal production arrangements.

In NW’s apparel division, a similar pattern is observed where apparel sales teams are the node of communicating, internally collaborating not only with the textile division for pre-costing and selection of fabrics, but also with the central production control centre arranging preproduction apparel sample making including the procurement of trims and accessories. Apparel sales teams communicate closely with retail buyers as they suggest and regulate apparel samples, monitor bulk production, and arrange delivery schedules with buyers together with contingent repeat orders within a season. In particular the apparel sales team in Rainbeau has been closely collaborating with the design team and NW’s fabric sales teams so that they are knowledgeable about market intelligence, design concepts and fabric choices, since these allow them to directly communicate with retail buyers and suggest suitable ranges at compatible prices. Most importantly, these sales teams receive valuable sales reports after product launches which help NW to evaluate product success/failure and provide useful input for the consequent NPD activities. The above provides the evidence that sales teams can be viewed as a crucial source of the dynamic capabilities of a firm in terms of NPD (Eisenhardt and Martin, 2000; Teece et al., 1997; Winter, 2003). Additionally, the synergy of teams facilitates NW’s T&A NPD integration, sharing resources and information for product innovation and refinement, and operational flexibility which can lower NPD cost, improve speed to markets, design and quality improvement (Fredericks, 2005; Islam et al., 2009; Keller, 2001; Sarin and McDermott, 2003; Sethi et al., 2001).
Within their cross-functional role, the sales teams of NW coordinate the interfaces between buyers and internal departments and especially generate the synergies of marketing and R&D, where they align market information and technical capabilities to implement successful NPD process (Griffin and Hauser, 1996; Song et al., 1997). Given market orientation and technological capabilities as discussed in section 6.5 and 6.6, NW’s textile and apparel sales teams have successfully facilitated the synthesis of T&A NPD process by bringing market input into in-house R&D and design, and conducting commercialisation and communication activities, supporting the marketing function and providing compelling product variations for buyers. This reinforces Sun and Wing’s (2004) argument that the early involvement of cross-functional teams can facilitate NPD and lead to superior product results.

Nevertheless, according to literature, disagreements can also occur in team collaborations which can hinder NPD effectiveness due to teams’ different objectives (Porter and Lilly, 1996), and/or different perceptions resulting from the characteristics of personality and professional knowledge (Atuahence-Gima and Evangelista, 2000; Griffin and Hauser, 1996; Wang and Montaguti, 2002), which is difficult to avoid. Thus, there is a need to mitigate conflicts through suitable management practices such as improving management structure by opening communication channels to enhance trust and commitment among team members (Holland et al., 2000; Porter and Lilly, 1996). NW is aware of its team issues and has managed to avoid team conflicts. Senior/top managers have particularly assigned the assistant vice president of R&D and sales to manage sales teams as the mediator of conflicts. The company has also deployed a number of tactics in its management system to mitigate team disagreements. For example, job rotations between textile and apparel sales teams where each team learns the technicalities of the other since such interactivity offers them a better understanding and recognition of possible issues where conflicts can emerge. In addition to formal meetings, NW has institutionalised informal communication activities, where teams from various departments can interact and discuss freely regarding their work experiences and possible difficulties encountered.
Interestingly, a major friction area between R&D and marketing departments explicitly discussed in the literature (Atuahence-Gima and Evangelista, 2000; Griffin and Hauser, 1996; Wang and Montaguti, 2002), where each department perceives and interprets products and markets differently (i.e. varied professional characteristics), seems not to be supported by the empirical evidence from the case study. On the contrary, the R&D collaborates well with marketing in NW, since both textile and apparel sales teams regularly provide market information regarding their past sales and buyers’ enquiries to R&D engineers and designers, and vice versa, R&D engineers and designers also provide updated trends and technological information to sales teams enhancing their product knowledge, which leads to better product commercialisation and performance.

NW’s sales teams appear to be the coordinating force which reduces frictions between R&D and marketing since these teams are knowledgeable about both textile and apparel technicalities and marketing, not concentrating purely on selling. Sales team rotation programmes reinforce their knowledge deriving from buyers’ requests in both textile and apparel, and by so doing, they establish better communication channels between them. Their knowledge and capabilities allow them to communicate adequately with designers and engineers and simultaneously provide product recommendations to buyers. Most importantly, NW has managed to moderate the conflicts between R&D and marketing and turn this into its competitive edge as this enhances the reputation of being a specialised T&A manufacturer with the technological and marketing capabilities. This harmonious cooperation of R&D and marketing through competent sales teams becomes a valuable resource of competitive advantage and engenders business opportunities. It can be rare since not many manufacturers possess such coordination of human and organisational resources. Additionally, it can also become socially complex as it is difficult for competing firms to imitate or even more difficult to implement.

Furthermore, reward systems are closely associated with team performance in NPD, as well as with conflicts that can decrease motivation and effectiveness, when they are not
appropriately applied to teams/team members or there are dissimilar levels of rewards within teams (Edmondson and Nembhard, 2009; Holland et al., 2000; Sarin and Mahajan, 2001). Thus, reward systems may have to take job responsibilities, seniority levels or individual contribution into consideration. Unsurprisingly, NW has also experienced the conflict problems in its sales teams of textile and apparel where the reward systems of these two divisions differ. The profit-centre system is adopted among the textile sales teams, since each team is conceived as an independent business unit within the company, generating its own revenues and enjoying collective commissions for its members. This leads to increased competition among these sales teams, thus generating more profits for NW. Conversely, the value-centre system is applied to all apparel sales teams within NW, since they are integrated and centrally controlled, making use of a collective reward system where all 15 teams share sales commissions. Due to NW’s T&A vertical integration, conflicts usually occur when textile sales teams “sell” fabrics to the apparel ones because the prices that textile teams offer fail to meet the targets of apparel teams. Such issues may lead to a decrease in the amount of use made by NW’s apparel of its own in-house textiles. Nevertheless, NW has attempted to resolve such issues by managerial efforts as discussed in 6.6.1

The key findings are summarised as follows:

- This study agrees with the literature that NPD teams as a firm’s human resources that combine knowledge, skills and expertise can generate NPD capabilities and create advantageous NPD outcomes.
- It is found in this study that sales teams play an important cross-functional role in the T&A manufacturer as they can generate the firm’s dynamic capabilities. Most importantly, they can mitigate the major NPD conflicts between R&D and marketing that enhances its competitive edge.
- This study also complies with the literature that different reward systems can cause conflicts among teams and affect NPD performance.

### 6.7 NPD collaboration and partnering relationships

#### 6.7.1 Supply (chain) management

NPD collaboration is viewed as imperative for business survival as it has become
increasingly difficult for a single company to pool all the necessary resources to sustain its business in global competition (Bonaccorsi and Lipparini, 1994; Emden et al., 2006; Perks, 2004; Petersen et al., 2005; Song and Di Benedetto, 2008; Wynstra et al., 2001). While keeping crucial and valuable NPD activities in house, outsourcing activities of low and medium asset specificities has prevailed as a common business practice, allowing firms to control costs, enhance productivity and grow faster (Cox, 1996; Hobbs, 1996; Williamson, 1979). Due to these partnering relationships, NPD is greatly involved with supply (chain) management.

According to a number of researchers, partnering relationships can occur in any stage of NPD (Bonaccorsi and Lipparini, 1994; Handfield et al., 1999; Petersen et al., 2003). The involvement of partnering relationships in NW’s NPD is demonstrated in Table 6.1, where in all NPD stages there are different relationship applications, from trend forecast specialists to strategic alliances in production. As discussed in NW’s NPD process analysis in section 6.3.1, these partners have played a crucial role, helping NW to effectively develop new ideas (e.g. trend forecast specialist; specialised yarn suppliers; academic/research institutions; apparel design alliance), share technologies (e.g. allied fabric printing factory), improve quality (quality inspectors; allied textile factories), reduce lead time (e.g. third-party factories for textile and apparel sample making), and reduce cost (e.g. allied textile and apparel factories) (Bonaccorsi and Lipparini, 1994; Petersen et al., 2003; Ragatz et al., 1997; Takeishi, 2001).
According to literature, supply management has not only kept its operational role, making use of shorter-term relationships to implement cost reduction (Cousins, 2005) and timely delivery (Mentzer et al., 2000; Tan, 2001), but also developed a more strategic character, involving longer-term partnering relationships as supply members are involved in each other’s activities (Cousins, 2005; Cousins and Spekman, 2003; Harland, 1996; Harland et al., 1999; Mentzer et al., 2000). Supply management is likely to be viewed strategically when a firm takes the leading role and develops longer-term partnering relationships among participant firms. The appropriate deployment of partnering relationships holds the potential of competitive advantage, as the effectiveness of supply management can enhance the competitive performance of a firm (Cousins, 2005; Cousins and Spekman, 2003; Ketchen and Giunipero, 2004).

