Towards a Model of Strategic Management Incorporating Fuzzy

Logic

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ABSTRACT

Success in strategic management is not only based on the planning view for strategy formulation but also the need to consider strategy implementation. From a strategic planning view, this thesis identifies the six insufficiencies of strategic management: (a) strategy is implemented by means of people, whose behaviour cannot be determined by a plan; (b) strategy needs wide communication in an organization; (c) strategy formulation is separated from implementation; (d) the strategic planning process may contribute to only part of the organization; (e) planning neglects the dynamic environment and interactive influence of relationships; (f) performance measurement neglects qualitative data such as employee satisfaction, customer satisfaction and stakeholders' performance (Kaplan and Norton, 2004).

This research proposes a pluralistic approach − a six-view model consists of roots, stem, and flowers and fruits - the six-views, including logic and language, learning, cultural, political, ethical and planning views as the roots of critical systems thinking for promoting strategic management, which combines formulation and implementation with fuzzy logic by a robust planning, leadership style, participation of organizational members, and stakeholders' cooperation to overcome the current deficiencies of the planning view particularly in line with the Taiwanese background.

This six-views model is also called the "roots theory", because. the source of these views are organizational roots which range from leadership, a company culture built to cohere employees' beliefs, engages wide communication in different departments, encourages team learning and innovative ideas, and has mutual trust with suppliers and customers, even stakeholders. The stems of the roots theory offers the foresight of a competitive environment with Five-forces analysis to identify the stage of the product life cycle in strategic business units (SBUs) for promoting supply chain operation. Performance evaluation identifies the results of strategy implementation, which includes employee satisfaction, customer satisfaction, and stakeholders' performance as flowers and fruits of a tree. Effective strategic management results from combining the six-views because strategies fail when strategy is not implemented well (Bossidy and Charan, 2002; Joyce *et al*., 2003; Kim and Mauborgne, 2005; Kaplan and Norton, 2008). Neilson *et al*. (2008) point out that enterprises fail at execution because they go straight to structure reorganization and neglect the most powerful drivers of effectiveness - decision rights and information flow.

The research was conducted in three interrelated phases. First, the nature of strategic management and different views of strategic management were identified by means of a literature review. Each view of strategic management was shown to be

insufficient by Mintzberg's (1987a) five Ps; and another P (partners' expectations) came from this research for strategy formulation, so that an integrated thinking approach (Cummings and Daellenbach, 2009) incorporating six-views was needed for effective strategic management. Moreover, two tools of management such as critical systems thinking and fuzzy logic approaches were examined to assess how well they can promote strategic management in organizations. Second, a questionnaire was developed to unveil the current situations of strategic management and confirm the six-views model in Taiwanese companies. The questionnaire was sent to two hundred Taiwanese companies and produced sixty-three usable responses. The SAS package was employed to analyse the data. Simultaneously, senior managers were interviewed from seven manufacturing industries and eight service firms to discover the deeper concerns of strategic management in Taiwanese companies. Finally, four companies were selected as case studies to practically research, to support the interpretation of the results and to induct a novel model of strategic management.

Some of the significant findings of the data analysis were that: factor analysis determined that the list of the six-views naturally separated into six distinct groups with Eigenvalue more than one; Duncan's test showed that the overall companies in the learning, planning and six-views belonged to "Ranking A". The six-views and the logic and language view were positioned in "Ranking B". The logic language,

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cultural and ethical views belonged to "Ranking C". The political view, however, was placed in "Ranking D" and it had a significantly lower rating compared with the other views. From multiple linear regression analysis, this research revealed that the priority order of significant influence variables were the cultural view, learning view, planning view, and logic and language view to promote strategic management and multi-collinearity was not severe. In fact, descriptive statistics and Eastern and Western management literature disclosed that the political and ethical views can contribute to effective strategic management. Therefore, this thesis applied six-views to promote strategy formulation and implementation. The multiple linear regression analysis of the six-views model disclosed that the six-views can be used as roots to enhance supply chain operation further to achieve better organizational performance in Taiwanese companies.

The audit of the six-views by fuzzy logic found that the planning view is perceived as promoting the most effective strategy formulation; however, the integrated five-views for implementation is not strong enough to improve strategic management. Companies A1, A2, A3, and A4 possess strong six-views; they should adopt development strategy. The results of the test showed employee satisfaction, customer satisfaction, and stakeholders' performance where employee satisfaction and customer satisfaction were directly correlated for four companies. In terms of

characteristics of industry, the result of strategic management with the six-views linked to stakeholders' performance with stakeholders' expectations and corporate social issues was consistent with a positive tendency as manufacturing industries, companies A1-A2, and service firms, companies A3-A4. In addition, it is worth mentioning that companies A1, A2 and A4 did not conduct an ideal social political arena of stakeholders' groups when compared with company A3.

In conclusion, the planning view has gained wide acceptance for Taiwanese companies wishing to successfully achieve strategy formulation, but implementation shows insufficiencies. Therefore, this research proposes the six-views model for complementing the lack of a planning view and expands existent theory of the planning view, highlighting the "people" for implementing strategy, especially as related to Taiwanese companies. The roots theory is based on both the theoretical reasoning and empirical evidence, that the analysis of the six-views should play a major role in promoting effective strategic management. The research findings are discussed and recommendations for further research are also proposed.

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CHAPTER 1: INTRODUCTION

1.1 Introduction

I have published two books on economics − *Macroeconomics* and *Microeconomics* −

and as a writer I have, in the past decade, become interested in the way the early

micro-economists cited the mathematics of mid-nineteenth century physics, equation

by equation. In fact, strategic management is in line with my current work on the

application of fuzzy logic. I have published three papers in this field, viz, Strategy

Development Using Fuzzy Set Theory − A Case Study of the Ambassador Hotel at

Kaohsiung, Integrating System Dynamic Simulation and Fuzzy-grey Theory for

Strategy Evaluation, and Fuzzy Numbers Applied in the Study of Strategies.

Strategy is a plan for the future as Simon's (1947) view is a formalized approach

to steer management through the process. Moreover, Ansoff (1965) proposes in

relation to the planning view. This view is prescriptive, in that it seeks to depict how

management should emphasize strategy-making (Ansoff, 1965). In contrast,

Mintzberg (1994a) explains that strategy is not a result of planning, but should be the

starting point instead and, further, permits a response to environmental change

(Cummings and Daellenbach, 2009). Joyce *et al*. (2003) propose that a successful

company has to combine four main management practices including strategy, implementation, culture and organizational structure, and two subsequent management practices. Bossidy and Charan point out, "Execution is a discipline, and integral to strategy" (2002, 21). Furthermore, Harreld *et al*. (2007) point out that the actual planning process is an employees' exercise undertaken to satisfy senior managers rather than an accurate reflection of what the firm needs to do to be competitive and confirmedly not a blueprint for action. Therefore, strategy implementation occurs not from attention to people or culture but from the alignment of all of them to implement the chosen strategy. This means that strategy needs to be governed by integrating different views. These ideas reveal a crucial factor, in which strategy implementation is a necessary work to promote effective strategic management in organizations, which combines the six-views as roots including the planning view (PLV) for formulation and the integrated five-views: the logic and language view (LLV), the learning view (LV), the cultural view (CV), the political view (PV), and the ethical view (EV) for implementation. McKiernan (1997) predicted that knowledge, networks and ethics are important arenas for strategic management in coming years; also Cummings and Daellenbach (2009) emphasize that spotlights in the future should include knowledge (and learning), networks (and relationship), culture and corporate social responsibility (together with business

ethics), thus reinforcing the justifiability of this research. The need is to build on recognition of the innate ability of managers to draw on their experience, and to develop the capacity for this to be used more. The main objective of this thesis, therefore, is to explore basic issues concerning the implementation processes of strategic management and to develop a method of effective strategic management for managers of organizations that uses a pluralistic approach by extending existent theory of the planning view. From the planning view, six insufficiencies in the strategy-making process are identified:

(a) Strategy is implemented by means of people, whose behaviour cannot be determined by a plan;

(b) Strategy needs wide communication in an organization;

(c) Strategy formulation is separated from implementation;

(d) The strategic planning process may contribute to only part of the organization;

(e)Planning neglects the dynamic environment and interactive influence relationships;

(f) Performance measurement neglects qualitative data such as customer satisfaction, employee satisfaction and stakeholders' performance (Kaplan and Norton, 2004).

Jarzabkowski and Fenton (2006: 361) emphasize, "Pluralistic contexts are those that are shaped by the divergent goals and interests of different groups inside and outside the organization. Internally, these divergent interests result in multiple organizing

processes, which the interests of external stakeholders lead to multiple strategic goals and objectives." Thus, this research proposes a pluralistic approach, termed the six-views model, including roots, stems, and flowers and fruits, which can probably help by means of the ideas of critical systems thinking, which evolved in the early 1980s in the work of Jackson, Mingers, and Ulrich, based on a critical awareness of the defects of various hard and soft systems approaches, and surfaced as a new integrative systems view in the 1980s and early 1990s. Its objectives are to cultivate systemic debate on social ends and power relationships. Furthermore, it leads to the recognition of methodological pluralism (Jackson, 2000). Critical awareness of the strengths and weaknesses of different methods and methodologies enables those most apt to be selected to explain a wide range of problem issues better than that of a single method (Mingers and Gill, 1997). Therefore, this research combines the six-views with the planning view and integrated five-views as an eclectic approach to strategy (Cummings and Daellenbach, 2009) in order to promote strategic management successfully.

Such weaknesses can be attributed to the excessive reliance on crisp logic. Crisp logic involves two values such as strategy formulation/implementation and competition/cooperation. Such logic has two main concepts: the concept of contradiction: a thing cannot be itself and something else; and the concept of

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excluding the middle: a thing is one of two mutually exclusive things. This idea has

been criticized in the management field, with the advice that leaders should consider

"both/and" rather than "either/or." To illustrate the problems with contradiction and

exclusion, Kosko (1999) points out that by definition a system boundary is neither

wholly of the system nor wholly not of the system. Rather, it belongs in some degree

to the system. Similarly, a novel logic would integrate some degree of the planning

view for formulation and the integrated five-views for implementation. Here, the

notion of fuzzy logic is useful. Anderson (1994) mentions that fuzzy logic includes

three main elements: fuzzy sets, membership functions and production rules. Fuzzy

sets have variable boundaries between 0 and 1 as a membership function. Production

rules are a list of fuzzy "if-then" statements that represent human knowledge and

describe the complex non-linear behaviour of the system being controlled (Kosko,

1999) which enables an organization to develop and implement more effective

strategic management under conditions of complexity. Moreover, Akcakaya *et al.*

(2000) explain that one of the simplest and best ways to represent uncertainty is to

specify a range of possible values as triangular fuzzy numbers (TFN) (Bojadziev and

Bojadziev, 1997). Therefore, fuzzy if-then rules and TFN are applied in this research

for combining strategy formulation and implementation to achieve strategic

management successfully in organizations.

In this introductory chapter, the background of this research will be introduced first. Then, the structure of the thesis, which includes a literature review, methodology and data analysis, and the six-views model, will be described. Finally, the objectives and research issues of the thesis will be explained.

1.2 Background

It is widely agreed that strategic management is both an important dynamic and a complex environment because decision making is affected by interaction of organization elements. (Mintzberg and Waters, 1985; Senge, 1990; Stacey, 2000). Organizational dynamics reveals that an organization always needs to heed internal and external environmental impacts so as to develop organizational strategy. Complexity, in fact, indicates that an organization is composed of many parts, and yields interaction among parts, to achieve organizational objectives by means of people's implementation. Therefore, one of the main issues of strategic management is that of tackling strategy implementation (Bossidy and Charan, 2002; Joyce *et al.*, 2003; Kim and Mauborgne, 2005; Harreld *et al.*, 2007). As Bossidy and Charan (2002) point out,

People aren't doing the things they're supposed to do to implement a plan…Execution is a specific set of behaviors and techniques that companies need

to master in order to have competitive advantage. It is a discipline of its own. In big companies and small ones, it is the critical discipline for success now.
(Bossidy and Charan, 2002, 7)

This thesis seeks to examine pluralistic and holistic relationships of strategic management in organizations; to determine how to tackle insufficiencies of strategic planning.

1.2.1 Original Overview

The First Industrial Revolution has not influenced market outcomes by strategic thinking because most firms maintained small sized enterprises. Therefore, the markets of this era led economist Adam Smith to interpret market forces as an "invisible hand" rather than a strategy guiding markets. After 1850, the term "visible hand" of professional managers, was used to supplement Adam Smith's invisible hand. Drucker argues that "management is not just passive, adaptive behaviour; it means taking action to make the desired results come to pass" (1954, 11). The quantitative analysis was used in formal strategic planning i.e., linear programming. The Boston Consulting Group (BCG) explains that it is vital to find meaningful quantitative relationships between a firm and its chosen markets (Henderson, 1984).

In the early 1960s, there were three scholars who made significant contributions to the development of strategic management. Chandler's (1962) *Strategy and Structure* explains how strategic change leads to structure change. Ansoff's (1965) *Corporate Strategy* suggests that a firm should use a "common thread" to define four

categories in its business/corporate strategy (including market penetration, market development, product development and diversification) for maintaining a firm's strategic focus. Furthermore, the logic of Ansoff built into a company's "strengths" and "weaknesses" of distinctive competence has to match with the "opportunities" and "threats" of the marketplace; hence the acronym SWOT framework is useful for obtaining answers in the development of strategies. *Business Policy: Text and Cases*, written by Learned *et al.* (1965/1969), describes that the success or failure of a firm depends on the viewpoint of the chief executive or general manager, whose idea it is to identify the firm as a whole.

By the early 1970s, the experience curve had led to a growth-share matrix, which represented the first use of portfolio analysis and also became a very important tool for strategic planning. Based on McKinsey's study, it points out that formal strategic planning would divide the firm into "strategic business units" (SBUs). Essentially, the strategy recommendation of the matrix was to maintain a balance between "cash cows" and "stars," while allocating some resources to feed "question marks" but "dogs" were to be abandoned. In the mid-1970s, the more quantitative approach of portfolio planning, the Profit Impact of Market Strategies (PIMS) program, was used to explore the determinants of returns on investment by regressing historical returns on several dozen variables, including marketing, market share and R&D expenditures

for supposing to be benchmarks so as to compare the potential performance of SBUs with their actual performance; for directing more resources distribution to the "stars." The experience curve, in fact, had two main problems: in macroeconomic conditions change, i.e., the high inflation and excess capacity disrupted the historical experience curve to induce a reduction at innovative ability for pursuing a low cost strategy by the experience curve (Abernathy and Wayne, 1974). Portfolio analysis was also criticized as having two problems. First, the strategic recommendations for an SBU were often excessively sensitive to the specific portfolio-analytic technique used. Second, a firm's resource allocation patterns, based on its historical performance data, were inherently problematic, and financial capital appeared to be most the important resource. Hayes and Abernathy (1980) criticize portfolio analysis which would lead managers to emphasize minimizing financial risks rather than investing in new opportunities that required a long-term commitment of resources.

The resource-based view (RBV), based on Penrose (1959), which in the 1990s became part of the dominant framework in the field of strategic management, points out firm growth and diversification related to the inherited resources; especially if a firm possesses managerial capabilities and was largely introduced in the 1980s. Essentially, the RBV combines the two related concepts: the knowledge-based view (Spender and Grant, 1996) and strategic leadership (Finkelstein and Hambrick, 1996).

Barney (1991) argues that a firm's sustained competitive advantage is derived from its unique competitive resources. Moreover, Prahalad and Hamel (1990) argue that a company needs to recognize, cultivate, and exploit its core competencies in order to grasp the opportunity share instead of market share (Hamel and Prahalad, 1994).

In order to understand the structure analysis of the strategic planning process, four approaches are discussed:

First, the "supply-demand diagram" of individual markets was combined by Marshall (1890) there being two basic assumptions: large-numbers and homogeneity. Those assumptions, in fact, had already been relaxed by Chamberlin (1933) and Robinson (1933), in monopolistic competition, i.e., the situations where the individual firm monopolizes its own products but confronts a large number of competitors, similarly situated, that provided substitute products. Second, Bain (1951) explores the structural reasons by applied industry organization (IO) economics. He confirms that some industries are inherently much more profitable or attractive than others. Porter (1980) proposes in his first book, *Competitive Strategy*, the "Five-forces" framework which tries to relate the average profitability of the participants in an industry to five competitive forces with its theoretical sources based on Bain (1951), which proposes industry structure and competitive position in the industry. However, work on strategic groups is largely emphasized on firm groupings within an industry,

which attempts to emphasize competitive dynamics and boundary relationships between the firm and its environment (Chen, 1996) namely, actions initiated by one firm may trigger a series of actions among the competing firms. Additionally, with reinforcement on boundary relationships, the field began to focus on, transaction costs economics (TCE). TCE and agency theory have encouraged much research on firm boundaries i.e., vertical integration and strategic alliances. According to Porter's Five-forces framework this is overemphasized in regard to competition behaviours so awareness in cooperation actions is neglected.

Third, "the value net" framework, proposed by Brandenburger and Nalebuff (1996), highlights the critical role that complementors, namely, a co-opetition model where participants from which buyers buy complementary products or services, or to which suppliers sell complementary resources, play to influence business success or failure. Brandenburger and Nalebuff (1996) mention,

> Thinking [about] complements is a different way of thinking about business. It's about finding ways to make the pie bigger rather than fighting with competitors over a fixed pie. To benefit from this insight, think about how to expand the pie by developing new complements or making existing complements more affordable.
> (Brandenburger and Nalebuff, 1996, 14-15)

This complementor's power may be interpreted as adding a "sixth force" to Porter's Five-forces framework. Therefore, the structuralist view of strategy, basically, is based on IO economics, which propose a causal cycle of

structure-conduct-performance (S-C-P) model. Market structure first depends on

supply-demand conditions; forms the conduct of sellers and buyers, then produces end

performance in turn. The whole systems changes are base on external factors, such as

the basic economic condition and technological development. Therefore, market

structure is seen as given that it causes firms to take a defensible position against their

competitors in an existing market space, namely, called a "zero-sum game" or

competitive-based strategy thinking. Such strategic thinking leads firms to consider

whether to enter the industries or not. Then firms decide on low cost or the

differentiation position of firms for matching their internal capabilities in defending

competition.

Fourth, *Blue Ocean Strategy* is based on the reconstructionist view of strategy

that recognizes that market structure boundaries are not dependant on a given market

consideration, but in establishing different markets by the expansive boundaries and a

new level of emerging demand. Therefore, there is hardly any attractive or

unattractive industry per se because industry attractiveness can be replaced by firms'

efforts of reconstruction and the creation of innovation value to break down

boundaries in order to attract non-consumers. This strategy allows firms to create a

"non-zero-sum game" with high payoff possibilities (Kim and Mauborgne, 2005) that

they find that in studying the creation of blue oceans with sustained competitive

advantage. Neither firm level nor industry level is the best unit of analysis. Instead, it should be "a strategic move." They propose, "A strategic move is the set of managerial actions and decisions involved in making a major market-creating business offering" (2005, 10). Obviously, it is a strategic planning approach for the strategic move of a firm. Moreover, *Blue Ocean Strategy* proposed two important ideas to enhance strategy implementation effectively. One is overcome key organizational hurdles to strategy implementation: cognitive hurdle, political hurdle, motivational hurdle, and resource hurdle. The other is to build implementation into strategy. Essentially, *Blue Ocean Strategy* depends on "tipping point leadership" to overcome hurdles, winning employees' backing in implementing and "fair process" to affect people's attitudes and behaviours for promoting strategy implementation. Therefore, there is no doubt that strategy implementation should be combined together with strategy formulation in line with parts of the six-views in this thesis. In addition, as mentioned in *Blue Ocean Strategy,* strategy implementation suggestions, this thesis proposes that implementation improvement should be complemented with the learning view in order to challenge the dynamic environment to further build adaptability culture, and bases on fair process to promote stakeholders' expectations in order to perform as the ethical view idea: trust, commitment, empowerment, and implementation, as mentioned in section 2.3.5.

Based on the above analysis, "supply-demand analysis" highlights specific product markets that consider two-stage exchange relationships between suppliers and buyers. In the "Five-forces" framework two-stage extends to three-stage. This consists of supplier, competitors and buyers, which tries to expand boundaries and explicit consideration of substitution. Moreover, strategic groups focus on intra-industry differences in firm performance for competitive dynamics. "The value net" explains that strategic thinking should focus on complementary relationships. *Blue Ocean Strategy* attempts to break through markets boundaries and creates a new market space to make the competition irrelevant for fulfilling value innovation. The above different approaches of strategy-making are based on changing of boundaries, or change in relationship, or competitive dynamics thinking, or they depend on unit of analysis at industry level, or firm level or a strategic move to make strategic planning, namely, strategy formulation, which neglect to consider strategy implementation. Learned *et al*. (1965/1969) point out that strategic management consists of strategy formulation and strategy implementation, which involve the participation of all organizational members, but in practice should be separated. However, strategy formulation and implementation should be integrated together in the organization for strategic management (Mintzberg, 1994b; Harreld *et al*., 2007) as Kim and Mauborgne point out, "The question companies wrestle with is how to create trust,

commitment, and voluntary cooperation deep in the organization. You don't do it by separating strategy formulation from execution" (2005, 184). Furthermore, Bossidy and Charan (2002) point out that when companies fail to deliver on their promises, the most frequent explanation is that the CEO's strategy was wrong. But, the strategy by itself is not often the cause. Strategies most often fail because they are not implemented well. Recently, learning organizations, reengineering, revolution and strategic thinking concepts, were widely praised in management practice. However, those great thinking moves will be enforced to stop dead in their tracks if organizations lack implementation. Therefore, these situations only worsen because failure exhausts the resources from the organizations and further destroys the organizations (Bossidy and Charan, 2002). In short, Bossidy and Charan (2002) argued that implementation has to be a part of an organization's strategy (Mankins and Steele, 2005) and its goals rather than the missing link aspirations and results (Joyce *et al.*, 2003).

As Gluck e*t al.* (1980), explain the effective firms' strategies progress depend on 'static analysis,' namely strategic planning and 'dynamic analysis' viz. integrating strategy formulation and implementation that try to capture dynamic and multidimensional analysis so as to reduce routine quantitative analysis. Therefore, in order to improve strategic management, organizations need a pluralistic approach to

combine concepts of "boundary," "relationships," and "competitive dynamics thinking," to tackle complex and dynamic interactivities behaviours between stakeholders in organizations as shown in Table 1.1, which illustrates that strategic management is divided into two dimensions.

Table 1.1 Strategy origin with value boundary, relationships and competitive dynamics thinking

Strategy origin				Value **boundary**		
				Profits	Values	Expectations
				Sellers (Competition)	Buyers (Co-opetition)	Stakeholders (Corporate social responsibility)
Competitive **dynamic** environment and complex **relationships**	Static	No planning	Invisible hand	• Market forces as an invisible hand (1960s before)		
		Strategic planning or formulation	Visible hand	• supply-demand analysis • Strategic planning (1960); BCG; Portfolio analysis(1970s) • Market position (1980s) or S-C-P model		• Stakeholder model (1984)
	Dynamic	Strategy implementation		• Resource-based (1990s)		
			Hand and mind tandem	• The value net(1996)		
		Strategy formulation and implementation		• *Execution: The Discipline of Getting Things Done* (2002)		
				• Managing the Extended Enterprise: the New Stakeholder View(2002) • *What Really Works: the 4+2 Formula for Sustained Business Success*(2003) • *Blue Ocean Strategy* (2005) • Strategy Society: The Link Between Competitive Advantage and Corporate Society Responsibility(2006) • Strategic Management of Six-views with Fuzzy Logic(2007)		

One dimension is competitive dynamic environment which is separated into both static and dynamic environments because strategy-making is affected by interaction of organization elements and a dynamic environment (Senge, 1990; Teece *et al.*, 1997; Stacey, 2000; Sirmon *et al.*, 2007). The meaning of complex relationships in organizations highlights the need to build good interaction relationships with stakeholders for promoting strategy formulation and implementation. The other

dimension is value boundary that consists of sellers' profits, buyers' value and

stakeholders' expectations to develop the strategy-making process with the six-views

to obtain hand and mind tandem of organizational members as three mutually

reinforcing principles: engagement, explanation, and expectation clarity (Kim and

Mauborgne, 2003) for enhancing strategic management. Thus, the six-views approach

is emerged.

1.2.2 Methodologies Overview

Ansoff and Andrews' works focuses on the normative aspect of business

knowledge to identify "best practices" useful for managers. This principle goal is to

influence knowledge to practitioners rather than to pursue knowledge for scientific

advancement. The most appropriate method for accomplishing this objective is

inductive by in-depth case studies of single firms or industries. Generalization is

practically infeasible or desirable, as each case is assumed to be to complex and

unique because "Knowledge generated for one set of ends is not readily applicable to

another" (Learned *et al*.,1965/1969, 6). Therefore, they conclude that the most valid

methodology depends on case studies to achieve its purpose. For the generalization

goal, it is primarily achieved through induction (Rumelt, 1991), and can be promoted

by comparative studies of multiple cases similar to Chandler's approach.

Unfortunately, the over-emphasis on the case method and lack of generalization

did not offer the base in order to continue advancement of the field. Schendel and Hatten (1972) argue for a broader view of strategic management that focuses the development of new theory from which hypotheses could be derived and empirically tested. Rumelt (1974) first argued that a large sample studied to examine the relationship between the type of strategy and structure adopted and firm performance led to the study of many subsequent firms adopting quantitative methods. Particularly, IO economics studied, methodology of strategy research from inductive, case studies largely on a single firm or industry, to deduct, large scale statistical approaches seeking to validate scientific hypotheses, such as strategic groups and game theory.

In short, research methodologies are becoming increasingly sophisticated and now frequently combine both quantitative and qualitative approaches, and new statistical tools. Finally, this review examines the future direction, both in terms of theory and methodologies, as the study of strategic management evolves (Hoskisson *et al.*, 1999).

Therefore, this research does not only focus on fuzzy logic combining fuzzy sets and fuzzy numbers with if-then rules to produce interaction influence, and further integrates formulation and implementation for promoting strategic management, but also emphasizes competitive dynamic systems, because the six-views model can be used to learn from updated information. A particular feature of this model is that it

includes a qualitative measurement in performance evaluation. Historically, firms have judged organizational effectiveness using profitability (Porter, 1980; Peteraf, 1993), but a corporate strategy of maximization of profits will lead to a serious problem because such a strategy is based on short-term goals, and ignores the firm's goals in the long term (Kaplan and Norton, 1996). Fuzzy logic methods hint at many measurement issues (Grint, 1997) and the goal of eliciting indications of complexity and dynamics could be achieved by using qualitative methods (Warren *et al*., 1998) as Kaplan and Norton (2004) point out, the intangible assets features of performance, such as quality, satisfaction, or attitudes towards customers. This involves a fundamental shift in the way organizations manage and measure success, focusing on employee satisfaction, loyalty, and customer satisfaction (Kaplan and Norton, 1996; Heskett *et al*., 2008), such as, higher customer satisfaction produces higher repurchase loyalty for manufacturers and retailers (Finkelman and Goland, 1990).

Furthermore, two novel theories of management will be explained to improve methodologies, such as fuzzy logic (Zadeh, 1965; Klir and Yuan, 1995; Dimitrov, 1997) and critical systems thinking (Ulrich, 1983; Midgley, 2003; Jackson, 2000). It will be shown how they can be used for managing the dynamics and complexity of strategic management in organizations.

1.3 The Structure of the Thesis

This thesis is organized into three parts, although they are interlinked. Here, an overview of each part is presented, interrelated with the objectives of the thesis.

1.3.1 Part 1: Literature Review

Part 1 discusses and identifies the six-views for dealing with strategic management. This research proposes a pluralistic approach – the six-views as roots for promoting strategic management, which combine strategy formulation and strategy implementation to overcome current deficiencies of the planning view particularly in line with the Taiwanese background. This six-views is like the roots of a tree, which are its basic foundation. Each is discovered, alone, to be insufficient for effective strategic management. The issues of strategic management where each of the six-views can probably help are identified by means of the ideas of the critical systems thinking, which is put to the test in the second part of the thesis. Part 1 is separated into four chapters as follows.

Chapter 2 deals with the first objective of this thesis, to offer an appraisal of the context of strategic management. Therefore, this chapter reviews previously relevant literature of strategic management research. First, the nature of strategic management

is described and the different views of strategic management are explained, then the reasons underlying the idea of combining planning view and integrated five-views are explored. Audit and improvement of the six-views are also presented. The traditional planning view, which seeks to address some insufficiencies of the existing, critically reviewed planning view, is briefly presented in the last section of this chapter.

Chapter 3 focuses on the second objective of this thesis: that is, to identify how the environment is very dynamic and complex, and to consider how these factors influence effective strategic management in organizations. For example, a discussion is presented of competitive environment analysis with Five-forces analysis and how to fit the supply chain operation strategy, and internal six-views analysis in organizations. Then, ideas of critical systems thinking and fuzzy logic are integrated into the six-views model for foreseeing environmental change and combining strategy formulation and implementation, as explained in Chapter 4 in order to further improve strategic management.

Chapter 5 will be used to describe how to achieve the objectives of organizations by means of pluralistic thinking. In order to explore whether strategic objectives are achieved, performance evaluation forms an essential step in the strategic management

process of guiding a company by the six-views.

1.3.2 Part 2: Methodology and Data Analysis

Part 2 covers the theoretical development of the six-views model which have to be made operative in order to display that it has practical utility and potential. The research methodology is designed to assess the likely utility of the model and to identify and surface the issues of strategic management in Taiwanese companies.

A questionnaire was sent to seventy manufacturing industries, including thirty-five big corporations and thirty-five small to medium sized enterprises, and one hundred and thirty service firms including sixty-five big corporations and sixty-five small to medium sized enterprises in Taiwan. Furthermore, interviews were conducted in seven manufacturing industries and eight service firms, in which twenty senior managers were interviewed. The data was used to identify the issues of strategic management for Taiwanese companies. Four companies were selected as case studies to practice the six-views model. Part 2 is divided into four chapters as follows.

Chapter 6 explains the research methods used, namely, a questionnaire, interviews and case study. The questionnaire contained nineteen questions designed to estimate the extent to which strategic management is recognized in organizations. The first interviews were conducted to acquire a deeper recognition of the present situations of

strategic management in Taiwanese companies. The purpose of qualitative research

interviews in the case study was to further validate the model.

Chapter 7 provides a descriptive analysis of the questionnaire results, which expose

the current situation of strategic management in Taiwanese companies. Moreover, it

shows how the results of the questionnaire are related to promote effective strategic

management including strategy formulation and implementation. <u>This fulfils the third</u>

<u>objective of this thesis</u>, namely, to analyse the current situation of strategy formulation

and implementation in Taiwanese companies.

Interviews were conducted to reveal 'what' and 'how' Taiwanese organizations are

doing in order to tackle their strategic management needs. Chapter 8 presents the

results of the first face-to-face interviews, in relation to strategy formulation and

implementation for promoting the success of strategic management in Taiwanese

companies.

1.3.3 Part 3: Practicing the Six-views Model

Part 3 shows how well the six-views model can deal with the issues of strategic

management and promote strategic management based on the findings of fieldwork

research. In Chapter 9, the results of qualitative research interviews are utilized to

confirm the research findings and support the interpretation of the results.

The framework of the six-views model is drawn out in Chapter 9. It is based on six-views to combine planning, leadership and organization, and offers a suitable pluralistic thinking approach to successful strategic management. In turn, from the historical activities of four companies, under a dynamic environment, their process of strategy-making is discovered and it is explored how far they have gone toward the application of a six-views model. This is the fourth objective of this thesis.

In turn, Chapter 10 practices the six-views model by case study in four Taiwanese companies. Chapter 11 contains a summary of the thesis. The main contributions and limitations of the thesis are explained. Ideas are proposed for future research and recommendations are made for strategic management.

1.4 The Objectives of the Thesis

As discuss above, this thesis proposes four objectives to promote strategic management in Taiwanese companies, as follows.

(1) To provide an understanding of effective strategic management via defects of the planning view.

(2) To examine two tools of analysis including critical systems thinking with

six-views and fuzzy logic combining strategy formulation and implementation to promote effective strategic management in organizations.

(3) To analyse the current situations and issues concerning strategic management in Taiwanese companies, which include their strategy formulation and implementation with the six-views and develop a six-views model.

(4) To practice the six-views model by case study and provide suggestions from the results of the finding.

1.5 Conclusion

Important ideas of strategic management have been disclosed in this chapter. It has been shown how the research attempts to address these insufficiencies by means of a literature review and empirical research, leading towards the formation of the six-views model. The model combines roots, stems, flowers and fruits as explained: The six-views are organizational roots which range from planning, leadership, and a company culture built to cohere with employees' beliefs. It engages wide communication with stakeholders, encourages team learning and innovative ideas, and has mutual trust with suppliers, customers, and stakeholders. The stem of the six-views model offers the foresight of a competitive environment with Five-forces

analysis and supply chain operation strategy in SBUs. The characteristics of two

tools – critical systems thinking and fuzzy logic were applied to assist in tackling the

defects of strategic planning for combining strategy formulation and implementation.

The performance evaluation identifies the results of strategy implementation, which

includes employee satisfaction, customer satisfaction, and stakeholders' performance

as flowers and fruits of a tree. The structure of the thesis has been explained, and the

objectives set out. The following chapter begins the literature-based part of the thesis,

with an exploration of issues in strategic management.

CHAPTER 2: STRATEGIC MANAGEMENT

2.1 Introduction

First, the context and content of strategic management are introduced, including the definitions of strategy and management, and a description of the nature of strategic management. Strategic management is a dynamic and complex process, which must be implemented by people. Through the dialogue and participation process, managers and employees become committed to supporting the organization. Following that, Mintzberg's (1987a) five Ps for strategy formulation in line with the six-views of strategic management, including strategy formulation and implementation, are discussed. In turn, the six-views of strategic management are reviewed individually, particularly the planning view, to see these insufficiencies and to draw out the approach of the six-views for enhancing strategy implementation effectiveness. Finally, to illustrate, the context audit, strengths and weaknesses, and improvement of the six-views are introduced.

2.2 Strategic Management

2.2.1 What are Strategy and Management?

(1) Definition of strategy

The 'Strategic Era' is derived from the decade following World War II. The canons of military strategy have been developing for centuries in line with commercial business. After the war, the faculty of Harvard Business School started to explore and create the discipline of strategy and there evolved a series of strategic concepts such as SWOT analysis, strategic portfolios, experience curves and competitive advantage (Ghemawat *et al*., 1999). These became benchmark tools of management in the 1970s. It is difficult, now, to conceive of the strategy field without them.

The chances of an organization surviving and growing from the ground are greater if it has the right strategy. Every organization would be well advised to pay close attention to strategy because it could greatly improve their chances of success. In order to understand strategy, its 'mission' should be defined first. The definition of a mission "Why the organization exists, especially what it offers to its customers and clients" (Kaplan and Norton, 2008, 64). In order to accomplish the mission, an organization must set up an effective strategy in terms of the internal and external environment.

"Strategy is concerned with deciding what business an organization should be in, where it wants to be, and how it is going to get there" (Boddy and Paton, 1998, 316).

Subsequently, Mintzberg and Quinn (1996) observe that strategy is a two-way street requiring both visionary leaders and empowered followers. In short, strategy-making is framed, as Kaplan and Norton (2008) point out, as assessing the ability of internal attributes and external factors can help or hinder the company's achievement of its vision for ensuring the strategy leverages internal strengths to pursue external opportunities, while countering weakness and threats. Boddy and Paton said,

> Strategic decision is likely to be complex in nature…to involve a high degree of uncertainty,…to demand an integrated approach to manage the organization and may also involve major change in organizations.
> (Boddy and Paton, 1998, 317)

Therefore, "strategy" must be a systematic directional guide, which must be implemented effectively in order to achieve the mission of an organization.

In general, an organization includes three levels of strategy. The first is corporation strategy which influences the mission of an organization. Corporation strategy involves decisions about an organization as a whole. Strategic decisions here need to be related to the SBUs. The second level of strategy is the SBUs which are concerned with how to compete successfully in a particular market, such as vehicle sales, vegetables, and hotels. The third level of strategy is the supply chain operation strategy which is concerned with the effective integration of organizational resources, processes, people, and their skills for fulfilling the overall strategic direction of the SBUs (Kaplan and Norton, 2008). In this thesis, the three levels of strategy in

organizations will be analysed and a six-views model will be developed to deal

effectively with the insufficiencies of the planning view so as to facilitate strategy

implementation effectively.

(2) Management for uncertain conditions

The emerging management challenges, which senior managers are beginning to tackle,

include many uncertainties including being able to sense changes in their competitive

environment, and must be able to seize new opportunities and avoid threats (Harreld

et al., 2007) They engender the need to fit supply chain operation, which means

managers need to develop a strategic direction in order to achieve the mission of an

organization.

People management is a complex feedback process because managing people in

an organization, both as individuals and as members of a web of working

relationships, requires selecting how to influence behaviour. For example, changing

organizational culture, ethics and politics are likely to impact on the organizational

operation. Boddy and Paton (1998) assert that a key element in this way of thinking

about organizations is to see the difference between what are called linear, that is, step

by step, and interaction influence systems.

Events happen and circumstances in the outside world change in ways which

management cannot predict in their plans. For these reasons it is impossible to find

any clear linear relationships between cause and effect (Boddy and Paton, 1998).