This strategic thinking is also illustrated in the case of NW in terms of its NPD collaborations. The company started as a textile manufacturer with short-term contracts and relationships for acquiring yarns, and efficiently knitting fabrics to cater for fabric buyers; cost reduction together with operational effectiveness was its major concern. Given its business growth and the increasing demand for fabric variations, NW had to find

### Table 6.1: NW’s partnering relationships in its NPD

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<th>Partnering relationships</th>
<th>Textile NPD</th>
<th>Apparel NPD</th>
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<td>Research and analysis</td>
<td>Synthesis</td>
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<td></td>
<td>Trend forecast specialist</td>
<td>Third-party textile factories for prototype</td>
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<td></td>
<td>Collaboration with academic/research institutions for R&amp;D and innovative fabrics</td>
<td>Third party textile factories in Taiwan</td>
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<td>Collaboration with specialised yarn suppliers</td>
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<td>Apparel design alliance (Rainbeau)</td>
<td>Apparel design alliance (Rainbeau)</td>
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<td></td>
<td>Trend information provider</td>
<td>Third party fabric suppliers</td>
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<td>Third party factories for sample making</td>
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<td></td>
<td>Sourcing agents</td>
<td>Third party quality inspectors</td>
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alternative knitting facilities and complementary resources. Thus, it has developed a strategic network of textile production and other related collaborations facilitated by Taiwan’s unique business structure in the T&A sectors as unity among exporters is paramount (Chen and Parker, 2007; Jin, 2004) as discussed in section 2.3. With the progress of time, NW has vertically integrated dyeing and finishing facilities, thus upgrading its production capability, and strategically collaborated with specialised yarn suppliers to co-develop innovative yarn varieties. It has also developed textile R&D capability combined with knitting engineering expertise, trend forecast ability together with its marketing function to develop fabrics of a more complex nature and higher value. It has been concentrating on valuable resources and developing core competences in textile R&D while outsourcing production in allied textile factories in China and Vietnam and collaborating with small textile factories near its Taipei HQ. Simultaneously, NW has taken the strategic decision to develop apparel NPD and integrated it with textile NPD through its crucial ally in the US. At a later stage, apparel NPD is acquired in its Changzhou base. The strategic view of NW’s supply management has increased its competitiveness potential since it has occupied a critical role in the supply chain, enhancing its business opportunities by serving more buyers of textiles and apparel who trust NW’s expertise in NPD. This in turn has made the company and its products more reputable to buyers. The synergy of partnering relationships that generate and combine resources has led to NW’s competitive edge (Das and Teng, 2000; Dyer and Singh, 1998; Perks, 2004). This is in an agreement with Cox’s (1999) strategic position in a supply chain where the company can acquire critical resources to appropriate value. NW, in its strategic vision, has acted as a buyer in the buyer-driven chain (Gereffi, 1999).

On the other hand, NW has functioned as a key supplier in its interface with buyers in a reversal of roles in the chain as Cousins and Speckman (2003) propose. Since global circumstances demand full-package services (Gereffi, 1999; Tewari, 2006), NW has acquired knowledge and capabilities in apparel NPD with the integration of its textile NPD in order to strengthen its strategic positioning by directly serving retail buyers. It has also forged dependent relationships with its allied factories together with 300+ small textile
factories where social network prevails based on trust rather than contracts (Gulati et al., 2000; Poppo and Zenger, 2002). NW as a manufacturer has become one of the central controllers in the global supply chain together with the other two nodes, these of retailers and brand owners (Berger, 2006). This is also in agreement with Cousins (2005, p 408) who argues the importance of the mega suppliers in supply management since buying companies focus on their relationships with a narrower set of suppliers. For instance, NW in cooperation with Rainbeau has established a rapport with Wal-Mart, as a mega supplier providing complete T&A NPD with quality assurance, and been awarded the status of one of its best suppliers.

Being a reputable manufacturer with a strong position in the supply chain, NW has gained competitive advantages from both cost and differentiation strategies as discussed in section 6.2. According to Cousins (2005) when a firm pursues cost reduction, a tactical direction of short-term operations will be employed, while by focusing on differentiation, strategic and longer-term relationships will be adopted. NW’s approach to differentiation is using a different set of activities in its textile and apparel NPD to cater for specific buyers’ needs. For instance, given the considerable investment and long-term production collaboration, NW’s African factories produce apparel of more basic specifications in comparison to the ones in Cambodia which cater for more sophisticated apparel ranges. To produce innovative fabrics, NW has strategically collaborated with specialised yarn suppliers and academic institutions to develop its innovative fabrics in a strategic supply arrangement by taking a long-term approach.

However, the findings of this study do not entirely agree with Cousins’ (2005) argument that cost predominantly focuses on shorter-term operational partnering relationships. In the case of NW, the company has allied with textile manufacturers in China and Vietnam, and an apparel factory in Kenya, mainly to reduce overall production costs including free tariff as discussed in section 5.2.3. However, these alliances for operational purposes are not based on short-term relationships, rather they are viewed by NW as a long-term approach in its supply. Furthermore, in order to serve its key retail buyer, Wal-Mart, which is
classified as a discount retailer with cost reduction practices (McGoldrick, 2002; Richardson, 1996), NW would be expected to have employed a shorter-term operational supply collaboration, following a cost reduction strategy according to Cousins’ (2005) recommendation. But in fact, on the contrary, NW has invested in building apparel factories overseas (e.g. in Lesotho), and forming a crucial strategic alliance with Rainbeau using NW’s fabric supply to access and reinforce its relationship with Wal-Mart. In both above cases, NW has achieved overall cost advantages in long-term relationships with its suppliers and buyers. Nevertheless, NW complies with Cousins’ (2005) argument that companies need to align their strategies with their supply approaches. NW has aligned its partnering relationships for operational purposes with its cost strategy, and strategic partners with differentiation strategy, but cost strategy can also serve strategic purposes in a long-term duration.

The key findings are summarised as follows:

- This study agrees with the literature that a firm’s strategic positioning in the supply chain can provide opportunities to capture critical resources and appropriate value for the firm.
- The study has shown that in the NPD process of the T&A manufacturer, supply management involves strategic and operational levels, and supports the alignment between supply approaches and business strategies.
- This study does not support the assertion that cost reduction strategies tend to involve mainly operational collaboration with short-term relationships. Operational collaboration can involve long-term partnering relationships.

### 6.7.2 Strategic network

According to a number of researchers, supply collaborations have evolved from dyadic to chain and further to networks (Cousins and Spekman, 2003; Harland, 1996; Mills et al., 2004). Competitive advantages can accrue from networks of companies by pooling various resources from various relationships since a network is a nexus of relations (Duschek, 2004; Dyer, 1996; Gulati et al., 2000; Ireland et al., 2002), where these strategic relationships tend to be long-term (Chang and Harwood, 2001; Gulati et al., 2000; Mills et al., 2004). The strategic position in the network relies on the firm’s ability to manage the network.
strategically, selecting suitable partners to generate competitive advantages (Dyer, 1996; Gulati et al., 2000; Harland, 1996). It enables the firm to become a principal buyer or central controller in the network (Gulati et al., 2000; Jarillo, 1988), and/or in the chain (Cox, 1999) as a dominant player in the chain to appropriate value, as discussed in the previous section. The network resources can generate source of competitive advantages through unique contexts (Duschek, 2004; Gulati et al. 2000)

NW has acknowledged the significance of networks since the social relationships in Chinese and Taiwanese societies play a central role in business and tend to be longer-term in comparison with those in western business (Lau and Moon, 2008). It has invested in multi-sourcing networks (Hines, 1995) by committing resources in developing partnering relationships with its trusted textile factories around its headquarters to respond quickly to NW’s needs for small orders or sample production. They have forged long-term relationships even without any formal contractual obligations. NW and its partners have occupied their positions in the strategic network, developing their specialised capabilities with network members. These small textile factories complement NW’s textile engineering expertise as fabric improvements can be achieved through their technical collaboration. Through NW, they can obtain more knowledge regarding textile R&D and engineering to enhance their production capabilities as well as gain production orders. NW’s interface with its textile buyers can also be improved since it can produce a wide range of fabrics with speed of responsiveness, which in turn reinforces NW’s business reputation among other buyers to gain further orders. This dense network of production is typical of Taiwanese T&A clustering activities, where network participants can support bigger firms by reinforcing their positions in global supply chains. Simultaneously, the smaller firms in the network can also remain viable, since these bigger firms can pass orders to them and provide valuable support. This has generated a self-reinforcing cycle in the T&A industries in Taiwan that sustains the participants (Chen and Parker, 2007).

NW has occupied a central position in its network as a nexus of relations with its yarn suppliers, a number of subcontracting textile and apparel factories, and alliances with
textile factories and Rainbeau, to name but a few. These partnering relationships generating NPD collaborations have gained NW the critical experience to form its network resources. Network resources can influence strategic decisions which can lead to explore business opportunities (Gulati et al., 2000), for instance, reinforcing NW’s textile R&D to produce more fabrics by collaborating smaller textile factories, and incorporating apparel NPD to provide full-package services to buyers by exploiting ally’s specialisation. Network resources can be a source of competitive advantage, since they can generate valuable resources that are difficult to imitate (Duschek, 2004; Gulati et al., 2000) that (in NW’s case) facilitate the integration of its textile and apparel NPD, reinforce their specialised capabilities, and capture value by generating more business opportunities; these are also difficult and complicated procedures for outsiders to replicate.

The key findings are summarised as follows:

- This study strongly supports the theory that competitive advantage can derive from longer-term relationships in strategic supply networks where various valuable resources can be generated and difficult to be imitate. Dense social networks are crucial in supply collaborations, especially in Chinese/Taiwanese societies.

### 6.7.3 Strategic alliances

According to TCT, alliances involve higher transaction costs (Cox, 1996). Alliance formation can generate competitive advantage by sharing risks and resources invested in specific assets (Eisenhardt and Schoonhoven, 1996; Gulati, 1998; Ireland et al., 2002; Whipple and Gentry, 2000). Alliances tend to be formed when firms are in a vulnerable position, because they can improve allied firms’ competitive positions (Eisenhardt and Schoonhoven, 1996). A firm with better reputation and social status has the potential to form strategic alliances (Eisenhardt and Schoonhoven, 1996; Gulati, 1998). In agreement with the literature (Eisenhardt and Schoonhoven, 1996), NW was aware of its vulnerable position in the T&A industries, being simply a textile manufacturer serving fabric buyers, and it responded by forming alliances with an apparel factory in Kenya in 2002, and with Rainbeau in USA in 2006, in order to acquire apparel NPD knowledge and capabilities to co-develop products. Furthermore, as discussed previously, NW has gained reputation by specialising in its textile R&D and serving famous brands. The social position of NW has
been thus reinforced and in turn has created opportunities for NW to strategically formulate alliances in its network of supply, facilitating its textile and apparel NPD. Despite higher asset specificities that incur higher transaction costs, alliances such as allied knitting factories in China and Vietnam, and apparel factories in Kenya, have enabled NW to mitigate the financial risks by direct investment in production facilities. Additionally, NW has also achieved its business expansion in the US and EU markets, and obtained technological capabilities through its crucial alliances, which are demonstrated in Table 6.2. These alliances of NW are consistent with Whipple and Gentry’s (2000) and Emden et al. (2006)’s principle of the alignment of objectives, as NW has correlated its NPD goals with those of its allies to acquire competitive capabilities. The alliances of NPD allow NW to achieve sharing NPD costs, entering and/or expanding business in new markets as well as sharing new technology and R&D (Bonaccorsi and Lipparini, 1994; Emden et al., 2006; Perks, 2004), generating business opportunities that lead to potential of competitive advantages.
NW has obtained valuable resources to generate business opportunities through these allies. For example, it has acquired a minority equity in both Vietnamese textile and Cambodian apparel manufacturers, which allows it not only to gain access to the European markets, but also to obtain resources that can lead to competitive advantages, such as NPD knowledge that meet a higher standard of production. NW has gained experience in T&A production for the more sophisticated European markets, and organisational resources (management system), which allows it to manage its supply network effectively in these
ASEAN countries to enhance productivity. NW has also acquired complementary resources/capabilities through its allies, such as apparel manufacturing through its allied factory in Kenya, apparel design knowledge through Rainbeau, fabric advanced printing capability through Newtech, and knowledge regarding retail operations through Easyoga. Knowledge acquisition that can enhance NPD capability is demonstrated in these alliances, consistent with the literature where acquiring complementary resources/capabilities is the key motive to form alliances (Das and Teng, 2000; Shenkar and Li, 1999) that is crucial to competitive advantages (Perks, 2004), and usually involves learning (Ireland et al., 2002; Teng and Das, 2008). More specifically, not being satisfied with serving brand/retail buyers, NW has allied with the branded retailer Easyoga in order to gain knowledge of retail operations and retail marketing; together they have attempted to enter the Chinese market and other Asian countries in the form of branded retailing. NW has also shared its textile knowledge and capabilities with its allies, such as the allied textile manufacturers in China and Taiwan, and Rainbeau, resulting in their NPD success. This supports that knowledge sharing can enhance alliance performance (Grant and Baden-Fuller, 2004; Lyles and Salk, 1996). Most importantly, NW has managed to minimise the communication problems that result from cultural and organisational differences (Cullen et al., 2000), because this can not only impede learning but also endanger trust. NW has employed the management method of “foreigners to foreigners” in allying with Rainbeau as discussed in section 6.3.4, at the same time monitoring the allied NPD process with its own managers, learning how the business is run in the US market.

It must be also noted that trust has played a significant role in the case of NW’s alliances and networks. According to the literature, opportunism occurs in any business collaboration; both trust and contracts have been suggested as safeguards against such behaviour as they enhance certainty (Lee and Cavusgil, 2006; Poppo and Zenger, 2002). They can also complement each other (Poppo and Zenger, 2002), and in particular, trust can reduce transaction costs (Gulati et al., 2000) as well as encourage longer relationships even in high uncertainty situations (Lee and Cavusgil, 2006; Poppo and Zenger, 2002). Based on trust, the group of small factories located near NW’s headquarters have
facilitated NW’s textile production for a long period of time without signing any contracts, which also lowers NW’s transaction costs. On the other hand, NW has involved alliance equity arrangements with contracts, such as the textile factories in China and Vietnam, and the sales office in Dallas and Rainbeau. Such arrangements can limit opportunism in alliances (Teng and Das, 2008). Nevertheless, trust in NW’s collaborations is not limited to the form of contracts, since mutual commitment of fairness is recognised, as NW attempts to attribute benefits to the equivalent contribution of its partners and alliances in its supply network (Cullen et al., 2000). Additionally, NW also strives to enhance trust with its retail buyers, where the company has initiated its CSR department for ethical sourcing in manufacturing production of both textiles and apparel. This allows retail buyers to trust their business with NW because they acknowledge that the company will not compromise them, thus reinforcing their further collaboration (Hamilton et al., 2005; Thun, 2000).

The key findings are summarised as follows:

- This study agrees with the literature that alliances can be a source of competitive advantages since they can generate business opportunities by sharing resources/capabilities and mitigating risks.
- This study agrees that acquiring complementary resources/capabilities as well as knowledge is the key motive in forming alliances and usually involves learning.
- This study supports the argument that both trust and contracts are essential components in forming alliances and networks, and trust especially can further enhance collaborations with suppliers, as well as buyers.

6.7.4 Supply options of partnering relationships
The formation of these partnering relationships is crucial for NW’s NPD, which is involved with different options. According to Cousins (2005) and Mentzer et al. (2000), the orientation of partnering relationships can be viewed through operational or strategic perspectives. Operational orientation tends to focus on shorter-term operational activities with limited resources and commitments in collaboration. Strategic orientation concerns relationships which can improve a firm’s competitive position and accomplish longer-term strategic goals, as it usually involves a limited number of partners but with close relationships (Chen et al., 2004). NW has both operational (but can also involve long-term
collaboration) and strategic orientation in the company’s activities of NPD, which has been explicitly discussed in section 6.7.1. While its alliances are involved with the long-term strategic NPD plans and objectives, NW has also deployed 300+ third-party textile factories to produce a wide range of fabrics on a weekly basis to complement its in-house production capacity. The latter contains operational nature, but is neither adversarial nor short-term.