Therefore, it is necessary to discover an interaction connection between cause and

effect (Forrester, 1958; Senge, 1990; Stacey, 1995). For example, effective

implementation in strategic management may reflect an interaction influence of the

dimensions of learning and culture (Edmondson, 2008).

In order to deal more effectively with such uncertainty, managers attempt to

understand and depict what has happened. Initially, they may be vague about the

dependent variables. There may be a lot of ambiguities about attributing causes to

effects (Boddy and Paton, 1998) because of the complexity of human behaviour. As

mentioned above, strategic decisions are complex in nature and involve a high degree

of uncertainty, so there is even more of a need for promoting implementation of

strategic management. The nature of strategic management is, nevertheless, different

from other aspects of management as will be introduced and will be shown how it

differs from operational management.

2.2.2 Nature of Strategic Management

(1) Comparison of strategic management with operational management

Basically, there are many different factors that influence the process of strategic

management in organizations. Size of organization is a main factor; larger companies

are more formal in accomplishing strategic management tasks. Other factors that

influence formality include management styles, complexity of environment, complexity of production processes, nature of problems and purpose of planning systems. Steiner's (1979) typology of the forces influencing the design of strategic management systems is shown in Figure 2.1. An operational manager is most often required to tackle problems of operational control, such as the efficient production of goods, the management of financial performance, or the design of some new schedules which will improve the efficiency of the operation. These factors are all very important (Johnson and Scholes, 2002). However, they are crucially concerned with effectively managing already deployed resources, always in a limited part of the organization and within the context and guidance of an existing strategy. The nature of strategic management highlights organization-wide, especially it integrates strategy formulation and implementation, and long-term implications. Therefore, it is different from operational management which emphasizes operationally specific, routinised, and short-term implications. Some of these differences are summarized in Table 2.1.

(2) What is strategic management?

Boddy and Paton argue that,

> Strategic management is an organization-wide task involving both the development and implementation of strategy. It demands the ability to steer the organization as a whole through strategic change under conditions of complexity and uncertainty.
> (Boddy and Paton, 1998, 339)

Mintzberg (1987b) argues that strategic management could also be thought of as a process of crafting.

Toward more formality and more details		Toward less formality and fewer details
Organization		
	Small one-plant companies	→
←	Large companies	
Management styles		
←	Policy maker	
	Democratic-permissive	→
←	Authoritarian	
	Day-to-day operational thinker	→
	Intuitive thinker	→
	Experienced in planning	→
	Inexperienced in planning	→
Complexity of environment		
←	Stable environment	
	Turbulent environment	→
←	Little competition	
←	Many markets and customers	
	Single market and customer	→
	Competition severe	→
Complexity of production processes		
←	Long production lead times	
	Short production lead times	→
←	Capital intensive	
←	Labour intensive	
←	Integrated manufacturing processes	
	Simple manufacturing processes	→
←	High technology	
	Low technology	→
	Market reaction time for new production is short	→
←	Market reaction time is long	
Nature of problems		
←	Facing new, complex, tough problems having long-range aspects	
	Facing tough short-range problems	→
Purpose of planning system		
←	Coordinate division activities	
	Train managers	→

Figure 2.1 Forces influencing design of strategic management systems (Source: Steiner, 1979, 54)

Table 2.1 Characteristics of strategic management and operational management

(Source: Johnson and Scholes, 2002, 15)

Strategic management	Operational management
•Ambiguous •Complex	•Routinised
•Organization-wide •Fundamental	•Operationally specific
•Long-term implications	•Short-term implications

Here strategic management is seen not as a formal planning process, but rather in terms of processes by which strategies develop in organizations on the basis of the managers' experiences. The craftsman's mind is functioning constantly in tandem with his hands, but large organizations try to separate the work of "minds and hands". Environmental conditions become dynamic or complex; moreover different approaches are needed to understand the environment accordingly, as shown in Figure 2.2 and explained in the following paragraphs:

ENVIRONMENTAL
CONDITIONS

	Simple	Complex
Static	• Historical analysis • Forecasting	• Decentralization of organizations
		• Experience and learning
Dynamic	• Scenario planning	?

Figure 2.2 Approaches to making sense of the environment (Source: Johnson and Scholes, 2002, 83)
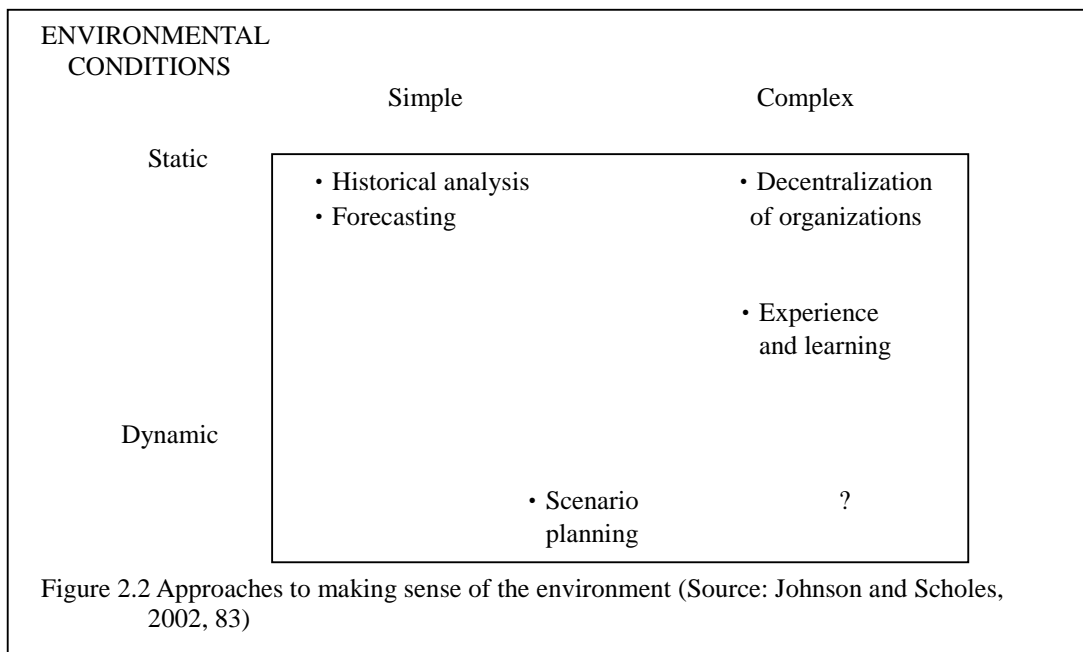
• In simple/static conditions, the environment is relatively straightforward to see and

does not undergo notable change. When competition and markets are fixed over time and technical processes are relatively simple, such as in some mass manufacturing companies, future environmental conditions are likely to be more predictable. For example, in public transportation, demographic data might be used as a tool for planning the provision of transportation.

• In dynamic conditions, managers must not only be concerned with the past but they must also pay attention to the future. They may do this intuitively, e.g. by scenario planning. A scenario is described as "not a forecast but one possible future structure" (Porter, 1985, 481). It involves the identification of uncertainties, the determination of causal factors that drive them, and the formation of a range of possible assumptions and their integration into the scenario.

• In complex situations, an organization finds that it is hard to understand people's interaction with, and influence over, the complex environment. For example, a multinational company needs to tackle different country cultures and manage the firm's relationships with stakeholders etc. because of its diversity.

As Jackson (2000) argues, an organization should use a multi-view to deal with the complex problems of involving peoples' behaviours. In turn, this research draws on Mintzberg's (1987a) five Ps and adds another P for strategy formulation. This is an attempt to link the six-views for improving strategy formulation and implementation

in organizations.

2.3 The Six Ps for Strategy Formulation in line with the Six-views of

Strategic Management

A review of the literature on strategic management reveals that Mintzberg's (1987a)

"Five Ps for Strategy" explains that the field of strategic management cannot afford to

rely on a single definition of strategy. Therefore, the explicit recognition of multiple

definitions can help practitioners and researchers consider some of their

interrelationships. Consider the example of the Honda Company. It did not go to

America with the main intention of selling small family motorcycles at all; rather the

company seemed to fall into the market almost inadvertently. In other words, their

strategy emerged, step by step, but once recognized, was made deliberate. Honda

developed its intentions through its actions - another way of saying that pattern

evoked plan.

Based on Mintzberg (1991) and Ansoff's (1994) argument, in fact, Mintzberg

emphasizes emergent strategy, fact, and an informal learning view; but Ansoff focuses

on intended strategy, science, and a formal planning view. Mintzberg (1991) points

out, "Planning (or learning) couldn't do strategic management issues all." Mintzberg

(1991: 466) mentions, "Let's not let ourselves be seduced by learning or by formal planning. A score of 1-0 for informal learning over formal planning reflects not the wealth of management practice at all, but the poverty of the performance in our research." Instead, between 1-0 of fuzzy thinking should be encouraged to combine them together. Moreover, Mintzberg's (1994b) "Rethinking Strategic Planning, Part 1: Pitfalls and Fallacies" mentions that strategic planning suffers from three "fundamental fallacies," (more details explained in section 2.3.6).

The Mintzberg *et al*. (1998) book, *Strategy Safari: A Guided Tour Through the Wilds of Strategic Management*, also explains with "The Blind Men And The Elephant" that we are the blind people and strategy formulation is our elephant. Since no one has had the vision to see the entire beast, everyone has grabbed hold of some part or other and "railed on in utter ignorance" about the rest. We certainly do not get an elephant by adding up its parts. An elephant is more than that. Yet to comprehend the whole we also need to understand the parts. Therefore, Mintzberg *et al.* (1998) presents ten schools (design, planning, positioning, entrepreneurial, cognitive, learning, power, cultural, environmental, and configuration) which fall into three groupings. The first three schools are prescriptive in nature. In turn, the six schools that follow consider specific aspects of the process of strategy formulation, and have been concerned less with prescribing ideal strategic behaviour than with describing

how strategies do, in fact, get made. The final group is only one school, also called configuration. People in this school, in seeking to be integrative, cluster the various elements of our beast – the strategy-making process, the content of strategies, organizational structures and their contents.

Ansoff (1994) recommends strategic planning did not die but has been transmuted into several different forms of strategic planning. Ansoff (1994: 31) mentions, "In this practice, general managers and implementors participate in developing plans, staffs play catalyst roles,…and the planning process blends creativity and rational analysis,…and the key impact of the key managers' mindset and of the organizational culture is anticipated", to response Mintzberg's citizens strategic planning. Bossidy and Charan (2002) point out that a good strategic planning process requires the utmost attention to the "how" of implementing the strategy. Additionally, Johnson and Scholes (2002) also propose that formalized planning can be useful in various ways such as thinking about complex strategic problems, contributing to the co-ordination of resources to put it into effect, helping to communicate intended strategy, and using it as means of control by agreed strategic direction. Kim and Mauborgne (2005) propose that implementation be built into strategy.

Obviously, a literature review of strategic management issues may involve

multi-views (Hoskisson *et al.,* 1999) or eclectic integration thinking (Cummings and

Daellenbach, 2009). Mintzberg's (1994b) paper informed this research to overcome a

gap between strategy formulation and implementation. Mintzberg's 1987 paper, "The

Strategy Concept I: Five P's of Strategy", helped me to evolve the six P's of strategy

including plan, perspective, pattern, position, ploy and partners' expectations, and

proposed the six-views for closing the gap between strategy formulation with the

planning view and implementation with the integrated five-views because as

Mintzberg *et al*. mentioned,

> "The configurational approach should not, therefore, allow us to ignore the
> nuances of our messy world. We need fine-grained work that exposes the complex
> interrelationships among things. As Raphael (1976) has pointed out, the richest
> forms of life exist on the edges, between sea and land, forest and field, and so on."
> (Mintzberg *et el*., 1998:348)

Finally, this research develops the six-views model by roots: six-views to

promote organizational performance as flowers and fruits. The relationships between

the six Ps and the six-views are discussed as follows.

Strategy is a plan for the future as Ansoff (1965) proposes in the **planning view**.

The strategic planning view is based on strategy formulation, such as splitting

planning into distinct steps, each with many tables, and focuses on the setting of

objectives in the beginning, with the elaboration of budgets and operating plans at the

end. It focuses on forecasting, but a major deficiency of this view is its overemphasis

on quantitative analysis. In fact, the strategy process has to consider also qualitative analysis. Therefore, this research also includes qualitative measurement: employee satisfaction, customer satisfaction, and stakeholders' performance. Moreover, the fuzzy if-then rules are used to foresee the dynamic and complex changes, combine the planning view and integrated five-views and performance evaluation by experts' experience. A fuzzy system builds a bridge from inputs – the planning view and the integrated five-views - to outputs - strategic management with six-views. The bridge of rules may offer a simple and better way to control a system or process like a human expert who has a lot of if-then rules of thumb in his head (Kosko, 1999).

Strategy is a <u>perspective</u> which looks inside the organization. The economist Schumpeter (1947) proposes an entrepreneurial view which highlights innovative conceptions and image, i.e., a vision. However, this focuses on behaviour from an individual perspective, so there is a lack of discussion about what the cognitive process of strategy-making is. Thus, the **logic and language view** is proposed to promote interaction of the idea and cognition of strategy in organizations as blue ocean strategy also mentioned that managers have to wake employees up to the need for a strategic shift (Kim and Maubortgne, 2005).

Strategy is a <u>pattern</u> looking at past behaviour. Lindbolm (1959) notes that strategy-making is likely to be a learned activity rather than a controlled process of

rational management. However, the **learning view** is a shifting process, leading to the decomposition of strategy and incoherence. The dynamic capability approach sees strategic management as a collective learning process (Hamel and Prahalad, 1994; Teece *et al*., 1997; Harreld *et al*., 2007). This research suggests cohering learning and knowledge by interacting with the **cultural view**.

Strategy is a <u>position</u> for the assertion of an external marketplace, such as Porter's (1980; 2008) position in the economic marketplace. However, the position view overemphasizes economic, competitive, generic strategies and analytical calculation. It neglects uneconomic, cooperative, perspective strategies and the internal competences of the organization as forces of organizational culture.

Strategy is a <u>ploy</u> to try to outwit organizational competitors. However, the **macro political view** points out, an organization may cooperate with competitors instead of engaging in head-to-head competition. Moreover, strategy should further consider stakeholders' expectations, as Post *et al*. (2002) point out that the stakeholder view emphasizes the role of stakeholder relationships in the creation of organization wealth.

This research argues, therefore, that strategy is also about achieving <u>partners'</u> <u>expectations</u>. This research defines partners including resource-based: customers, employees, and shareholders; industry structure: management, competitors, and

suppliers; the social political arena: local communities and government, as Jones *et al.* (2007) mention, that stakeholder is a collection of internal and external groups (Freeman, 1984). The term 'stakeholders' could be defined as "any group or individual who can affect, or is affected by, the achievement of a corporation's purpose" (Freeman, 1984). Various partners' expectations can interact and influence organizational decision-making, then become a strategy. For example, at work, the emphasis was on a command-and-control approach to promote compliance: rules, punishment, training and reporting. Conversely, the values-and-integrity approach can be seen as a market-based approach because employees are asked to participate in the value of the firm (Tyler *et al.*, 2008). Paine (1994) argues that the values-and-integrity approach, rests on employees governing their own behaviour by voluntarily selecting compliance behaviour because they believe it to be the best way to act. Moreover, managers and employees are discussing about the values and how people of integrity use them to guide decision-making. Tyler *et al.* (2008: 32) point out, "When this engagement occurs, employees are more likely to comply with rules even when they are not mentioned. Such employees come to be good stewards of the company's values,…In this approach, enforcement of standards does not belong solely to ethics officers and their designers, but to all employees." Business ethics is a beyond motivating rule adherence that the strategies have the additional benefit of more

broadly engaging employees' active ties on behalf of their firms and behaviours

linked to the firm's profitability (Tyler *et al*., 2008) ; thus, a good ethical idea is a

precondition in order to promote strategy implementation. In other words, ethics and

business success can go together (Tyler, 2008). The economist, Friedman (1962)

believes that ethical audit should not be separated from the idea of social

responsibility. This research believes, however, that the ethical conception not only

includes social responsibility but also includes shareholder interests and obligations to

stakeholders.

This section has outlined, in general terms, the advantages of combining the six-

views in a pluralistic approach to strategy formulation and implementation. In order to

obtain a fuller understanding of the strengths and limitations of each individual

perspective, and of its potential contribution in strategic management, each view is

presented in more detail.

2.3.1 The Logic and Language View

The role of logic is important because it plays a significant part in the way people

think. Ford and Ford (1994) assert that logic refers to basic assumptions, which form a

framework within which reasoning takes place. It provides the view through which

people see everything: it tells people what is true, what is good, and what the nature of

things is. Language is one of the most important tools for communication that a

manager has. Managers utilize language in everything they do, such as in meetings,

and in team communication. Language is the medium through which strategy is

developed, through which tacit information is clarified, and through which ideas are

shared within organizations. When someone is 'operating' in a particular logic, they

take its rules and boundaries for granted. Logic poses the problems, provides the

language for explaining and understanding them, and decides their solutions.

Logic involving only two values is called binary logic. This takes the bi-polar

form of competition/cooperation, strategy formulation/strategy implementation,

thinkers/doers, and true/false. In recent years, it has become popular to challenge this

kind of thinking in management writings, with the exhortation that managers shift

from 'Either/Or' to 'Both/And', and take paradox more seriously (Kaufmann and

Gupta, 1988; Pascale, 1991; Stacey, 1996b; Gregory, 1996; Grint, 1997). Stacey

(1996b) has many useful things to say about paradox; however, he retains a binary

structure when he considers organizations and management.

Similarly, Kaufmann and Gupta (1985) in effect, create a new concept of

Either/Or vs. Both/And, which can even stretch to the work of those concerned with

fuzzy logic. Kosko (1994, 69) sets up a polarity between Aristotle 'prophet of A or

Not A' and the Buddha, 'prophet of A and Not A'. Aristotle 'prophet of A or Not A'

means that bit values describe the stakeholders as totally belonging to organizations

or totally not belonging to organizations, namely, with a bit value 1 or a bit value 0. Buddha 'prophet of A and Not A' means that a bit value is a degree or number between 0 and 1. This research argues that managers tend to cultivate fuzzy, holistic and pluralistic thinking rather than dichotomous thinking to formulation and implementation in strategic management. Simultaneously, a leader needs to be aware of formal and ineffective communication because a leader's preconceived ideas keep a strong hold, which tends to prevent the opinions of organizational members being integrated in organizations. However, some managers may lack recognition of fuzzy, pluralistic, and integrated communication thinking. Gronstedt (1996) points out, that integrated communication uses an appropriate combination of sending, receiving, and interactive tools drawn from a wide range of communication disciplines to create and maintain mutually beneficial relations between the organization and its key stakeholders.

Basically, under the machine conception of organization, behaviour of strategic change is strongly influenced by ideas developed through a combination of assumptions of economic rationality and stability. The aim of management activities is to achieve a predetermined, optimum, and logically derived set of objectives concerned largely with profit maximization. In contrast, March and Simon (1958) argue that the main determinant of strategic behaviour is influenced by biology,

sociology, psychology, system dynamics, and evolutionary economics, rather than economic rationality. Strategy-making, therefore, is governed by means of activities which typically emerge from a broad variety of influences. In their view, the development of non-equilibrium systems is based on the integration of a complex network of interaction influence relationships and random developments, which leads to the emergence of new system configurations. Thus, most social phenomena are neither mechanistic/ordered, nor chaotic, but in a dynamic state which falls somewhere between the two, in other words, two valued logic is a special case of fuzzy logic. Similarly, linear thinking may be considered a special case of systems thinking.

Managers are no longer talking about a dichotomy between strategy formulation and strategy implementation. Both are part of the process information of strategic management in organizations. Furthermore, they can promote integrated communication within organizations in order to enhance all organizational members' strategy recognition. Kaplan and Norton emphasize,

> The leadership team of a business unit must meet periodically to review the progress of its strategy. Operational issues, unless they are particularly significant and cross-functional, should not be discussed at this meeting. Attendance at strategy reviews should be compulsory for the unit's CEO and all members of its executive committee.
> (Kaplan and Norton, 2008, 74)

Strategic management, therefore, is primarily concerned with the process of pluralistic

thinking. It also deals with how to maintain the best fit between the firm and the environment by adapting to the environment through improving the thinking of the leaders of the organization.

2.3.1.1 Audit of the Logic and Language View

In the work of strategic management, the logical thinking process and communication skills play a crucial role. Organizational members should understand the goal, objective, and mission of a company or company activities in the market place. Then employees can realize the role they play and implement the strategic objectives in the company. Therefore, good communication among all of the organization members influences the effectiveness of implementation. In particular, leaders need fuzzy and pluralistic thinking rather than binary thinking. The audit of the logic and language elements is shown in Table 2.2.

Table 2.2 Audit of logic and language view (Source: Adapted from Sigband, 1981, 47).

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
(1) Keep employees informed of company goals, objectives, and plans.	____	____	____	____	____
(2) Inform employees of company activities in the market place.	____	____	____	____	____
(3) Tell employees about various facets of negative, sensitive, and controversial issues.	____	____	____	____	____
(4) Encourage every manager and supervisor to meet subordinates at least weekly and engage in dialogue concerning job related situations.	____	____	____	____	____
(5) Communicate important events and decisions as quickly as possible to all employees.	____	____	____	____	____
(6) Establish a climate where innovation and creativity are encouraged, and employees are rewarded for trying and succeeding, but not penalized for trying and failing.	____	____	____	____	____
(7) Have every manager and supervisor discuss with each of his subordinates, the latter's progress and position in the firm.	____	____	____	____	____
(8) Strategic decision-making process must cultivate fuzzy and pluralistic thinking rather than crisp thinking.	____	____	____	____	____

2.3.1.2 Improving the Logic and Language View

Communication serves four major functions within a company, including control, motivation, emotional expression, and information (Robbins, 2003). Communication can flow vertically, laterally, and integrated. These different communication levels can be basic, moderate, and strong. They promote organizations to set up effective communication with their specific stakeholders in organizations as shown in Table 2.3. The vertically dimension can be further divided into downward and upward directions.

Table 2.3   Reinforcing strategy implementation with planning view and integrated five-views

Improving levels		Integrated five-views	Planning view
R O O T S	Basic	LLV →upward and downward communication	A robust strategic planning move: · Recognizing the competitive environment · Identifying the company's crucial issues · Evaluating implementation capability within the company · Exploring the stakeholders' expectations for upholding of stakeholders · Balancing short-run and long-run objectives in the company · Modifying the strategic planning move in dynamic complex environment by the constant learning disciplines.
		LV→single-loop	
		C V→artifacts & etiquette	
		PV→foundation compliance	
		EV →right	
	Moderate	LLV→ downward and upward, and lateral communication	
		LV→ double-loop	
		CV→behaviour & actions	
		PV→power sharing	
		EV→justice	
	Strong	LLV→integrated communication	
		LV→triple-loop	
		CV→core values	
		PV→power distribution	
		EV→utilitarianism	

(1)   Downward and upward

Communication that flows from one level of a group or organization to a lower level is a downward communication. When people think of managers communicating with employees, the downward pattern is the one people are usually thinking of. It's used

by group leaders and managers to assign goals, provide job instructions, inform employees of policies and procedures, point out problems that need attention, and offer feedback about performance. However, downward communication does not have to be through personal contact.

Upward communication flows to a higher level in the organization. It is used to offer feedback to higher-ups, to inform them of progress toward goals, and to relay current problems. Upward communication keeps managers aware of how employees feel about their jobs, co-workers, and the organization in general. Managers also rely on upward communication for ideas on how things can be improved.

(2) Lateral

When communication takes place among members of the same work group or among members of work groups at the same level, among managers at the same level, or among any horizontally equivalent personnel, it is termed lateral communication.

Why would there be a need for horizontal communications if an organization's vertical communications are effective? The answer is that horizontal communications are often necessary to save time and facilitate coordination. In some cases, these lateral relationships are formally sanctioned. More often, they are informally created to short-circuit the vertical hierarchy and expedite action. Lateral communications can facilitate management's viewpoint, be good or bad since strict adherence to the formal

vertical structure for all communications can impede the efficient and accurate transfer of information.

(3) Integrated communications (IC)

This research adopts integrated communications, in that it includes all the various stakeholders in a company and consists of five aspects: awareness integration, unified image, database integration, customer-based integration, and stakeholder-based integration.

  • Awareness Integration

According to Duncan and Caywood,

> Awareness of the changing business, social, technological, political, and cultural environment creates the demand for a new business system to respond to the market.
> (Duncan and Caywood, 1996, 24)

Caywood (1997) mentions that a process of "benchmarking" the best practices of competitors and of noteworthy non-competitors can help an organization to understand how other successful organizations responded to change in their environments.

  • Unified Image

This aspect of IC recognizes the value of having a consistent message, feel, and look emanating from organizations. The most simple characteristic of integration is to have a unified image of all communication actions, normally referred to as 'one look, one

voice,' in the industry jargon.

An analysis of the communication network used to develop the communication programme is required, especially from the viewpoints of all stakeholders. One aspect of the total quality management (TQM) philosophy is a systems and process-oriented view. This could help with integration of the image developed by key stakeholders through cross-functional processes. Some tools of TQM, such as benchmarks and teamwork, help to integrate the message to all key stakeholders.

• Database Integration

Database integration attempts to develop a more personalized two-way communication for overcoming one-way communication of unified image. This aspect of database integration makes two-way communication really possible by connecting the organization to its stakeholders. This maximizes feedback by using the database to encourage customers and stakeholders to talk to the organization.

• Customer-based Integration

To get customer-based integration, it is necessary for the communication department to work together with all the front-line workers in the company who interact with consumers, for example, delivery people, or telephone operators.

• Stakeholder-based Integration

Organizations must identify their stakeholders because these dozens or even hundreds

of groups and individuals may play an essential role in the future success of the organizations. Therefore, it is very important for organizations to understand how to identify their specific stakeholder. The tool of stakeholder analysis can recognize stakeholders for integrated communications. Harrison and St. John define stakeholders as,

> An identification and prioritization of key stakeholders assessing their needs, collecting ideas from them, and integrating this knowledge into the strategic management process.
> (Harrison and St. John, 1994, 17)

The internal and external stakeholders analysis can help IC by identifying stakeholders and, furthermore by developing understanding of their needs and goals so that meaningful communication between organizations and their stakeholders could be improved.

As mentioned above, downward and upward communications are not always in person. Lateral communication can short-cut and facilitate cross-functional co-operation in organizations. Moreover, integrated communication can support beneficial relations between organization and stakeholders to promote strategy formulation and implementation.

2.3.2 The Learning View

The learning view is derived from Lindblom's (1959) article, "The Science of Muddling Through", but it was developed in Quinn's (1980) book: *Strategies for*

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Change: Logical Incrementalism. Quinn (1980) points out that incrementalism integrates the interaction of fragments together. It assumes that the strategic process is a messy one rather than an ordered process, so it emphasizes emergent process instead of intended strategy. Intended strategy means the attempt to develop management strategy by systematic analysis of individual elements (resources, capability, position, and the environment), which focuses on control. However, learning pays attention to emergent strategy, whereby people interact and further develop a pattern, and then formulate a strategy. As Edmondson proposes,

> Fostering an atmosphere in which trust and respect thrive, and flexibility and innovation flourish, pays off in most settings, even the most deadline driven. When managers empower, rather than control; when they ask the right questions, rather than provide the right answers; and when they focus on flexibility, rather than insist on adherence, they move to a higher form of execution. And when people know their ideas are welcome, they will often innovate ways to lower costs and improve quality – thus laying a more solid foundation for their organization's success.
> (Edmondson, 2008, 67)

This has implications both for knowing and for action.

Intended strategy falls into the trap of analysis/choice from implementation and will likely miss important emergent topics. This suggests that emergent strategies have an important role to play in management of environmental complexity. The essence of the learning view is this process of adaptation, the ability to react to unexpected events, to exploit or experiment with new ideas 'on the ground'. Mintzberg gives the example of a salesman coming up with the idea of selling an

existing product to some new customers. Soon all the other sales-people begin to do the same and 'one day, months later, managers discover that the company has entered a new market.' This was not planned but learned. People learn in the process of implementation.

A system naturally undergoes transition between equilibrium points through environmental adaptation. Control and order is emergent rather than predetermined (Lewin, 1992; Dooley *et al*., 1995; Stacey, 1995, 1996a). This natural emergence of order became known as self-organization. Later work explored this phenomenon, and identified three common characteristics of models of self-organization (Dooley, 2001). First, there is the natural emergence, not only of order, but also of new structures and new modes of behaviour, including processes of learning and evolution. Second, there are open systems, which are operating far from equilibrium. Third, there are internal feedback loops described by influence of interaction. Learning is, therefore, a crucial resource which occurs by means of the interaction between established routines and new situations.

Under a dynamic environment, learning and strategy are firmly connected; actually they are synonymous (Stern and George Stalk, 1998). However, Stern and Stalk point out that the most difficult aspects of learning in connection with strategy are:

・Letting go of obsolete concepts
・Creating the relationships between people that make learning feasible
・Appreciating rates of change
・Developing a systems perspective.
(Stern and George Stalk, 1998, 249)

It is also worth noting that an organizational leader looking for error needs to be supportive of experimentation and condone mistakes that are made in an effort to improve and innovate. For example, Sony's first product, a rice cooker, never worked well, and its first major innovation, a tape recorder, was a complete failure in the market. Wal-Mart is the strongest retailer in the world nowadays, but the first store opened by Sam Walton, Wal-Mart's founder, ended nightmarishly, because of several bad business arrangements. What each of these examples shows is that the key to ultimate success is a tolerance for the mistakes inevitably associated with trying anything new.

> Ralph Stayer, the innovative CEO of Johnsonville Foods, sends this same message when he tells his organization, "Anything worth doing is worth doing poorly." In other words, if it is important for us to be able to do something, we ought to be willing to tolerate some mistakes in learning how to do it.
> (Miller, 1998, 331)

Basically, a prerequisite for learning is to develop comprehensive information, such as knowledge, skills and technology that is externally relevant, understand this information, and share it across organizational boundaries. Edmondson's (2008: 60) article, "The Competitive Imperative of Learning," mentions "Today's central managerial challenge is to inspire and enable knowledge workers to solve, day in and

day out, problems that cannot be anticipated." However, if an organization over emphasizes learning, it may undermine the ability to produce a coherent feasible strategy or may lead to no strategy. Therefore, the learning aspect of strategic management means attempting to learn new knowledge while executing (Edmondson, 2008), highlighting collective learning to enhance knowledge and experience for improving the quality of decision-making, and encouraging innovative strategy, even at the risk of mistakes, under a tolerant regime. Tilles reinforces this learning idea; he says, "When companies stop learning, they begin to pursue relentlessly what used to be appropriate behaviour. How long they then survive is a function of how rapidly their industries change" (quoted in Stern and George Stalk, 1998, 253).

2.3.2.1 Audit of the Learning View

A hierarchical structure and functional orientation often optimize individual functions at the expense of the whole business and the customer. Learning organizations look and behave fundamentally differently from traditional organizations. Traditional organizations tend to emphasize strategic planning and routine work. In contrast, learning organizations emphasize continuous improvement and innovation. In this research, therefore, the features of the learning organization are the basis for auditing the learning view. The factors used to audit the learning process are shown in Table 2.4.

2.3.2.2 Improving the Learning View

As Argyris (1992) points out, there is a distinction between single-loop learning (e.g. the refinement of an existing routine) and double-loop learning (reframing), which includes fundamentally questioning the assumptions, underpinning a particular routine, and perhaps introducing a completely new one. Double-loop learning enables top executives, managers and front-line employees to learn to work together in partnership in terms of changing the external environment. For example, organizational members share experiences with their colleagues at meetings, attend external conferences and exchange information with suppliers. This boosts employees' new knowledge through the transformation of experience and information.

Table 2.4 Audit of learning view (Source: Adapted from Miller and Dess, 1996, 381).

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
(1) Attitude toward change: if you aren't changing it, it won't keep working.	____	____	____	____	____
(2) Dominant fear is not adapting rather than making mistakes	____	____	____	____	____
(3) Responsibility for innovation belong to everyone	____	____	____	____	____
(4) Involvement in experimentation belong to anyone with work to do	____	____	____	____	____
(5) Level of improvement sought with continuous improvement	____	____	____	____	____
(6) The source of competitive advantages are knowledge and expertise	____	____	____	____	____
(7) Dominant approach is complete empowerment rather than controlling others	____	____	____	____	____

Much development work with executives takes place at the incremental level, sometimes at the level of reframing, but seldom at the transformational level (creating a shift in context or viewpoint about themselves). Hargrove (2000) articulates the goal of transformational learning:

> I use the triple loop learning model, which has been enormously effective in my role as a thinking partner, both in impacting performance and solving complex problems. The typical scenario is that people have a goal, take action, and produce unintended results. I guide my thinking about what is needed by asking myself the following question: (1) Does the person need to switch a way of being or role, perhaps becoming a leader instead of a manager? (2) Does the person have ways of thinking that are leading to an inability to solve the problem or to misfired actions? And (3) Does the person need a tip on how to do the same thing better?
> (Hargrove, 2000, 22)

While change at the incremental and reframing levels is quite common, this research also further cited transformational change to be more of a challenge.

1. Single-loop Learning

This research points out that single-loop learning of new skills and capabilities through incremental improvement is weaker than double-loop and triple-loop learning. This involves doing something better without necessarily examining or challenging underlying beliefs and assumptions as shown in Figure 2.3.

Goal

| Context | Thinking | Actions | Results errors |

Single-learning loop:
How do I shift others' actions?
(Incremental Improvement)

Double-learning loop:
How do I shift others' mental model? (Reframing)

Triple-learning loop:
How do I shift others' view of self? (Transforming)
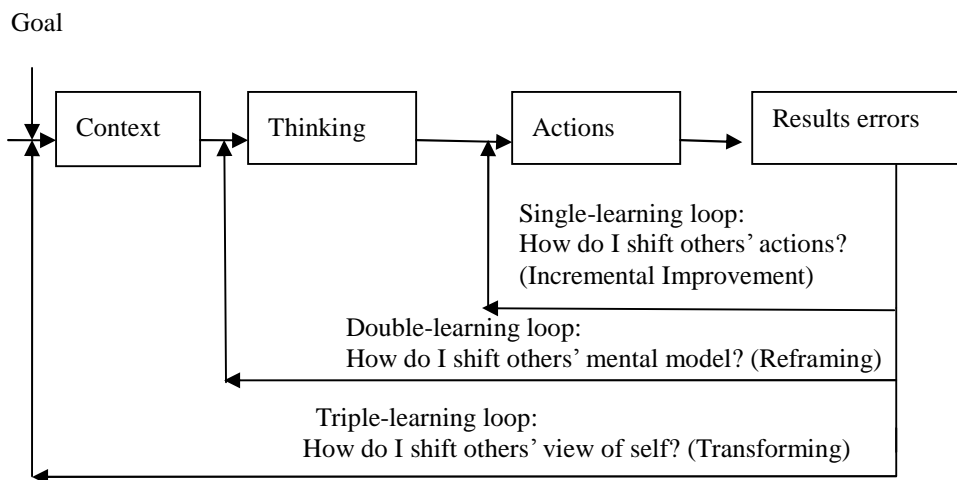
Figure 2.3   Single, double and triple-loop learning (Source: Adapted from Hargrove, 2000, 22)

2. Double-loop Learning

This research emphasizes by fundamentally reframing the underlying patterns of employees thinking and behaviour so employees are capable of doing different things. This level of learning often embraces single-loop, but goes beyond it. This is the level of process analysis where employees become observers of themselves, asking, "What is going on here? What are the patterns?" Employees begin to see that they are part of a system of interaction, and that employees can impact the system by their own behaviour. Argyris (1990) refers to defensive routines as usually below employees' level of awareness, self-fulfilling, and self-defeating. With the reframing of employees' thinking and behaviour, they learn to be less defensive, more open, and increasingly self-aware. This is where most individual and/or organizational change takes place and what to observe at the individual and interpersonal levels is shown in Figure 2.3.

3. Triple-loop Learning

Triple-loop learning involves transforming employees by creating a shift in their context about themselves as shown in Figure 2.3. Whether gradually or suddenly, employees' thoughts and feelings produce questions in the strategy implementation process. However, in this particular context, employees will never be the same; for example, there are other contexts by which employees operate and which are still open areas for exploring assumptions, and so on. As Hargrove (2000) emphasizes

> People in organizations are discovering that although solving complex problems requires teams, solving problems of the highest complexity requires creative collaboration among extraordinary combinations of people who represent different views and backgrounds. It has become increasingly clear that creative genius is not the result of individual efforts but rather collaborative in nature, whether it is happening in research and development, in marketing or on the factory floor.
> (Hargrove, 2000, 23)

In short, the nature of the helping relationship makes all the difference in triggering and reinforcing transformational learning. Thoughtful coaching at the single-loop and double-loop levels of learning can automatically evoke transformational change. Definitely, other skill strategies, other "reframes", and other methods of reinforcing transformational learning than the ones cited above could be useful. In this research there are single-loop and double-loop approaches as basic and moderate learning may hinder strong learning as triple-loop learning by reinforcing the individual's

2.3.3 The Cultural View

The cultural view is a collective process (Mintzberg and Quinn, 1996) for strategy-making. Culture unites a collection of individual employees into an integrated entity called an organization and further becomes the force of the organization, even the soul of its physical body; namely, it is the personality of the organization. Therefore, as Mankins and Steele (2005) emphasize closing the strategy-to-performance gap provides both benefits including a source of immediate performance improvement and an important driver of culture change with a large and lasting impact on the organization's capabilities, strategies, and competitiveness.