More specifically, Cox (2004) has proposed appropriateness in the formation of partnering relationships in a matrix of four supply options (see Figure 3.3). Appropriateness relates to the fact that buyers need to align these options to their capabilities and resources. In the short-term reactive mode, supply collaborations can be conducted in the forms of supplier selection with first-tier suppliers or supply chain sourcing, collaborating with the members in the chain. In a long-term proactive mode, partnering relationships can be managed as supplier development on the first tier and supply chain management across the supply chain. According to Cox (2004), supply chain management is the potentially most advantageous as well as the most difficult supply option for buyers. All these supply options can be observed in NW’s NPD operations (as the company acts as a buyer), and simultaneously the company has aligned each option with its competence. In its reactive mode, NW activates supplier selection with first-tier suppliers, namely 300+ small local textile factories producing a variety of fabrics in smaller production runs to cater for volatile and continuous demands. Simultaneously, NW may also seek appropriate yarn suppliers, supporting its textile engineering together with these textile factories for continuous refinement of its fabrics on a weekly basis or for bulk production to satisfy buyers’ demands, which can be viewed as supply chain sourcing. NW’s fabrics of this kind usually contain lower production cost and also involve less transaction costs. Nevertheless, the short-term relationships proposed by Cox (2004) in the reactive mode conflict with the empirical evidence in this case, since NW’s small textile factories as well as local yarn suppliers may carry an operational function due to the low transaction costs involved, but they are viewed as NW’s strategic partners with longer-term relationships, deriving from the unique Taiwanese unity of networks.
In the proactive mode, NW has engaged in supplier development through the alliance with Rainbeau, co-developing apparel to serve specific retail buyers. This has demanded considerable resources, higher transaction costs and sharing information from both sides. Furthermore, NW has activated its supply network comprising valuable resources/capabilities to deal with supply chain management. It has developed its suppliers who are specialised in yarns, e.g. Shin Kong and Nan Ya in Taiwan and Cocona and Outlast in the US, and in textile production, namely the allies in Kunshan (China) and Huge Bamboo (Vietnam), with whom it has established higher specific investments of long duration. Attached to these alliances are NW’s R&D departments and trend forecast knowledge to develop fabrics of higher value for buyers demanding exclusivity, such as Adidas. NW has also provided full-package services to its retail buyers, making use of apparel design with Rainbeau, and apparel manufacturing not only in its own factories but also in allied factories in Kenya principally with its own fabrics. These proactive supply options enable NW to sustain its relationships with buyers. Particularly a firm which can conduct supply chain management has the most advantageous position, taking a leading role that commands its whole supply chain, from developing suppliers of yarns and knitting production to apparel design and manufacturing in dispersed physical locations to implement NPD. This allows NW to gain the benefits deriving from total cost reduction and continuous product innovation/improvements (Cox, 2004). This fact complements Cox’s argument (2004) that only a handful of companies, namely world class retailers and automobile manufacturers, are able to control all activities across the supply chain, since the present empirical evidence demonstrates that a manufacturing firm in a sunset industry can assume a leading role and expand its NPD operations across three continents. Furthermore, with its recent alliance with Easyoga, NW has indicated a strategic intent to be involved in retail operations in the Chinese and other East Asian markets, although currently this is in the preliminary stage. This can be developed in a similar vein as the international T&A manufacturers’ transition from OEM to ODM and OBM (Gereffi, 1999; Tokatli, 2007) as seen in the case of Turkey’s jeans brand, Mavi (Tokatli and Kizilgun, 2004).
These supply options of partnering relationships of NW do not comply with Wagner’s (2006) research findings that in the T&A sectors, the majority of partnering relationships are arm’s length and adversarial where manufacturers are reluctant to invest in resources by building longer-term relationships with their buyers, or lack resources and capabilities to establish longer partnering relationships in their supply management (Lam and Postle, 2006).

The key findings are summarised as follows:

- This study provides empirical evidence for supply options, and agrees with appropriate alignment of buyer’s capabilities. The firm which is able to conduct supply chain management can command the whole supply chain and obtain the most advantages, but this is not only limited to large firms in advanced industries or the service sector.
- This study has shown that the reactive mode of supply options is not limited to only short-term partnering relationships.
- This study does not support the contention that T&A manufacturers are less willing to invest in long-term proactive relationships in their supply management.

6.8 Summary

This chapter has discussed the literature based on the research framework deriving from chapter 3 along with the empirical case study. All stages of the T&A NPD process derived from the manufacturer in Taiwan have been analysed by means of IDEF0 and RBV theory, to identify the capabilities/competences and possible competitive advantages that can occur. The key NPD success factors that can lead to competitive advantages of the T&A manufacturer have been compared and contrasted with the empirical case study in light of the literature; the major findings are summarised in each section. The following chapter will present the concluding comments deriving from the analysis and discussion, followed by the research implications and limitations. Recommendations for future research will be also included.
Chapter 7 Conclusion

7.1 Introduction
This chapter presents a summary of the key findings, conclusions, and implications of this study with regard to the competitiveness of textile and apparel manufacturers in Taiwan. The research implications include theoretical contributions and recommendations that might be made for the manufacturers in T&A industries and their managers. The limitations of this study and suggestions for future research are also identified.

First, the research objectives adopted at the outset of the study will be reviewed.

Aim: To investigate how the T&A manufacturers in Taiwan sustain their competitiveness through NPD, with particular reference to a successful manufacturer in Taiwan used as a case-study.

Research objectives:
1. To identify the resources/capabilities/knowledge deriving from the NPD process of the T&A manufacturer in Taiwan that can lead to competitive advantages.
2. To investigate how the T&A manufacturer in Taiwan generates competitive advantages through innovation/technological capabilities, marketing factors, internal management, and strategic collaboration in the context of NPD.
3. To identify the key competitive strategies that the manufacturer in Taiwan has adopted in order to sustain competitiveness in the global T&A industries.

7.1.1 To identify the resources/capabilities/knowledge deriving from the NPD process of the T&A manufacturer in Taiwan that can lead to competitive advantages
Numerous studies have clearly identified and discussed the positive relationship between NPD and a firm’s competitiveness. RBV theory postulates that bundles of resources that generate capabilities may be found in the NPD process. This has been explicitly demonstrated in the NPD process analysis of the case study of a representative Taiwanese T&A manufacturer in section 6.3.1 where useful resources transformed into capabilities and potential resources that lead to competitive advantages have been found. To achieve
this requires strategic plans that are usually conducted by senior/top managers with critical judgments to match the firm’s strategic positionings with its available resources/capabilities, and/or complementary resources acquired from external sources, because it is difficult for a manufacturer to obtain all the necessary resources. Combining and reconfiguring these resources within the NPD process by the firm’s dynamic capabilities enable the T&A manufacturer in Taiwan to successfully implement NPD in the turbulent business environment, especially in the geographical areas of severe competition. Thus, it has become imperative for a manufacturer’s survival to engage in generating dynamic capabilities to combine and reconfigure internal and external resources. These activities allow the T&A manufacturer to accumulate valuable knowledge as absorptive capacity is embedded in organisational routines, which is demonstrated in the NPD process in this study. Such knowledge together with resources/capabilities can engender product innovation as a firm’s core competence. Following this, the manufacturer can find itself in an advantageous position to transform core competences to core products that lead to numerous diversified new products so that a firm can continuously introduce new products to its buyers. These value-adding activities can enhance the manufacturer’s reputation and competences, which are competitive advantage that sustains relationships with buyers and attract new buyers.

Given the path dependency, the T&A manufacturer may continuously focus on the development of core competence. However, this may hinder its NPD progress as a firm becomes complacent due to its past success. The manufacturer needs continuous learning to incorporate more new resources and capabilities to generate business opportunities. As seen in the case study, despite the fact that the T&A manufacturer in Taiwan has developed its core competence deriving from fundamental textile resources/capabilities, it has further engendered new sets of capabilities in apparel NPD through learning. The continuous combination and configuration of resources and capabilities through acquiring knowledge enable the T&A manufacturer to sustain competitiveness by attracting new sets of customers, namely retail/brand buyers who acquire full-package and other services since these have become the imperative in the global T&A supply chain as documented in
chapter 2. With the generated knowledge, resources and capabilities through the NPD process, the T&A manufacturer in Taiwan can thus continuously generate valuable resources to expand its business opportunities while concurrently mitigating potential threat; it can generate rare resources by configuring its human/physical/organisational resources in optimal ways that not many firms can achieve; and/or it can generate imperfectly-imitable resources resulting from the firm’s historical context, social complexity and cause ambiguity. All these resources/capabilities/knowledge that are sources of competitive advantage have been found in the NPD process that provides the empirical evidence of this study.