Schein (1985) refers to organizational culture as the pattern of basic assumptions that a given group has discovered to deal with its problems of external adaptation and internal integration. Culture is difficult to express precisely, but everyone knows what it is. It derives from individual group and organizational experience accumulated over time. Experienced managers report that new members of an organization soon learn the particular culture of the organization by looking at the attitudes of existing workers, what the members wear, and the professional terms or language used. Therefore, recognizing the significance of cultural dimension and trying to use it as a

tool for implementing strategy are important (Bonn and Christodoulou, 1996; Taylor, 1997; Miller, 1998; Harreld *et al.*, 2007). As Flood points out, "Treating and managing organizations as if they are cultures is a potentially powerful way of getting things done." (1993, 122)

A great deal of literature (e.g. Hofstede, 1991; Hall, 1992; Johnson and Scholes, 1997) has been generated over the past decade about the concept of organizational culture—particularly in regard to how to change organizational culture. Efforts to change organizations are rumoured to fail most of the time. Organizational culture, in fact, belongs to the soft side of the company so is much more difficult to measure than the hard side, such as organization structure; and the causal link between both sides, soft and hard, are not always clear. For this reason, many strategic planners now place as much emphasis on strategic values as on mission and vision. Such changes, however, are steady and incremental, keeping in mind the long-term goals of the organization, rather than sudden and radical. To supporters of the continuous change viewpoint, the boom-and-bust approach to strategic change is like running a marathon by sprinting and then standing still to catch one's breath. Marathons are not won by good sprinters, but by runners with endurance and persistence who can keep a steady pace. Some organizations behave like the hare in Aesop's fable, showing off their capabilities to take great leaps, yet burdened by a short span of attention. Conversely,

other organizations behave more like the tortoise, moving gradually and without interruption, focusing on the long-term goal. This is in line with evolutionary theory, rather than the revolution perspective, which usually reflects an unsound obsession with the short term (Wit and Meyer, 1998).

Based on evolutionary theory, genetic systems can be conceived in terms of two elements: adaptive and configurational. Adaptive systems are open to incremental change in response to competitive behaviour or environmental pressure for customers. In contrast, configurational systems are composed of internally balanced gene complexes that are not open to environmental change, but the nature of the individual will change. In fact, organizational culture is part of the resource-based theory (Wernerfelt, 1984), which includes resources and competences. Organizational competences consist of explicit factors including organizational culture, capital and organizational routine and implicit factors including skills, professional technology capability and management capability. The main resource of competence comes from human resource, so that a company needs to create an environment of organizational culture. Therefore, it will integrate the individual knowledge of the organizations, members, to enact a distinctive organizational culture. In the cultural system, inputs include rituals, symbols, stories, and values on competition or service. The process is based on the assumptions, values, and norms, more specifically speaking, values in

relation to facilities and people. The cultural outputs include organizational behaviours, strategies, image, products, services, and quality. Peters and Waterman (1982) as well as Deal and Kennedy (1982) suggest that a strong and distinct culture helps to integrate individuals into an organization. They claim that creating the appropriate culture is a key element in high-performance organizations. Moreover, a strong culture is associated with the frequent use of rituals, symbols, stories, slogans, and values. These elements increase employee commitment to the values and strategy implementation of a company.

However, research from a survey of two hundred corporate companies found that a strong culture does not ensure success unless the culture is one that encourages a healthy adaptation to the external environment (Draft, 1998). A strong culture, therefore, that does not encourage adaptation can be more damaging to an organization's success than having a weak culture. Additionally, the cultural view leads to two problems. One problem is that culture is difficult to find and change, the other problem is the tendency to see culture as a strategic advantage which makes an organization unique, while ignoring the idea of balance between internal resources and external competition.

2.3.3.1 Audit of the Cultural View

In this research, assessment of culture elements is based on the example of General

Electric (1992), which influenced the success of strategic changes. Elements of cultural assessment are shown Table 2.5. The first column is used to measure the importance of the culture element in each category. The second column is used to rate the compatibility of the proposed strategy with the current culture. The nine linguistic variables from A to I, where A represents the least important degree, I representing the most important degree, are shown in Appendix A.

Table 2.5 Audit of cultural view (Source: Rowe *et al.*, 1994, 476).

	Score (A-I) for each column	
	Importance of culture	Compatibility with strategic change
(1) Founder's beliefs and values	⎯⎯⎯⎯	⎯⎯⎯⎯
(2) Key executive's style	⎯⎯⎯⎯	⎯⎯⎯⎯
(3) Maturity of organization	⎯⎯⎯⎯	⎯⎯⎯⎯
(4) Cohesiveness and collaboration	⎯⎯⎯⎯	⎯⎯⎯⎯
(5) Openness and trust	⎯⎯⎯⎯	⎯⎯⎯⎯
(6) Climate of organization	⎯⎯⎯⎯	⎯⎯⎯⎯
(7) Recognition of individual	⎯⎯⎯⎯	⎯⎯⎯⎯
(8) Rewards for performance	⎯⎯⎯⎯	⎯⎯⎯⎯
(9) Support of individual	⎯⎯⎯⎯	⎯⎯⎯⎯
(10) Participation in decisions	⎯⎯⎯⎯	⎯⎯⎯⎯
(11) Consistent communication	⎯⎯⎯⎯	⎯⎯⎯⎯
(12) Enforcement of policies	⎯⎯⎯⎯	⎯⎯⎯⎯
(13) Degree of social interaction	⎯⎯⎯⎯	⎯⎯⎯⎯
(14) Opportunity for growth	⎯⎯⎯⎯	⎯⎯⎯⎯
(15) Level of job security	⎯⎯⎯⎯	⎯⎯⎯⎯
(16) Level of technology	⎯⎯⎯⎯	⎯⎯⎯⎯
(17) Degree of innovation	⎯⎯⎯⎯	⎯⎯⎯⎯
(18) Sense of belonging	⎯⎯⎯⎯	⎯⎯⎯⎯
(19) Latitude in job execution	⎯⎯⎯⎯	⎯⎯⎯⎯
(20) Sense of urgency	⎯⎯⎯⎯	⎯⎯⎯⎯

The four dimensions in which culture and strategic change are related are shown in Figure 2.4. Low scores in both columns suggest that the change is inconsistent with culture and that factors other than culture should be considered. A low score in the first column (Importance of elements in culture) and a high score in the second

(Compatibility of elements with proposed strategy) indicate that the culture is related to the strategy, so little attention to cultural elements is required. A high score in the first column and a low score in the second signify a seriously constrained relationship between the culture and the strategy. If the scores in both columns are high, the fit is supportive: elements that are important in the culture are strongly compatible with the strategic change. The stronger the elements in the culture and the more incompatible the proposed strategy, the more difficult it is for the strategy to succeed.

The procedure for evaluating culture is that three managers from each company were asked to decide the scores, from A to I, for "importance of culture" and "compatibility with strategic change", respectively. Then the average scores for the three managers in each organization were calculated by TFN as shown in Appendix A.

Figure 2.4 Importance of cultural fit to strategic change (Source: Adapted from Rowe *et al.*, 1994, 475)
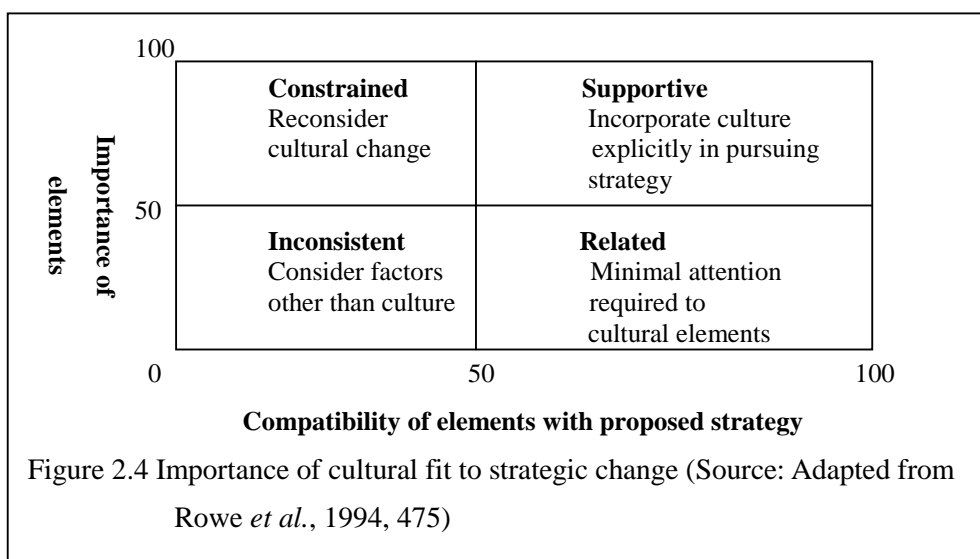
2.3.3.2 Improving the Cultural View

Hall (1995) points out that the ingredients comprising culture include the three levels of culture: ABCs, which change over time to match organizational strategy.

- A- Artefacts and etiquette (surface culture): These are the visible, concrete elements of culture such as language, form of greeting, clothing, the physical layout.

- B- Behaviours and actions (deeper culture): These are the consistent patterns of behaviour such as the ways people make decisions and styles of problem-solving. These behaviours are less visible than the surface culture.

- C- Core values, morals, and beliefs (the deepest culture): The judgments that members hold about what is right or wrong, fair or unfair. Organizational members can develop different shared visions on ethical issues to do their business.

This research uses the ABC levels as layers, with artefacts being the most superficial manifestation (basic) and core values (strong) being the deepest, as shown in Table 2.3.

Petrack (1990) identifies that the four categories of culture are based on two factors: the competitive environment requires flexibility or stability, and the strategic focus and strength is internal or external. Studies of culture and effectiveness have proposed the fit among, strategy, environment, and culture. The four different organizational culture characteristics will be introduced as follows:

(1) Adaptability culture is characterized by strategic focus on the external

environment through flexibility and change to meet customer needs. The culture encourages norms and beliefs that support the capacity of the organization to detect, interpret, and translate signals from the environment into new behaviour responses, namely, employees possess self-organization, innovation and creativity.

(2) Mission culture is characterized by emphasis on a clear vision of the organization's purpose and on the achievement of goals, such as sales growth, or market share, to help achieve the purpose, namely, highlighting competition of market and mission orientation.

(3) Clan culture has a primary focus on the involvement and participation of the organization's members and on rapidly changing expectations from the external environment, namely, employees share vision, and trust each other as a harmonious family.

(4) Bureaucratic culture has an internal focus and a consistency orientation for a stable environment, namely, emphasizing management efficiency, and hierarchical leadership as a command-and-control organization.

Not all cultural ingredients, in fact, have to be governed all of the time. Artefacts and etiquette can safely be downplayed, behaviours must be governed, and values cannot be managed. Differences on the artefacts and etiquette dimension are not enough to make or break a partnership because they can be overcome by reading a

guide to learn the etiquette, or the language. Cultural reasons for failure - behaviours -

are the most important ingredient rather than be attributed to the pure artefacts and the

etiquette dimension because behaviours drive the way a company does the things it

does (Hall, 1995). Culture differences in behaviours and actions heavily impact the

success or failure of a partnership because of differences in behaviours of planning,

decision-making and communicating. The importance of managing strategic

relationships is in the way that a shared vision is built, that employees are motivated,

that performances are measured.

In recent years academics and managers have realized that culture appears to

have a significant influence on organization, particularly, in strategic management

(Cummings and Dallenbach, 2009), hence, interest in organization cultures has grown

rapidly. This research suggests that an organization can apply the ABC levels of

culture to build one of Petrack's (1990) four organizational cultural styles, as shown

in Figure 2.5.
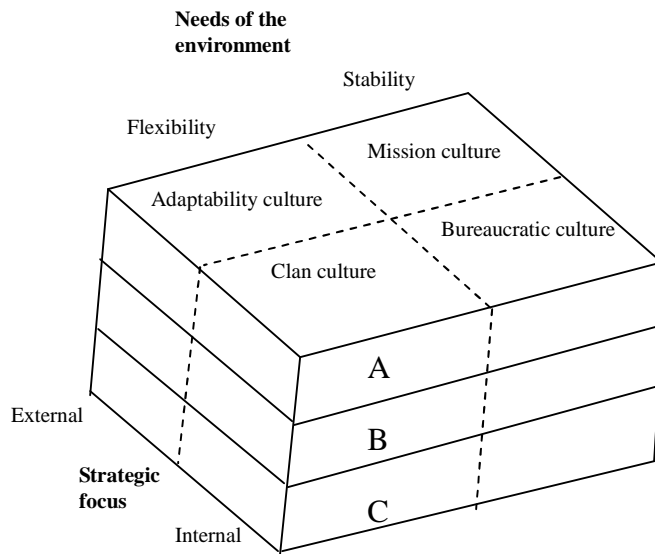
Figure 2.5 Integrating ABC levels and categories of culture

There is no best cultural style for a company, because the different culture styles have different characteristics that suit various organizational objectives.

In a context of strategic focus and a dynamic environment, an organization should build an adaptability culture. For example, the Taiwanese state-run enterprise, Taiyen Limited Company, had changed its culture from a bureaucratic to an adaptability culture. The culture change process in the company included a change leader who set a good example for employees to follow; changing leadership style; establishing a reward system to link employees' performance; advocating a suggestions system to enable employees to participate and providing improvement issues, such as operational process, innovative perspectives, and employees' morale; widespread communication with stakeholders; and applying ethical ideas, to build positive stakeholders' relationships; if employees' innovative ideas were accepted by

the company, they gained rewards. Eventually, Taiyen Limited Company transformed

its balance sheet from negative to positive and employees' bonus rose up to 11 months

by the end of 2004. Therefore, this research proposes five tips for changing

organizational culture.

(1) Leaders set the behaviour. Leadership style, in line with Lao-Tzu's management

philosophy, sets a good example for employees' behaviour.

(2) Integrated communication emphasizes communication between the organization

and its stakeholders for understanding strategic goals and promoting mutual

advantages so that strategic planning is implemented by people.

(3) Linking rewards with performance can motivate employees' creativity and

innovation ideas.

(4) Reinforcing ethics for enhancing value judgment of the strategic planning

process so as to attain right, justice, and utilitarianism in line with stakeholders'

expectations to promote strategy implementation.

(5) Creating a learning discipline where employees' knowledge, experience, and

capability of learning from each other enhance strategy implementation in the

organization.

2.3.4 The Political View

The view of strategy as an emergent process has much in common with political

perspectives on strategy. Lindblom (1959) concludes that strategy-making is not a

scientific or rational process, but an iterative incremental process. Lindblom's thesis is

that the rational approach described by Simon (1947) is unrealistic. Lindblom argues

that limits on the intellectual capacity of humans, sources of information, and

resources were such that comprehensive rational planning and detailed evaluation of

alternative strategies was impossible. He also asserts that the identification of values

prior to the analysis of alternative strategies to achieve them was an artificial

construct because all strategies encompass implicit value judgments. Boddy and Paton

point out,

> Value judgments are embedded in each potential strategy. The complexity of many
> social problems is such that identifying cause and effect and thus appropriate policy
> solutions (strategies) is difficult. But there remain fundamental differences in
> values between individuals and groups in society, and the relative power of groups
> will ultimately determine which strategies and options are favoured.
> (Boddy and Paton, 1998, 343)

Strategic choice, therefore, is not a comprehensive and objective process, but takes the

form of a limited comparison of options, restricted to those which are considered

politically acceptable in order to implement. Bolman and Deal refer to propositions

about the world of organizational politics as follows.

- Organizations are coalitions of various individuals and interest groups.
- There are enduring differences among coalition members in values, beliefs, information, interests, and perceptions of reality.
- Most important decisions involve the allocation of scarce resources – who gets what.
- Scarce resources and enduring differences give conflict a central role in

organizational dynamics and make power the most important resource.

・ Goals and decisions emerge from bargaining, negotiation, and jockeying for position among different stakeholders.

(Bolman and Deal, 1997, 163)

In order to enhance the quality of value judgment, this research suggests that managers have to ponder different perspectives from stakeholders' opinions which are based on the limited capacity of human beings' recognition.

Basically, the political or power view has two branches. One is called the micro political view which emphasizes tackling the play of politics, that is, the focus is on internal actors conflicting with their colleagues. The other is called the macro political view which highlights the organization acting for its own benefit in relation to other organizations. Accordingly, proponents of the political view argue that it is not possible to formulate an optimal strategy and try to implement it alone. In other words, any intended strategy will be distorted every step of the way because of the conflicting goals of individuals and coalitions. The political view suggests that companies move away from the conception of strategy-making as the product of homogenous teams. Instead, different actors pursue their own benefits. Strategy is here more ploy than position. As Astley (1985) points out, collaboration (i.e., strategic alliances and licensing) has come to rule the strategy-making process over competition. However, organizational leaders need to pay attention to stakeholders' expectations, actively, rather than confine themselves to ploys and bargaining,

passively. Clearly, the political view overemphasizes the organization's manipulation of others to fit its objectives. It seems to miss patterns for strategic management, even in rather conflictive situations.

Johnson and Scholes (2002) describe the strategy formulation of organizations as "externally dependent." They find that their strategy is often imposed on them from outside sources and their freedom of choice becomes restricted. Strategy, the ability to bargain successfully, is dependent on the relative power of the organizations involved (Boddy and Paton, 1998). Therefore, a leader should be encouraged to consider the different stakeholders' expectations and to adopt ethical ideas for tackling arguments among them to promote effective strategy implementation.

2.3.4.1 Audit of the Political View

One approach for illustrating and evaluating different styles of management is the Blake and Mouton (1964) Managerial Grid. The Managerial Grid offers a basis for comparison of managerial styles in terms of two principal dimensions:

• Concern for production is the amount of emphasis which the manager places on accomplishing the tasks in hand, achieving a high level of production, and getting results or profits.

• Concern for people is the amount of emphasis which the manager gives to subordinates and colleagues as individuals and to their needs and expectations.

The Managerial Grid indicates that low scores in both variables represent "impoverished management". A low score in the first variable (concern for production) and a high score in the second (concern for people) indicate "country club management". Middle scores in both variables represent "middle-of-the-road" management. A high score in the first variable and a low score in the second indicate "authority-compliance" management. High scores in both variables represent "team management", as shown in Figure 2.6.

Figure 2.6 The leadership grid   (Source: Adapted from Mullins, 1999, 213)
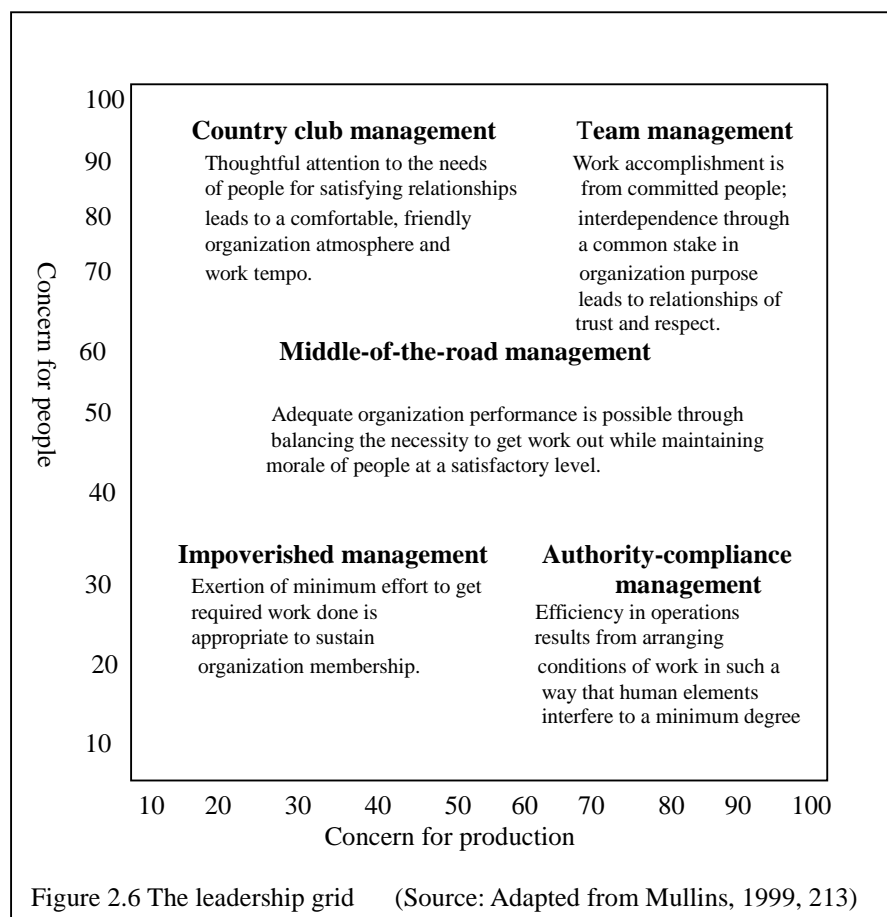
Managers were asked, "to what degree does the leader of your company consider

'concern for production (or mission orientation)' and 'concern for people (or relationship orientation)' important?" The assessment score is from A-I, where A represents the least important degree, I represents the most important degree, as shown in Appendix A. Audit of the political view is shown in Table 2.6. In practice, three managers in each company were asked to decide the degree of importance of "concern for production" and "concern for people", respectively. Then the TFN of the three managers' scores were calculated.

Table 2.6 Audit of political view (Source: Schermerhon Jr J. R. *et al.*, 1994, 517)

Concern for production Important degree	Concern for people Important degree
(1) Allocating responsibility _____	(1) Infusing vision _____
(2) Controlling and problem- solving _____	(2) Motivating and inspiring ———
(3) Creating routine and equilibrium _____	(3) Creating change and innovation _____
(4) Power retention _____	(4) Empowerment of others _____
(5) Creating compliance _____	(5) Creating commitment _____
(6) Emphasizing contractual _____	(6) Stimulating extra effort _____
obligations	(7) Leader interest in others
(7) Leader detachment and ———	and intuition _____
rationality	(8) Proactive environmental
(8) Reactive environmental approach ———	approach _____

2.3.4.2 Improving the Political View

This issue concerns the attitudes of leaders towards its employees. Some research evidence from companies in both the United States and Germany indicted that people-centred practices are strongly associated with much higher profits and significantly lower employee turnover (Kinicki and Kreitner, 2006). The

people-centred practices in these successful companies include job security, careful

hiring, power of training, less emphasis on status, and trust building. It is essential that

these factors are a package deal; they need to be installed in a coordinated and

systematic manner, not in bits. Today's organizations need to undergo immense and

permanent changes; for example, command-and-control management is giving way to

participative management and empowerment. Employees are increasingly being

viewed as internal customers and partners. The managerial shift should be applied to

improve the political view. This research takes the foundation compliance as the basic

political style and power distribution as the highest political style, as shown in Table

2.7 and Table 2.3.

Table 2.7 The characteristics of three leadership styles

	Foundation compliance	Power sharing	Power distribution
Employees' role	Employees as assets	Employees as friends	Employees as partners
Motivation style	Education and training	Employee' suggestions and employees' career planning	Pioneer enterprises or strategic business units in intra-company
Management philosophy	Command-and-control	Participative management	Trust →commitment →diligence → empowerment
Learning and knowledge	Periodic learning; narrow specialisation	Between foundation compliance and power distribution	Continuous life-long learning; generalists with multiple specialties
Compensation criteria	Time, effort, rank	Bonus and reward	Skills results, partners
Primary source of influence	Formal authority	Between foundation compliance and power distribution	Knowledge(technical and interpersonal)
Decision-making style	Limited input for individual decisions	Between foundation compliance and power distribution	Broad-based input for joint decisions
Handling of power and key information	Hoard and restrict access	Between foundation compliance and power distribution	Share and broaden access
Approach to change	Resist	Between foundation compliance and power distribution	Facilitate

(Source: Adapted from Kinicki and Kreitner, 2006, 8)

An individual's degree of politicalness is a matter of personal values, ethics, and temperament. Individuals who are either strictly non-political or highly political generally pay a price for their behaviour. The former may experience slow promotions and feel left out, while the latter may run the risk of being called self-serving and lose their credibility. People at both ends of the political spectrum may be considered a survival tool in complex organizations. As some experts point out

> … political behaviour has earned a bad name only because of its association with politicians. On its own, the use of power and other resources to obtain your objectives is not inherently unethical. It all depends on what the preferred objectives are.
> (Kinicki and Kreitner, 2006, 334)

The practical steps in Table 2.8 are recommended for managing organizational politics. Observe the importance of reducing uncertainty through standardized performance evaluations and clear performance-reward linkages. Measurable objectives are management's first line of defence against negative expressions of organizational politics.

Table 2.8 Political tips for managing organizational politics

To reduce system uncertainty
Make clear what are the bases and processes for evaluation.
Differentiate rewards among high and low performers.
Make sure the rewards are as immediately and directly related to performance as possible.
To reduce competition
Try to minimize resource competition among managers
Replace resource competition with externally oriented goals and objectives
To break existing political fiefdoms
Where highly cohesive, be keenly sensitive to managers whose mode of operation is the personalization of political patronage. First, approach these persons with a directive to "stop the political manoeuvring." If it continues, remove them from the positions and, preferably, the company.
To prevent future fiefdoms
Make one of the most important criteria for promotion an political attitude that puts organizational ends ahead of personal power ends

(Source: Kinicki and Kreitner, 2003, 276)

2.3.5 The Ethical View

An important, often overlooked, facet of strategic management is its system of ethics and values, because organizational ethics help to drive the reputations of organizations (Schwab, 1996; Walker, 1999). Reputation is perceived as one of the resources which make the most important contribution to business success (Hall, 1992). Hall points out, "The resources, which are of strategic significance, are reputation, research momentum, etc., as it is these factors which govern the future earning potential." (1992, 135)

Ansoff (1979) demonstrates that the strategic problems facing organizations during the last quarter of the 20th century were more turbulent and interconnected than formerly. He clearly points to the increasing social, political and ethical demands that organizations faced at the turn of the century. In such a context, company strategy provides an accepted theoretical framework for integrating the moral responsibilities of organizations into their strategy formulation and implementation processes (Stead and Stead, 2000). Moore (1971) sees ethics as the scientific discussion of 'what is good conduct' within the context of a broader controversy. Ethics, therefore, is not crisp logic, but the language of fuzzy logic. Fuzzy boundaries can be used to help a better understanding of organizational structures and stakeholders. Thus, instead of Mintzberg's sharp difference between internal and external stakeholders, managers

can recognize that partial membership of intersecting sets, such as fuzzy boundaries,

substitute for sharply defined "crisp" boundaries.

Basically, there is potential for conflict objectives between an organization and

its stakeholders. Company strategy allows for analyses of the relationships between a

firm's long-term issues and its key stakeholders in light of its core values and ethical

systems (Freeman, 1984; Cummings and Dallenbach, 2009). As Levy explaines,

> Firms interact with each other and with other actors in their environment, such as
> consumers, labour, the government, and financial institutions. These interactions
> are strategic in the sense that decisions by one actor take into account anticipated
> reactions by others, and thus reflect a recognition of interdependence.
> (Levy, 1994, 170)

The ethical view illustrates that a company has a social responsibility to do the

right thing, based on four arguments: moral obligation, sustainability, licence to

operate, and reputation (Porter and Kramer, 2006), to make people understand

corporate social responsibility which is very important to fulfil strategic management

(Cummings and Daellenbach, 2009). For example, Chinese fake medicines, toxic

chairs, lead-containing toys, and toxic shoes had impacts on consumers all over the

world. China Post News points out,

> Tainted milk formula in China has killed three babies in a spreading scandal that has
> revealed that one-fifth of dairy companies tested nationwide have sold products
> tainted with a chemical that has sickened more than 6200 children…In addition,
> Guangdong-based Yashili and Qingdao-based Suncare also recalled their tainted
> milk powder, which is exported to five countries in Africa and Asia: Bangladesh,
> Yemen, Gabon, Burundi and Myanmar.
> (China Post News, Sep. 18, 2008, 1)

In particular, the stakeholder management concept implies that strategy formulation and implementation consider the expectations and concerns of all relevant stakeholders (Post *et al*., 2002). An example of the ethical dimension is provided by Wen-Lung Shiu, founder of Chi Mei Corporation, whose governing ideas are "put yourself in others' place" and an exhortation to be "selfless" (Hung, 1996) because he was influenced by Lao-Tzu, a Chinese philosopher. During 1985-1986, when prices of ABS (a chemical material, which includes Acrylanitrile, Butadiene and Styrene) were rising, Chi Mei Corporation tried to hold the price of ABS stable for the domestic market. By this means, Chi Mei won a good reputation and became the biggest ABS Company in the world (Fortune Magazine, 1993). As this example shows, the ethical view of strategic management can be immensely valuable in achieving the objective of organizations (Hull, 2000). Conversely, China Point News reports,

> Japan and Singapore have recalled Chinese-made dairy products, and the governments of Malaysia and Brunei announced bans on milk products from China even though neither country currently imports Chinese dairy items…Food and product safely scandals have been a feature of Chinese life. Only last year, the government promised to overhaul inspection procedures after exports of medicines, toys, pet food ingredients and other products killed and sickened people and pets in North and South America. The chemical in the dangerous pet food was the same as in the milk scandal – melamine.
> (China Point News, Sep. 22, 2008, 15)

Therefore, the whole world's fears grew over Chinese milk and ruined the Chinese image because of their unethical behaviour.

For Lao-Tzu, his prescription to reach the highest management level is "to

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govern by doing nothing that goes against nature." According to Lao-Tzu, enlightened administration is possible only when the leader can set a good example for the people to follow, instead of proclaiming restrictive laws and regulations which tend to interfere with the orderly life of the masses. In other words, he advocated empowerment. In fact, Taiwanese companies should be encouraged to recognize that the strategy-making process needs to encompass ethnical behaviour and even corporate social responsibility.

Murphy *et al*. (1996) point out that trust is the core of ethical discipline and creates a good interaction. The stakeholders will then move to a new level of commitment; in other words, both partners make and keep promises to maintain good cooperation. Eventually, commitment associated with empowerment and implementation is what happens after the relationship has formed. Effective stakeholder management, therefore, requires three essential virtues: trust→ commitment→ empowerment.

In a wide sense, organizational governance arrangements determine the minimum obligations of an organization towards its various stakeholders. Therefore, a key strategic issue within organizations is the ethical stance that is taken regarding the extent to which the organization should exceed these minimum obligations in relation to any specific group of stakeholders. Halal (1977) and Carroll (1979) propose the

idea of corporate social responsibility which will be emphasized in strategic

management in the future (Cummings and Daellenbach, 2009). The definition of

corporate social responsibility is, "An organization's obligation to maximize its

positive impact and minimize its negative impact on society" (Dibb *et al*., 2001, 776).

The interdependence between a firm and society takes two forms: a firm has on

society by its operations, and external social situations also influence corporations.

Corporate social responsibility interprets the obligations of the firm to the firm's

stakeholders, who are affected by its organizational strategy and practices (Porter and

Kramer, 2006; Smith, 2003), and many firms have identified that corporate social

responsibility can be profitable (Smith, 2003). A company ignores corporate social

responsibility to its peril, as China Point News mentions,

> Toyota Motor Corp's woes deepened ahead of its testimony to Congress as it
> revealed it faces a U.S. criminal probe into the handling of its massive safety recalls,
> while Japan voiced concern over the economic impact of the automakers'
> problems…"It is clear to me that we didn't listen as carefully as we should or
> respond as quickly as we must to our customers' concerns," President Akio Toyoda
> said.
> (China Point News, Feb. 24, 2010, 1)

Business ethics is a guideline principle for organizational policy and behaviour;

thus, an ethically sound idea is a precondition in order to promote strategy

implementation. These obligations must include economic, legal, ethical, and

philanthropic concerns of company performance, as shown in Figure 2.7.

This section has identified the overall obligations which an organization may

take concerning its role in society. It also includes the extent to which it will operate within or beyond its frameworks of organizational governance. However, ethics may raise some difficult issues for individuals and senior managers within organizations:

Responsibilities

```
                    Philanthropic
                      Be a good
                   corporate citizen
                 ·Contribute resources to
                 the community; improve
                 quality of life
                      Ethical
                     Be ethical
           · Obligation to do what is right, just and fair
           · Avoid harm
                      Legal
                    Obey the law
           · Law is society's codification of right and wrong
           · Play by the rules of the game
                     Economic
                    Be profitable
           · The foundation upon which all others rest
```
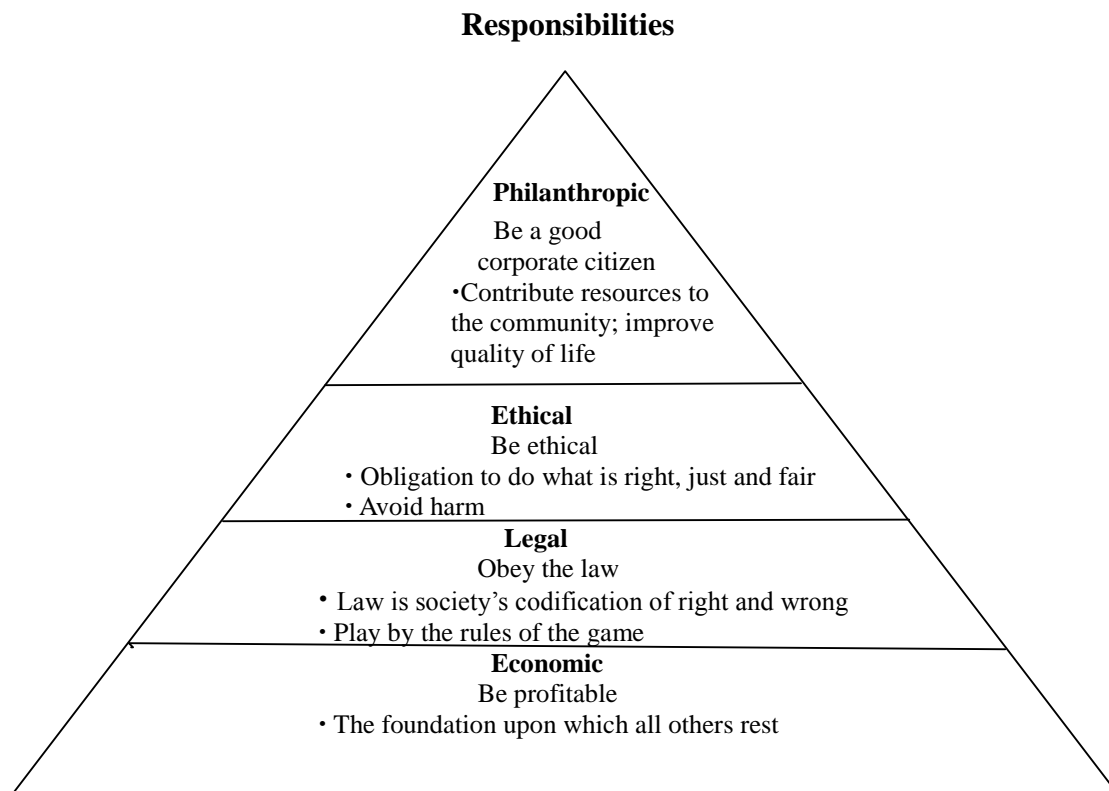
Figure 2.7 The pyramid of corporate social responsibility (Source: Dibb *et al.*, 2001, 769)

(1) What is the responsibility of a senior manager? Regine (1998) poses the question, "What are the qualities executives need in order to be successful in a complex environment?" He gives the answer:

> Be accessible, respond immediately to others, acknowledge and value people's contributions at all levels, create opportunities for people, take the time to build trusting relationships and walk the talk—you are the embodiment of the organization's values. If you can't be honest, then how can you expect others to be? [Wouldn't dishonesty] affect the culture, the organizational identity and how you develop relationships with other organizations? It all starts with you. (quoted in Santosus, 1998, 6)

(2) What degree of empowerment does a senior manager receive from the

organization?

(3) How does an organization encourage mutual trust between inter-organization and intra-organization?

(4) Senior managers are usually in a powerful position within the organization to influence the expectations of other stakeholders. They have access to information and channels of influence, which are not available to many other stakeholders. With this power comes an ethical responsibility to behave with integrity.

According to Hosmer (1994), this component has been all but ignored in the strategic management literature, aside from Freeman (1984), and Freeman and Gilbert (1988). Freeman (1984) argues that the early scholars in the field of strategic management (he cites Ansoff, 1965) are clear in their admonitions that strategic management has a strong moral and ethical component. In particular, Gilbert (1996) endows ethics with a new sense, which makes it become part of strategy naturally (Cummings and Daellenbach, 2009), rather than something to be forcibly installed on alien territory. In short, the aim of the ethical view is to build trust → commitment → empowerment → implementation, and further to reduce conflict, create good relationships, improve cooperation between the organization and its stakeholders, and finally to promote effective strategy implementation.

2.3.5.1 Audit of the Ethical View

Audit of the ethical view includes three theories: Rights, Justice and Utilitarianism.

Cavanagh *et al*. (1981) note that strategies with respect to employees, consumers and

communities can be evaluated by means of the criteria suggested by their rights and

justice. The following are some rights (1-7) to be considered in strategic thinking. The

summarized concerns for justice (8-10) are based on three canons, which Cavanagh *et*

al. append to the list of rights, shown below:

(1) Right to life: Acts taken under the strategy should not endanger the life of any stakeholder or subject a stakeholder unduly to injury.

(2) Right to property: Acts taken under the strategy should not violate any stakeholder's claim to ownership of material possessions or "property."

(3) Right to free consent: Stakeholders have a right to be treated by the firm only as they knowingly and freely consent to be treated.

(4) Right to privacy: Stakeholders have the right to a private life and to choose what they share with others in intimate relationships.

(5) Right to freedom of conscience: Stakeholders have the right to refrain from carrying out any order that violates the moral or religious norms to which they adhere.

(6) Right to free speech: Stakeholders have the right to criticize conscientiously and truthfully the morality of actions taken by others so long as their criticism does not violate the others' rights.

(7) Right to due process: Stakeholders have the right to a fair and impartial hearing whenever they believe that their rights have been violated.

(8) Distributive rules: Acts taken under the strategy should distribute benefits and burdens equitably among stakeholders and on the basis of criteria relevant to tasks and goals. The strategy should not result in a worsening of the position of the least advantaged stakeholder.

(9) Fair administration: The rules and policies of the strategy should be clearly stated and consistently and impartially enforced.

(10) Compensation norms: Stakeholders should not be held responsible for matters over which they have no control, and stakeholders should be compensated by the parties responsible for injustices done to them.

(Cavanagh *et al*., 1981, 363-374)

Utilitarianism focuses on "the greatest good for the greatest number." This criterion

can be used to assess strategy-making in terms of either the ends they seek or the

means they employ (Bentham, 1948). Bentham's criterion is described more precisely

as follows (11-12).

> (11) Ethical ends: The strategic outcome should result in the greatest good for the
> greatest number for the longest period of time.
> (12) Ethical means: The actions taken in implementing the strategy should
> constitute an efficient means for stakeholders to realize the greatest good for
> the greatest number.
> (Rowe *et al*., 1994, 104)

Combining these elements, the instrument for the audit of ethics is shown in Table 2.9.

In line with Rowe *et al.* (1994) who did not indicate any difference between

contributions, this research hypothesizes that all contributions are equal.

Table 2.9 Audit of ethical view (Source: Adapted from Rowe *et al.*, 1994, 105).

Right
(1) Impact on right to life
☐Strongly violates   ☐Violates   ☐Neutral   ☐Promotes   ☐Strongly promotes
(2) Impact on right to property
☐Strongly violates   ☐Violates   ☐Neutral   ☐Promotes   ☐Strongly promotes
(3) Impact on right to free consent
☐Strongly violates   ☐Violates   ☐Neutral   ☐Promotes   ☐Strongly promotes
(4) Impact on right to privacy
☐Strongly violates   ☐Violates   ☐Neutral   ☐Promotes   ☐Strongly promotes
(5) Impact on right to freedom of conscience
☐Strongly violates   ☐Violates   ☐Neutral   ☐Promotes   ☐Strongly promotes
(6) Impact on right to free speech
☐Strongly violates   ☐Violates   ☐Neutral   ☐Promotes   ☐Strongly promotes
(7) Impact on right to due process
☐Strongly violates   ☐Violates   ☐Neutral   ☐Promotes   ☐Strongly promotes
Just
(8) Impact on distribution
☐ Strongly unjust   ☐ Unjust   ☐Neutral   ☐Just   ☐Strongly just
(9) Fairness of administration
☐ Strongly unjust   ☐ Unjust   ☐Neutral   ☐Just   ☐Strongly just
(10) Norms of compensation
☐ Strongly unjust   ☐ Unjust   ☐Neutral   ☐Just   ☐Strongly just
Utilitarianism
(11) Strategic ends and outcomes
☐ The greatest harm   ☐Harm   ☐Neutral   ☐Good   ☐The greatest good
(12) Strategic means employed
☐ The greatest harm   ☐Harm   ☐Neutral   ☐Good   ☐The greatest good

2.3.5.2 Improving the Ethical View

This research is based on three ethical principles for judging behaviour of a company, whether it meets the morality or not. Three ethical principles, including teleology, deontology, and social contract, are introduced in the following and the discussion considers how to reinforce the ethical behaviours in a company from a basic to strong level.

1. Teleology

The view of teleology emphasizes the consequence of decision-making to neglect the process of behaviour in a company. It focuses on organizational advantages rather than individual advantage. Fritzsche (1997) points out that the ethical viewpoint of egoism and utilitarianism is teleological.

Utilitarianism depends only on the consequences of behaviour to judge the right or wrong of an activity in a company, so it offers companies a simple and a straightforward way of decision-making; all that is needed is to evaluate the cost and benefits of any decisions. However, there are not always quantifiable indicators available. It seems impossible for measurement indicators to be a genuine ubiquitous standard taking no notice of special moral relationships. A company also does not know whether the values of different employees really can be compared or not. In addition, there is a lack of right and justice principles, as Weiss (1994) criticizes.

2. Deontology

The view of deontology, in contrast to teleology, focuses on the process of decision-making instead of an activity consequence in a company. It tends to be concerned with the rights and justice of individuals, but overlooks the benefits of the organization as a whole and can even lead to negative performance in organizations. Fritzsche (1997) points out that the principles of rights and justice are the key core values of deontology, as the "categorical imperative" emphasizes the rights principle and "a theory of justice" including retributive justice, distributive justice, compensatory justice, and procedural justice, is the soul of the justice principle, as Kim and Mauborgne (2005) mention, "fair process is our managerial expression of procedural justice theory" (2005, 175), namely, fair process is a crucial factor for the strategy-making process because it produces people's trust and inspires them to cooperate voluntarily in implementing the resulting strategy formulation. Weiss (1994) believes, however, that a company tried to treat equally without discrimination all employees, which it is not easy. The ethical principles of teleology and deontology are not absolutely perfect, but they can be used a guide for judging the ethical principles in a company's strategy.

3. Social Contract

Donaldson (1999) argues that a social contract consists of hyper norms and

community norms, so it includes the teleological and deontological perspectives. For example, ethics between employees and employers focus on discussing how to achieve trusting and harmonious relationships with each other so that employers are really concerned with their employees' needs and employees want to contribute their skills and capabilities in work. Company-customer ethics is based on ideal quality, excellent service and word-of-mouth to build trust between companies and customers. Company-competitor ethics emphasizes both competitive and cooperative relationships, even companies can enhance their own competitive advantage by means of a good cycle. Company-shareholder ethics aims to achieve profit-oriented objectives. Company-society ethics pays attention to stakeholders' expectations. Company-government ethics is through the company's activities as part of the supply the policy of the government and to reinforce the relationship between company and government.

In general, the priority in ethical principles is as follows: First, an organization should achieve hyper-norms, namely, the right principle, such as protecting the rights of employees' work. Second, an organization must perform the justice principle, e.g. allocation of the organization's resources among different departments is based on the justice principle. Finally, an organization can launch into egoism and utilitarianism, such as the greatest benefits for its stakeholders. From the above analysis, this

research argues that Taiwanese companies can conduct three steps from rights (hyper-norms), justice, to utilitarianism levels, to reinforce their ethical view, as shown in Table 2.3.

2.3.6 The Planning View

The planning view is derived from Ansoff's (1965) book – *Corporate Strategy*. Basically, "Predict and prepare," is the motto of the planning view (Ackoff, 1983). Planning's preference emphasizes formalization and its nature tends to promote inflexibility and impose the setting of a clear direction on an organization. The assumption underlying strategic planning is that analysis will produce synthesis by decomposition of the process of strategy, creating a series of articulated steps, each to be carried out as specified in sequence, to produce integrated strategies. Thus, there is a hierarchy of objectives that focuses on a hierarchy of action programmes. Harreld, *et al*. (2007: 27) mention, "The actual planning process was a staff exercise undertaken to satisfy senior management, not an accurate reflection of what the business needed to do to be competitive and certainly not a blueprint for action."

Mintzberg (1994a) and Teece *et al*. (1992) argue that the core of strategic planning focuses on "scientific thinking." Kast and Rosenzweig (1970) propose that there are six supporting topics to this characterization of the scientific method as follows:

(1) Logic: The scientific approach is expected to be logical, although it is rarely explained what this is supposed to mean, and it often appears to be used as a synonym for rational thinking as opposed to creativity or generative thinking.

(2) Linear thinking: Management decision-making is closely related to the assumptions of linear thinking: step-by-step analysis, evaluation, and implementation. Proponents of the rational thinking view note that, in reality, senior managers often have to backtrack and redo some of these steps, so that chosen strategies do not work out.

(3) Quantification: There is a quantitative method used in decision-making. While this approach is outstanding for some objectives, it tends to focus unduly on measurable quantitative factors. It also underemphasizes the important qualitative and organizational behaviour relationships factors that so often determine strategic success in one situation versus another.

(4) Reductionism: Reductionism involves the search for ultimate indivisible elements. However, it ignores other influences, neglecting the fact that elements of systems interact with each other, being dependent rather than independent individuals. Teece *et al*. (1997) argues that senior managers should use an "integrative approach" rather than "reductionism" to deal with complex problems in strategic management.

(6) Control: Managers are always concerned about control. The emphasis is not on

output but on meeting key milestones in the strategic budget and on adhering to

planned spending schedules. Strategic programmes are linked with strategic budgets

as controls for the milestones reached and for adherence to spending schedules.

However, managers are neglecting to innovate opportunities by means of the

emergence of new structural behaviour.

Moreover, in Mintzberg's (1994a, b) opinion, strategic planning suffers from

what he terms three "fundamental fallacies":

(1) The fallacy of predetermination

This criticism is found on the planning view's assumptions on predetermination:

> The prediction of the environment through forecasting...the unfolding of the
> strategy formation process on schedule...and the imposition of the resulting
> strategies on an acquiescent environment….
> (Mintzberg, 1994a, 227-228)

Stacey (1993, 1996a) contrasts the planning view's desire for predictability with the

acknowledged inaccuracy of long-range forecasting. As American President, Dwight

D. Eisenhower (1890-1969) noted, "Plans are nothing. Planning is everything," in

other words, he was highlighting a dynamic process of strategic planning (Ho, 2000).

(2) The fallacy of detachment

Mintzberg argues against the central thrust of strategic planning, which is to separate

formulation from implementation. This approach leaves untapped the intellectual

capacity of people at all levels. Jackson points out, "Of particular importance has been

work that allows an overview to be taken of different ways of analysing and intervening in organizations."(2000, 356)

Therefore, effective strategy-making requires that implementation informs formulation. This suggests that employees should be involved in the process of decision-making.

(3) The fallacy of formalization

Strategy, according to Mintzberg, requires insight, creativity, and synthesis (all the things that formalization discourages). Intuition and innovation cannot be formalized as creativity needs to function beyond standard procedures. Grant's survey discovered,

> "Strategic planning processes have changed substantially over the past two decades in response to the challenges of strategy formulation in turbulent and unpredictable environments. Strategic planning processes have become more decentralized…and more informal…permitting…greater adaptability and responsiveness to external change. (Grant, 2003, 515)

Simon's (1947) view is that the complexity of strategic decisions require an explicit and formalized approach to steer management through the process. However, Boddy and Paton (1998) note that other views of strategic management are more descriptive; they try to describe how management makes strategy in practice. This means that the strategy-making process ensures dynamic adjustments to strategy and implementation are made in a timely manner. Therefore, it has to integrate a multi-views approach (Harreld *et al.*, 2007) and encourages increasing eclectic in its

application of a range of approaches (Cummings and Daellenbach, 2009). As in

Ackoff's (1981) proposal of "interactive planning", which highlights learning and

adaptation. However, Johnson and Scholes propose that formalized planning can be

useful in various ways:

- It can provide a structured means of analysis and thinking about complex strategic problems, requiring managers to question and challenge what they take for granted.
- It can be used as a way of involving people in strategy development, therefore helping to create ownership of the strategy and contributing to the co-ordination of resources to put it into effect.
- Strategic planning may also help to communicate intended strategy.
- It can be used as a means of control by regularly reviewing performance and progress against agreed objectives or previously agreed strategic direction.

(Johnson and Scholes, 1997, 47)

Therefore, managers need an approach to strategic management based on the

planning view (Grant, 2003; Cummings and Daellenbach, 2009) which is pluralistic,

where even conflicting ideas and views are welcomed (Johnson and Scholes, 1997) as

mentioned in Linstone's (1984) book *Multiple Perspectives for Decision Making* and

Jackson and Keys' (1984) article on the system of systems methodologies. As Jackson

notes,

Pluralism needs, as an approach to managing complex problems,.. using methodologies premised upon alternative paradigms together, and also encourages the combined use of diverse methods, models, tools and techniques, in a theoretically and methodologically informed way, to ensure maximum flexibility in an intervention.

(Jackson, 2000, 387)

From the above discussion, this research proposes a pluralistic approach,

six-views model, to overcome the insufficiencies of the planning view.

2.3.6.1 Audit of the Planning View

Strategic planning should not be undertaken by the chief executive alone or by planning specialists divorced from operating managers. An individual department may be biased and fail to produce a balanced plan. Instead, it is important to involve, in some way, all who will be charged with implementing the plan. In this research, the instrument for the audit of the planning view adopts Thompson's (1997) model, as shown in Table 2.10. Since strategic planning alone is likely to be deficient, incorporating integrated five-views for promoting strategic management is needed. This research highlights a pluralistic thinking idea.

2.3.6.2 Practicing the Planning View

The basic objective of any strategy is to create a sustainable competitive advantage. It guides a company direction and positions amove from here to there. However, there are performing strategies which fail, why? A strategic planning view should be an action plan that company leaders can depend on to achieve their company objectives. During the strategy formulation process, a leader considers whether and how a company can do things and achieve the company's objectives. Formulating a strategic plan move begins with recognizing the critical issues behind the strategy, for example, a company could transfer its strategic focus from customers to non-customers of the

industry. How is a company positioned in the context of its business environment, e.g.,

SWOT analysis or Five-forces analysis?

Table 2.10 Audit of planning view (Source: Thompson, 1997, 447-448)

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
(1) Planning should not be left exclusively to planners who might see their job as being the production of a plan and who might also concentrate on procedures and detail at the expense of wide strategic thinking.	——	——	——	——	——
(2) Planning should be seen as a support activity in strategic decision making and not a once-a-year ritual.	——	——	——	——	——
(3) There must be a commitment and an allocation of time from the strategic leader . without this managers lower down the organization might not feel that planning matters within the firm.	——	——	——	——	——
(4) Planning is not likely to prove effective unless the broad directional objectives for the firm are agreed and communicated widely.	——	——	——	——	——
(5) Implementers must be involved, both in drawing up the plan (or essential information might be missed) and afterwards. The plan should be communicated throughout the organization, and efforts should be made to ensure that managers appreciate what is expected of them.	——	——	——	——	——
(6) Targets, once established, should be used as a measure of performance and variances should be analysed properly. However, there can be a danger in over-concentrating on targets and financial data at the expense of more creative strategic thinking.	——	——	——	——	——
(7) The organizational climate must be appropriate for the planning system adopted, and consequently structural and cultural issues have an important role to play.	——	——	——	——	——
(8) Inflexibility in drawing up and using the plan can be a trap. Inflexibility in drawing up the plan might be reflected in tunnel vision, a lack of flair and creativity, and in assuming that past trends can be extrapolated forwards.	——	——	——	——	——
(9) If planning is seen as an exercise rather than a support to strategy creation, it is quite possible the plan will be ignored and not implemented.	——	——	——	——	——

How well founded are the assumptions upon which the plan is based? Is there the

organizational capability to implement the strategic planning move? What are the

disadvantages and advantages of the alternatives? Can the organization adjust the plan to rapid changes in the competitive environment? What does a company need to do in the short-run and medium-run to make the strategic planning view work in the long-run?

For practicing the strategic planning view in a company, the company must link it to the people's behaviour and combine the company's supply chain operation (Kaplan and Norton, 2008), so that the diversely related parts of the company, including the other five complementary views, are aligned to achieve what the company wants. Mankins and Steele (2005) mention that high-performance firms have managed to close the strategy-to-performance gap by means of better planning processes and implementation.

This research, therefore, suggests a robust strategic planning move for practicing strategy implementation, which needs to consider the following topics in order to overcome the six insufficiencies of the planning view as mentioned in this thesis.

(1) Recognizing the competitive environment

(2) Identifying the company's crucial issues and integrate communication

(3) Evaluating implementation capability within the company

(4) Exploring and upholding the stakeholders' expectations

(5) Balancing short-run and long-run objectives in the company

(6) Modifying the strategic planning move in a dynamic complex environment by continuous learning.

2.4 Combining the planning view and integrated five-views for enhancing strategy implementation

To overcome the weaknesses of the planning view, this research combines the integrated five-views for enhancing strategy implementation. The relationship of the six-views is explained as follows:

The **logic and language view** indicates that managers have to promote organization members' participation in, and understanding of, the organizational vision by communication including downward, upward, lateral and integrated communication and by fostering pluralistic thinking. According to the cognitive view, the cognition and mental processes of human beings are limited. Therefore, managers have to understand the vagueness of what is inside and what is outside, for effective strategy formulation and implementation by means of the idea of learning.

The dynamic and complex environment, the **learning view,** is about accumulating knowledge, experience and competences in order to promote strategy implementation effectiveness. This view emphasizes from single-loop, double-loop,

transferring to triple-loop learning for obtaining strategy implementation. However, managers have to note the potential problems of just learning without collective learning or unnecessary learning, as Johnson (1987) points out, using the term "strategic drift" to explain the problem of the learning process. Therefore, achievement of collective knowledge of individuals and groups through the cultural view of strategic management is needed.

The **cultural view** highlights that strategic management is a process of social interaction. Therefore an organization needs to develop collective beliefs and a shared vision for developing and implementing strategy. This view can integrate knowledge and experience of learning in organizations. Since culture is a soft side in an organization, for fitting a hard side including organizational structure, system of compensation and sanctions, design of rewards and communication systems in organizations, so that an organization can enhance its effectiveness of strategy implementation by combining soft and hard sides. In fact, as with computer software, it is what brings the corporate hardware to life as a viable system. The six-views model proposes a political view which tries to change organizational culture, from the A (Artefacts and etiquette) to C (Core values, morals, and beliefs) level, via leadership style. As Bossidy and Charan (2002) mention,

> The culture of a company is the behaviour of its leaders. Leaders get the
> behaviour they exhibit and tolerate. You change the culture of a company by

changing the behaviour of its leaders. You measure the change in culture by measuring the change in the personal behaviour of its leaders and the performance of the business.
(Bossidy and Charan, 2002, 105-106)

The **political view** emphasizes compromise between conflicting individuals and groups through leadership style. Leaders who foster a culture in order to implement and promote employees who obtain things can be done more efficiently, giving employees greater rewards. As Senge comments, quoting Lao-tzu's words: "The bad leader is he who the people despise. The good leader is he who the people praise. The great leader is he who lets the people say, 'We did it ourselves'." (1990, 341). In addition, Bossidy and Charan (2002) point out that Sam Waltan of Wal-Mart and Herb Kelleher in Southwest Airlines were powerful influences in their organizations. In other words, employees understood their leaders, understood their leader's viewpoint, and understood what leaders expected in their employees. Bossidy and Charan further note "This is not "inspiration" through exhortation or speechmaking. These leaders energize everyone by the example they set." (2002, 29). In Taiwan, Yen chairman of Yulon Motor and Cheng, Pre-Chairman of Taiyen Limited Company, with powerful leadership style, transformed their balance sheet from negative to positive in 1996 and 2002, respectively.

Furthermore, leaders have to consider stakeholders' expectations for pursuing strategy implementation more effectiveness by means of stakeholders' support. To

reduce political conflict, this research proposes an **ethical view** based on Lao-Tzu's

idea, "put yourself in others' place and be selfless". In fact, the ethical idea is derived

from two important ideas for strategy-making: managerial value and social

responsibilities. However, the majority of strategic management scholars, with the

exception of Selznick (1957), ignore ethical ideas. Recently, the ethical topic has

become a mainstream issue in strategic management. Right, justice, and utilitarianism

need to be lauded to enhance the ethical value in organizations. As Porter and Kramer

point out,

> Efforts to find shared value in operating practices and in the social dimensions of
> competitive context have the potential not only to foster economic and social
> development but to change the way companies and society think about each other.
> NGOs, governments, and companies must stop thinking in terms of "corporate
> social responsibility" and start thinking in terms of "corporate social integration."
> Perceiving social responsibility as building shared value rather than as damage
> control or as a PR campaign will require dramatically different thinking in
> business.
> (Porter and Kramer, 2006, 92)

In a narrow sense, Lao-Tzu's view is a strategy. This strategy focuses on the

leader's idea of moral discipline. The meaning of Lao-Tzu's philosophy emphasizes

the positive relationship between sacrifice and achievement in humans, namely,

leaders should be selfless so as to achieve high effectiveness and self-actualization in

organizations. Therefore, the ethical view is not only concerned with individuals and

groups within organizations but also pays attention to interdependence between an

organization and its stakeholders. For example, China Point News points out,

Public health officials announced yesterday melamine taints instant coffee, milk tea and chicken-and-corn soup that have non-dairy creamer mixed with them. All tainted products came from China. King Car, which started a recall of all tainted items at once, took the initiative to send samples of powdered non-dairy cream it imported from China to the Food Industry Research and Development Institute for tests.

(China Point News, Sep. 22, 2008, 6)

Although the King Car Corporation of Taiwan had lost about 400-500 million dollars because its supplier came from China, this company recalled the tainted products that indicated the importance of ethical ideas with corporate social responsibility and won a good reputation in Taiwan. A company in practice, therefore, must combine a social perspective into the core frameworks it already uses to understand competition and guide its corporate strategy (Porter and Kramer, 2006). The Chinese milk scandal revealed that unethical behaviour impacted consumers' health, suppliers' businesses, employees' jobs, and further harmed companies' reputation and image of their country and articles for exportation abroad.

Edmondson (2008: 66) emphasizes, "No matter how much thought goes into advance planning, knowledge work often requires people to make concurrent collaborative decisions in response to unforeseen, novel, or complex problems." Leaders need to encourage wide communication with organizational members and key stakeholders, and to share different viewpoints by spreading dialogue so that the organization can develop a feasible strategy. Organizations focus on the discipline of learning; the goal is to discover what works and what doesn't, then sacrifice

short-run efficiency to get insight into new problems (Edmondson, 2008). Therefore, it can promote employees' new knowledge and skills and share their experiences to enhance strategy formulation and implementation. Organizational culture acts like oil in cars, which can help engines operate smoothly. In other words, combining the oil of the soft side, and the body and engine of the hard side in a car can enhances effectiveness and efficiency of the transportation process to achieve the destination. Therefore, organizational culture can promote strategy implementation and fulfil short-run and long-run objectives of strategic planning in an organization. Executive leaders possess a forceful influence to change organizational culture by their leadership style to facilitate strategy implementation, as in the case of leaders of the TYC Company and the Chi-Mei Corporation, motivated by Buddhism and Lao-Tzu's ideas, respectively. The ethical view will not neglect issues related to stakeholders' expectations, such as employees' expectations, customers' needs, and corporate social responsibility and so will be conducive to turning stakeholders' support, playing an essential role in strategy implementation. Therefore, the **planning view** will be utilized to consolidate the use of the integrated five-views by pluralistic and holistic thinking, and to distribute the resources in order to promote strategic management. Without a planning idea, there is no motivation to see how the integrated five-views interrelate. The original and the relationship of the six-views are shown in Figure 2.8,

based on the analysis above, to fulfil strategic management successfully, this research

proposes to combine the planning view for formulation and the integrated five-views

for implementation, as shown in Figures 2.9 and 2.10.
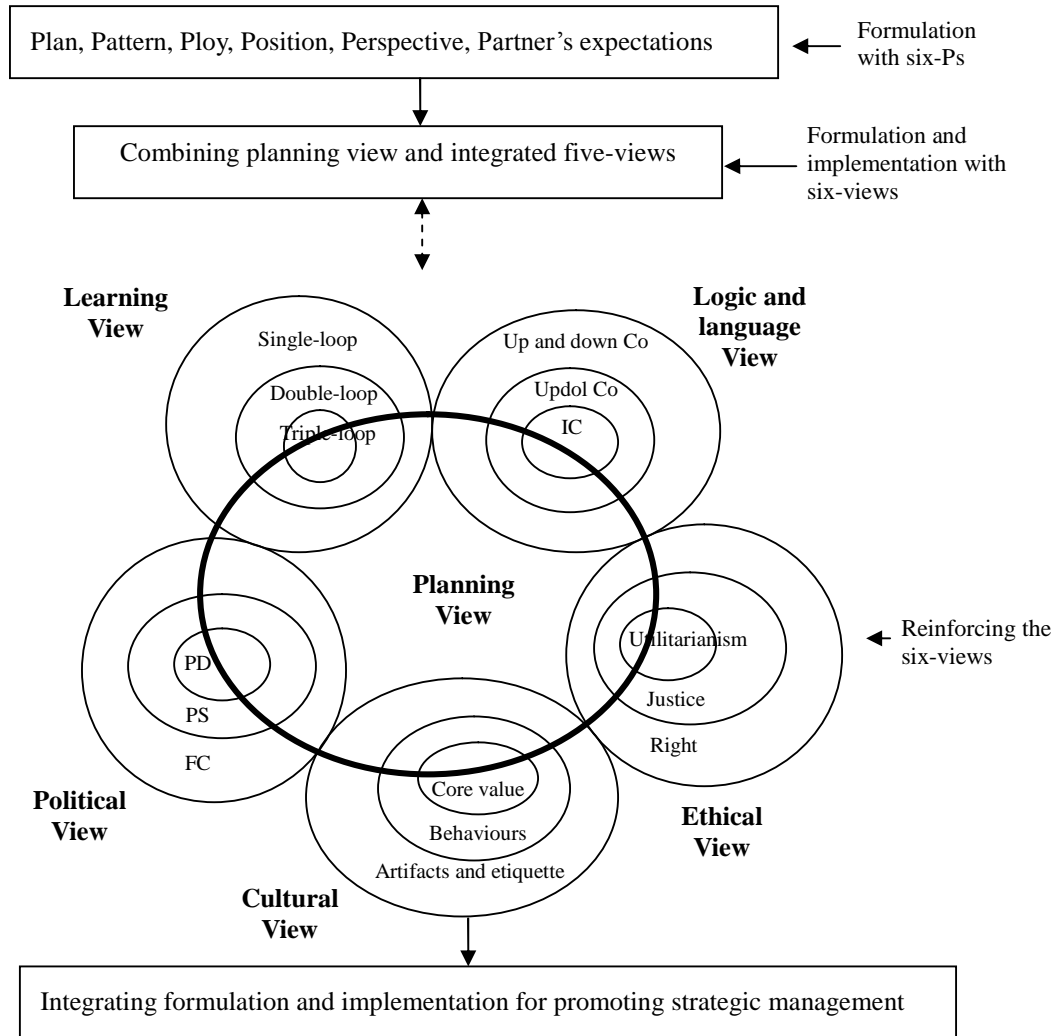
Figure 2.8 The origin and the relationship of the six-views

[Note: Up and down Co represent upward and downward communication; Updol Co represents upward and downward, and lateral communication; IC represents integrated communication; FC represent foundation compliance; PS represents power sharing; PD represents power distribution]

R	Very weak (0-2)		
O	Weak (0.1 -0.4)		
O	Moderate (0.3 -0.7)		
T	Strong (0.6 -0.9)		
S	Very strong (0.8 -1.0)		
	Separating formulation and implementation	Planning view with ☆**PLV**	Integrated five-views with ☆**five-view**s
	Combining strategic formulation and implementation	Strategic management with ★**six-views**	

Figure 2.9 The six-views as roots combining the planning view and the
integrated five-views (Source: The boundaries decided from Efstathiou and Rajkovic,
1979; Chen and Hwang, 1992)
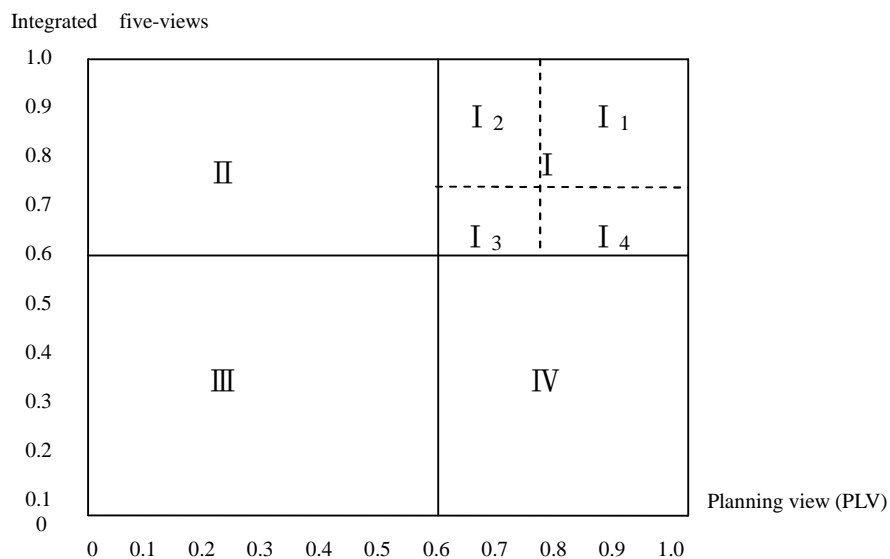
Figure 2.10 Matrix of PLV and integrated five-views

Figure 2.10 shows four different quadrants in terms of strong or weak degree of the

planning view (PLV) and the integrated five-views. Companies located in Quadrant

Ⅰ are called strong-very strong formulation and implementation because PLV and

integrated five-views are located at the level of 0.6-1.0 (see Figure 2.9), those located

in Quadrant Ⅱ are called very weak-moderate formulation (PLV) and strong-very

strong implementation (integrated five-views), those located in Quadrant Ⅲ are called

very weak-moderate formulation (PLV) and implementation (integrated five-views),

those located Quadrant Ⅳ are called strong-very strong formulation (PLV) and very

weak-moderate implementation (integrated five-views). Additionally, each quadrant can be separated into four sub-quadrants in order further to identify the strong or weak degree of the planning view and integrated five-views. Quadrant Ⅰ can be divided into Ⅰ$_1$ = strong-very strong PLV and integrated five-views; Ⅰ$_2$ = moderate-strong PLV and strong-very strong integrated five-views; Ⅰ$_3$ = moderate-strong PLV and integrated five-views; Ⅰ$_4$ = strong-very strong PLV and moderate-strong integrated five-views. Similarly, Quadrant Ⅱ, Quadrant Ⅲ, Quadrant Ⅳ can each be divided into four different quadrants.

In addition to strategic management being categorized as strategy formulation and strategy implementation, the six-views may be categorized as having people-dependent and people-independent dimensions. A knowledge-based economy emphasizes people-dependent interaction to share, create, and accumulate knowledge for promoting strategic management. As Kaplan and Norton (2006) propose, corporations can exploit their scope to create enterprise-level value from activities related to human capital development and to knowledge management such as communicating knowledge and best practices throughout diverse organizational units because intangible assets can account for 80% of an organization's value in today's knowledge economy, the corporate benefit from effective cross-unit collaboration is a huge driver of enterprise-level synergies. These two dimensions can be presented in

the context of the planning view and the integrated five-views, as shown in Table

2.11.

Table 2.11 A framework of strategic management with planning view and integrated five-views

Six-views / People	Planning view	Integrated five-views					Strategic management
		Logic and language view	Learning view	Cultural view	Political view	Ethical view	
People independent	Production-based economy with scientific thinking, emphasizing people's efficiency						Strategy formulation
People dependent		Knowledge-based economy with organic thinking, emphasizing people's interaction to share, create, accumulate knowledge for promoting strategic management					Strategy implementation
		Solving problems with people's dialogue	Learning and accumulating experience, know-how and skills to share people in the workplace.	Cohering people's beliefs and value to build people's trust and commitment behaviours.	Negotiating people's conflicts and facilitating to people's centripetal force to implement strategy.	Emphasizing on corporate social responsibility, especially, stakeholder management for promoting strategy implementation.	

2.5 Conclusion

In the above section, different views of strategic management were identified to

enhance the strategy formulation and implementation, followed by six problematic

issues arising from the planning view. In fact, Ansoff (1994) believes strategic

planning did not die but has been transmuted into several different forms of strategic

planning.Cummings and Daellenbach (2009) mention that this shift ultimately made

planning, just one part of a broader strategy field, continue to play a core role in the

management systems of large companies (Grant, 2003). Bossidy and Charan (2002)

point out that an ideal strategic planning process requires the utmost attention to the "how" of implementation of the strategy (Johnson and Scholes, 2002; Kin and Mauborgne, 2005). Consequently, it is important to see what an integrated planning view should involve. In the strategic field, influential authors like Mintzberg (1994a), Stacey (1992), and Hamel and Prahalad (1994) are advocating a shift in emphasis from strategic planning to strategic management. Therefore, a gap exists in strategy implementation, between strategic planning and strategic management (Bossidy and Charan, 2002; Joyce *et al.,* 2003).

The six alternative views highlight pluralistic thinking and complement the weaknesses of the traditional planning view, a line process of analysis, step-by-step, rather than the interaction influence of relationships, command-and-control and the separation of thinkers and doers. Instead, the six-views emphasizes interaction of stakeholders in organic organizations for combining strategy formulation and implementation.

Furthermore, to Mintzberg's (1987a) five P's of strategy is added another P, Partners' expectations, which means the strategy of companies should take account of stakeholders' expectations. Simultaneously, the research adds two views: the logic and language view, and the ethical view. The logic and language view attempts to encourage organizational members' participation, downward, upward, lateral, and

integrated communication, and fuzzy and pluralistic thinking. On the other hand, the

ethical view emphasizes the positive relationship with stakeholders and extends to

trust of ethical discipline and corporate social responsibility, commitment,

empowerment, and promotes strategy implementation. The six Ps, therefore, attempts

to explain different ideas of strategy-making and they are linked to the six-views in

strategic management. From a pluralistic perspective, the planning view is necessary

to combine the integrated five-views to complement defects of the planning view

further to promote effective strategic management. In order to understand how

strategy formulation and implementation is practiced in Taiwanese companies that

audit of the six-views is conducted with fuzzy logic and, further, how to improve the

six-views also is suggested in Taiwanese companies.

CHAPTER 3: STRATEGIC MANAGEMENT AND ENVIRONMENT

ANALYSIS

3.1 Introduction

In this chapter, the external and internal environments are developed further in terms of stakeholders' analysis, competitive environment analysis (Five-forces analysis), six-views analysis, and supply chain operation for employment of strategic thinking. Then, since forecasting organizations involves trying to discover trends and developments that may influence them in the future, strategic options are explained in turn. Finally, current debates regarding strategic management, resource-based and competitive-forces, and the planning view versus six-views approaches are discussed.

3.2 Analysing the External Environment

Strategy is defined as the match between an organization's internal capabilities and its external relationships (Boddy and Paton, 1998), and further accomplishes stakeholders' expectations (Johnson and Scholes, 2002). These definitions recognize that organizations do not operate in a vacuum, but are part of an open system. They

are constantly interacting with other organizations. These include suppliers, customers, competitors, and community activities. Senior managers, therefore, should take account of environmental change to adjust their companies' strategy.

3.2.1 Stakeholders' Analysis

Organizations have a wide range of internal and external stakeholders, and the interests of these different stakeholders often conflict. Stakeholder influence factors include the culture, ethics, and values of society as a whole and of particular political, social, or other groups in society. Boddy and Paton (1998) note that managers have to judge how each of the following three points affects the strategies which are pursued.

• What stakeholders expect of the organization;

• The forces at work outside the organization;

• The organization's internal resources or capabilities.

The exercise of power between organizations and their stakeholders is a two-way process. Just as external stakeholders seek to influence the people inside the organization, likewise the organization can change the perceptions and expectations of its external stakeholders. Furthermore, in some organizations, a joint approach to strategy development involves major external stakeholders. The growth of various forms of strategic alliances and partnerships demonstrates collaboration between stakeholders and organizations.

However, the competitive stakeholders' analysis ignores the recognition of the competition environment and internal capabilities of the organization. It is difficult to understand the schema of the external environment due to lack of competitive market analysis. Internal capabilities of the organization need to be understood in order to fit them to strategy implementation.

3.2.2 Competitive Environment Analysis

Market competition in strategy

During the mid-1700s to mid-1800s, the majority of businesses were small and employed as little capital as possible. These merchant firms did not have strategy at that time. In the mid-1900s, strategy emerged as a way to form market forces and impact the competitive environment in the United States. For example, the General Motor Company successfully developed its strategy by perceiving the strengths and weaknesses of its competitors. During World War II, formal strategic planning was applied for tackling the problems of allocating scarce resources across the entire economy, such as applying linear programming in business and military domains. In other words, a firm could exert some positive control over market forces by means of using strategic planning.

The 1960s was a fruitful era in the field of strategy, for example, the framework of SWOT analysis, BCG, and portfolio perspective. Prahalad and Hamel (1990)

propose "The Core Competence of the Corporation" which highlights taking a core competence perspective as opposed to the portfolio perspective. They argue that corporations need to build around a core of shared competences rather than only cater to the benefit of individual business in a corporation. In fact, the research of Campell *et al.* (1995) reveals that the successful corporations include both categories: portfolio perspective firms and core competence perspective firms. These criticisms gradually diminished the popularity of the portfolio perspective. In the 1980s, indeed, some U.S economists viewed organization performance as being dependent on effective competition, rather than the portfolio perspective. Porter's (1980; 2008) Five-forces analysis focuses on the idea of competition.