7.1.2 To investigate how the T&A manufacturer in Taiwan generates competitive advantages through innovation/technological capabilities, marketing factors, internal management, and strategic collaboration in the context of NPD

It has been demonstrated in the research that in order for the T&A manufacturer to gain competitive advantage, it relies not only on the sufficient implementation of NPD process, but also on other crucial elements of NPD success. Recently, it has become increasingly difficult for the manufacturer to survive and grow in the T&A industries relying solely on manufacturing expertise centred around cost. These NPD factors can provide T&A manufacturers with competitive advantages. They enable manufacturers to generate a convincing ability to impress and serve buyers. This study has provided the evidence that they have become crucial and can facilitate collaboration between buyers and manufacturers.

Technological capabilities (mainly deriving from R&D, design and engineering resources) and marketing factors can lead to the competitive advantage of product innovation. Furthermore, technological capabilities through knowledge accumulation can engender new resources/capabilities to improve or refine core products, adding more value to the existing products and reinforcing manufacturers’ competences. Marketing capabilities can contribute greatly to product commercialisation and new market development by exploring business opportunities; commercialisation of new products through market orientation
fortifies product features and also aligns price levels to buyers’ requirements. It has been strongly suggested in this study that developing IT systems is crucial for the T&A manufacturer because this can not only facilitate the accomplishment of innovation advantage, but also enhance rapports with buyers through information exchange and efficient response to buyers’ demands, especially over long physical distances. Despite the significance of technological capabilities as a source of competitive advantage, few T&A manufacturers have recognised their value or have been willing to invest in their development, according to previous research in the literature. Furthermore, although both market intelligence/information and marketing capabilities can increase business opportunities, T&A manufacturers tend to follow their buyers’ leads and have invested little in their marketing function. This can hinder T&A manufacturers from developing further business strategies, since as the literature argues, marketing strategies can form a part of business strategies. The manufacturer need to proactively develop and enhance its technological and marketing resources and capabilities in order to increase its business opportunities and enhance relationships with its buyers, thus outperforming rivals in the T&A industries.

Effective management practices play a pivotal role in the NPD of the T&A manufacturers since they provide the human resources that have the potential of achieving competitive advantages. Top/senior managers constitute intangible resources that enable T&A manufacturers to identify and explore business opportunities, take strategic decisions and provide guidance in order to achieve NPD success and thus gain competitive advantage. They can drive the manufacturer to deploy appropriate resources, create necessary capabilities, as well as generate knowledge by organising and coordinating organisational routines through learning and training programmes, and/or adapting organisational structures. The empirical evidence of this study strongly supports the notion of the strategic contribution of top/senior managers to organisational learning that generates knowledge as a source of competitive advantage. Associated with senior/top managers, team management is also a crucial source of competitive advantage. NPD teams refer to human resources where NPD relevant knowledge and skills can be combined to generate
capabilities and product innovation. Sales teams are particularly significant in the T&A manufacturer’s NPD as demonstrated in the case study, because they possess both product knowledge and market intelligence that facilitate the implementation of NPD process. Thus, they can act as the node of cross-functional teams, coordinating NPD activities in which sales teams tend to be viewed as a source of the dynamic capabilities of the manufacturer that lead to competitive advantages. That is, they possess the expertise to integrate NPD resources and reconfigure them into organisational capabilities to respond to external changes (e.g. buyers’ various requests). They deal with internal and external communication and collaborate with production engineers, factories and buyers. Given their extended knowledge and capabilities, sales teams forming the integrative force of internal departments can mitigate the conflicts between R&D and marketing, which is usually characterised in the literature as a major issue of team collaboration. This can thus facilitate the product innovation and commercialisation, in turn gaining competitive edge for manufacturers.

In terms of external NPD collaborations, there are various types of partnering relationships involved, which are closely related to supply management. In addition to its operational character, supply management has evolved into strategic orientation as the partnering relationships tend to be involved with longer-term collaborations that share resources and risks. The alignment of partnering relationships to their objectives and business strategies are significant, as well as selecting the most appropriate supply options in accordance with competences, as mismatches can impact business performance. These partnering relationships are deployed at different stages of the NPD process to facilitate the manufacturer’s NPD; this is well documented and supported by the present case study. Strategic partnering relationships can lead to a firm’s competitive advantage, where the T&A manufacturer can strategically position itself in the supply network/chain, developing capabilities and acquiring crucial and complementary resources to appropriate value. This can equip the company to respond effectively to volatile global demands, thus remaining viable and growing. Given the implementation of strategic objectives of NPD alliances, the manufacturer can thus generate more business opportunities. The formation of alliances
and network collaborations of medium asset specificity investment coupled with trust ensures further collaborations between suppliers and manufacturers, as well as the relationships between manufacturers and buyers, resulting in competitive advantage for the T&A manufacturer. Most importantly, in order to sustain its competitiveness, the manufacturer may have to develop its NPD partnering relationships with long-term collaborations irrespective of cost consideration and reactive modes of collaboration. The empirical evidence in this research has found that the duration of operational relationships of supply management can also be longer-term based on trust to achieve competitive advantages for the manufacturer.

7.1.3 To identify the key competitive strategies that the manufacturer in Taiwan has adopted in order to sustain competitiveness in the global T&A industries

The development of global conditions in the T&A industries has imposed new sets of demands, as buyer-driven chains in the advanced developed countries, have required additional services from their suppliers. Production cost, proximity to markets, and the benefits of free trade agreements are no longer the only determinants of manufacturers’ competitiveness. In order to respond to these conditions, the T&A manufacturers have to reconfigure their capabilities for performance enhancement by incorporating into their NPD value-adding activities (services), namely market information with marketing function, technological innovation and product design, as well as the essential full-package services. This has required the development of dynamic capabilities in generating new combinations of core competences, which have required intensive learning. Learning, part of which comes from external resources, has led the manufacturers to acquire knowledge which is known to be a crucial competitive advantage. This has been strongly supported by this study that the T&A manufacturer needs to continuously acquire knowledge and generate new sets of capabilities to conduct more advanced NPD activities in order to respond successfully to complex global demands. The process has been facilitated by the formation of strategic alliances providing learning together with valuable and complementary resources, which enables the T&A manufacturer to accomplish vertical integration of T&A NPD to flexibly serve a wider range of customers, thus continuously
generating new business opportunities. These alliances are employed to enhance manufactures’ operational efficiency and effectiveness as well as to improve competitive outcomes.

Another important strategic characteristic of T&A manufacturing in Taiwan is the dense networks of manufacturers, which has been demonstrated in the empirical case study. A lead firm, as the central controller in the supply chain/network, strategically deploys valuable and complementary resources deriving from its alliances together with small domestic manufacturers, thus retaining their viability. In addition to learning from each other, they have established trust that enables operations to be conducted as longer-term relationships, resulting in continuous product innovation and improvement as well as cost advantages in a long-term perspective. This has allowed the T&A manufacturer to increase business opportunities by serving buyers in a combination of different strategic positionings and performing different sets of activities. Moreover, the establishment of alliances and sales offices in buyers’ markets, coupled with CSR practices, have reinforced manufacturers’ relationships with buyers, as exchanges based on more trust have occurred in longer time spans.

7.2 Research implications
This study has attempted to provide in-depth discussion of how the manufacturers can sustain their competitiveness in the global T&A industries through the example of the Taiwanese manufacturer. This study may have presented one of the first empirically-based case evidences, to the author’s best knowledge, of NPD process and success factors in line with RBV theory applied in the T&A industries. It has demonstrated how the Taiwanese T&A manufacturer can sustain its competitive advantages through strategic applications, generating resources/capabilities/knowledge in such a dynamic environment, which may set an example for other manufacturers who attempt to incorporate NPD into their strategic plans in order to out-compete rivals.

This research has also found that despite its rigidity and difficulty of implementation, flexible application of vertical integration of T&A NPD is a significant and applicable
strategy for manufacturers’ survival and growth. This study argues that in addition to high asset specific investments, the ones that are low asset specific can be vertically integrated by T&A manufacturers in order to reduce the uncertainty of NPD, and add more value/services to end products, thus reinforcing their relationships with buyers. This complements the current TCT theory that not only high asset specificities should be integrated. Further research may need to investigate the impact of certain conditions (e.g. different industrial sectors or nations, or a firm’s available resources and capabilities) on vertical integration of a low asset specificity investment in order to gain better understanding of the leverage of a firm’s buy-or-make decisions.