Five-forces analysis

The competitive environment underpins the development of an organization's SBUs. When introducing any SBUs, the aim is to increase profitability but exceptionally. In addition, it helps to create a new market opportunity or to build vertical integration in an industry. Porter's framework for industry analysis generalizes the supply-demand analysis that considers suppliers, buyers, potential entrants, substitutes, to be direct rivals. Porter (1985) points out that competitive strategy is a dimension of essential concern to managers. It relies on a subtle comprehension of industries and competitors. Competitive strategy, therefore, seeks a favourable competitive position

in an industry, which is the fundamental arena where competition occurs. According

to Porter (1985; 2008) profitability depends on two key variables:

・The structure of the industry in which the organization operates;

・The organization's own position within that industry.

Porter proposes the Five-forces model, which provides a useful framework for helping

a firm analyze its industry as a whole and predict the industry's future evolution. It

helps to realize its competitors and its own position and to translate this analysis into a

competitive strategy (including differentiation, cost leadership and focus strategy) for

a business (Porter, 2008). Forces driving industry competition are illustrated in Figure

3. 1.
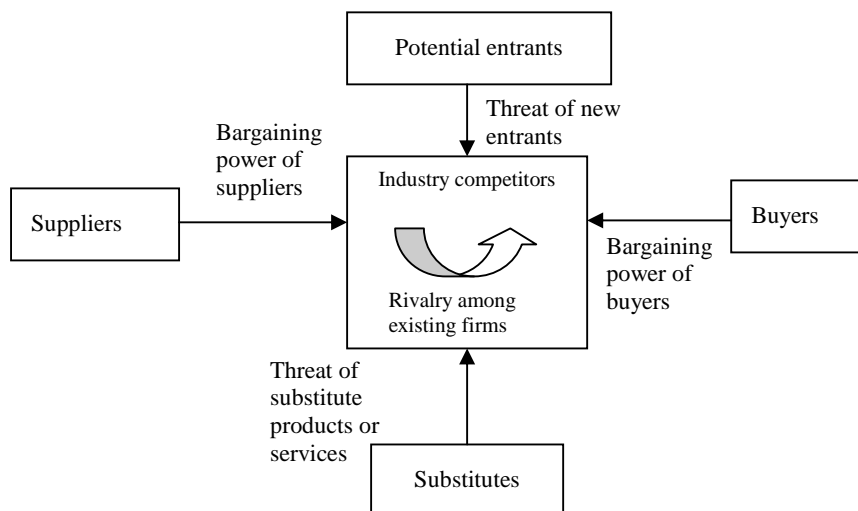
Figure 3.1 Forces driving industry competition (Source: Porter, 1980, 4)

As shown in Table 3.1, factors were selected for analysis of industry

characteristics. According to these factors, a company can decide what stage of

product life cycle (PLC) it belongs to. The PLC dimension allows a company to

consider multiple strategic issues associated with each PLC stage. In any industry, whether it is domestic or international, a product or a service, the rules of competition are embraced in five competitive forces. Porter explains, "Industry structure drives competition and profitability, not whether an industry is emerging or mature, high tech or low tech, regulated or unregulated." (2008, 81)

Table 3.1 The competitive environment (Source: Porter, 1985, 6)

Rivalry determinants	Threat of new entrants
Industry growth	Product differences
Fixed (or storage) costs/ Variable costs	High profits
Price competition	Learning curve
Diversity of competitors	Technological requirements
Brand identity	Economies of scale
Switching costs	Access to distribution
Concentration and balance	Absolute cost advantages
Informational complexity	Brand identity
Corporate stakes	Access to necessary inputs
Exit barriers	Proprietary low-cost product design
Intermittent overcapacity	Government policy
	Expected retaliation
	Switching costs
Determinants of cooperation power of supplier	**Determinants of substitution threat**
Supplier volume	Relative price performance of substitutes
Presence of substitute inputs	Rate of R&D in revenue
Risk of forward integration	Technological development
Supplier concentration	Switching costs
Differentiation of inputs	Buyer propensity to substitutes
Cost relative to total purchases in the industry	
Impact of inputs on cost or differentiation	
Switching costs of suppliers and firms in the industry	
Determinants of buyer power	
Bargaining leverage	**Price sensitivity**
Buyer volume	Product differences
Threat of backward integration	Price/Total purchases
Substitute products	Brand identity
Buyer information	Impact on quality/performance
Buyer concentration versus firm concentration	Buyer profits
Buyer switching costs relative to firm switching costs	Decision makers' incentives
Pull-through	

Porter's "Five-forces" decide industry profitability because they impact the prices and the elements of return on investment in an industry. Buyer power influences the prices that companies face to the threat of substitution and also impact cost and investment, because of powerful buyers who require costly service. The bargaining power of suppliers decides the costs of raw materials and just in time

inputs. However, in order to fit the strategy formulation of this research, the name of

this feature has been changed from "bargaining power of suppliers" to "cooperation

power of suppliers". The intensity of rivalry impacts prices and the costs of competing,

such as sales, product design, advertising, and service quality. The threat of entry

imposes a limit on prices, and shapes the investment required to prohibit new entrants.

Porter's Five-forces therefore are as follows:

(1) Rivalry among existing competitors (RA): Rivalry among existing competitors
takes the familiar form of jockeying for position.
(2) Threat of new entrants (TNE): New entrants to an industry bring new capacity,
the desire to gain market share, and often substantial resources.
(3) Substitution threat (ST): All firms in an industry are competing, in a broad
sense, with industries producing substitute products.
(4) Power of buyers (POB): Buyers compete with the industry by forcing down
prices, bargaining for higher quality or more services, and playing competitors
opposing each other.
(5) Cooperation power of suppliers (CPOS): Suppliers can exert bargaining power
over participants in an industry by threatening to raise prices or reduce the quality
of purchased goods and services.
(Source: Adapted from Porter, 1980, 7-28)

Rethinking the Five-forces model

Prahalad and Hamel (1990) argue that the Five-forces framework is only like taking a

picture from a moving car. One can clearly identify its position, but cannot judge the

direction of the car. Recently, e-business shows that there is a wide management field

involved in supply chain operation, enterprise resource planning (EPR) and customer

relationship management, so that there emerges a crucial idea, "mutual trust and

beneficence", in terms of supply chain operation (Lee, 2004; Chopra and Meindl,

2001) rather than Porter's competition thinking model. Porter's (2001) article, "Strategy and the Internet," notes that the Internet brings negative and positive relationships that impact the Five-forces model. Regarding one of the Five-forces, "bargaining power of suppliers," according to Kalakota and Robinson's (1999) view of e-business and Harland's (1996) article, "Supply Chain Management: Relationship, Chains, Networks,", firms should think more in terms of mutual trust, rather than only paying attention to the bargaining power of suppliers. Beth *et al*. (2003) mention,

> The best companies I see are beginning to triage the supply chain. In other words, they'll separate vendors that provide commodities from preferred suppliers that they have good relationships with from strategic suppliers that they create alliance with…Trust is the basis of agility, of flexibility. Yet it's an incredible challenge to establish trust and maybe even harder to maintain it. Underlying the challenge is the question of how to institutionalize trust between buyer and supplier…If suppliers don't trust each other, the customer will be whipsawed. Also, trust enables you to make fast decisions, which let you be more innovative and get rid of unproductive work. Trust is a competitive.
> (Beth *et al*., 2003, 68-69)

ERP highlights the effective integration of the organization's internal resources and the cooperation of external stakeholders thereby enhancing competitive advantage (Hammer and James, 1993). ERP and relationship marketing (RM) may be applied to adjust two of the Five-forces, "bargaining power of buyers" and "rivalry among existing firms", respectively. As Porter (2008) emphasizes "expanding the profit pool", when overall demand increases, intrinsic costs are decreased, the industry's quality level enhances, then the pie expands to competitors, suppliers, and buyers by means

of companies working collaboratively with suppliers to improve coordination and

limit unnecessary costs incurred in the supply chain. From the discussion above, let us

rethink how managers can apply the Five-forces model in strategy-making processes.

However, Porter points out,

> Awareness of the five forces can help a company understand the structure of its
> industry and stake out a position that is more profitable and vulnerable to attack.
> (Porter, 2008, 78)

Therefore, this research emphasizes both the industry level with Five-forces analysis

in order to ensure that stages of PLC in the market posture are acknowledged and

their impact on strategy determined for supply chain operation; and firm level with

the six-views to reinforce "boundary relationships" between it and stakeholders, and

learning view in "competitive dynamics."

3.3 Analysing the Internal Environment

This thesis utilizes the six-views analysis to recognize the internal environment and to

assist in disclosing corporation strategy.

3.3.1 Six-views Analysis (Organizational Roots)

An organization is a dynamic and complex system which consists of many interactive

elements. An organization, therefore, must integrate its internal competences in order

to achieve the vision or mission of the organization. In order to recognize the internal

competences, this research proposes that the six-views can be used as a tool to identify the strengths or weaknesses of organizational roots. This is done by an audit of the six-views. Since strategy formulation and implementation rely on "people", the strategy-making process needs diverse thinking and integrates communication through the logic and language view. All organizational members learning together reflect the learning view. A clear organizational belief and shared vision to manage the work other people do is captured by means of the cultural view. The leadership in the political view tries to change the organizational culture to fit strategy implementation. This involves organizing people and delegating tasks, creating good relationships with stakeholders, promoting cooperation by the ethical view, and a structured means of analysis and co-ordination of resources through the planning view. Thus, six-views are adopted for analysing the internal competences of strategic management as mentioned Chapter 2.

3.3.2 Supply Chain Operation

Bower and Gilbert (2007: 74) mention that "Strategy is crafted, step by step, as managers at all levels of a company – be it a small firm or a large multinational – commit resources to policies programs, people, and facilities.. Johnson and Scholes argue that strategic capability stems from three main factors, "The resources available to the organization; the competence with which it pursues its activities; the balance of

resources, activities and business units in the organization." (1997, 137)

These factors indicate that the assessment of capability must consider the overall balance of resources which are deployed in the various activities of the organization, as well as the quantity or quality of the different resource inputs (e.g. material, people, facilities, information). Similarly, Bower and Gilbert (2007) point out that executives have to reach down to operational managers if they attempt units to cooperate (Kaplan and Norton, 2008).

A widely adopted method for contributing to a company's relative cost position and creating a basis of differentiation is the supply chain operation. The supply chain operation divides a firm into the discrete activities it performs in designing, producing, marketing and distributing its product (Porter, 1985). These activities are divided into two categories: primary activities and support activities. Primary activities combine "inbound logistics," "operations," "outbound logistics," "marketing and sales," and "service." The activities include materials handling, packaging, distribution, creating consumer awareness of the product, and repairs service. Support activities include human resource management (involving recruitment, training and development, etc.) and 'firm infrastructure' (including organizational structure, strategic planning, and financial and quality control systems). Based on what is identified above, this research divides the activities of the supply chain operation into eight parts: product design,

pricing, manufacturing, inventory, lead time, supplier, transportation and service, more detailed will be explained in Table 3.6.

Basically, an effective supply chain operation strategy has to notice the nature of the demand in a company, for example, product categories and demand uncertainty such as the stage of PLC. Product features and the customer segment being served need adjustment as a product goes through its life cycle. A product passes through an S-shape as introduction, growth, maturity and decline occur because of the process of innovation and diffusion of a new product (Perreault, Jr. and McCarthy, 2006, 219), as shown in Figure 3.2.
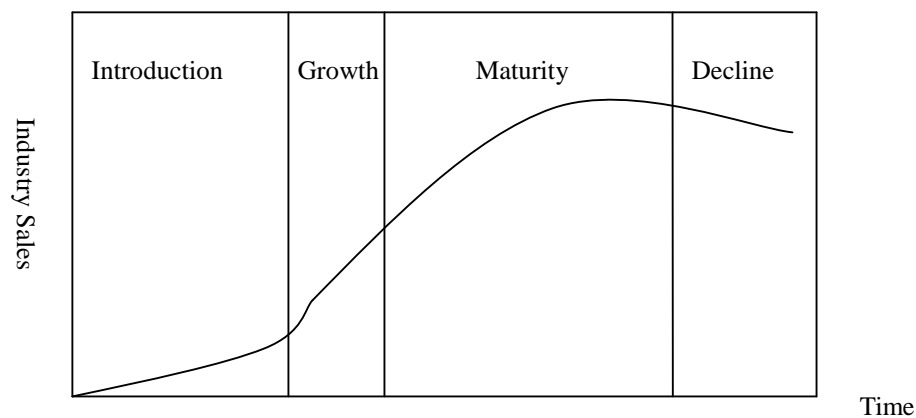
Figure 3.2 Stages of the product life cycle (Source: Adapted from Perreault, Jr. and McCarthy, 2006, 219)

The introduction phase is characterized by the difficulty of overcoming customer inertia and stimulating hard demand for the new product. In other words, when products belong to the introduction stage of PLC, the demand is rather unsure; marginal profits are often high, and time is of the essence for getting sales. Capturing

the market is more important than the consideration of the cost factor. Rapid growth

happens as many consumers rush into the market when the product has demonstrated

itself successful. Penetration of the product's potential consumers is ultimately gained,

so the rapid growth stops and levels out to a basic rate of growth. In other words,

when products gradually develop into the maturity stage of PLC, the demand features

shift as follows: demand is more sure; marginal profits often lower, and competitors

increase, so price is an essential factor in customers' selection. Finally, growth will

ultimately stay steady or even decrease when new substitute products emerge.

The PLC has encountered some criticism, for example, it is often not clear what

stage of PLC an industry is in. Companies can influence the shape of the growth curve

by means of product innovation and repositioning and sometimes industries omit

maturity by passing through from growth to decline. However, Miller (1998) asserts

that the PLC provides a useful framework for SBUs' strategy formulation because it

provides a summary for numerous strategic situations. He adds two warnings,

> First, the market life cycle is not intended to be used as a short-run forecasting
> device. Strategists find it more useful to consider the market life cycle as a
> conceptual framework for understanding what changes might occur over time rather
> than when such changes are likely to occur. Second, industry life cycles are
> reversible and repeatable.
> (Miller, 1998, 224-226)

Moreover, Chopra and Meindl point out,

> A product goes through life cycle phases from the introductory phase, when only
> the leading edge of customers are interested in it, all the way to the point at which

the product becomes a commodity and the market is completely saturated. Thus, if a company is to maintain strategic fit, its supply chain strategy must evolve as its products enter different phases.

(Chopra and Meindl, 2001, 38)

Fisher (1997) classifies products into two categories: primarily functional and primarily innovative. Each category needs a distinctly different kind of supply chain operation strategy. When it is a functional product or in the maturity stage of PLC, it requires an "efficient supply chain operation strategy" because it has to reduce cost to boost competitive advantage. Conversely, when it is an innovative product or in the introduction stage of PLC, it requires a "responsive supply chain operation strategy" because it has to quickly respond to customers' needs as shown in Table 3.2. Therefore, effective supply chain operation activities are based on efficient and responsive supply chain operation strategies.

Table 3.2 Supply chain operation strategy match with the stage of PLC
(Source: Adapted from Fisher, 1997, 109)

	Innovative products (Introduction stage of PLC)	Growth stage of PLC	Functional products (Maturity and decline stage of PLC)
Responsive supply chain operation strategy	match	mismatch	mismatch
Responsive and efficient supply chain operation strategy	mismatch	match	mismatch
Efficient supply chain operation or liquidation, innovation, or divestiture strategy	mismatch	mismatch	match

3.4 Strategic Options

Johnson and Scholes (2002) note that strategic analysis provides a basic idea to decide the strategic option. First, forecasting, some tools for analysing strategic options and the identification of strategic options are discussed as follows.

3.4.1 Forecasting

Earl (1995) and Bojadziev and Bojadziev (1997) point out that forecasting accurately is impossible. Nevertheless, the planning view of strategy places considerable emphasis on forecasting (Cummings and Daellenbach, 2009) with the use of techniques such as time-series analysis, regression analysis, and econometric models to predict the future.

Trend analysis is a means of identifying rates of change that might help in predicting their future. But it must be acknowledged that past trends cannot be assumed to continue and that analysis must extend to some consideration of the future.

3.4.2 Tools of Strategic Options

(1) Ranking: Ranking is a systematic way of analyzing specific options for strategic analysis. One of the major benefits of ranking is that it helps the analyst to think through mismatches between a company's present position and the implications of the

various strategic options.

(2) Decision trees: The end-point of the tree is a number of discrete development opportunities. Whereas ranking assumes that all options have equal merit, the decision tree approach ranks options by progressively eliminating others. Perhaps the greatest limitation of decision tree analysis is that the choices at each branch on the tree can tend to be binary.

(3) Scenario planning: Scenario planning can be used to screen strategic options by matching them to a series of possible future scenarios (Johnson and Scholes, 2002). The main benefit of scenario-building is that it discourages reliance on what is sometimes referred to as "single-point forecasting," that is, taking a single view for adaptive strategy in a constantly changing environment.

Basically, senior managers take account of scholars, and experts' opinions and statistical data, and then propose the future optimistic, pessimistic and most likely scenarios. Different scenarios can be considered alongside each other. Johnson and Scholes (2002) propose that there are two main benefits of such an exercise. The first is that managers can examine strategic options against the scenarios. The second benefit is that the implications of scenarios can be used by managers to challenge the taken-for-granted assumptions about the environment in which managers operate. However, Millett (1988) suggests that scenarios rarely supply "hard" answers to

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business questions and often appear too macroscopic and abstract to satisfy immediate business needs. This is an effort that often appears too subjective and controversial (Millett, 1988).

(4) Fuzzy logic: Fuzzy logic can explain systematic working in an uncertain, imprecise, and noisy environment (Zadeh,1965; Klir and Yuan, 1995; Grint, 1997; Kosko, 1994, 1999; Lin and George-Lee, 1999). All the fuzzy if-then rules define patches that try to cover non-linear (or wiggly) curves. Kosko (1994) highlights that the basic idea behind fuzzy logic is to incorporate the "experience" of a human process operator in the design of the controller. A set of linguistic rules is formed. These describe the operator's successful development strategy (Kosko, 1994). This thesis tries to adopt fuzzy if-then rules for combining the planning view and integrated five-views in strategic management. More detailed explanation will be introduced in Chapter 4.

3.4.3 Identifying Strategic Options

Managers consider possible strategies to achieve the organization's objectives. This thesis proposes that managers have to face three interrelated choices: corporation strategy, strategic business units, and supply chain operation strategy, as shown in Figure 3.3.

Corporation strategy

Survival strategy
・Competitive advantage
　Cost leadership strategy
　Differentiation strategy
　Focus (differentiation focus and
　　　cost focus)
・Quick response
・Investment
　Divestiture
　Decreasing
　Increasing

Development strategy
・Focus developing
　Market penetration
　Market development
　Product development
・Integration developing
・Diversification developing
・Share strategy

Strategic business units

**Introduction
Growth**
・Quick response
・Product capturing the market
・Share strategy

**Maturity
Decline**
・Innovation strategy
・Differentiation strategy
・Share strategy
・Emergent strategy
・Pricing strategy or
　(cost leadership)

Supply chain strategy

Responsiveness

Efficiency

**Liquidation
Innovation
Divestiture**

・Product design
・Pricing
・Manufacturing
・Inventory

・Lead time
・Supplier
・Transportation
・Service

Figure 3.3 The relationship of corporation strategy, strategic business units and supply chain operation strategy

(1) Corporation strategy: On what basis do organizations wish to compete with or differentiate themselves from others in their business area? This research adopts six-views analysis to identify corporation strategy.

Table 3.3 shows the relationship between six-views, and corporation strategy. If the result of the six-views analysis is weak, companies tend to adopt a survival strategy. In contrast, if the result of the six-views analysis is strong, companies tend to adopt a development strategy. However, if the result of the six-views analysis is moderate, companies tend to use survival and development strategies.

Table 3.3 The relationship between six-views and corporation strategy

Corporation strategy									
Survival strategy						Development strategy			
Competitive advantage		Quick response	Investment						
Cost leadership	Differentiation strategy		Divestiture	Decreasing	Increasing	Focus developing	Integration developing	Diversification developing	Share strategy
Cost focus	Differentiation focus								
← Toward weak		**Analysis of six-views**				Toward strong →			

Basically, corporation strategy needs to seek a niche by means of survival strategy first. Then a company will go ahead to grow itself in terms of a development strategy. As shown in Figure 3.4, when a company chooses a survival strategy, there is a lower development strategy. Conversely, if it chooses a development strategy, then this will bring a decrease in survival strategy when the resources of the company are limited. In other words, there is a trade-off between survival strategy and development strategy in a company.

Figure 3.4 Survival-development strategic frontier
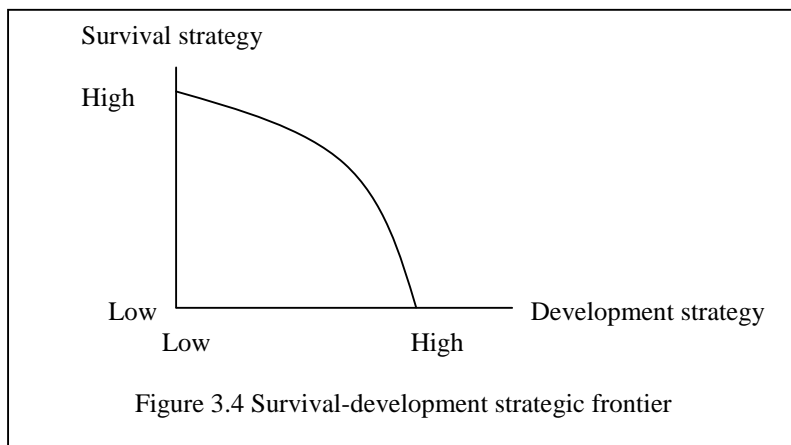
- Survival strategy includes competitive advantage (cost leadership strategy, differentiation strategy, and cost focus and differentiation focus strategy), quick response strategy and investment strategy (divestiture, decreasing investment and

increasing investment).

• Development strategy includes focus developing, integration developing, diversification developing and share strategy. These strategies are shown in Table 3.4.

Table 3.4 Explanation of corporation strategy

Corporation strategy	Survival strategy	Cost leadership strategy		A company of cost leadership needs aggressive construction of efficient facilities, from the learning curve concept to reduce cost, further to pursue service, advertising and R&D.
		Differentiation strategy		A company creates something that is comprehended by the entire industry as being unique. There are many different forms to differentiate, for example, customer service; brand image or design; technology and so on.
		Focus strategy	Differentiation focus	This strategy of organizations focuses on a particular customer group, or segment of the product line, in which their narrow strategic target is more efficient or effective than their competitors.
			Cost focus	
		Quick response		A company needs capability to respond as soon as possible to markets for customers' needs and wants.
		Investment	Divestiture	When a division needs more resources to compete than the company can offer, an organization sells a product line or strategic business unit.
			Decreasing investment	A company will consider decreasing investment under unstable politics, declination of economics and poor technology.
			Increasing investment	A company will promote increasing investment when six-views and Macro-PEST are favourable.
	Development strategy	Focus developing		This growth strategy includes market penetration, market development and product development. The strategy focuses on boosting competitive position in current products.
		Integration developing		This strategy also is called vertical integration which includes forward, backward and horizontal integration. A company that adopts this strategy attempts to control up and down stream firms, even its competitors.
		Diversification developing		This strategy includes concentric, horizontal and conglomerate diversification. The strategy highlights that a company doesn't depend on only one product line, but tends to run products of diversification.
		Share Strategy		This strategy emphases a share company's benefits to stakeholders such as making employees become shareholders, involvement in community activities, joint venture, strategic alliance and even contributing to social responsibility.

(2) Strategic business units: In order to develop SBUs or new markets, organizations have to recognize the status of the industry. This involves using Five-forces analysis to identify stages of PLC such as introduction or growth or maturity or decline. The illustration of PLC is shown as follows and the relationship between Five-forces and PLC are shown in Table 3.5.

Table 3.5 The relationship between Five-forces and PLC

	Output	Conclusion
Five-forces	H of competitive intensity	Maturity and Decline
	M of competitive intensity	Growth
	L of competitive intensity	Introduction

● Introduction: If Five-forces analysis yields the result "L of competitive intensity", then SBUs are seen as in the introduction stage of PLC.

● Growth: SBUs in the growth phase of PLC, according to Five-forces analysis, have "M of competitive intensity".

● Maturity and decline: When SBUs are in the stage of maturity and decline of PLC, according to Five-forces analysis, they have "H of competitive intensity".

(3) Supply chain operation strategy: Chopra and Meindl (2001) refer to "strategy fit," as both SBUs and supply chain operation strategy have to support each other, and then achieve organizational goals. SBUs are designed to provide the capabilities that the supply chain operation strategy aims to build. For example, if the SBU was decided to provide a responsive strategy for customers' needs and wants, all actors of the supply chain operation must be designed to fit the responsive goal. All functions that are part

of a company's value chain contribute to its success or failure. A company's success

or failure is thus closely linked to the following keys:

> The competitive strategy and all functional strategies must fit together to form a
> coordinated overall strategy. Each functional strategy must support other functional
> strategies and help a firm reach its competitive strategy goal. The different
> functions in a company must appropriately structure their processes and resources
> to be able to execute these strategies successfully.
> (Chopra and Meindl, 2001, 27)

An organization searches for all the characteristics that the supply chain

contributes; it is the idea of the trade-off between responsive and efficient supply

chain operation strategies (Chopra and Meindl, 2001) as shown in Figure 3.5.

Figure 3.5 Cost-responsiveness efficient frontier
(Source: Chopra and Meindl, 2001, 33)
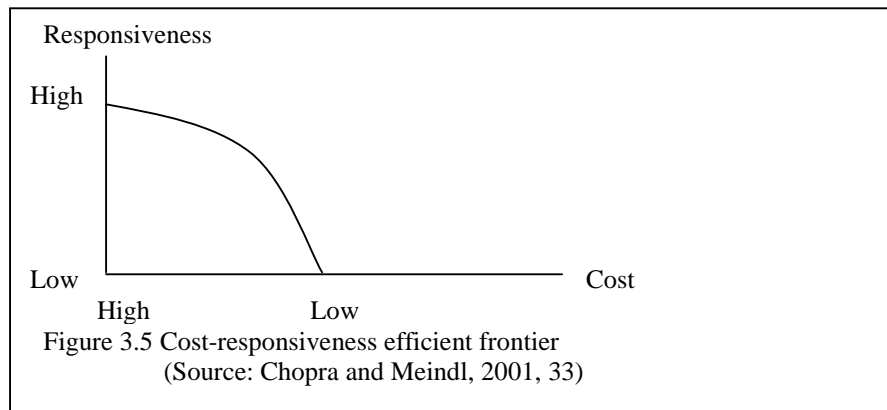
Basically, a responsive supply chain operation strategy is able to respond to wide

ranges of quantities demanded, meet short lead times, and meet a very high service

level. On the other hand, an efficient supply chain operation strategy focuses on the

cost of making and delivering a product to the customer. Moreover, Table 3.6 shows

the activities of the supply chain operation under efficient and responsive strategies.

Besides Fisher's (1997) supply chain operation strategy, this research proposes

three complementary strategies: liquidation, innovation, and divestiture. Efficient and

responsive supply chain operation strategies are applied to the maturity stage of PLC

and the introduction stage of PLC, respectively, but when products are located in the

decline stage, a company has to consider other strategies. They are introduced as

follows.

Table 3.6 Comparison of efficient and responsive supply chain operation strategies
(Source: Adapted from Fisher, 1997, 108)

	Efficient supply chain operation strategy	Responsive supply chain operation strategy
Primary goal	Supply demand at the lowest cost	Respond quickly to demand
Product design activity	Maximize performance at a minimum product cost	Create modularity to allow postponement of product differentiation
Pricing activity	Lower margins because price is a prime customer drive	Higher margins, as price is not a prime customer driver
Manufacturing activity	Lower costs through high utilization	Maintain capacity flexibility to meet unexpected demand
Inventory activity	Minimize inventory to lower cost	Maintain buffer inventory to meet unexpected demand
Lead time activity	Reduce but not at the expense of costs	Aggressively reduce even if the costs are significant
Supplier activity	Select based on cost and quality	Select based on speed, flexibility, and quality
Transportation activity	Greater reliance on low cost modes	Greater reliance on responsive modes
Service activity	Select based on lower cost	Service quality is just in time

● Liquidation: A company tries to obtain tangible values through gradually selling its

assets.

● Innovation: Innovation, as Schumpeter defined it, is "doing things differently in the

realm of economic life" (quoted in Geschka and Hubner, 1992, 4). According to the

degree of "intrinsic newness", three different kinds of innovation can be identified, i.e.

nominal, incremental, and radical. Radical innovation is a high degree of intrinsic

newness. In general, it is triggered off when the PLC of existing products comes to an

end or when companies discover that their products are in the declining stage of the

S-shape, as a way of enhancing their competitive advantage. An incremental

innovation involves a lower degree of intrinsic newness as the organization refines or

elaborates a radical innovation. A nominal innovation is an innovation in name only,

i.e., a new use of an existing computer system is only new for the organization

concerned at that moment. In another typology, three quite different contexts of

innovation appearance can be identified, namely, market, organization and technology

innovations. Geschka and Hubner explained,

> Market innovation refers to any new group of clients for the organization. We will call this kind of innovation radical,…when completely new clients…Organizational innovation deals with all new things within the organization,…innovation dealing with the organization's systems…e.g., accounting, or distribution system improvements,…Technological innovation is the kind of innovation that is most commonly referred to…We will call it process innovation, when it involves the creation, development, and implementation of a production technique; we will call it product innovation, when it deals with the creation, or development of a new product.
> (Geschka and Hubner, 1992, 5-6)

Therefore, an innovative company encourages learning which brings continuous

adjustment to its market, organization and technology innovation, in order to fit as

environmental forces and markets tend to decline.

• Divestiture: (as mentioned in Table 3.4)

The strategy fit for supply chain operation strategy and PLC is shown in Figure 3.6.

Generally, senior managers agree that a company must be aligned to its

environment. The question is, "Which external influence factors are the most relevant

for the company?" Senior managers also agree that the key question of SBUs is,

"How should a company be related to its environment to achieve success?" In

particular, what is the environment that must be adapted or adapted to, and what are

company resources? This interesting issue is discussed as follows.

	Competitive intensity of Five-forces		
	Low (0-0.4)	Moderate (0.3 -0.7)	High (0.6 -1.0)
Product life cycle (PLC)	Introduction stage	Growth stage	Maturity and decline stage
Supply chain operation strategy	Responsive strategy	Responsive and efficient strategy	Efficient, Liquidation, Innovation, Divestiture strategy

Figure 3.6 Strategy fit to supply chain operation and PLC
(Source: boundaries of low, moderate or high adapted from Efstathiou and Rajkovic, 1979; Chen and Hwang, 1992)

3.5 The Current Debate in Strategic Management

Basically, there is a major debate in strategic management, among the

competitive-force approach (outside-in perspective) and the resource-based approach

(inside-out perspective) and dynamic capabilities to strategy. Strategists of the

resource-based approach argue that strategies should not focus on external

opportunities, but on the company's internal strengths or unique competitive resources.

However, strategists of the competitive-force approach believe that companies should

take their environment as the starting point to determine their strategies, but not focus

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on self-centredness, namely the market-based approach (Chamberlin, 1933; Bain, 1965; Caves and Porter, 1977). As Porter (1980, 1985) points out, companies focus on a particular niche, and they can obtain beneficial market positions, even to the attainment of the lowest cost position and produce sustained profitability. Recently, strategy research has begun to focus on dynamic capabilities, which are based on the idea of core competencies but emphasize the role of management for building and reconfiguring these competencies to explain a rapidly changing environment (Teece *et al.,*1997; Harreld *et al.*, 2007; Simron *et al.*, 2008; Simron and Hitt, 2009) for improving firm performance (Kor and Mahoney, 2005; Sirmon et *al.*, 2007; Crook *et al.*, 2008; Sirmon and Hitt, 2009). The differences among the three approaches are shown in Table 3.7.

In fact, this is not a matter of accepting one and rejecting the other, which would be to accept a crisp divide between environment and organization. Rather, the argument should be that: the organization's analysis of its environment is, itself, part of the organization's core resource capability, which is its intelligence; and that managers need to take account of the way in which the organization acts on its environment as well as the way the environment acts on the organization. Thus, fuzzy logic needs to be employed rather than crisp logic. Similarly, although there is a tendency to think that markets are either competitive or cooperative, they also exist

with an intermediate approach as mentioned in Chapter 1 "co-opetition" meaning a

combination of cooperation and competition as a revolutionary way of thinking in an

organizational game strategy.

Table 3.7 The differences among competitive-force, resource-based, and dynamic capabilities approach (Source: Adapted from Wit and Meyer, 1998, 333)

	Competitive-force	Resource-based	Dynamic capabilities
Emphasis on	Markets over resources	Resources over markets	Building and adapting competencies
Orientation	Market/Industry-driven	Resources-driven	Learning-driven
Starting point	Market/Industry structure	Firm's resource infrastructure	Reconfigure its existing competencies
Fit through	Adaptation to environment	Adaptation of environment	Sense and sieze opportunities
Strategic focus	Attaining advantageous position	Attaining distinctive resources	Strategic fit among activities
Strategic moves	Market/Industry positioning	Developing resource base	Successfully reallocating resources
Tactical moves	Attaining necessary resources	Industry entry and positioning	Reallocating assets and learning new skills
Competitive weapons	Bargaining power and mobility barriers	Superior resources and imitation barriers	Composed of complementary processes with reallocate and reconfigure assets

The evolution of strategic thinking, from Five-forces to dynamic capabilities, has

developed three main paradigms for thinking about strategy. First, the

competitive-force framework of Michael Porter emphasizes a company has to create

defensible positions against competitors for obtaining competitive advantage. In other

words, the strategic problem a senior manager faces is one of industry structure, entry

deterrence, and positioning. The resource-based view of strategy, then, is that

competitive advantage stems from difficult-to-imitate firm-specific assets e.g.,

through efficient supply chains, and innovative products which meet customer needs

that can be applied to collect rents. Both views above are mostly static and focus on how companies compete at a single point in time. Finally, the dynamic capabilities perspective is that sustained competitive advantage stems from the company's ability to leverage and reconfigure its existing competencies and assets which are valuable to the customer but difficult for competitors to imitate.

In general, resources are limited but like the traditional resources of land, labour and capital, the intangible resources of knowledge and information can be expanded and enhanced through use. In addition, they can be shared without losing them. Therefore, strategists pursuing the resource-based idea and the dynamic capabilities ideas tend to underline the importance of the company's competences beyond its physical assets or tangible resources. These competencies of knowledge and information include logic concepts, learning and experience, ethics, organizational culture, communication skills of language, and planning capabilities. Moreover, Teece *et al*. (1997) argue that the term 'dynamic' emphasizes the capacity to renew competences so as to accomplish congruence with the changing competitive environment as the dynamic capabilities to seize market opportunities by reconfiguring both tangible and intangible assets to meet new customers' needs (Harreld *et al.*, 2007).

Each of both views to strategy intends to solve the perplexity of how a company

can defend itself against competitors by either developing specific skills and competencies to avoid rivals' imitations or niche positioning itself in ways to create differentiation from rivals. The dynamic capabilities, then focus on the need for organizations to change over time and compete in both emerging and mature businesses (Harreld *et al.*, 2007).

The formal planning view, as Cummings and Daellenbach (2009) note, is a sequence of steps, determining models, analysis, methods, objectives, the long term, policy and decisions that rule the acquisition and allocation of resources to fulfil organizational aims. Strategy formulation, basically, can emerge without any formal planning view, despite the finding by Glaister and Falshaw (1999), and there is even less commitment to strategy implementation. Cummings and Daellenbach (2009: 249) point out, "Planning has become a sub-concept of strategic/strategy, closer to process, organization and 'what managers do' than to external factors,…Planning's diminishing importance is signalled…Managers are increasingly interacting with the broader environment (other companies, firms, industries, relationships)."

Basically, a company tries to make a distinction with competitors, but this is simpler said than done (Kaplan and Norton, 2004) because successful strategy implementation depends on people's behaviour which leaders need to identify and foster, and possibly to make specific changes in behaviour. For effective strategy

implementation, the planning view emphasizes the participation of people is necessary for integrating strategy formulation and implementation. This is in contrast to traditional management science based on Taylor's time-and-motion studies, which aims to promote efficiency by controlling individuals' behaviour and compelling employees to comply with management dictates. Rather, people's logic thinking and communication, sharing learning of knowledge, integrating knowledge with cultural force, glamorous leadership style, and ideal interaction of stakeholders' relationships are integrated in the strategic planning view. In Kim and Mauborgne's (2003) words, engagement, explanation, and expectation clarity are used to build trust between employees and managers for promoting strategy implementation.