Furthermore, NPD partnering relationships play a crucial part in manufacturers’ sustainability as they facilitate NPD on both operational and strategic levels. This study has provided empirical evidence that contributes to the existing supply management theory where longer-term relationships based on trust can be applied to not only the strategic but also the operational orientation of supply, which tends to be of shorter duration. Operational relationships need to be viewed not only in respect of their immediate cost reduction benefits – they can also be extended to longer-term collaborations in order to achieve competitive advantage deriving from evolutionary product improvements, as well as total cost reduction in a long-term holistic perspective. Nevertheless, this may need further investigation in various industrial sectors to verify any research generalisation, or in different nations because the perspectives of supply may vary according to the nationalities or cultures.

The above statements have presented theoretical contributions, and the following points summarise the managerial implications in relation to T&A manufacturing in Taiwan.

- Manufacturers need to acknowledge their strategic positioning options in accordance with their available resources and inherent competences, as well as their positions in the supply chain/network (e.g. lead firms or participant suppliers). Establishing long-term partnering relationships based on trust enables manufacturers to share resources/knowledge, which improves operational effectiveness and efficiency, but
primarily can generate competitive advantages.

- The alignment of supply in accordance to manufacturers’ strategy is paramount as strategic coordination of NPD activities to buyers’ expectations can enhance competitiveness.

- To achieve competitiveness, manufacturers may need to consider a certain degree of vertical integration and acquire crucial knowledge/capabilities (e.g. R&D and design) to implement the complete NPD of both textile and apparel.

- Manufacturers need to develop marketing capabilities, proactively acquire market and trend forecast information, and effectively implement the marketing function in order to enhance their reliability at the interface with buyers.

- Manufacturers have to continuously develop technological capabilities, not only for product innovation, but also for continuous acquisition of relevant knowledge. IT systems are highly recommended to enable the sharing of information/knowledge internally and externally in order to improve the relationships with buyers.

- Effective management is essential to enhance competitiveness. Flatter organisational structures, job rotation, regular training and communications can improve organisational learning and NPD outcomes.

- The pivotal role of sales teams (or cross-functional teams) with the required NPD knowledge, market intelligence and communication capabilities needs to be understood and implemented. Once rooted in manufacturers’ routines they can facilitate product innovation and generate business opportunities by efficiently and effectively suggesting or providing buyers with the new products they require.

- Decentralised sales offices in buyers’ own geographical regions using local staff with language and cultural proximity can reinforce the relationships with buyers and generate sales opportunities.

- CSR is needed to be implemented by the T&A manufacturers in order to ensure manufacturers’ reputation and reinforce their relationships with buyers.

7.3 Research limitations and further investigation
In order to explore the competitiveness of the Taiwanese T&A manufacturer through NPD, an in-depth case study has been conducted together with a pilot case study following case
study protocol and using various qualitative data gathering methods, including interviews (face-to-face and online interviews, and email communication), observation and documentation. In so doing, as discussed in section 4.6, this study attempts to achieve as much reliability and validity as possible.

Firstly, to enhance the reliability of the case study, this research has selected a representative T&A manufacturing company, New Wide Group; the choice was based on external authoritative documentation (newspapers and industrial magazines), and the recommendations of professionals. Case study protocol and database establishment (with NVIVO) have also been employed to enhance reliability (Yin, 2009). Several methods have been used to reinforce the reliability of this case study during data collection, for example, a pilot case study was employed to modify interview questions, to facilitate the theme formation, and enhance the researcher’s interview skills; interviews were tape-recorded and some also recorded by taking notes, and interviewees were re-visited or re-interviewed to confirm information validity. Based on recommendations from specific interviewees, the researcher also contacted relevant personnel through email to acquire further information and/or confirm the gathered data. Nevertheless, due to the limitations of time and finance, the information regarding NW’s allies which can also impact the NPD outcomes and the firm’s competitiveness was not readily available to gather for data confirmation. It may thus be necessary to conduct further research investigating other allied companies of NW, in addition to Rainbeau, to gain a more holistic picture regarding NPD synergies, and to assess the competitive outcomes in a wider context.

Secondly, the findings of this case study can help to identify other studies to which the results could be applied more generally. Certain issues regarding external validity might be seen as a barrier for case study approach. The competitive advantages and strategies derived from the NPD of the Taiwanese T&A manufacturer would be the domain to which the results could later be generally applied. Conducting further case studies by applying an approach similar to that used in this research to a range of T&A manufacturers in other countries could provide comparative studies or more general exploration. Conducting a
case study in a single country, where business success and competitiveness may depend upon particular conditions and strategic decisions, may limit the external validity. Further research may thus be necessary to establish whether this competitive outcome is dependent on the specific geographical location (in Taiwan and areas culturally compatible to it).

In order to augment the construct validity of the research, this case study has employed triangulation of data collection (documentation, observation, interviews and emails) to verify the information. Despite a range of alliances identified in the case study, the primary data has been principally gathered from NW and its ally Rainbeau, which may lead to analytical bias, but can be improved by conducting further investigation of the NPD of these alliances. Some relevant personnel in the selected company, e.g. the marketing Vice President and the Assistant Vice President of R&D and sales, were not available for interviews, and specific confidential documents, e.g. financial investments in acquiring equity of alliances, the annual turnover of allied companies, and NW’s annual profits were not available. Nevertheless, while analysing the data, the researcher revisited the company, interviewing a number of relevant personnel and emailing specific staff associated with New Wide’s NPD to verify certain information. The written report of the case study has been sent to the executive of New Wide and Vice President of Rainbeau for verification. These approaches have improved the internal validity of the study.

Finally, other limitations of the present study were that certain elements in the research framework were omitted, including the NPD process regarding speed in manufacturing and response to the market demands, technological advancements concerning current digital commercialisation and communication, and risk management in partnering relationships. Time responsive arrangements have been principally discussed from the retailer’s perspective, where this subject is covered by a large body of literature. Nevertheless, it is acknowledged that quick response practice can be viewed from the manufacturer’s perspective. Furthermore, the relevant studies regarding digitisation communication and commercialisation have become the current trend, but it has not been widely applied in the T&A manufacturer’s NPD. Lastly, due to the fact that the current study has been focused
on the competitive advantage that manufacturers can gain, risk in partnering relationships, especially in long-term exchanges has not been extensively addressed. The above mentioned areas may merit further examination.
Appendix i The first questionnaires for the interview

冠華  Dear Sunny,

您好~

How are you?

承蒙您願意協同此次的學術研究(產品開發與品牌發展之間的關係)，十分感激！以下是我想了解的初步問題提綱

Many thanks for your cooperation in this research, I really appreciate your efforts!

The following questions are based on this research intention

一 公司背景  Company background

1. 公司成立之過程 (因我只有上回你給我的書面以及網路上面的資訊，想取得更詳細的訊息，謝謝！例如 是否有國家或其他企業資金上的輔助等等)
   How and when did the company set up? Have you received any investment or sponsorships from governments or other enterprises?

2. 公司組織及各單位部門及部門負責人
   Please indicate the company structure and departments (including the representative of each department)?

3. 目前公司資源的主要來源?
   Where is the company getting resources from?

二 合作夥伴關係 Partnerships

1. 有哪些是重要的事業經營合作夥伴? (如 buyer or suppliers) 以及其所在國家
   Who are your important business partners?(e.g. buyer or supplier) and their locations?

2. 合作關係的運作情形
   Could you briefly explain the business relationships and how you cooperate with them?

3. 與其合作的原因
   What criteria is your business cooperation based on? (i.e. what determines you cooperation)

4. 有無較特殊成功或是失敗的例子
   Is there any special successful or failure case in terms of business cooperation?

5. 未來發展方向
   How do you perceive your future business development?

三 公司經營策略 Business Operation Strategies

1. 目前主要經營決策
   What are the current main business decisions or strategies?

2. 產品定位發展
   How do you perceive the product positioning and development in New Wide?