In a knowledge-based economy, knowledge sharing is the main priority in the learning view because employees apply knowledge in their work process (Kaplan and Norton, 2004; Cummings and Daellenbach, 2009) and are dependent on the trust, commitment and ideas of company employees (Kim and Mauborgne, 2003) which is in line with the idea of the ethical view: trust → commitment → empowerment → implementation, as mentioned in Chapter 2. Innovation is the main challenge of the knowledge-based economy; it requires the exchange of ideas and depends on trust in people (Kim and Mauborgne, 2003). People's intangible activities of creating and sharing knowledge can enhance strategy implementation capabilities. Unlike the

product-based economy (land, labour, and capital) knowledge is locked in people's minds and it will not be decreased by being shared with other departments and stakeholders. As Kaplan and Norton argue, "There is no greater waste than a good idea used only once. Most organizations have to go through a cultural change to shift individuals from hoarding to sharing their local knowledge. No asset has greater potential for an organization than the collective knowledge possessed by all its employees" (2004, 63) because strategy, ultimately, is linked to goals related to critical processes, for example, the people, the technology, and the organizational climate and culture required for successful strategy implementation (Kaplan and Norton, 2008). Hamel and Prahalad (1994) argue that emphasizing shareholder wealth encourages ethical falls rather than innovation. These ideas support the argument of this thesis that the planning view has to abandon out-dated thinking and adopt knowledge sharing (as in the learning view) through collective knowledge (the cultural view) and change organizational culture depending on the leadership style (the political view). Eventually, integration of the ethical view tries to seek stakeholders' support for launching strategy formulation and implementation. The differences between the planning view and the six-views, from basic objective to economy-orientation, are shown in Table 3.8.

Table 3.8 Planning view versus six-views

	Planning view	Six-views
Basic objective	Make a distinction	Make a distinction and make it happen simultaneously
Emphasis on	Strategy formulation	Strategy formulation and implementation
Starting point	Strategy orientation and resource allocation	Link strategic orientation and operation orientation to integrate resources
Role of departments	Functional distinction in different departments	Functional complementarity in different departments
Strategic budgets	With strategic budgets as a means of control	Combine planned spending procedures with innovative opportunities
Organizational infrastructure	A hierarchy of action programs	An organic flexible organizational structure for strategic moves
Economy-orientation	Production-based economy focuses on time-and-motion studies with hand.	Knowledge-based economy emphasizes on integrating sharing, creating and accumulating knowledge with hand and mind tandem.

3.6 Conclusion

This chapter described how an organization develops a corporation strategy which has to consider stakeholders' expectations and, further, to cultivate forms of strategic partnerships for collaboration between stakeholders. Six-views analysis can be used to explain the internal competence strengths or weaknesses and external competitive environment of the organization. The options of corporation strategy are based on six-views analyses.

Although Prahalad and Hamels' (1990) comment that a Five-forces framework cannot show strategic direction. Porter (2008) points out that Five-forces framework is still a useful way to analyse the competitive environment for understanding

industrial structure. Therefore, it is used to identify the competitive intensity of industry in the PLC stage of SBUs in the thesis. In turn, supply chain operation strategy could be explained in terms of Five-forces analyses by fuzzy if-then rules to form strategy fit for SBU and supply chain operation levels. Obviously, strategic management must involve the incorporation of system concepts to take account of the organization's resources combined with its competitive forces and to maintain good interaction with its stakeholders. In order to promote efficient achievement strategy formulation and implementation, therefore, the basic differences between the planning view and six-views are explained. In the next chapter, the analytic tools of the six-views model will be explained.

CHAPTER 4: CRITICAL SYSTEMS THINKING AND FUZZY LOGIC IN

STRATEGIC MANAGEMENT

4.1 Introduction

The strategic management process will be changeable and unpredictable. This justifies the use of critical systems thinking in strategic management. In this chapter, critical systems thinking is explored. Then, pluralistic thinking is connected to critical systems thinking and fuzzy logic, which are explained in turn. The summary at the end of this chapter draws together critical systems thinking and fuzzy logic approaches and briefly describes the implications for facilitating strategic management.

4.2 Critical Systems Thinking and Strategic Management

In this section, the distinction between machine-era thinking, and hard and soft systems methodologies is first clarified, then the nature of critical systems thinking is explained.

4.2.1 The Nature of Machine-era Thinking

A system is a set of two or more related elements. The essential properties of a system as a whole stem from the interactions of its parts rather than their actions taken separately. When a system is taken apart it loses its essential properties and cannot be recognized by analysis (Ackoff, 1981). Analysis, as Ackoff (1981) points out, includes three-stages. First, it takes apart the thing to be comprehended. Second, it tries to comprehend the behaviour of the parts taken separately. Third, it tries to combine this recognition into an understanding of the whole.

From the viewpoint of the machine-era, for something to be understood it has to be taken apart conceptually or physically. This view is based on the fundamental underpinning of machine-era thinking, called reductionism: all reality and our experience of it can be reduced to ultimate indivisible elements. However, this obviously raises the question, "is there any end to such a process?" (Ackoff, 1981, 16) All things are reducible to elements, so it is also believed that one simple relationship, cause-effect, is sufficient to explain all interactions. Nothing else is required to interpret it, not even the environment. This doctrine is called determinism. Therefore, it tries to develop understanding of natural phenomena without using the concept of the environment (Ackoff, 1981).

Such thinking fails to explain what strategic management of an organization does and how strategic management of an organization chooses to do it, in order to adapt to

current rapid changes in the environment. This is a problem that is increasingly recognized and has become a major concern for organizations. Because of the increasing interdependence of individuals, organizations, stakeholders and societies brought about by changes in communication, our environments have become more dynamic and complex. Managers must learn how to adapt more rapidly and effectively to the changes that occur in the strategic management of organizations. During the Industrial Revolution, the mechanization of work was promoted by reducing it to a set of simple elements. This is the source of one of the most critical problems facing us today. The nature of the workplace developed during the Industrial Revolution due to the application of the analytical method to work. However, now there are alternative ways of thinking about work, they should be welcomed today.

4.2.2 The Nature of Hard and Soft Systems Thinking

Systems thinking, as argued by Checkland (1981), can be seen as a reaction to the failure of natural science when confronted with complex problems set in social systems. Systems thinkers advocate using "holism" rather than reductionism in such situations. Holism respects the profound interconnectedness of the parts and concentrates on how these often lead to unforeseen outcomes in the form of emergent properties. It does not seek to break down complex problem situations into their parts in order to study them. In order to contribute to a "holistic" appreciation of the

problematic situation, different perspectives on its nature and possible resolution should be encouraged. In system-era thinking, systems parts are designed to fit each other so as to work together harmoniously for efficiency and effectiveness (Ackoff, 1981). Ackoff argues that systems thinking emphasizes three viewpoints.

> First, identify a containing whole (system) of which the thing to be explained is a part. Second, explain the behaviour or properties of the containing whole. Third, then explain the behaviour or properties of the thing to be explained in terms of its role(s) or function(s) within its containing whole.
> (Ackoff, 1981, 16)

Ackoff (1981) assertes that development of this complementarity is a major task of systems thinking. He points out, "If each part of a system, considered separately, is made to operate as efficiently as possible, the system as a whole will not operate as effectively as possible." (1981, 18) The performance of a system, therefore, depends more on how its parts interact than on how they act independently of each other.

In the 1970s, the interest in systems was focused on how they could be manipulated in order to better achieve whatever purposes they were designed to serve. Systems thinking, therefore, was dominated by the positivist and functionist characteristics of the scientific method. It included trends such as hard systems thinking (HST): organizations as systems, operations research, systems analysis and systems engineering. HST is a means of solving problems in a systematic way, applying a clear methodology to identify problems and to amend them through scientific modelling, rational testing, implementation and evaluation processes.

However, Ackoff (1981) believes that for many managerial problems, HST proved inadequate, as follows: first, it is unable to deal with multiple perceptions of reality. Second, the extreme complexity of "soft" systems and their environment frustrates aspirations of HST. Third, it is unable to deal with conflict and coercion.

HST clearly highlights three activities: first, setting objectives; then identifying a string of alternative solutions, and finally, finding the one solution that will be optimal to satisfy those objectives. The objective-seeking approach has been criticized as inappropriate by some systems thinkers (Flood and Carson, 1993). For example, boundaries and objectives are often difficult to define (Midgley *et al*., 1998). In Vickers' (1970) view, social systems are more usefully thought of as having relationships to be maintained rather than goals to be achieved.

The main purpose of soft systems methodologies (SSM) is to grasp the plurality of viewpoints and to generate meaningful debate between a wide variety of participants in order to promote learning and understanding. The need to develop SSM arose because hard means-end analysis was found to be inappropriate and ineffective for many messy situations encountered in management and organizational studies (Flood and Carson, 1993). Strategic management is faced with complex problems set in organizations. Complex problems involve richly interconnected sets of "parts" and the relationships between the parts can be more important than the

nature of the parts themselves. New "emergent" properties arise from the way the

parts are organized. In seeking to understand and intervene in organizations, people

are inevitably at the centre of the stage so that they can understand organizational

objectives and promote strategy formulation and implementation. It is necessary to

consider different beliefs and purposes, different evaluations of the situation, and the

utter incapacity of individuals to predict situations. For the reasons listed above, the

attempt to apply reductionism, and the natural scientific method in general, to

strategic management problems in organizations has not been an ideal one and has

yielded only limited success (Jackson, 2000).

Although each of the system approaches makes an important contribution in its

own right, none fully explores when the approach is most appropriately used. Jackson

(2000) explaines that this task has been left to a new direction of thought called

critical systems thinking (CST). With this we critically assess the question: which

methodology should be used and when?

4.2.3 Critical Systems Thinking

Critical Systems Thinking is based on Ulrich (1983), that both ideas of critical and

systems thinking are inadequate without the other. Critical thinking without system

boundaries will inevitably fall into the trap of continual expansion and ultimately loss

of meaning. However, systems without the critical idea may result in an unquestioned

hardening of the boundaries because the system boundaries are regarded as absolute.

As mentioned in the last section, this research finds that the different approaches were proper for tackling certain well-defined problems. However, they were found to have limitations when faced with complex problems involving people with a variety of perspectives and often at odds with one another (Jackson, 2000). Jackson argues,

> Critical systems thinking has supplied the bigger picture, has allowed systems thinking to mature as a trans-discipline, and has set out how the variety of methodologies…now available can be used in a coherent manner to promote successful intervention in complex organizational and society problem situations. (Jackson, 2000, 355)

However, Midgley *et al*. (1998) and Midgley (2003) explained that CST can be seen as an evolving debate around a set of issues including critical awareness, improvement and methodological pluralism that are considered important by a number of systems practioners. In other words, CST emphasizes dynamism and continued development in line with Churchman's (1979) concept of improvement. In terms of CST Midgley (2003) mentions that there is a substantial amount of common ground with Jackson.

Therefore, the nature of critical systems thinking, including "critical awareness in systems thinking," "system of systems methodologies," "emancipatory thinking or improvement" and "applying methodological pluralism in management science," will be discussed as follows.

(1) Critical awareness

Critical systems thinking derives from the criticisms raised at proponents of particular systems methods by advocates of other approaches. For example, hard systems thinking is criticized by soft systems thinkers (Checkland, 1978; Ackoff, 1981) who explain that hard systems thinking is guided by functionalist assumptions. Soft systems methodologies are based on interpretive assumptions. Jackson highlights, "The significance of the social sciences in enabling critical awareness deserves emphasis. Of particular importance has been work that allows an overview to take different ways of analyzing and intervening in organizations." (2000, 356) There are three interlinked forms of critical awareness. Firstly, critical thinking involves methodology to promote effective development of meta-theories. Secondly, critical thinking involves the critical use of methodology. Finally, critical awareness, basically, supports the commitment to emancipation. Midgley (1996) also points out that critical awareness is through ethical critique, where power relations can be understood and importance defined. Therefore, several authors have examined the meaning of critical by accessing a diverse variety of stakeholder views in defining problems and setting boundaries (Midgely *et al*., 1998; Midgley, 2003)

(2) The system of systems methodologies

The benefit of holistic analysis is to make clear that each methodology will help us to deal with some management issues. No single methodology has been developed that

is sufficient to tackle the wide variety of issues in organizations. Efforts along these lines include the work, "Towards a System of Systems Methodologies (SOSM)" (Jackson and Keys, 1984). The approach is the development of a grid into which management and organizational issues may be classified. Using the grid this research can critically assess how well system-based methodologies will face up to various types of management issues. The SOSM, therefore, provides the basis for choice of methodology appropriate to tackle the complex problems. However, CST is borrows methods from other methodologies as part of its practices. These methods, therefore, never remain the same as their creators intended so that they are imbued with new assumptions. Thus, it is difficult to translate into methodology, except through their use of the methodology of critical systems heuristics when coercion is identified (Midgley, 2003).

The grid has two dimensions, as shown in Figure 4.1. The first dimension of the grid marks a distinction between situations that are perceived to be either simple or complex, corresponding to Ackoff's (1974) concepts – "machine-era" and "systems-era." The second dimension of the grid reflects the nature of the relationship between the participants. The main characteristic looked for is the degree of consensus-dissension among them.

		Participants		
		Unitary	Pluralist	Coercive
systems	Simple	Hard	Soft systems thinking	Emancipatory systems thinking
	Complex	Organizations as systems Organizational cybernetics		

Figure 4.1 Preliminary classification of systems approaches according to the
assumptions they make about problem contexts
(Source: Jackson, 2000, 361)

If agreement on a common set of goals for the system is achieved, then the relationship is placed at "unitary." If the relationship is not unitary but among the conflicting viewpoints of different interest-groups, further compromise can be negotiated, then it is placed at "pluralist." If, however, the conflict is resolved by bringing power to bear, then the relationship is placed at "coercive" (Flood and Carson, 1993).

(3) Emancipatory thinking or improvement

The SOSM leads to better critical systems thinking by incorporating emancipatory approaches. Critical systems thinking is linked to Habermas's theory of three human interests: the technical, practical and emancipatory. Jackson (2000) notes that critical systems thinkers propose exactly what they want to perform. Hard systems approaches are placed to work for supporting the technical interest by improving the productive potential and steering capacities of social systems. Soft systems methodologies serve to achieve practical interest in promoting and expanding mutual understanding among the individuals and groups participating in social systems.

Critical approaches work to assist the emancipatory interest in freeing ourselves from restrictive power relations. However, it is worth mentioning that "human emancipation" can be described as the promotion of human well-being separate from consideration of the environment because it is difficult to change people's life-styles. It may cause nothing to encourage people to challenge the automatic prioritization of a human boundary in systems practice (Midgley, 2003). In terms of human emancipation, Jackson (1991) proposes that critical system thinking is devoted to human emancipation and seeks to achieve, for all individuals, the maximum development of their potential. This is to be accomplished by increasing the quality of work and life in the organizations and societies in which they participate. Therefore, according to all the strengths and weaknesses of approaches, critical systems thinking can be seen to integrate different systems approaches to work and achieve a more general project of improvement (Jackson, 2000; Midgley, 2003).

(4) Applying methodological pluralism in management science

Jackson (2000) believed that the rise of pluralism in systems thinking and practice is inseparable from the emergence of critical systems thinking. Pluralism, therefore, was established as a central tenet of critical systems thinking, which encouraged mutual respect between the proponents of different approaches. Linstone's (1984) book, *Multiple Perspectives for Decision Making*, and Jackson and Key's (1984) proposal of

SOSM, both supported pluralist thinking. Linstone's form of multi-perspective research, including technical, societal and individual perspectives was focused on obtaining a richer appreciation of the nature of problem situations. The different perspectives were most powerfully engaged when they were clearly differentiated from one another in terms of the emphasis of analysis, but were used together to quiz the same complex problem (Linstone, 1984). However, two perspectives may reinforce one another but may equally cancel each other out. Thus, a weakness of the approach is that the three perspectives are all employed within the logic of the functionalist paradigm (Linstone, 1984). Jackson (2000) noted that another limitation concerns the manner of employing pluralism to analyse complex problems, whereby it might be used to change problem situations, rather than think them through.

The problem, however, is one of interpretation, rather than with pluralism itself. Pluralism was advocated for the different lines of management science and is necessary as a support for the cognitive interests of the human species, in line with Habermas's theory of human interests as a fundamental interest in "predicting and controlling" the nonhuman environment rather than building and protecting a sustainable, interactive relationship with it. A different vision of CST from, Midgley's (1996) argument, Habermas's knowledge-constitutive interests should be abandoned, but this leaves us needing a new ontological or epistemological theory to underpin the

practice of methodological pluralism without making the assumption that human

beings have an inherent interest in "predicting and controlling" the natural world.

Therefore, Midgley *et al*. (1998) emphasize that the commitment to critical awareness

is defined by the ethical critique of boundaries, and constantly enhance both the

theory and practice of boundary critique against Flood and Jackson's vision that

boundary critique is redundant in situations where coercion has not been identified,

for example: whose views do we consider? Therefore, the above questions will

involve the researcher and other interested parties in making critical boundary

judgments. Moreover, it is the tendency to give uncritical priority in interventions to

an organizational boundary (Midgley, 2003).

Besides, Flood and Jackson's vision claims CST as "meta-paradigmatic" (Flood,

1990) and Flood (1990) accepts the incommensurability argument. Therefore, this

stand is in opposition to his claim, as CST is "meta-paradigmatic", namely critical

systems thinkers cannot learn from other paradigms but it does make the claim to a

meta-paradigmatic status problem (Midgley, 2003). Jackson (2000) argues that

pluralism provides the best way of reorganizing management science as a cohesive

discipline and profession. Given that critical systems thinking is clearly committed to

critical awareness, using different systems approaches to work and their associated

systems methodologies, it could support that all these various interests would have an

important role in human improvement.

From the discussion above, this research believes that applying the pluralistic concept of critical systems thinking with Jackson (2000) and Midgley's (2003) views, to incorporate the six-views will promote strategy formulation and implementation successfully.

4.3 Critical Systems Thinking and Fuzzy Logic

In this section, fuzzy logic is introduced first. The relationship between critical systems thinking and fuzzy logic is discussed later. Finally, the challenge of fuzzy if-then rules for audit of six-views, identifying stages of PLC, and supply chain operation strategy is explained.

4.3.1 Fuzzy Logic

Fuzzy logic (or set) not only gives people a powerful tool for measurement of uncertainties, but also offers meaningful vague concepts expressed in natural language. Jan Lukasiewicz, a Polish mathematician during the 1920s, developed the basic idea of multi-valued logic. Forty years later, in 1965, it was expanded upon and called fuzzy set theory by Lotifi A. Zadeh (Treadwell, 1995). The evolution of fuzzy logic is shown in Appendix B. This theory challenges Aristotelian two-valued logic.

Treadwell defines fuzzy logic as that which

> Allows one to express uncertainty within a rule---inexact reasoning system---such that a fuzzy logic conclusion is not stated as either true or false, but as being possibly true to a certain degree. The degree of certainty is called the truth value. Fuzzy set theory uses only the numeric interval of 0 to 1: FALSE: Truth value = 0; TRUE: Truth value = 1; UNCERTAIN: 0< Truth value <1.
> (Treadwell, 1995, 93)

(1). Fuzzy sets and membership function

• Fuzzy sets: Kosko explains, "A fuzzy set allows partial membership. An object can belong to a set to any degree or 'shade of gray' between 0% and 100%." (1999, 7) Fuzzy sets and fuzzy numbers are usually used (Bojadziev and Bojadziev, 1997) to model words of fuzzy logic such as profit and management.

• Classical sets: The formal development of set theory began in the late 19th century with the work of George Cantor (1845-1918), one of the most original mathematicians in history. Cantor's sets are crisp. Each element under consideration either belongs to a set or it does not. The boundary of a set is rigid and well defined. However, in real life, many things are fuzzy rather than crisp (Bojadziev and Bojadziev, 1997).

The concept of a set or collection of objects is common in everyday experience; for instance, all students listed in a certain University; all employees in a company. The objects in a set are called elements or members of the set. Classical sets are also called ordinary or crisp in order to be distinguished from fuzzy sets (Bojadziev and

Bojadziev, 1997). The fundamental notion in set theory is that of belonging or membership. For each object x there are two possibilities: either x belongs to A or it does not. It is written $x \in A$ or $x \notin A$.

The set is described by one or more properties to be satisfied only by objects in the set:

A={x | x satisfies some properties}.

The set of all objects under consideration in a particular situation is called the universal set or universe; it will be denoted by U.

• Membership Function: The membership rule that characterizes the elements (members) of a set $A \subset U$ can be established by the concept of membership function.

$$\mu_A(x) = \begin{cases} 1 & for & x \in A, \\ 0 & for & x \notin A. \end{cases} \qquad (4.1)$$

Hence, $\mu_A(x) \in \{0,1\}$. Inversely, if a function $\mu_A(x)$ is defined by (4.1), then it is the membership function for a set $A \subset U$ in the sense that A consists of the values of $x \in U$ for which $\mu_A(x)$ is equal to 1. In other words, every set is uniquely determined by its membership function. A paradox coming from ancient Greece caused serious problems to logicians and mathematicians (Bojadziev and Bojadziev, 1997; Kosko, 1999). For example, consider a heap of peanuts; when one peanut is left, what happens to the heap? Is it still a heap? When the last peanut is removed and there is nothing, does the heap cease to be a heap? In the crisp set theory, such dilemmas are

solved by appropriate assumptions or by degree. In the case of the heap, a certain

natural number x is selected; if the number of peanuts is $\geq$ x, then the peanuts

constitute a heap; x-1 peanuts does not form a heap anymore. Also, how is the number

x selected? Is it 3, 199, or 1000 or larger? The concept "heap" is a vague one.

Bojadziev and Bojadziev (1997) suggest that, therefore, a tool that can tackle

vagueness is necessary. The concept of fuzzy set, a generalization of Cantor's sets, is

such a tool.

(2). Fuzzy numbers: Jain (1976) and Dubois and Prade (1978) point out that fuzzy

numbers have some properties as follows: one fuzzy number $\tilde{A}$ is a fuzzy set whose

membership function is $\mu_{\tilde{A}}(x): \Re \rightarrow [0, \ 1]$. Its characteristics are

① $\mu_{\tilde{A}}(x)$ is continuous;

② $\mu_{\tilde{A}}(x)$ is a convex set;

③ $\mu_{\tilde{A}}(x)$ is normalized fuzzy set, namely, $\exists$ real x_0 $\ni \mu_{\tilde{A}}(x_0) = 1$

Figure 4.2 shows two fuzzy numbers, the detailed explanation is as follows:

Figure. 4.2 Fuzzy numbers: (a) Trapezoidal; (b) Triangular.
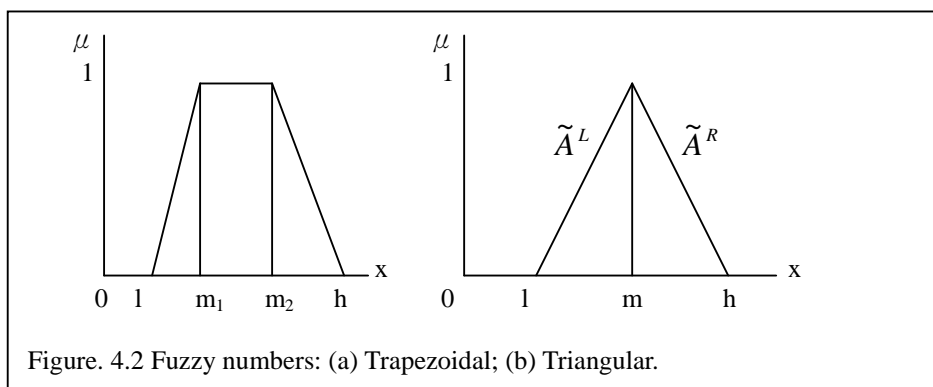
• Trapezoidal fuzzy numbers: One trapezoidal fuzzy number $\tilde{A}$ is defined on $\mu_{\tilde{A}}(x)$.

It is a particular case of a fuzzy number with a flat segment. The supporting interval is

$\tilde{A}$ = [l, h] and the flat segment on $\mu_{\tilde{A}}(x)$ = 1 has projection [m_1, m_2] on the x-axis.

With the four values l, m_1, m_2, and h, it can be denoted by

$$A = (l, m_1, m_2, h). \qquad\qquad (4.2)$$

If m_1= m_2 = m, the trapezoidal number reduces to a triangular fuzzy number and

is denoted by (l, m, m, h). Hence, a triangular fuzzy number (l, m, h) can be written in

the form of a trapezoidal number, i.e. (l, m, h) = (l, m_1, m_2, h).

• Triangular fuzzy numbers: A triangular fuzzy number can fit the above mentioned

three conditions (continuous, convex set and normalized fuzzy set) as is shown in

Figure 4.2 (b) and its membership function is:

$$\mu_{\tilde{A}}(x) = \begin{cases} (x-l)/(m-l), & l \leq x \leq m \\ (x-h)/(m-h), & m \leq x \leq h \\ 0, & other \end{cases}$$

TFN has a membership function consisting of two linear segments $\tilde{A}^L$ (left) and

$\tilde{A}^R$ (right) joined at the peak (m, 1) which makes graphical representations and

operations with triangular numbers very simple (Kosko, 1999).

Assume while dealing with an uncertain value that people are able to specify the

smallest and largest possible values, i.e. the supporting interval $\tilde{A}$ =[l, h]. If further

people can indicate a value m in [l, h] as most plausible to represent the uncertain

value, then the peak will be the point (m, 1). Hence, with the three values l, h and m,

it can be denoted by

$$\tilde{A} = (l, m, h). \qquad\qquad (4.3)$$

Liang and Wang (1991) refer to properties of TFN and Zadeh (1965) proposes an extension of the principle whereby both TFN $\mu_{\tilde{A}_1}(x) = (l_1, m_1, h_1)$ and $\mu_{\tilde{A}_2}(x) = (l_2, m_2, h_2)$ can be operated by algebra as follows:

① Addition of fuzzy numbers: $(l_1, m_1, h_1)+(l_2, m_2, h_2)=(l_1+l_2, m_1+m_2, h_1+h_2)$

② Subtraction of fuzzy numbers: $(l_1, m_1, h_1)-(l_2, m_2, h_2)=(l_1-l_2, m_1-m_2, h_1-h_2)$

③ Multiplication of fuzzy numbers:

$(l_1, m_1, h_1) \times (l_2, m_2, h_2)=(l_1 \times l_2, m_1 \times m_2, h_1 \times h_2)$

$k \times (l_1, m_1, h_1)=(k \times l_1, k \times m_1, k \times h_1) \quad k \in \Re$

④ Division of fuzzy numbers: $(l_1, m_1, h_1)/(l_2, m_2, h_2)=(l_1/l_2, m_1/m_2, h_1/h_2)$

Bojadziev and Bojadziev explain "Triangular fuzzy numbers are very often used in the applications (fuzzy controllers, managerial decision-making, business and finance, social sciences, etc.)." (1997, 22) As a survey of the six-views, TFN is used to represent questionnaire answers in this research in which five fuzzy sets are defined within a finite universal set that consists of five linguistic variables levels: strongly disagree, disagree, neutral, agree, and strongly agree.

Membership functions of the five fuzzy sets, which attempt to capture the concepts of five linguistic variables, are defined in Figure 4.3 and Table 4.1. This

research uses the five linguistic variables from "strongly disagree" to "strongly agree", scored in the range at 0 to100 to explain the opinions of senior managers by TFN. The significance of fuzzy variables is that they facilitate gradual transitions between states and, consequently, possess a natural capability to express and deal with observation and measurement of uncertainties. However, there are two points worth noting. First, TFN is not sure symmetry for the decision of membership functions of TFN. Its decision, in fact, is based on the experience of experts rather than arbitrary decision. Another limitation is that we need to be careful in selecting the method of defuzzification, in order to boost the reliability of fuzzy calculation.

Figure 4.3 Membership functions for characterizing fuzzy sets of five linguistic variables
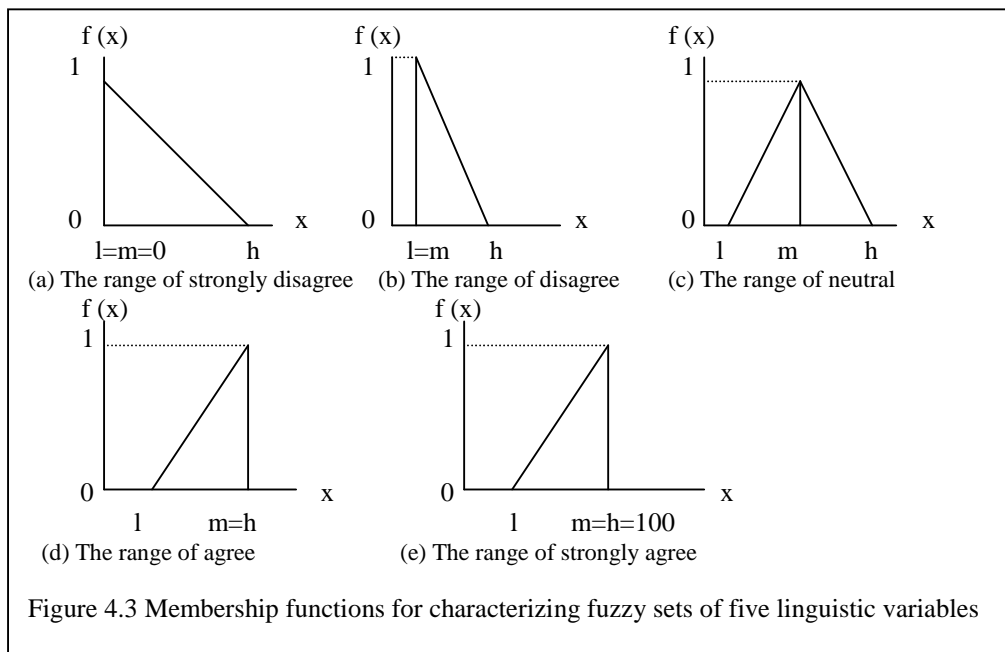
(Note: l represents low; m represents moderate; h represents high; $0 \le x \le 100$)

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Table 4.1 Membership functions of five linguistic variables

(a) Membership function of "strongly disagree"
$f(x)=\begin{cases}(x-h)/(m-h), & m \le x \le h, \quad m=l=0 \\ 0, & other\end{cases}$
(b) Membership function of "disagree"
$f(x)=\begin{cases}(x-h)/(m-h), & m \le x \le h, \quad m=l>0 \\ 0, & other\end{cases}$
(c) Membership function of "neutral"
$f(x)=\begin{cases}(x-l)/(m-l), & l \le x \le m \\ (x-h)/(m-h), & m \le x \le h, \quad m=(l+h)/2 \\ 0, & other\end{cases}$
(d) Membership function of "agree"
$f(x)=\begin{cases}(x-l)/(m-l), & l \le x \le m, \quad m=h<100 \\ 0, & other\end{cases}$
(e) Membership function of "strongly agree"
$f(x)=\begin{cases}(x-l)/(m-l), & l \le x \le m, \quad m=h=100 \\ 0, & other\end{cases}$

4.3.2 Relation of Critical Systems Thinking in line with Fuzzy Logic

Crisp logic involves two values, namely, either 1 or 0 such as separate strategy formulation and implementation. However, this research emphasizes combining strategy formulation and implementation. There is here an important link between fuzzy logic and critical systems thinking in which the high tension of the boundary of system is considered. This can extend to concern with fuzzy logic, which will be explored next. Kosko indicates that "Fuzzy does not make us choose between the claims that the sky is blue or that it is not blue. Fuzzy lets us say that the sky is both blue and not blue to some degree." (1999, 3)

These ideas can relate to the current work, which tries throughout to cultivate fuzzy thinking, that is, a company need not only consider "competition" or "cooperation", essential, it should pay attention to "competition" and "cooperation". Fuzzy logic, therefore, can be viewed as an extension of critical systems thinking which highlights the holistic and pluralistic need to tackle complex problems of organizations.

(1) Fuzzy logic application to a realistic society: Fuzzy logic helps in describing, analyzing, understanding and eventually working with the paradoxical and chaotic nature of social systems (Dimitrov, 1997). Dimitrov reports that the application of fuzzy logic to social systems creates opportunities to examine: "Contradictions and inconsistencies embedded in social situations; issues that have been repressed under critical social dynamics; and that which is concealed and beyond observed social phenomena." (1997, 1)

Kaufmann and Gupta (1988) adapted current system theory models into the context of fuzzy logic models and used triangular fuzzy numbers to tackle zero-base budgeting. Yager's (1980) technique for multi-objective decisions may be appropriate in determining which fuzzy-derived zero-base budget to accept. Yager's (1980) position is that decision-makers do not have a set of multi objectives which always meet all of the desired requirements. Consequently, the situation is not one for which

a particular set of objectives will satisfy the decision-maker completely, although each

of the decision sets will provide a certain degree of satisfaction to the decision-maker.

Dimitrov asserts that fuzzy logic is suited to study such 'subtleties' in social systems

because of its ability to:

- Deal with vague, ambiguous and uncertain qualitative ideas and judgments;
- Concentrate on paradoxical and enigmatic aspects of decision situations;
- Focus on the margin of any decision making 'space';
- Appreciate the uniqueness in any decision making act.
  (Dimitrov, 1997, 1)

In collecting information from senior managers, a typical problem is the

tendency of questionnaires to employ vague linguistic variables. Fuzzy logic differs

significantly from the conventional approach. It can show the degree of response of

respondents and compare the six-views with a range rather than a single number. This

thesis, therefore, adopts triangular fuzzy numbers to deal with the measurement of

questionnaires.

(2) Fuzzy rules and fuzzy logic controls (FLC) for business and management

Key concepts for the foundation of FLC were laid in Zadeh's paper, "Outline of a new

approach to the analysis of complex systems and decision processes," (1973, 28)

which argues that the dominant role is performed by the animate rather than inanimate

behaviour of system components. The ideas emerged in the 1973 conference on

systems approaches and environment problems (Zadeh, 1996). The key ideas

introduced were those of a linguistic variable, the fuzzy if-then rules and a fuzzy

graph. These ideas are today what underlie most of the applications of fuzzy logic for

control (Zadeh, 1996; Dimitrov, 1997). FLC methodology has been developed mainly

for the needs of industrial engineering.

> It will show how decisions can be made by using and aggregating if…then
> inferential rules. Instead of trying to build conventional mathematical models, a
> task almost impossible when complex phenomena are under study, the presented
> methodology creates fuzzy logic models reflecting a given situation in reality and
> provides solution leading to suggestion for action.
> (Bojadziev and Bojadziev, 1997, 127)

The classical control methodologies developed mainly for engineering are

usually based on mathematical models of the objects to be controlled. However, the

use of mathematical models has given rise to the question of how accurately they

reflect reality. For example, operations research in management science uses

mathematical models to tackle problems of management. However, in complicated

cases, the construction of such models might be impossible, in particular, as

Bojadziev and Bojadziev indicate, "This is especially true for business, financial, and

management systems, which involve a great number of interaction factors, some of a

social-psychological nature." (1997, 128)

Fuzzy logic models employ fuzzy sets to handle and describe imprecise and

complex phenomena and use logic operations to arrive at conclusions (Bojadziev and

Bojadziev, 1997; Kosko, 1999). Moreover, Bojadziev and Bojadziev note,

> Fuzzy sets (in particular fuzzy numbers) and fuzzy logic are applied to control
> problems from a field of knowledge called fuzzy logic control. It deals with

control problems in an environment of uncertainty and imprecision; it is very effective when high precision is not required.
(Bojadziev and Bojadziev, 1997, 128)

Approximating human judgment in common sense reasoning, FLC uses linguistic values framed in if-then rules. The implementation of FLC requires the development of a knowledge base which would make possible the stipulation of if-then rules by using fuzzy sets (Kosko, 1994, 1999; Bojadziev and Bojadziev, 1997). An important role here is played by the experience and knowledge of human experts. They should be able to state the objective of the system to be controlled (Bojadziev and Bojadziev, 1997). FLC is effective when a good solution is sought; it cannot be used to find the optimal solution. However, in the real world it is difficult to determine what is meant by the best and the complexity of the world suggests that all solutions are universally non-optimal, even if locally optimal. Dimitrov examines how fuzzy logic can deal with paradoxes and chaos:

> ① How does fuzzy logic help deal with social paradoxes? Simply by tolerating opposites, by balancing them to such degrees that they cease to cancel each other out and become complementary. Such a fuzzy framework created in the management practice can meaningfully transform expressions like 'collaboration OR competitiveness' into 'collaboration AND competitiveness.'
> ② How does fuzzy logic help deal with chaotic patterns of behaviour in social systems? Fuzzy logic helps deal with chaotic patterns of behaviour in social systems by generating fuzzy rules (heuristics)…what is excluded, what is not seen in the patterns, 'what is not there' becomes important in constructing a list of fuzzy rules to describe and grab 'what is there', what is in the core of the system.
> (Dimitrov, 1997, 2)

As Kaplan and Norton (1996) point out, a strategy can be described as a series of

hypotheses about cause-effect relationships by means of if-then declarations. Based

on these ideas, if-then rules are applied to develop strategic thinking, combine

strategy formulation and implementation, and integrate stakeholders' expectations

and corporate social issues for stakeholders' performance in this thesis.

(3) The FLC system algorithm

Altrock describes the complete structure of a FLC system as, "Once all input variable

values are translated into respective linguistic variable values, the "fuzzy inference"

step evaluates the set of "If-Then" rules that define the evaluation." (1997, 36) FLC

systems include three primary procedures: fuzzification, inference and defuzzification

as shown in Figure 4.4.