3. 過去曾修正改變的經營策略，改變修正的原因與市場之間的關係?
   Did you make any amendment regarding business operation strategies? What motivated you to do so? How are the changed relationships impacting the market you are targeting?
4. 未來發展的決策
What are your future development decisions?
P.S. 請問可以提供給我關於貴公司過去在國內外各大期刊或是發表的文章或是新聞稿嗎?這些將會是研究的佐證之一
p.s. Can you provide me with any articles, news, and documentation regarding your company? These are helpful to me in terms of data collecting.
再次感謝!!
Thanks again!!
Claire Shih

The second questionnaires for the online interview on 13th October 2009
Dear Sunny 10132009 9AM(+0) online interview

真的要謝謝你百忙中幫我這個忙
Thank you for doing me this favor of taking part in this interview

1. 在上回帶回的資料中提到妳們開始在大陸經營事業?為何想進軍大陸並選在 2002 這個時間點?
   According to the documentation I brought back, what was he trigger of launching business in China? And why was it in 2002?

2. 在垂直整合時所面臨較重大的問題
   What were the significant problems you faced when vertically integrated with apparel manufacturing?

3. 柬埔寨的兩廠,併購的穩德,貴公司是擁有全部股份還是?另一家呢?(這個部分文獻和你們網頁上面的資料有所出入,想跟您確認)p.s.在英文網頁中,你們在 Grandtex 提到的品牌所屬國家與我所瞭解的有點出入~Primark 應該是 Ireland, New Look 應是英國不是德國,是否請您確認一下 TKS!!
   Are you the 100% share holder of Grandtex manufacture in Cambodia? How about the other one, NEW WIDE (CAMBODIA) garment? I need to confirm this information because they seem to me not tying up the website information.

4. 當初不考慮越南為何後來在 2009 投資呢?(越南廠的全名?) 是因為愛迪達嗎?其他廠沒法作嗎?
   What is the name of the Vietnamese manufacture? Why did you not invest in Vietnam when you started apparel manufacturing? Why did you establish business in Vietnam in 2009? Is that because of Adidas?

5. 設立肯亞新廠的動機?
   What is the motivation behind for launching manufactures in Kenya?

6. JJ’s mae 和 Rainbeau 是什麼關係? 貴公司現在和他們的關係是? (與你上回跟我提到的併購有直接關係嗎?)

303
What are the relationships between J.J’s mae and Rainbeau? What are the business relationships between New Wide and them?

7. New Wide USA 是貴公司直接設立的嗎? 與 JJ mae's 的功能區別為?
   Do you directly invest in New Wide Company USA? What is the distinguishing business function between JJ and New Wide USA?

8. 上回提到 VICs(Voluntary Interindustry commerce solutions )你們是以什麼身分加入?貿易商還是製造商? 在這個組織中你們扮演什麼角色?
   What is the role you play in VICs? As a trader or manufacturer?

9. 什麼時候開始從事功能性纖維的開發? (過去功能性是叫好不叫座)
   When did you start investment in function fiber? What is your motivation doing so?

10. 近來貴公司在產品研發或是設計上更新的進展? (可能屆時請冠華幫忙引見 R&D 部門)公司網站的新聞說今年十月在中國有科技研發大樓的啟用?在哪兒?
    How do you progress your R&D and new products? When and where are you going to launch this new R&D development center in China?

11. 設計和樣品開發中心除了在台北以外還有哪些據點? 可否稍為介紹一下這些 R&D 的 function
    Where are other R&D and sample development departments in addition to Taipei? What are their main functions?

12. 在布樣和成衣的設計團隊位於何處?其功能分配?需要和業務一起接洽客戶嗎?
    Where are your fabric and apparel design teams based? What are the allocation of their business functions? Do they work with sales teams?

13. 世界大品牌中,那些公司你們專作成衣哪些專作布?
    Who are those branding companies you manufacture fabrics and apparels for?

14. 您上回提到的 easyoga 投資股份持有? 你當時投資動機? 如果面對大陸市場人口充足且又有能力製造會想有自己的品牌成立嗎?
    How much share do you hold in "easyoga"? what is the motivation for investment? When you initially enter the Chinese market, will you attempt to launch your own brands?

15. 貴公司的主要的競爭者有哪些?
    Who are the current key competitors of New Wide?

16. 可否請你在更清楚跟我說那些台灣大布商公司成立的品牌有?後來收掉的是?
    Who are your competitors, Taiwanese textile manufacturing companies that have launched their own brands? Who failed?

17. 您個人想導引旭寬走向什麼地位?仍是以 R&D 製造為主嗎?還是…
    What future direction will you attempt to lead New Wide to? Will you still focus on R&D manufacturing or any other consideration?

18. VFM(國際針織品價值型流行行銷服務計畫)?
    You mentioned VFM last time, what is it exactly?

謝謝您
Many Thanks!
Claire
The third questionnaires for the online interview on 16th Nov. 2009

以下關於你們 Sales teams 幾個問題請教您 15/11/2009

There are a number of questions regarding sales teams in New Wide

1. 組織扁平化是從什麼時候開始的?
   When did you start business reorganization (i.e. flat organization)
2. 這 20 個 team 的成員組成? 其各具備相關的知識和技巧
   Who are consisted of each of the fabric and apparel sales teams? What relevant knowledge and skills are they required to possess?
3. Sales teams 目前分派的地點以及其一同工作的部門為何?
   Where are locations of these sales teams and the departments they are working with?
4. Sales teams 直接負責的上屬的職責為?
   What are the responsibilities of the sales managers?
5. Sales teams 各自負責的顧客是依產品屬性還是地域性呢?個自年營業額約?
   How do they divide their customers? For example, by products or customer’s location? And what are the approximate annual sales amounts for each team?
6. 對新用布的開發過程他們有參與討論嗎?
   Are these sales teams involved with new product development?
7. 流行趨勢預測的合作夥伴?有幾個?(有無網站)合作關係有多久了?合作的模式為何?
   When did you start collaborating with trend forecasting partners? How many of them do you work with? How do they cooperate with you?
8. 布料供應商? 他們提供原料的時間為多久?供應流程?
   Who are your fabric suppliers? How long is the lead time of material supplying? And what are the processes?
9. R&D department 的結構?成員為何? (台灣和大陸的 R&D center 有何不同)
   How is the R&D department structured? Who are the members involved? The difference between the R&D centers in Taiwan and China?

謝謝您
Many Thanks!
Claire
## Appendix ii  Markup pilot interview questionnaires

Questions regarding NPD (07/12/2009)

| Business opportunity-idea generation/screening-Research and Analysis | 1. Who are your target consumers  
2. Who are your market rivals?  
3. What are the processes for obtaining and sharing market information with other departments?  
4. Does sales forecasting impact on product development? If so, how?  
5. What are your resource capabilities? (e.g. business partners, outsourcing)  
6. What are your marketing capabilities? (e.g. communication channel with consumers, the speed of delivering products)?  
7. How long does it normally take from communicating with customers until product launching?  
8. How do you forge customers’ interests?  
9. Do branding strategies impact on product development? If so, and how?  
10. What are the strategies for collaborating with superior customers and branded retailers?  
11. How do you build up and retain the relationships with these retail channels?  
12. Do your customers have any specific requests from your designed products?  
13. Where and how do you get new product concepts?  
14. Do they initiate with brand (e.g. brand image or identification) or product design?  
15. How is design involved this stage?  
16. Do designers work with marketing teams?  
17. Does R&D or product innovation impact on marketing and initial product concept? If so, how? |
| Design/Concept development – Synthesis | 18. Product development start point and end point  
19. Synthesis procedures?(how many times of sketch discussion, prototype presenting and final sample)  
20. Who are involved in each process?  
21. Where do you make sample assemblies?  
22. How long does it normally take? |
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<tr>
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<tbody>
<tr>
<td>23.</td>
<td>How does the product meet the customer’s requirement?</td>
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<td>24.</td>
<td>Do your customers have their specific branding expectation of the products? (same questions for your own private labels)</td>
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<tr>
<td>25.</td>
<td>Where do the designers get inspiration from?</td>
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<tr>
<td>26.</td>
<td>Does brand (or brand identification) affect their designs?</td>
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<tr>
<td>27.</td>
<td>Does design (e.g. textures, fabrics, style) impact on branded products?</td>
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<td>28.</td>
<td>How do brand and design decisions impact your business?</td>
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<td>29.</td>
<td>Are any suppliers involved at this stage?</td>
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<td>30.</td>
<td>How do they affect product development?</td>
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<td>31.</td>
<td>What are the ranges of new products?</td>
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<td>32.</td>
<td>What are the selection procedures?</td>
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<td>33.</td>
<td>Who are involved?</td>
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<td>34.</td>
<td>How many times of pre-designs before the final design?</td>
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<td>35.</td>
<td>How do you make selection decisions?</td>
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<td>36.</td>
<td>What are the processes between sample ready to actual decisions?</td>
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<td>37.</td>
<td>How do you perceive the effects of pre-costing on the product selection?</td>
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<td>38.</td>
<td>What are the elements to decide the final products? (e.g. sale/ manufacturing price, quality, logo, specific design)</td>
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<tr>
<td>39.</td>
<td>What are the production processes?</td>
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<td>40.</td>
<td>Where do they take places?</td>
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<td>41.</td>
<td>Who are involved? (decision making)</td>
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<td>42.</td>
<td>What is the general lead time of manufacturing process?</td>
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<td>43.</td>
<td>How do you gain the relationships with other upstream suppliers? i.e. How do you know them from?</td>
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<td>44.</td>
<td>How do they cooperate with your production?</td>
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<td>45.</td>
<td>Do suppliers attend the product development meetings? The impacts?</td>
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<td>46. Through the meeting of manufacturers, do other (branded) products influence on your products?</td>
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<td></td>
<td>47. How have the final decision made on selecting manufacturers?</td>
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<td></td>
<td><strong>Commercialization/monitoring and evaluation</strong></td>
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<td>48.</td>
<td>What are the evaluation processes before launching new products?</td>
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<td>49.</td>
<td>Are there any examples from the previous successful products?</td>
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<td>50.</td>
<td>What is the ratio of repeating products?</td>
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<td>51.</td>
<td>Are there any innovation examples?</td>
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<td>52.</td>
<td>How do you perceive the future of NPD? i.e. Are there any specific changes in the current marketplace?</td>
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<td>53.</td>
<td>How do you reinforce product development or design capability that is difficult for rivals to duplicate? (e.g. product differentiation, price) i.e. How do you differentiate your products from theirs?</td>
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<td>54.</td>
<td>Do you have any consideration on co-branding?</td>
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<td>55.</td>
<td>The functions of sales teams?</td>
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<tr>
<td>56.</td>
<td>How do they impact on your products</td>
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Appendix iii  Interview questionnaires for Rainbeau

Interviewee:
Company:
Address:
Date:
Time:

Questions for Rainbeau’s business
1. How do you self-position in the apparel industry? (a trader, intermediate producer or?)
2. Has the market position changed compared to 28 years ago when the company initially launched? If so, how?
3. Could you explain your company organization in more detail?
4. Could you please tell me Rainbeau’s approximate turnover? Has it been increasing since teaming up with New Wide?
5. Do you provide design service to these key branding retailers in terms of product development? What are the percentage of the products?
6. What are the relationships between the customers of Target, Wal-mart, K-Mart and Kohl?
7. Do you do the private label products for them or they have their own product lines and you simply provide product development function?
8. Who or what are Mervyn, Capezio Allegro and Futrue Star? (Are they retailer brands? and what were your relationships with them?)
9. What are Danskin and Iconix? (same questions to the previous)
10. As for Branded & Private Label: Capezio Future Star, Capezio Allegro, Ranbeau, Rainbeau Green, Inner Moves, are they all Rainbeau’s private labels?
11. With New Wide, do you co-design the products? Or are they simply providing a manufacturing function?
12. What is the specialty of New Times in terms of productivity and design in comparison with New Wide?

Questions regarding their NPD

Business opportunity–idea generation/screening–Research and Analysis

13. Who are your target consumers?
14. Who are your market rivals?
15. Who are involved at this stage?
16. What are the processes for obtaining and sharing information regarding NPD with other departments and customers/ buyers?
17. Does sales forecasting impact on product development? If so, how?
18. What are your resource capabilities? (e.g. business partners, outsourcing) and processes
19. What are your marketing capabilities? (e.g. communication channel with consumers, the speed of delivering products)
20. How long does it normally take from communicating with customers until product launching?
21. How do you forge customers’ interests in Rainbeau?
22. Do branding strategies impact on product development? If so, how?
23. What are your product ranges?
24. What are your strategies for collaborating with superior customers and branded retailers?
25. How do you build up and retain the relationships with these retail channels? (Do they have any specific requests from your designed products?)
26. Where and how do you get new product concepts?
27. Do new products initiate with brand (e.g. brand image or identification) or product design?
28. How are designers involved within this stage?
29. Do designers work with marketing teams? If so, how?
30. Does R&D or product innovation impact on marketing and initial product concept? If so, how? (product triangle, the core products and selective or exclusive products)

Design/Concept development – Synthesis
31. Product development start point and end point in terms of time line.
32. Synthesis procedures? (how many times of sketch discussion, prototype presenting and final sample)
33. Who are involved?
34. Where does your sample making take place?
35. How long does it normally take to make samples?
36. How does the product meet the customer’s requirement? Do the customers have their specific branding expectation of the products? (same questions for your own private labels)
37. Where do the designers get inspiration from?
38. Does brand (or brand identification) affect their designs? If so, how?
39. Does design (e.g. textures, fabrics, style) impact on branded products?
40. How do brand and design decisions impact your business? Are there any changes or improvement?
41. Are any suppliers involved at this stage? If so, how do they affect product development?

Business analysis- Design development and Product selection
42. What are the product selection procedures?
43. Who are involved?
44. How many versions of designs are presented before the final designs? What is the required standard?
45. What are the processes of communicating with customers between sample ready to actual decisions?
46. How does pre-costing affect the product selection?
47. What are the elements to decide the final products? (e.g. sale/ manufacturing price, quality, logo, specific design)

**Production/manufacturing**
48. What are the production processes?
49. Where do they take places?
50. Who are involved? (decision making)
51. What is the general lead time of the production process?
52. What are the relationships between New Wide and New Times?
53. What are the relationships with other upstream suppliers?
54. How do the suppliers cooperate with your production?
55. Do the suppliers attend the buyers' (or product development) meetings?
56. Through the meeting of manufactures, what are other (branded) products influences on your products?
57. What determines your decisions to select manufacturers?

**Commercialization/monitoring and evaluation**
58. What are the evaluation processes before launching new products?
59. Who are involved?
60. Are there any examples of previous successful products?
61. How many percentages of new products are the repeating products?
62. Are there any innovation examples? (e.g. new fiber apparels or new functional designs)
63. How do you perceive the future of NPD?
64. Are there any specific changes in the current marketplace?
65. How do you reinforce product development or design capability? (e.g. product differentiation, price) i.e. How do you differentiate your products from theirs?
66. Is there any consideration on co-branding?
67. What are the functions of sales teams?
68. How do they impact on your products?
69. Do you agree the repeat products are the indication of branding growing?
Appendix iv  Further interview questionnaires for New Wide

Interviewee: Executive Director Sunny Huang
Company: New Wide, Taipei head office
Address: 7floor, No.96, Sec. 2, Chung Shiao E. RD., Taipei 100, Taiwan
Date: 23rd March 2010
Time: 23/03/10  1030(+8)

1. 承继上回的访谈，您提及布料的大量外包製造，可是这却与你之前跟我提过布料的染整过程是品质的重点的想法有出入。您如何在布料外包工廠多， unlikely QC (dyeing and finishing quality)? 你们如何把关?

Following up the previous interviews, you mentioned a large amount of outsourcing production that New Wide is currently applying, which seems to contradict what you previously emphasized, namely the quality achieved by dyeing and finishing processes in-house. Could you please explain this to me?

2. 這次與長盛的結盟合作動機為何?(這是否跟旭寬的印染技術有關?)

3. What is the motivation for allying with Flycool? Is that concerned with New Wide’s dyeing and finishing capability?

4. 股份合作比例?

What is the percentage of the share holding?

5. 與Rainbeau的企業合作模式為何?溝通與合作上有何困難?

Could you explain in more detail the collaboration model with Rainbeau? What are the difficulties that you face while working with them?

6. R&D部分的每年企業投資金額?(約佔企業股分多少比例)

7. What is the percentage of annual investment in R&D?

8. 回收效益或成效?以及確切成立時期?

Do the R&D effects live up the company’s expectation? And when did New Wide initially launch this department?

9. 設計部門的投資額?

How much have you invested in design department?

10. 確切成立時期？對旭寬企業帶來的影響?

When did New Wide initially launch this department or function? How did design impact New Wide’s business?

11. 與上游供應商的合作模式?

What are the business collaboration models that New Wide and the suppliers established?

12. 在價值供應鏈中，textiles 和 apparel 之獲利比例?

In the supply chain of New Wide, what are the turnover ratio of textiles and apparels since 2002?
References


315