Figure 4.4 Structure of a FLC system for computation (Source: Altrock, 1997, 37)
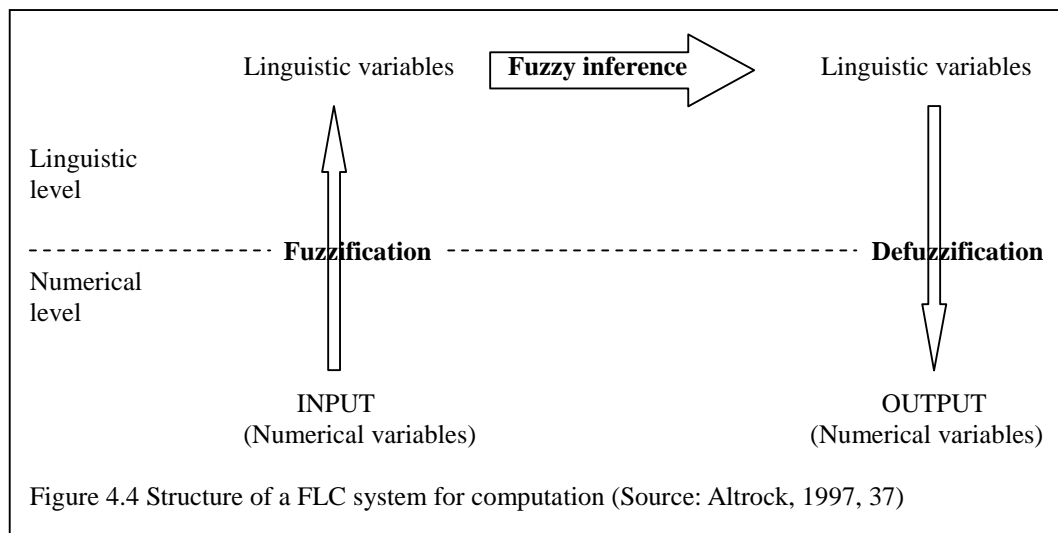
① Fuzzification using linguistic variables

Linguistic variables have to be defined in order for all variables to be used in the

if-then rules. The possible values of a linguistic variable are called terms or labels. For

every linguistic variable, each term is defined its membership function for input variables.

② Inference using if-then rules

When all numerical input values have been transformed to linguistic values, the fuzzy inference step can recognize the rules that apply to the current situation and can compute the values of the output linguistic variables. Altrock (1997) points out that the computation of the fuzzy inference comprises two components:

Aggregation: computation of the 'if' part of the rules

Composition: computation of the 'then' part of the rules

Aggregation

The 'if' part defines whether or not the rule is valid for the current situation. In conventional logic, the combination of the conditions can be computed by the Boolean 'And'. However, the Boolean 'And' cannot be used for FLC systems since it cannot tackle conditions that are "more-or-less" true. Therefore, 'And', 'Or', and 'Not' (three new operators) have been defined for FLC systems to represent logical connectives. The three operators are used in the majority of the system applications:

And: $\mu_{A \wedge B} = \min\{\mu_A ; \mu_B\}$

Or: $\mu_{A \vee B} = \max\{\mu_A ; \mu_B\}$

Not: $\mu_{\neg A} = 1 - \mu_A$

using the min operator to represent the logical 'And'. The results are the degree of truth of the 'if' parts and so indicate each rule is adequate for the current situation.

Composition

Each rule defines the evaluation result for a certain prototypical situation in the 'then' part. The degree to which the evaluation result is valid is given by the adequacy of the rule for the current situation. This adequacy is computed by the aggregation as the degree of truth of the 'if' part. In some applications, a linguistic interpretation of the result is sufficient when the result is used to provide a qualitative answer. On the other hand, a numerical value as output is required, for example, to rank cases, so a defuzzification step must follow the FLC system inference.

③ Defuzzification using linguistic variables

At the end of the fuzzy logic inference, the result is given as a linguistic variable value. To use this value for comparisons or ranking, it has to be translated into a numerical value. This step is called defuzzification. Commonly, there are three methods of defuzzification as follows.

•Mean of maximum method (MMM). This is a simple formula but not very accurate.

•Height defuzzification method (HDM). This is a generalization of the mean of maximum method.

•Centre of area (COA) method. This method of defuzzification, perhaps the most

popular, is quite natural from the point of view of common sense. This method first

cuts the membership function at the degree of validity of the respective term. The

areas under the resulting functions of all terms are then superimposed. Balancing the

resulting area gives the compromising value (Altrock, 1997). The COA, therefore,

will be used for defuzzification in the thesis. According to Hellendoorn and Thomas

(1993) propose that the centroid method calculates defuzzification via the following

formula:

$$\overline{D}\overline{S}_j = \frac{\int_{-\infty}^{\infty} x\mu_{\hat{x}_i}(x)dx}{\int_{-\infty}^{\infty} \mu_{\hat{x}_i}(x)dx}$$

When a fuzzy number, however, is equal to one single triangular fuzzy number the

formula $\hat{A} = [L, M, H]$ as (4.4) or three membership functions as (4.5) or five

membership functions as (4.6), then the formulae of defuzzification are respectively

as follows:

$\overline{D}\overline{S}_j = $ (H+M+L)/3, namely, the average…. (4.4)

(The centroid value of low×the area of low according to its degree) + (The
centroid value of moderate×the area of moderate according to its degree)
+ (The centroid value of high×the area of high according to its degree) ÷
(the area of low according to its degree + the area of moderate according to
its degree + the area of high according to its degree)…..(4.5)

(The centroid value of very weak×the area of very weak according to its
degree) + (The centroid value of weak×the area of weak according to its
degree) + (The centroid value of moderate×the area of moderate according
to its degree) + (The centroid value of strong×the area of strong according
to its degree) + (The centroid value of very strong×the area of very strong
according to its degree) ÷ (the area of very weak according to its degree +
the area of weak according to its degree + the area of moderate according
to its degree + the area of strong according to its degree + the area of very
strong according to its degree)…… (4.6)

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The formula (4.4) will be used to measure the questionnaire data in section 6.3. The formula (4.5) is used for defuzzification measuring of employee satisfation and customer satisfaction. The formula (4.6) is used for defuzzification of strong or weak degree in Five-forces analysis, the six-views and stakeholders' performance.

4.3.3 Environmental Foresight and Strategic Thinking with Fuzzy If-then Rules

Fuzzy if-then rules can be expressed as composed of three major components including audit of six-views, competitive environment analysis, and supply chain operation strategy as shown in Table 4.2.

Table 4.2 Three major components with fuzzy if-then rules

Audit of six-views
Competitive environment analysis
Supply chain operation strategy

Audit of Strategic Management with Six-views

Five linguistic variables including very weak (VW), weak (W), moderate (M), strong (S), and very strong (VS) were used to rate two inputs: the planning view with "☆PLV" and the integrated five-views with "☆five-views", and one output: strategic management with "★six-views" by the same membership functions as shown in Figure 4.5. To identify strengths or weaknesses of strategic management by combining the planning view and the integrated five-views, a decision table of if-then rules was used, as shown in Table 4.3. The rules are designed to produce or have as a conclusion or consequence ($5 \times 5 = 25$), different outputs as shown in Table 4.4.

$$\mu(PLV)\,or\,\mu(\,five-views)\,or\,\mu_{agg}\,(SM)\,\mu(Ff\,)$$
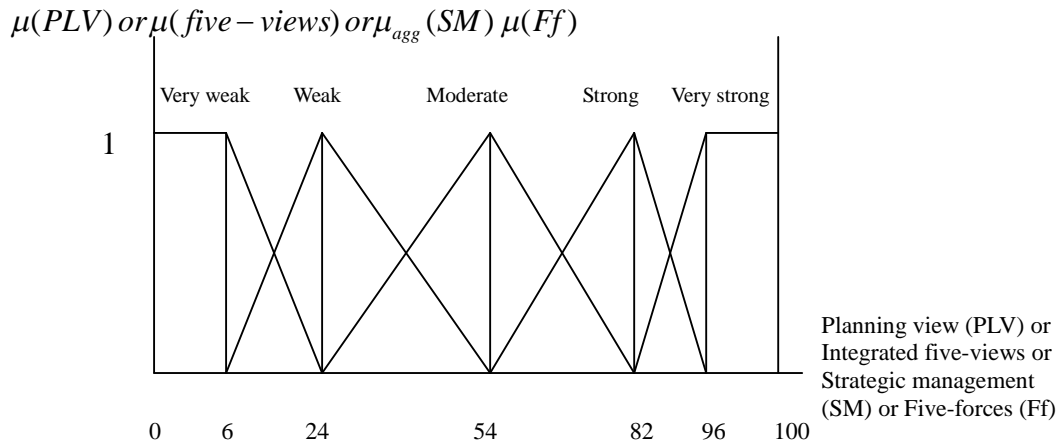
Figure 4.5 The membership functions of the inputs planning view and integrated
five-views, and outputs strategic management with six-views
(Source: from Appendix M)

Table 4.3 Decision table: If-then rules for strategic management

Strategic management		Planning view				
		VW	W	M	S	VS
Integrated five-views	VW	VW	VW	W	M	M
	W	VW	W	W	M	M
	M	W	W	M	S	S
	S	M	M	S	S	VS
	VS	M	M	S	VS	VS

Table 4.4   Twenty-five if-then rules for strategic management

Rules	If: Condition			Then
	Planning view	Integrated five-views	Operator ∧ (min)	Strategic management Operator ∨ (max)
Rule 1	VS	VS	Min {VS, VS}=VS1	Max{VS1, VS2, VS3}=VS
Rule 2	VS	S	Min{VS, S}=VS2	
Rule 3	S	VS	Min{S, VS}=VS3	
Rule 4	M	VS	Min{M, VS}=S1	Max{S1, S2, S3, S4, S5}=S
Rule 5	S	S	Min{S, S}=S2	
Rule 6	VS	M	Min{VS, M}=S3	
Rule 7	M	S	Min{M, S}=S4	
Rule 8	S	M	Min{S, M}=S5	
Rule 9	W	VS	Min{W, VS}=M1	Max{M1, M2, M3, M4,M5, M6, M7, M8, M9}=M
Rule 10	W	S	Min{W, S}=M2	
Rule 11	M	M	Min{M, M}=M3	
Rule 12	VS	W	Min{VS, W}=M4	
Rule 13	W	VS	Min{W, VS}=M5	
Rule 14	VW	VS	Min{VW, VS}=M6	
Rule 15	VW	S	Min{VW, S}=M7	
Rule 16	VS	VW	Min{VS, VW}=M8	
Rule 17	S	VW	Min{S, VW}=M9	
Rule 18	VW	M	Min{VW, M}=W1	Max{W1, W2, W3, W4, W5}=W
Rule 19	W	M	Min{W, M}=W2	
Rule 20	M	W	Min{M, W}=W3	
Rule 21	W	VW	Min{W, VW}=W4	
Rule 22	W	W	Min{W, W}=W5	
Rule 23	VW	W	Min{VW, W}=VW1	Max{VW1, VW2, VW3}=VW
Rule 24	W	VW	Min{W, VW}=VW2	
Rule 25	VW	VW	Min{VW, VW}=VW3	

In Table 4.5, the "aggregated average expression" is calculated

as $\bar{S}_j = \frac{1}{n}(\sum_{i=1}^{n} LS_{ij}, \sum_{i=1}^{n} MS_{ij}, \sum_{i=1}^{n} HS_{ij}) = (\overline{LS}_j, \overline{MS}_j, \overline{HS}_j) = (L, M, H)$, where, n represents

numbers of senior managers; $\bar{S}_j$ represents the jth audit of individual view, TFN

average value; LS_{ij} represents the ith senior managers' response to the low value of the

j^{th} audit of individual view in TFN; MS_{ij} represents the ith senior managers' response

to the moderate value of the jth audit of individual view in TFN; HS_{ij} represents the ith

senior managers' response to the high value of the jth audit of the individual view in

TFN. In turn, COA is used to identify the strengths or weaknesses degree of the

individual view, planning view and integrated five-views with formula (4.6), and

Figure 4.5. Finally, if-then rules were applied following Mamdani and Assilians'(1975)

method.

Table 4.5 Audit of individual view, planning view, integrated five-views and strategic management

The six-views	logic and language view (LLC)	learning view (LV)	cultural view (CV)	political view (PV)	ethical view (EV)	planning view (PLV)
Aggregated average expression	$(L, M, H)_1/3$	$(L, M, H)_2/3$	$(L, M, H)_3/3$	$(L,M, H)_4/3$	$(L, M, H)_5/3$	$(L, M, H)_6/3$
	Integrated 5-views = $\sum_{i=1}^{5}(L,M,H)_i$ /5=(L, M, H)=(L+M+H)/3					PLV=$(L, M, H)_6/3$
Defuzzification	COA is used to decide the strong or weak degree of individual view, integrated five-views and planning view by formula (4.6) and Figure 4.5					
The decision of the strong or weak degree for strategic management	If-then rules is used to combine planning view and integrated five-views for strategic management with ★six-views by formula (4.6) and Figure 4.5					

[Note: $c_1=(L_1, M_1, H_1)$ represents importance of elements in culture; $c_2=(L_2, M_2, H_2)$ represents compatibility of elements with proposed, so CV= $(L_1+L_2, M_1+M_2, H_1+H_2)/2=(L, M, H)_3$; $p_1 =(L_1, M_1, H_1)$ represents concern for production; $p_2=(L_2, M_2, H_2)$ represents concern for people, so PV=$(L_1+L_2, M_1+M_2, H_1+H_2)/2=(L, M, H)_4$]

This research defines the rule of inference as a composition conjunction-based rule

expressed by operation $\wedge$ (min). Then the outputs of the application rules, called

firing, have to be aggregated in order to produce one control output with membership

function $\mu_{agg}(SM)$. It is natural to use for aggregation the operator $\vee$ (max) for strategic management, as shown in Table 4.4.

Competitive environment analysis

When a company runs SBUs which have to recognize the competitive environment, the state of competition in which stage of PLC depends on Five-forces. Linguistic variables of Five-forces have to be defined for all variables which are used in the fuzzy "if-then" rules. For the Five-forces assessment, the terms are shown in Table 4.6. Three managers in each company have to pick an appropriate value for competitive intensity of each force from very low (VW), low (L), moderate (M), high (H), very high (VH) for Five-forces (RA, TNE, CPOS, ST, and POB) and membership function as shown in Figure 4.5 in four companies of the case study. In turn, COA is used to identify the competitive degree of each force with formula (4.6) and Figure 4.5 and locate them into one of low (0-0.4) or moderate (0.3-0.7) or high (0.6-1.0) (The boundary adapted from Efstathiou and Rajkovic, 1979; Chen and Hwang, 1992). Finally, based on repeated combination formula C_r^{n+r-1} (where n = 3, r = 5), there are 21 possible rules to decide competitive intensity of Five-forces with L, M, and H, as shown in Table 4.7.

Table 4.6 Linguistic variable possible values (terms) for Five-forces factors

	Input linguistic variables possible values	Output for each force linguistic variables possible values	Output for Five-forces
Five-forces	Rivalry among existing competitors (RA) $\in$ {VL, L, M, H, VH}	$\in$ {L, M, H}	$\in$ {L, M, H}
	Threat of new entrants (TNE) $\in$ {VL, L, M, H, VH}	$\in$ {L, M, H}	
	Cooperation power of suppliers (CPOS) $\in$ {VL, L, M, H, VH}	$\in$ {L, M, H}	
	Substitution threat (ST) $\in$ {VL, L, M, H, VH}	$\in$ {L, M, H}	
	Power of buyers (POB) $\in$ {VL, L, M, H, VH}	$\in$ {L, M, H}	

Table 4.7 Rules of competition intensity of Five-forces

Possible rules	If: Condition					Then
						Competition intensity
Rule1	H	H	H	H	H	H
Rule 2	H	H	H	H	M	H
Rule 3	H	H	H	H	L	H
Rule 4	H	H	H	M	M	H
Rule 5	H	H	H	M	L	M
Rule 6	H	H	H	L	L	M
Rule 7	H	H	M	M	M	M
Rule 8	H	H	M	M	L	M
Rule 9	H	H	L	L	L	M
Rule 10	H	M	M	M	M	M
Rule 11	H	H	M	L	L	M
Rule 12	H	M	M	M	L	M
Rule 13	H	M	M	L	L	M
Rule 14	M	M	M	L	L	M
Rule 15	M	M	M	M	L	M
Rule 16	M	M	M	M	M	M
Rule 17	H	M	L	L	L	M
Rule 18	H	L	L	L	L	L
Rule 19	M	M	L	L	L	L
Rule 20	M	L	L	L	L	L
Rule 21	L	L	L	L	L	L

Supply chain operation strategy

Every company or SBU is a collection of activities that are performed to design, price, manufacture, inventory, and support its product. All these activities can be represented using a supply chain operation. Value activities are, therefore, the discrete building

blocks of competitive advantage. How each activity is performed, combined with its economics, will determine whether a company is high or low cost relative to competitors and its contribution to buyer needs and hence will lead to differentiation by responsive supply chain operation. The fuzzy if-then rules help to transform the environmental foresight into characteristics of strategic thinking. Practically, senior managers can identify changes in the environment to perform supply chain operation strategy for promoting strategy implementation effectiveness by means of properly chosen fuzzy if-then rules as shown Table 4.8 and case study and performance evaluation practiced further in Chapter 10 in detail.

Table 4.8 Strategy fit combining Five-forces and supply chain operation

If **Five-forces** belongs to 'L' or 'M' or 'H', then the **supply chain operation strategy** is 'responsive' or 'responsive and efficient' or 'efficient or innovative or liquidation or divestiture'.

4.4 Conclusion

In this chapter, it has been noted that the central concepts in critical systems thinking are holism and pluralism. Holism focuses on the relationships between parts and recognizes the production of emergent properties. In Jackson's (2000) view, pluralism in the systems field offers the best way ahead for systems thinking. This thesis, therefore, uses the ideas of critical systems thinking to assist in tackling the complex

issues of strategic management with six-views.

From the properties of critical systems thinking, this research argues that thinking must go beyond 'binary thinking' and explains the natural emergence from the interactions of a whole. Strategic management is, therefore, primarily concerned with systems thinking and how to maintain the best fit between the company and the environment by means of adapting to the environment through the combination of six-views.

Fuzzy logic assists people to tackle the paradoxical and chaotic nature of social systems, especially, organizational behaviour management, in conditions of high uncertainty. Fuzzy logic control requires the development of knowledge to deal with chaotic patterns of social behaviour by means of fuzzy if-then rules combining the planning view and the integrated five-views for promoting strategic management and Five-forces analysis for identifying competitive intensity in the SBUs. However, this research suggests that we need to understand that there are three key issues: how the membership functions of fuzzy numbers are decided, how methods of defuzzification are selected, and how if-then rules are built by experts' experience and knowledge when applying fuzzy logic.

CHAPTER 5: ANALYSING ORGANIZATIONAL PERFORMANCE

5.1 Introduction

Performance evaluation is necessary because business success today is no guarantee

of success tomorrow in an organization, so the nature of performance evaluation is

introduced in this chapter. It is shown that Rumelt's (1980) four performance

evaluation criteria: consistency, feasibility, advantage and consonance, could be

justifiably applied to a company strategy and most will adopt one of these wide

criteria, which are explained later. However, performance evaluation is a continuing

process and is difficult to separate from the strategic management process. In turn,

therefore, the measures of organizational performance are interpreted. Then,

employee and consumer satisfaction, and stakeholders' performance are addressed.

Finally, framework of the six-views model (or roots theory) is disclosed.

5.2 The Nature of Strategic Evaluation

Mankins and Steele (2005) believe that firms' benefits for closing the

strategy-to-performance gap are huge. As leaders turn their strategies into great

performance, they, in these companies, become much more confident in their own capabilities and transform large companies over time.. Evaluation can provide managers with insight into organizational problems and can capture appropriate timely feedback for effective implementation of strategic management in organizations.

5.2.1 Characteristics of Effective Evaluation Systems

The best formulated and implemented strategies become out-dated when a company's internal and external environments change. An internal environment includes organizational culture, employees' learning attitudes, communication capability, leadership style, ethical spirit, planning capability and supply chain operation in organizations. Change in the internal environment explains the strength or weakness of the six-views and supply chain operation in the company itself. A company's strategy-making may become subject to error which is difficult to reverse and may even threaten its survival, because the process of strategic management has significant long-term consequences. Thus, evaluation plays an essential role for appraising strategy into operation plans and then implementation (Kaplan and Norton, 2008). The majority of managers admit, therefore, that evaluation is essential to a robust organization (David, 1993). It can alert management to current and potential problems before a situation becomes critical. Basically, evaluation is composed of three

activities: establishing the underlying foundations of a company's strategy; identifying the difference between expected results and actual results; and modifying actions where necessary to moderate performance (David, 1999).

Proper and timely feedback is the foundation of effective performance evaluation. However, people do not like to be evaluated too frequently. David (1993) mentions that the more managers try to evaluate the behaviour of others, the less control they have. Nevertheless, it leads to worse problems when a company has too little or no evaluation, since some level of evaluation is crucial to ensure that objectives are being achieved.

In some companies, performance evaluation is only a simple appraisal of how well a company has performed. For example, has profitability increased? Have sales increased? And have productivity levels increased? David (1999) points out that a company's belief that there must be accurate answers to these questions is understandable, but it is misleading, because performance evaluation must include both long-term and short-term indicators.

5.2.2 Rumelt's Four Performance Evaluation Criteria

It is impossible to illustrate conclusively that a special strategy is optimal or even to guarantee that it will operate. However, strategic managers can evaluate it for crucial defects. Rumelt (1980) proposes four strategic evaluation criteria which could be

justifiably applied to a corporation strategy as follows.

(1) Consistency: A corporation strategy should not present inconsistent goals and policies.

(2) Feasibility: A corporation strategy must neither overtax available resources nor create unsolvable sub-problems.

(3) Advantage: A company strategy must offer potential for the creation and/or maintenance of a competitive advantage in a selected area of activity.

(4) Consonance: Consonance refers to the need for a corporation strategy to manage sets of trends and individual trends in evaluating strategy. A corporation strategy must represent an adaptive response to the external environment and to the vital change happening within it.

If a corporate strategy does not meet one or more of these criteria, it is strongly suspect. It fails to fulfil at least one of the main functions that are necessary for the survival of the company. Therefore, under a dynamic and complex environment, evaluation is necessary for effective implementation of strategic management in organizations.

5.3 Measuring Organizational Performance

Organizational performance measurement is an important activity in performance evaluation. This activity compares expected results with actual results, and the progress being made toward meeting strategic objectives. David (1999) points out that criteria for evaluating strategies must be measurable and easily understandable. Generally, there are two kinds of basic evaluation indicators: quantitative and qualitative criteria. Selecting the most appropriate set of criteria for evaluating performance is essential.

The quantitative criteria that are most commonly used to evaluate performance are financial ratios, which can be defined in hard dimensions of performance, for example, market share, sales growth, profit and return on investment. David comments that there are three potential problems associated with using quantitative criteria for evaluating strategies as follows:

> First, most quantitative criteria are geared to annual objectives rather than long-term objectives. Also, different accounting methods can provide different results on many quantitative criteria. Third, intuitive judgments are almost always involved in deriving quantitative criteria. For these reasons, qualitative criteria are also important in evaluating strategies…such as high absenteeism and turnover rates, poor production quality…, or low employee satisfaction can be underlying causes of declining performance.
> (David, 1993, 332)

He added some additional key questions for qualitative measurement in performance evaluation. For example, is the corporation strategy internally consistent? Is the corporation strategy consistent with the environment? Is the corporation strategy

workable? To what extent are the corporation strategies socially responsible? In fact, there are also more qualitative or 'soft' dimensions of performance. These much less tangible features of performance, which result in quality or satisfaction (Ittner and Larcker, 2003) instead of optimization, are particularly important; top-level executives should recognize that in the new economics of service, front-line workers and customers need to be the centre of management concern (Heskett *et al.*, 2008). Gamble *et al.* (1999) note that employee satisfaction has a positive relation with customer satisfaction, which then leads to increased profit (Kaplan and Norton, 1996; Ittner and Larcker, 2003; Heskett *et al.*, 2008). Zikmund also explains,

> Total quality management reaches beyond production operations to involve every employee in the organization. Every employee's job is linked to producing and marketing high-quality, low-cost products that satisfy customers.
> (Zikmund, 2003, 189)

This research attempts to use employee and customer satisfaction as qualitative indicators of performance. Because employee satisfaction and customer satisfaction are qualitative characteristics, they are difficult to describe and compare in a meaningful way across firms. To facilitate analysis, therefore, in this thesis they are operationalized in terms of quantitative variables, as is introduced later.

Taking corrective actions is the final step in performance evaluation activity, which aims to reposition a company competitively for the future (David, 1999). No company can survive as an island, because business environments are becoming so

dynamic and complex, that the nature and speed of changes may overpower an organization's ability to adapt. Therefore, performance evaluation can facilitate an organization's ability to adapt successfully to changing circumstances.

5.4 Introducing Employee and Customer Satisfaction, and Stakeholders' Performance

This research adopts three indicators to evaluate the implementation of strategic management. They are: employee satisfaction, customer satisfaction, and stakeholders' performance as illustrated as follows. According to the past decade, rising numbers of companies have been measuring customer loyalty, employee satisfaction, and other performance aspects that are not financial but that they believe eventually affect profitability (Ittner and Larcker, 2003).

5.4.1 Employee Satisfaction

Dedication to developing intra-company measures of satisfaction is based on the obvious belief that if a company enhances internal service quality to raise employee satiosfaction, which fuels employee loyalty and productivity, then the external customers must be satisfaction and loyalty as well (Heskett *et al*., 2008). As Kaplan and Norton explain,

> Employee satisfaction objective recognizes that employee morale and overall job satisfaction are now considered highly important by most organizations. Satisfied employees are a precondition for increasing productivity, responsiveness, quality, and customer service.
>
> (Kaplan and Norton, 1996, 130)

It is essential to assure that intra-company functions are doing what they have to do efficiently (doing the thing right) and effectively (doing the right thing). For example, the production department must satisfy its market customers by producing an appropriate quantity on time; that it is an accomplishment of efficiency. According to form and within budget, the marketing department satisfies its corporate planning, which is an effective implementation. Thus, in order to obtain a high level of customer satisfaction, organizations need to satisfy their employees.

During the past 15 years (Kaplan and Norton, 1996), one of the most dramatic shifts in management thinking has been the change in the role of organizational employees. In fact, nothing better demonstrates the revolutionary transformation from industrial era thinking to information era thinking (Kaplan and Norton, 1996) than the new management philosophy of how employees contribute to the organization. The emergence of huge industrial businesses a century ago and impact of the scientific management movement (Kaplan and Norton, 1996) left a legacy where companies employed employees to perform physical work, not to think, in line with Frederick Taylor's theory. However, as Edmondson points out:

> Organizations don't focus on getting things done more efficiently than competitors

do. Instead, they focus on learning faster…Figuring out the best ways to accomplish different kinds of work in a rapidly changing environment starts with seeking out best practices gathered from experts, publications, and even competitors. (Edmondson, 2008, 65)

Generally, measurement of employee satisfaction is based on two factors: employee retention (or 1- employee turnover) and employee productivity (Kaplan and Norton, 1996). Employee retention is used on the basis that employees' remaining in the organization reflect their long-term interest, loyalty and commitment to the values and knowledge of the organization. Ittner and Larcker (2003) point out that tracking things like employee turnover can powerfully supplement traditional bookkeeping.

Kaplan and Norton (1996) propose that employee retention is measured in terms of percentage of main employee turnover. They further explain that employee productivity is an outcome measure of the combination of influences from boosting employee morale, innovation, improving operational processes and satisfying customers. The easiest productivity measure is revenue per employee, which represents how much output, including "value added" by things like customer service, can be produced per employee.

Japanese management encourages a concerted effort to involve employees in suggestions for long-term and incremental improvement. Therefore, the suggestion system is established as an integrated part of the management system. Wit and Meyer mention,

The number of workers' suggestions is regarded as an important criterion in reviewing the performance of these workers' supervisor. The manager of the supervisors is in turn expected to assist them so that they can help workers generate more suggestions.

(Wit and Meyer, 1998, 269)

Through suggestions, employees can participate in the workplace and play a crucial role in upgrading standards in organizations. Wit and Meyer illustrate this point by quoting the words of the Toyota Motor chairman, Eiji Toyoda:

One of the features of the Japanese workers is that they use their brains as well as their hands. Our workers provide 1.5 million suggestions a year, and 95 percent of them are put to practical use. There is an almost tangible concern for improvement in the air at Toyota.

(Wit and Meyer, 1998, 270)

In this research, therefore, employee satisfaction combines employee productivity, employee retention = 1- employee turnover and employee suggestions. More detailed fuzzy if-then rules applied to this measurement will be explained in Chapter 10.

5.4.2 Customer Satisfaction

Dibb *et al.* (2001) define customer satisfaction as "a state that exists when an exchange meets the needs and expectations of the buyer." For example, Xerox's satisfied and very satisfied found that the relationships between the scores and actual loyalty differed greatly depending on whether the customers were very satisfied or satisfied. Customers giving Xerox's very satisfied were six times more likely to repurchase Xerox equipment than those giving satisfied (Heskett *et al.*, 2008). Finkelman and Goland note that the Strategic Planning Institute based on its PIMS

database shows,

> Companies that rated high on their customer service quality grew market share faster and achieved significantly higher profitability in terms of return on sales than did their lower-rated competitors… Many other studies document the value of customer satisfaction through its relationship to repurchase behaviour… And according to the American Marketing Association and the Forum Corporation estimates, it can cost one-fifth to one-sixth as much to keep a customer as it does to acquire a new one.
> (Finkelman and Goland, 1990, 3)

For instance, Konrad (1992) indicates that the consulting company Bain & Company found out that enhancing a company's customer retention rate at just 2% has about the same impact on a firm's profits as decreasing its total cost structure by 10%. Thus, a company should pay attention not only to seeking new customers but also to retaining existing ones and building a good relationship with them.

In order to tackle customer problems, service organizations must have the latitude to resolve any situation promptly. Moreover, customers and employees must be encouraged to report rather than suppress concerns because value of service is a function not only of costs to the customer but also of the results accomplished for the customer by means of giving frontline service employees the latitude to customize a standard service to individual needs (Heskett *et al*., 2008). Technical Assistance Research Program (TARP) studies illustrate that the return on investment in customer complaint resolution systems is significant, for example, 50% to 170% in banking and 100% or more for consumer durable manufactures. TARP data is shown in Figure 5.1.

Figure 5.1 The repurchase intentions of customers with complaints (Source: Finkelman and Goland, 1990, 7)
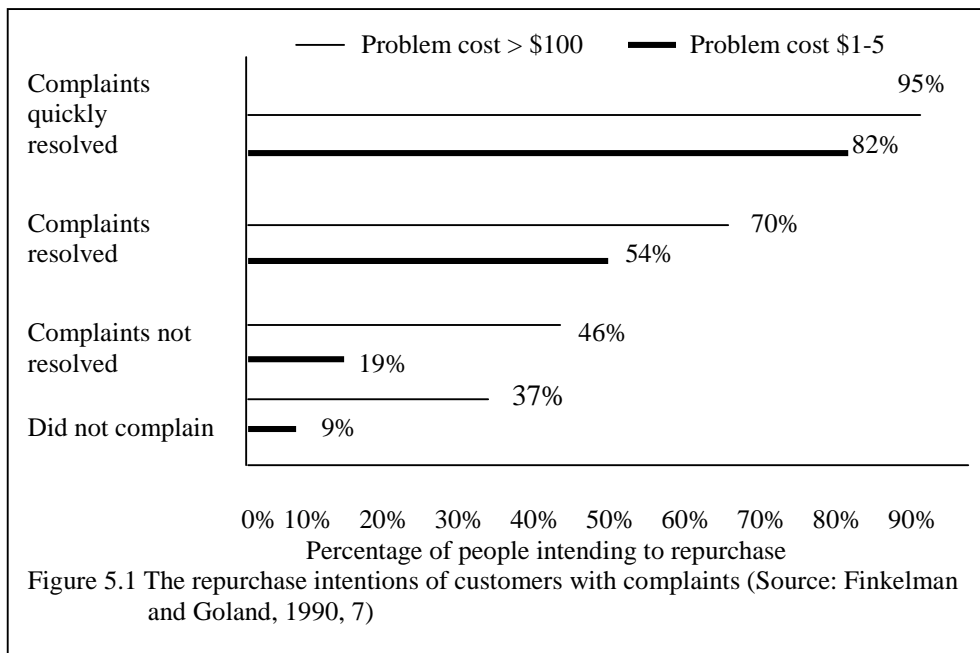
It indicates that customers whose complaints are quickly resolved have a surprisingly high rate of intended repurchase. In other words, customers whose complaints are heard and quickly resolved are more likely to repurchase than customers whose complaints are neither heard nor resolved, and this further promotes customers' loyalty. Customer complaints provide a stimulus to improve the company's products or services. Heskett *et al*. point out,

> Xerox's management currently wants to achieve 100% apostles, by the end of 1996 by upgrading service levels and guaranteeing customer satisfaction. But just as important for Xerox's profitability is to avoid creating *terrorists*. Customers so unhappy that they speak out against a poorly delivered service at every opportunity. Terrorists can reach hundreds of potential customers. In some instances they can even discourage acquaintances from trying a service or product.
> (Heskett *et al*., 2008, 121)

In this research, therefore, customer satisfaction consists of the purchase proportion per customer in each single product, customer retention rate and customer complaints.

5.4.3 Stakeholders' Performance

An increasing tide of consciousness about the importance of business ethics is sweeping the world. All strategy formulation, implementation, and evaluation decisions have ethical ramifications. Dibb *et al.* (2001) point out that the ideas of ethics and social responsibility are used interchangeably. They further explain that ethical issues probably come from conflicts between individuals' personal moral philosophies, the company's strategic decisions and the organizational environment where people work. They argue, "To promote ethical conduct requires teamwork and initiative, which often result in higher quality products. This leads to the potential for an ethical advantage: better reputation, sales, market share and profits." (2001, 765)

The strategic manager needs to discover how the different stakeholders can benefit from the firm's performance. Drucker (1973) explains briefly the mutual relationship between strategy and legitimacy. In fact, strategy has become part of the social contract between an organization and its stakeholders. An organization, therefore, has to consider organizational issues of ethics and concerns about social obligations in order to achieve the organization's long-term objectives. This research, modifies "The stakeholders' expectation and corporate social issues matrix" (Rowe *et al.*, 1994) by fuzzy if-then rules to measure stakeholders' performance with adaptations from Post *et al.* (2002) who propose three dimensions: "resource-based" including shareholders, employees and customers; "industry structure" including suppliers, competitors and management; and "social political arena" including

government and local communities, as shown in Table 5.1. Stakeholder roles are also

introduced in Table 5.2.

Table 5.1 Stakeholders' performance (Source: Adapted from Rowe *et al*., 1994, 100)

Corporate social issues items	Ratings of stakeholders' expectations								Ratings of corporate social issues
	Resource-based			Industry structure			Social political arena		
	Shareholders	Employees	Customers	Suppliers	Competitors	Management	Government	Local communities	
Economics Environment Discrimination Personnel Products Community involvement Co-opetition									Recognizing strong or weak degree with average of TFN and Figure 10.17. COA is used to defuzzication.
Individual stakeholders' expectations									Combining stakeholders' expectations and corporate social issues for Stakeholders' performance with fuzzy if-then rules
Stakeholders' expectations	Recognizing strong or weak degree with average of TFN and Figure 10.17. COA is used to defuzzication.								

Table 5.2 Stakeholder roles (Source: Adapted from Post *et al.*, 2002, 11)

Stakeholder groups	Extended enterprise aspects/ characteristics	Roles and impacts
Resource-base		
Shareholders	Ownership; credit and financing networks; debt and equity markets	Source of capital (debt/equity); capital cost and risk management
Employees	Recruitment and training; outsourcing; contract and temporary employment	Development of human capital; team production; collaboration in the workplace
Customers	Downstream links and distribution; advertising	Reputation and brand loyalty; repeat purchase; collaborative problem- solving; new products-services
Industry structure		
Suppliers	Physical, informational, and financial links in the supply chain	Network efficiencies; collaboration on cost reduction and technology
Competitors	Collaborative ownership and management; information networks	Supplements firm's own capacity and resources; stabilizes firm market position
Management	Interacts with units of the in multiple levels and roles	Creates collaborative and/or conflicting incentives and behaviours among diverse elements of the enterprise network
Social political arena		
Government	Operating within multiple jurisdictions; multiple issues of national sovereignty; cooperation with United Nations agencies	Possibilities for adaptive integration and/or conflict
Local communities	Relationships with numerous and diverse constituencies	Mutual support and/or inter- jurisdictional conflict; "license to operate" in local venues

These indicators, which evaluate the performance of the organization in satisfying

stakeholder needs related to corporate social issues including economics, environment, discrimination, personnel, products, community involvement, co-opetition are illustrated in Table 5.3. The stakeholders' performance will be explained by fuzzy if-then rules in Chapter 10.

Table 5.3 A checklist of corporate social issues (Source: Adapted from Rowe *et al.*, 1994, 100)

Economics: • Profitability • Market share • Customer loyalty, goodwill • Financial stability	**Environment**: • Pollution control • Repair of environment • Recycling of waste material
Discrimination: • Minority employment • Employment of women • Equal opportunities • Minority business partners	**Personnel**: • Occupational health and safety • Salary level • Training; education • Counselling
Products: • Safety • Quality • Product improvement	**Community involvement**: • Community activities • Public health • Education; arts
Co-opetition: • Joint ventures • Strategic alliance • Licensing • Franchising	

5.4.4 Limitations of Measuring Organizational Performance

In fact, many companies perhaps only consider their profits rather than pay attention to employee satisfaction, customer satisfaction, and stakeholders' performance. Therefore, they are not interested in collecting related data such as employee retention, employee suggestions, customer retention, and customer complaints. Currently, employee and customer satisfaction is increasingly important for organizational evaluation measurement. However, as far as I know, the majority of companies use questionnaire surveys to measure customer satisfaction, rather than use quantitative data from intra-organizations such as customer complaints and customer retention to measure it. Most organizational managers are also confused about how to measure

employee satisfaction in organizations. Therefore, a major limitation is how to persuade an organization to apply quantitative proxies for qualitative measurement for both satisfaction indicators, as is done in this research.

Another limitation is that stakeholders' boundary decisions could lead to arguments between individual companies. Defining stakeholders' boundaries should be cautioned because there are no precise rules for this work so that a poor definition will lead to poor planning (Pearce Ⅱ and Robinson, Jn., 2003). This is a crucial problem for a company, as stakeholders' expectations need to be ascertained. Apart from the problem of how to decide the order of priority of stakeholders' expectations, there is a lack of related awareness in organizations. These are, therefore, perhaps limitations for corporate performance evaluation in this research.

5.5 The Framework of the Thesis

Based on this chapter discussion, both hard and soft measures of performance are important in strategic management. Thus, this research used quantitative proxies for qualitative evaluation indicators. Finally, the six-views model is composed of three essential factors (planning, leadership, and organizations) to go beyond the narrowness of each individual view to form a conceptual framework consisting of

three interconnected parts: roots, stem, and flowers and fruits to overcome the

insufficiencies of the planning view that include implementation with roots,

foresight of the dynamic environment with stems, and performance evaluation with

flowers and fruits, as shown in Figure 5.2 and explained as follows:

FLOWERS and FRUITS:
Stakeholders' performance
Customer satisfaction
Employee satisfaction

STEMS:
Foresight environment
and
Supply chain operation

ROOTS		
Very weak (0-0.2)		
Weak (0.1-0.4)		
Moderate (0.3 -0.7)		
Strong (0.6 -0.9)		
Very strong (0.9 -1.0)		
Separating formulation and implementation	Planning view for strategy formulation (☆**PLV**)	Integrated five-views for strategy implementation (☆**five-view**s)
Combining strategy formulation and implementation	Strategic management (★**six-views)**	

Figure 5.2 Framework of the six-views model

• The roots, as the foundation of a tree, can promote organizational survival and

development through its operation processes.

• Stems are used to recognize the competitive situations of each individual SBU in an

organization by Five-forces analysis to identify stages of the product life cycle.

Moreover, an organization must be to fulfil strategy fit, so that proposes its supply

chain operation strategy including 'efficient,' 'efficient and responsive,' and

'responsive, liquidation, innovation, or divestiture' strategies by operation process to

fulfil strategy implementation.

• The flowers and fruits of a tree, as the performance of an organization, are based on robust roots, that is, six-views, to commit strategy implementation.

The fieldwork, in turn, will be used to prove the reliability and validity of the model from connecting the insuffisiencies of strategic planning and four objectives, as mentioned in section 1.4. Moreover, this thesis intends to explain issues of strategic management from the findings of the case study.

5.6 Conclusion

Performance evaluation is an essential part of strategic management in organizations and it should take into account not only short-term objectives such as financial performance, but also long-term objectives such as employee and customer satisfaction. By and large, employee satisfaction includes employee productivity, employee turnover and employee suggestions. Customer satisfaction combines the purchase proportion per customer in each single product, customer retention rate and customer complaints as measurement indicators. Moreover, employee satisfaction can promote customer satisfaction and further improve profitability.

In this research, three evaluation indicators are used: employee satisfaction, customer satisfaction, and stakeholders' performance. These indicators are used to

evaluate the impact of a strategy on each group of stakeholders and the social issues in organizations. In fact, those evaluation indicators highlight implementation (e.g., employee satisfaction with the operation process), to link internal with external objectives (e.g., from employee satisfaction to customer satisfaction and even profit and corporate social responsibility) to fit the environment and to win competitive advantage (e.g., meet stakeholders' performance and obtain reputation) as Rumelt's (1980) four evaluation criteria such as consistency (no mutually exclusive objectives); consonance (to adapt between the company and its environment); feasibility (in implementation); and advantage (the strategy must offer a competitive advantage) to identify whether a strategy is appropriate. Finally, the framework of the roots theory was proposed with six-views as roots, which is not only to concern strategy formulation but also emphasizes strategy implementation by supply chain operation of the SBU, namely, companies have to raise standards for both planning and implementation simultaneously and create clear links between them (Mankins and Steele, 2005), further enhances strategic management successfully in an organization.

PART 2: METHODOLOGY AND DATA ANALYSIS

CHAPTER 6: INTRODUCING METHODS

6.1 Introduction

Chapter 6 describes the research design which is used to realize the practical for

promoting strategic management with the six-views model. This research proceeded

in three phases as shown in Figure 6.1.
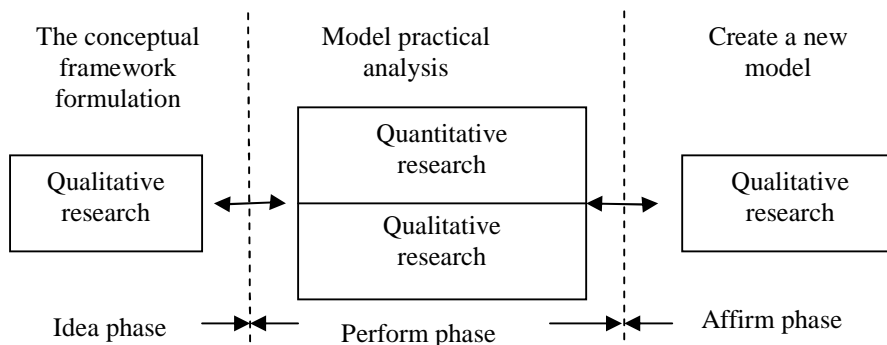
Figure 6.1 The design of the research approach

First, a qualitative approach which included a literature review was conducted. This

phase doubts insufficiencies of the planning view and its lack in implementation.

Then the research hypothesizes that the organization has to integrate the five-views

for strategy implementation so improving strategic management with six-views. This

thesis adopted Mintzberg's (1987a) 5P and added partners' expectation into 6P to

formulate strategy further developing the six-views model including roots, stems, and flowers and fruits by means of critical systems thinking and overview of strategic management encouraging breakthrough boundary, rebuilding relationship, and competitive dynamic thinking to see how six-views assists in facilitating strategic management successfully with statistical analysis.

Second, in order to prove the framework of the six-views model, a quantitative approach questionnaire, was adopted to find out 'what' concerns Taiwanese companies have about strategic management; and 'how' to compare and improve the reality of strategic management in Taiwan with the six-views. In the same phase, a qualitative approach was used, in which twenty managers from fifteen different companies were interviewed to deeply explore the issues of strategic management in Taiwanese companies. In the third phase, four companies were selected for case study, in which an audit of practice in relation to the six-views model with fuzzy logic was conducted. Simultaneously, qualitative research interviews of case study were conducted to validate the research findings from questionnaire and the first interviews, to assist in the interpretation of the results and to develop a six-views model of strategic management.

To sum up, it is associated with a hypothetical-inductive method which is based on literature review and experience adjustment trying to expand existent theory of the

planning view. In order to test pre-hypothesis data questionnaire, interviews and

qualitative research interviews to analyze and explain, further proposes a novel

approach to effective strategic management: the six-views model, which is associated

with an analytic-deductive method for evidencing the model. In turn, case studies with

four Taiwanese companies are designed in this thesis for practicing the model. These

are explained in detail in the following section.

6.2 Research Design

Research design includes four main ideas for the essential plan of research as shown

in Figure 6.2.

Research design

| Research questions | → | Data collected and analysed
• Following what strategy?
• Within what framework?
• From whom? | ← | **Data** |
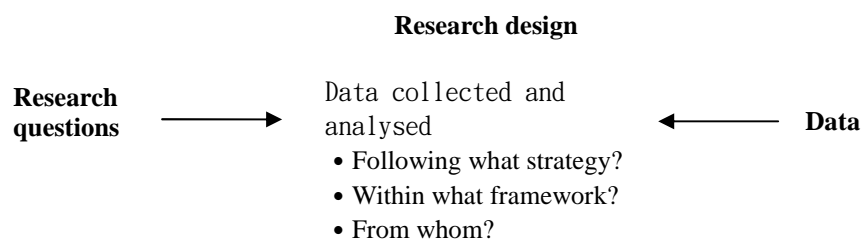
Figure 6.2 Research design connects research questions to data
(Source: Punch, 2005, 63)

This research has two hypotheses which come from research issues as mentioned in

chapter 1 as shown as follows: (1) The insufficiency of the strategic planning view,

requires that organizations have to integrate the five-views for strategy

implementation so as to improve strategic management with the six-views. (2) The

six-views as organizational roots can promote strategy formulation and implementation via efficient and effective supply chain operation and further promote organizational performance including employee satisfaction, customer satisfaction and stakeholders' performance.

In order to confirm the hypothesis, first of all, factor analysis is used to raise the level of abstraction from items to factors for the six-views and internal consistency in the analysis of quantitative data. This research applied two methods: investigation method and case study method as a strategy to collect quantitative and qualitative data. Investigation methods included questionnaire and interviews to collect data of the six-views for promoting strategic management by comparing views with frequency distribution, Duncan's test, paired t-test, and proportion test. On the other hand, this research uses the data of the six-views as independent variables along with one dependent variable of the integrated six-views to explore related variables by bi-variate statistics and multiple linear regression (MLR). In particular, stepwise regression interprets the dropping out of variables from the regression equation to understand the difference this makes to the dependent variable and how much variance can be explained. Moreover, the six-views model uses data from the six-views and supply chain operation as independent variables and one dependent variable as organizational performance in order to confirm the cause-and-effect of

relating variables by MLR. The interviews are used to provide a depth which addresses the richness that is the substance of their meanings in the six-views model.

A case study method with four Taiwanese companies by fuzzy logic is used to practice the planning view and integrated five-views as organizational roots to identify strategy formulation and implementation with audit of the six-views. Five-forces analysis with questionnaire data is then used to understand the competitive environment in order to identify the stages of PLC and further enhance performance of strategy implementation in organizations with employee satisfaction, customer satisfaction, which provided data by the four companies and stakeholders' performance with questionnaire data. The purpose of the case study is to practice the six-views model and induct the new theory.

Using both qualitative and quantitative approaches may offer a means of bridging the micro-macro gap. The quantitative approach highlights large-scale, structural features of social life, but the qualitative approach pays attention to small-scale, behavioural aspects. Therefore, integrating qualitative and quantitative approaches should be required (Punch, 2005). The use of multiple methods is known as triangulation which can promote the accuracy of the research's judgments by the collection of different kinds of data bearing on the same phenomenon. As Punch indicates,

The findings from one type of study can be checked against the findings deriving from the other type. For example, the results of a qualitative investigation might be checked against a quantitative study. The aim is generally to enhance the validity of findings.

(Punch, 2005, 241)

6.3 Methods of Data Collection

The precise structure of the questionnaire design and interviews used for data collection are discussed below.

6.3.1 Collecting Qualitative Data

Literature review was used to obtain information related to basic knowledge of strategic management for this research. The six main issues of strategic management were unveiled in Chapter 2. Then, two management approaches – critical systems thinking and fuzzy logic - were explored to discover how well they could assist in promoting effective strategy management in organizations. The process culminated in development of a pluralistic thinking approach to tackle the six issues of strategic management by means of six-views.

6.3.2 Questionnaire Design

Based on knowledge drawn from a review of the literature, a considerable amount of time was dedicated to the development of the questionnaire, as a tool for the collection of large scale data to test the main issues of strategic management in the

thesis. The purpose of the questionnaire is to ascertain whether the six-views is an essential factor to promote strategy formulation and implementation in the strategy-making process for Taiwanese companies. Moreover, the six-views, as organizational roots, can be used to promote effective strategic management and further enhance organizational performance. These questions could help to realize the current situation of strategic management and aim to assess which aspects of strategic management are poor and could be improved in Taiwanese companies. The questionnaire contains nineteen questions, designed to reflect the literature review, and the six-views of strategic management proposed in the thesis. These questions were written in both English and Chinese languages to avoid ambiguity, as shown in Appendix C. The six-views model was evolved by my pre-supervisor first, then refined through pilot study, and discussion with my learning team committee, and some senior managers, in order to modify it and finally draw up nineteen questions. Therefore, this research possesses a good degree of representativeness of issues in strategic management.

Respondents were asked to circle one response on the scale: strongly disagree represents 21-0, disagree represents 41-20, neutral represents 71-40, agree represents 90-70 or strongly agree represents 100-89. In the social sciences, scaling involves creating a continuum upon which measured objects are located. Malhotra and Birks

explain, "Scaling is the process by which respondents would be classified as having an unfavourable, neutral or positive attitude." (1999, 276) An advantage of collecting quantitative data of this kind is that it allows direct numerical comparisons to be made from simple frequent distribution   as in this research. However, the five linguistic variables produce vague and qualitative ideas and judgments. As Kosko (1999) and Bojadziev and Bojadziev (1997) point out, TFN is a simple and proper approach to deal with ambiguous phenomena in the social sciences, and is used for data in this research.

The summated ratings method is the most useful when it is possible to compare the individual person's score with a distribution of scores from some well defined group. Referring to this research, the average score of each organization could be counted and compared with the total average score of all Taiwanese companies.

For analysis, the questionnaire data was divided into four parts: manufacturing industries, service firms, big corporations and small to medium sized enterprises. First, TFN were utilized to tackle the survey data. The five fuzzy linguistic variables of 158 senior managers are shown in Appendix D and membership functions are depicted in Figure 4.3 and Table 4.1.

From the opinions of my supervisor, pilot study, and my learning team committee, this research believes that strategic management belongs to high level

management. Although senior managers can communicate with lower level employees about a company's vision, mission, objectives, and strategy formulation and implementation, it is difficult for lower level employees to make decisions on strategic direction. Therefore, this research picked senior managers to fill the questionnaire. Average formulation measures and COA were further used for defuzzification and to obtain the degree of importance of total average. Second, using an adapted version of the questionnaire taken from the summated ratings method, each view of strategic management can be checked to ascertain whether it is strong or weak in organizations.

Furthermore, factor analysis is to describe the six-views that all variables within a particular view are highly correlated among themselves but have relatively small correlations with variables in a different view. The bi-variate correlation was used to discuss how views of strategic management relate to each other. MLR analysis was used for predicting values of the integrated six-views response variable from a collection of the individual view variable values and further to explore among the six-views whether they constitute independent contributions to strategic management. Fuzzy if-then rules for combining strategy formulation and implementation attempt to recognize strategic management. These nineteen questions were developed for this survey, which were rationale for their inclusion, and are presented below, in relation

to the six dimensions of strategic management they reflected.

Logic and language view

This view contains the following two questions:

Q1: Does your company agree that the strategic management process must communicate with employees and stakeholders in order to promote effective strategic management?

Q2: Does your company believe that the strategy-making process should cultivate fuzzy thinking rather than crisp thinking?

The first question reflects the assumption that an organization has to communicate its objective and mission with employees and stakeholders so as to implement strategy. The second question concerns whether an organization needs to move towards cultivation of fuzzy thinking under a dynamic and complex environment. The two questions hypothesize that if an organization agrees, respondents would answer 'strongly agree.'

Learning view

This view contains the following three questions:

Q3: Does your company believe that learning and accumulating new knowledge can help your organization to fit a dynamic and complex environment?

Q4: Does your company agree that employees need to learn together for promoting

strategic management?

Q5: Can your company learn to create good interaction with stakeholders to improve

strategic management?

The third question is designed to confirm whether the need is felt for the organization

to accumulate knowledge to adapt to a dynamic and complex environment. This

research hypothesizes that an organization believes it is crucial to learn and

accumulate knowledge. The fourth question, in this research hypothesizes that the

organization is really concerned about their employees learning together. The fifth

question, in this research hypothesizes that respondents are really concerned about

learning and trying to create good relationships with stakeholders, in order to improve

strategic management. Respondents would answer 'strongly agree,' if an organization

agrees with the three researches hypothesis above.

<u>Cultural view</u>

The cultural view contains the following three questions:

Q6: Does your company think that organizational culture can integrate individuals or

groups into the organizational climate to achieve its objective?

Q7: Does your company believe that creating organizational culture is an essential

factor to implement effective strategic management successfully?

Q8: Does your company agree that cultural change facilitates employees' recognition

for implementing strategy?

The sixth question is designed to confirm whether the organization can share its vision and formulate an organizational culture conducive to achieving its objective. This research hypothesizes that the organization understands the role of organizational culture in encouraging employees to accomplish organizational objectives. The seventh question, in this research, hypothesizes that the organizational culture is really viewed as an important factor in order to implement strategic management. The eighth question, in this research, hypothesizes that the organization believes that culture can promote effective strategy implementation. If an organization agrees with the three research hyptheses above, then respondents would answer 'strongly agree.'

Political view

The political view includes the following two questions:

Q9: Does your company believe that political power can reduce disputes between employees, stakeholders, and organizations?

Q10: Does your company believe that political power can promote the cooperation of stakeholders?

The ninth question in this research hypothesizes that an organization really believes that the power of a leader can improve conflict management between employees and the organization. The tenth question in this research hypothesizes that an organization

thinks that the power of the leader can really influence cooperation of stakeholders.

Respondents would answer 'strongly agree,' if an organization agrees with the two

researches hypothesis above.

Ethical view

The ethical view includes the following three questions:

Q11: Does your company agree that creating good relationships with stakeholders is

conducive to fulfil strategy?

Q12: Does your company agree that Lao-Tzu's idea, "put yourself in others' place and

be selfless" as a strategy can promote effective strategic management?

Q13: Does your company believe that ethical ideas lead to "mutual trust,"

"commitment," "implementation" and "reputation" with stakeholders in your

company?

The eleventh question in this research hypothesizes that an organization believes that

ethical concepts can improve relationships with stakeholders and promotes strategy

implementation. The twelfth question attempts to evaluate whether Lao-Tzu's idea

"put yourself in others' place and be selfless" is seen as an effective strategy to

improve effective strategic management. This research hypothesizes that the

organization believes that his idea can boost effective strategic management. The

thirteenth question in this research hypothesizes that the ethical ideas are thought to

create good interaction with stakeholders and promote mutual trust, commitment, implementation, and reputation. Respondents would answer 'strongly agree,' if an organization agrees with the three researches hypothesis above.

<u>Planning view</u>

The planning view consists of the following three questions:

Q14: Does your company believe that the evaluation index of strategic management must consider quantitative (such as market share, profits and sales) and qualitative (such as employee satisfaction, customer satisfaction and stakeholders' performance) analyses?

Q15: Does your company have to adjust strategic planning under dynamic and complex environments?

Q16: Does your company believe that the strategy-making process has to integrate logic and language, learning, culture, politics and ethics, based on planning to obtain effective strategic management?

The fourteenth question in this research hypothesizes that if an organization emphasises the two measurement approaches, respondents would answer 'strongly agree.' The fifteenth question in this research hypothesizes that if an organization believes that it should adjust its strategic planning under environmental impact, respondents would answer 'strongly agree.' The sixteenth question in this research

hypothesizes that if an organization really needs good planning to combine the other five perspectives for implementation of effective strategic management, respondents would answer 'strongly agree.'

<u>Integration of six-views and the six-views model</u>

Q17: Would you please rate the importance of the six-views for promoting strategic management in your company respectively? Logic and language view? Learning view? Cultural view? Political view? Ethical idea? Planning view?

Q18: In terms of the answer of the six-views above, compare the supply chain operation management of your company to that of your competitors, including <u>inputs</u>: product design and suppliers, <u>process</u>: pricing, manufacturing, inventory, lead time, and <u>outputs</u>: transportation and service. Moreover, participants were also asked to compare the overall performance of their company to that of their competitors, considering key performance including employee satisfaction, customer satisfaction and stakeholders' performance.

The seventeenth question is designed to check whether the respondent has focused on filling the questionnaire, which can help to identify whether the questionnaire is effective. The eighteenth question is intended to recognize whether it is possible to promote effective strategic management in Taiwanese companies by means of the six-views model including 'roots' as reinforcing the six-views, 'stems' as competitive

analysis to facilitate supply chain operation, and then produce better 'flowers and fruits' as the result of performance evaluation such as employee satisfaction, customer satisfaction, and stakeholders' performance. Question nineteen is used to identify the nature of the organization - manufacturing industries or service firms – and its size - big corporation or small to medium sized enterprise. These degrees of the six-views, together, can be used to show the rank and strengths or weaknesses of strategic management in Taiwanese companies.

A letter was sent to every company, usually addressed to the senior managers, asking them to answer the questionnaires. Basically, each company at least has one senior manager to answer the questionnaire. Two additional letters were enclosed: one from my pre-supervisor, Dr. Gregory, who taught in the University of Hull in theUnited Kingdom, the other from my learning team committee, consisting of Professor Dr. Fu-Zang Tang who is an expert in the strategic management field in the University of Taiwan; Professor Dr. Ta-Chung Chu and Associate Professor Dr. Chin-Lu Chyu experts of fuzzy logic in Southern Taiwan University of Technology (STUT); Associate Dr. Chung-Cheng Huang who is familiar with fuzzy logic in STUT; Mr. Chun-Cheng Chen who is the chairman of Spring Plastic Enterprise Co. Ltd. and also lectures in strategic management in STUT; and Mr. David Ho, who is the President of TYC Brother Industrial Co. Ltd. and also lectures in inventory

management and production management in STUT, as shown in Appendix E. The questionnaires were sent to 200 companies, including 70 manufacturing industries (35 big corporations and 35 small to medium sized enterprises) and 130 service firms (65 big corporations and 65 small to medium sized enterprises), as shown in Appendix F. The sampling frame was adopted from the Directorate General of Budget, Accounting and Statistics, Executive Yuan, Taiwan, 2001 (see Tables 6.2 and 6.3). It took approximately four weeks from sending out the questionnaires to receiving them back. In the following four weeks, the data was analyzed by a SAS package to undertake frequency distribution, statistical tests, factor analysis, Pearson correlation and regression. Furthermore, the TFN and COA were also applied to measure the strong or weak degree of agreement for the six-views. Fuzzy if-then rules are applied to identify strong or weak of strategic management by combining the planning view and the integrated five-views, and performance evaluation. Fifteen companies were selected to carry out interviews from return letters. These were selected to include 50% manufacturing industries and 50% service firms, and 50% big corporations and 50% small to medium sized enterprises.

Finally, entering, coding and tabulating the data from the interviews and content analysis took a further six weeks. In fact, after each interview, I transcribed the tape-recorded interview data verbatim, that is, in the exact words that people used to

express their ideas. Drever (1995) addressed that one big advantage of transcription is that most people regard a transcript as providing a "true" record of the original interview. Heritage (quoted in Silverman, 1993, 116) suggested that transcriptions of subjects are "treated as an appropriate substitute for the observation of actual behaviour." As noted previously, these questions were written in both English and Chinese languages to avoid ambiguity. The Chinese language is different from English in form and structure. Hence, some degree of inaccuracy, which might result from the translation, must be conceded. The originals were placed in transparent plastic pockets and kept in a safe place. The transcripts were marked with different colours to categorize and summarize the texts, with the aim of finding answers to the research questions.

The final report, which identified the strengths and weaknesses of combining the six-views and confirm the six-views model in strategic management in order to derive some recommendations and suggestions for further research, was ready after twenty weeks.

6.3.3 The Measurement of Questionnaire Data

This research adopted four steps for the measurement of questionnaire data. They include confirmation of questionnaire data, TFN measurement, defuzzification and summated average value of defuzzification and are listed as follows:

(1) The confirmation of the questionnaire's data

Each question was answered using five linguistic variables: "strongly disagree', "disagree", "neutral", "agree", and "strongly agree". It was confirmed first that every senior manager had subjective perceptions of the standard of the five linguistic variables for measuring the questionnaire data. This research adopted a scale from 0 to100, where the greater the number, the more closely it expresses "strongly agree"; in contrast, the smaller the number, the more closely it expresses "strongly disagree". The value of the five linguistic variables is $\{(x, y)|\ 0 \le x < y \le 100\}$.

(2) TFN measurement

This section tries to introduce the idea that every value of a linguistic variable can be expressed by means of TFN. Senior managers can decide a subjective range for the value of every linguistic variable, in the range 0 to 100. $S_{ij}=(LS_{ij},\ MS_{ij},\ US_{ij})$ expresses the ith senior manager's response to the jth questionnaire question and it is a TFN. In this research, therefore, all the answers of senior managers were integrated and "addition of fuzzy numbers" and "multiplication of fuzzy numbers", applied to yield a summated average value, namely

$$\overline{S}_j = \frac{1}{n}(\sum_{i=1}^{n} LS_{ij}, \sum_{i=1}^{n} MS_{ij}, \sum_{i=1}^{n} US_{ij}) = (\frac{1}{n}\sum_{i=1}^{n} LS_{ij}, \frac{1}{n}\sum_{i=1}^{n} MS_{ij}, \frac{1}{n}\sum_{i=1}^{n} US_{ij})$$

$$= (\overline{LS}_j, \overline{MS}_j, \overline{US}_j)$$

where:

n: numbers of senior managers

$\bar{S}_j$: *the j*th *questionnaire question, TFN average value*

LS_{ij}: the ith senior manager's response to the lower value of the jth questionnaire

    question in TFN

MS_{ij}: the ith senior manager's response to the moderate value of the jth questionnaire

    question in TFN

US_{ij}: the ith senior manager's response to the higher value of the jth questionnaire

    question in TFN

(3) Using COA measures defuzzification

This research adopts the formula (4.4), $\overline{DS}_j = [\overline{US}_j + \overline{MS}_j + \overline{LS}_j]/3$, (where $\overline{DS}_j$

represents jth questionnaire question value of defuzzication) to measure defuzzication

because the fuzzy numbers is one single triangular fuzzy numbers:

(4) Summated average value of defuzzification

- Logic and language view: $\dfrac{1}{2}\sum\limits_{j=1}^{2} Q_j$ • Learning view: $\dfrac{1}{3}\sum\limits_{j=3}^{5} Q_j$

- Cultural view: $\dfrac{1}{3}\sum\limits_{j=6}^{8} Q_j$ • Political view: $\dfrac{1}{2}\sum\limits_{j=9}^{10} Q_j$

- Ethical view: $\dfrac{1}{3}\sum\limits_{j=11}^{13} Q_j$ • Planning view: $\dfrac{1}{3}\sum\limits_{j=14}^{16} Q_j$

- Integrated six-views: $\dfrac{1}{6}\sum\limits_{j=17_1}^{17_6} Q_j$

- Better six-views as roots can promote supply chain operation better: Q$_{18\,(1\text{-}1;\ 1\text{-}2;\ 1\text{-}3)}$;

Better six-views can improve performance evaluation better: Q$_{18\,(2\text{-}1;\ 2\text{-}2;\ 2\text{-}3)}$

Based on the four steps outlined above, the five linguistic variables of the questionnaire data form produced survey information, as shown in Table 6.1.

Table 6.1 Questionnaire data form and measurement

Experts \ Items	S_1	S_2……	S_{151}	TFN: $(\overline{LS}, \overline{MS}, \overline{US})$; Average of Defuzzification ($\overline{DS}$)	Ranking	The important degree of total average
Logic and Language view						
1						
2						
Learning view						
3						
4						
5						
Cultural view						
6						
7						
8						
Political view						
9						
10						
Ethical view						
11						
12						
13						
Planning view						
14						
15						
16						
Six-views						
17						
Six-views model						
18(1)	1-1					
	1-2					
	1-3					
18(2)	2-1					
	2-2					
	2-3					

(Note : Defuzzification as formula 4.4)

6.3.4 Interviews

Personal interviews are direct communications within face-to-face situations, wherein this research asks respondents questions. Zikmund (2003) points out that personal interviews provide some advantages, in that the face-to-face interaction has several characteristics that help researchers get complete and precise information. Obviously, the relatively small number of interviewees in a qualitative project cannot

provide an adequate basis for inferential statistics, but the depth and richness of the

findings of interviews complement the breadth of data collected by questionnaire

(Burton, 2000).

The purpose of conducting interviews is to gain a greater recognition of the

present situation of strategic management in Taiwanese companies. Basically, there

are three main types of interview: structured, semi-structured and unstructured.

Bernard comments that, in

> Structured interviewing, people are asked to respond to as nearly identical a set of
> stimuli as possible. One variety of structured interviewing involves use of an
> interview schedule, an explicit set of instructions to interviewers who administer
> questionnaires orally. Unstructured interviews are based on a clear plan that you
> keep constantly in mind, but are also characterized by a minimum of control over
> the respondent's responses.
> (Bernard, 2000, 191-192)

Bernard notes that the semi-structured interview has some merits as follows:

> It has much of the freewheeling quality of unstructured interviewing, and
> requires all the same skills, but semi-structured is based on the use of an
> interview guide. This is a written list of questions and topics that need to be
> covered in a particular order…The interviewer maintains discretion to follow
> leads, but the interview guide is a set of clear instructions – instructions like this
> one… Formal, written guides are an absolute must if you are sending out several
> interviewers to collect data. But even if you do all the interviewing on a project
> yourself, you should build a guide and follow it if you want reliable, comparable
> qualitative data.
> (Bernard, 2000, 191)

Semi-structured interviews, therefore, were selected for application in this research.

The interviews were used to ascertain "what" the companies have done about strategy

formulation and implementation in line with the six-views in Taiwan and "how".

Further, what improvement could be added to strategic management to make organization performance more effective?

Interviews were conducted in fifteen companies which were chosen from the original return letters of 200 companies. I discussed the selection with my pre-supervisor and my learning team committee. These companies were constituted a theoretical sample rather than a random sample. They represented different characteristics which included big corporations versus. small to medium sized enterprises, product versus. service orientation and traditional organizations versus. learning organizations. As Glaser and Strauss (1967) indicate, such a maximization of differences can stir the generation of additional categories and theory insights, so that the findings could be more generally applicable. Therefore, from the common results of the research, this research can obtain more general conclusions.

A letter was sent to every senior manager from the selected fifteen companies, asking for an interview with him/her and other managers, about the process of strategic management. Two letters were enclosed: one from my pre-supervisor and the other from my learning team committee. Each company was represented by at least one interviewee.

Research was conducted on the fifteen selected companies through secondary sources before the interviews, because these sources would add value to the analysis.

Each personal interview generally took approximately sixty minutes and took place at the interviewee's office. Five minutes were allocated to discuss the interviewees' job function. Then, another fifty-five minutes were taken for the other questions. The interview questions and time table of interviews are shown in Appendix G and Appendix H, respectively.

Question 1: Please tell me about the role of your department and your personal job function. This question tries to recognize the interviewee's background.

Question 2: What is the current strategic management of your organization? What are the strengths and weaknesses? How can it be improved? This question attempts to disclose the current situation of thestrategic management process and recognize its perceived strengths and weaknesses. Moreover, how to improve the process of strategic management was also discussed.

Question 3: Would you please explain the influences of the six-views on strategic management in your company? Logic and language view? Learning view? Cultural view? Political view? Ethical view? Planning view? This question was asked to explore how well the six-views were seen as promoting effective strategic management in Taiwanese companies.

Question 4: What type of evaluation system is used to rate the effectiveness of strategy in your organization? Please explain for quantitative (e.g. market share,

profits and sales) and qualitative (e.g. employee satisfaction, customer satisfaction and stakeholders' performance) approaches, respectively. This question was asked to see how the organization measured the performance of strategy implementation. It highlights that organizations not only pay attention to quantitative analysis but also use qualitative indicators.

Question 5: How does your company tackle the process of strategic management under a dynamic and complex environment? This question was asked to know what factors Taiwanese companies consider when making strategic decisions under a dynamic and complex environment.

Question 6: How does your company produce better employee satisfaction, customer satisfaction, and stakeholders' performance by enhancing the six-views as roots to facilitate efficiencies and effectiveness of supply chain operation? This question would like to know whether the six-views can be seen as organizational roots to boost strategy formulation and implementation. Eventually, an organization can display better implementation performance by supply chain operation, such as employee satisfaction, customer satisfaction, and stakeholders' performance.

Question 7: What suggestions for the strategic management at your company, that this research has not mentioned, do you find important? In the final question, I sought to obtain different opinions which this research may have missed.

6.4 Reliability and Validity

Measuring more complex concepts may require more than one question, because the concept has several attributes. An attribute is a single characteristic or basic feature pertaining to an issue, object, person or situation (Zikmund, 2003). Measuring a concept by a variety of techniques is one way to boost precision and accuracy. Asking different questions for evaluating the same thing offers a more perfect cumulative measure than does single-item estimation. Reliability and validity are two major criteria for evaluating measurements in social research. In this research, the following steps were taken to ensure the reliability and validity of the research.

6.4.1 Reliability

Reliability applies to a measure when similar results are obtained over time and across situations. Zikmund (2003) points out that two aspects underlie the concept of reliability: consistency over time and internal consistency. This thesis used internal consistency in order to infer the level of the latent trait in multiple items; the question affects the extent to which the items are consistent with each other. Basically, there are the best known methods which include the split-half techniques, and coefficient alpha (Cronbach, 1951). This thesis is based on given questionnaire data with coefficient alpha to measure internal consistency. Neuman (1997) proposes, to

increase the reliability of measures, four principles should be observed:

• Clearly conceptualize constructs,

• Use a precise level of measurement,

• Use multiple indicators,

• Use pilot tests.

In this thesis, first, clearly conceptualized constructs: the insufficiency of the planning view so that an organization has to integrate the five-views for promoting strategy formulation and implementation further to enhance strategy implementation performance of an organization, were built; the design of questionnaire was based on the framework of six-views and was checked by my pre-supervisor, the learning team committee, and senior managers. Then, statistical analysis with factor analysis was applied to measure internal consistency. Factor analysis is the name given to a group of related techniques developed for this purpose. The idea of factor analysis is based on the correction betweens items when two items are correlated. This thesis intended the existence of a common factor, which both items shared to some extent, and which therefore explained the correlation between them. Factor analysis, therefore, aims to reduce the number of items by finding the common factors among them (Punch, 2005). In turn, questionnaire, interviews and case study provided complementary evidence of each other's effectiveness by multi indicators. Finally, the questionnaire

was pilot tested in two manufacturing industries (Uni-President Enterprises Corporation and TYC Brother Industrial Co. Ltd.) and three service firms (China Securities Co. Ltd. WYSER International Corp. and Hotel Kingdom), to ensure its reliability. Furthermore, interview and case study were used to compare with the results of the questionnaire.

A good measuring instrument for research objectives selects from differences between senior managers, producing variance understanding how much error variance is in the scores. Therefore, this thesis tries to produce high reliability with the above four research plans.

6.4.2 Validity

Validity is concerned with whether research measures what it is intended to measure. The American Psychological Association (1974) distinguishes between three basic approaches to validity: content, criterion and construct. These basic approaches are discussed as follows.

(1) Content validity

Content (face) validity is concerned with whether "a scale logically appears to be accurately reflecting what was intended to be measured" (Zikmund, 2000, 282). Basically, it implies that all aspects of the attribute are considered by the instrument. This research was designed on the basis of a comprehensive review of the literature

and, following a pilot study, and the recommendations of the learning team committee, the content of the survey was modified as necessary. Finally, the variables of six-views are formed by factor analysis

(2) Criterion validity

Criterion validity is defined as "the ability of some measure to correlate with other measures of the same construct" (Zikmund, 2000, 282). In this thesis, if the scores of the six-views measures are positively and highly correlated with effective strategic management, then criterion validity would be evidenced. Therefore, this result will be a good indicator of high criterion validity of this research.

(3) Construct validity

According to Zikmund, construct validity is "the ability of a measure to confirm a network of related hypotheses generated from a theory based on the concepts." (2000, 282) Establishing construct validity happens during the statistical analysis, when the theoretical logic is compatible with the concepts. In this thesis, construct validity is concerned with how well the strategic management factor measures work and why the measures work, which depends on roots, stems, and flowers and fruits to combine the planning view and the integrated five-views. Factor analysis can be used to explore the possible constructs fundamental to the process of strategic management which indicates the existence of an obvious construct rooted in the instrument design.

6.5 Sampling Design

6.5.1 Defining the Population

Population refers to the whole group of people, things or events of interest that the researcher wishes to investigate (Sekaran, 2000). David (1999) mentions that strategic management plays an important role for achieving the mission of big corporations. He further points out that all organizations need strategies. In particular, small to medium sized enterprises also have to carry out strategic management in order to grow and flourish. Thurston (1983) explains that growth is seriously hindered when leaders of small to medium sized enterprises lack knowledge of strategic management. Recently, David (1999) highlights that those who engage in strategic management are achieving better performance than they ever did, especially in small to medium sized enterprises. In this research, the stratification into manufacturing industries, service firms, big corporations and small to medium sized enterprises was chosen for identification of a population. A set of criteria for inclusion in the sample was formulated and is shown in Table 6.2.

Table 6.2 Sample criteria

Sample Criteria
(1) The company must be independent.
(2) The company has been running for five years at least.
(3) The company is a manufacturing industry or service firm.
(4) Manufacturing industries are divided into two groups in terms of capital and the numbers of employees; service firms are divided into two groups in terms of sales and the numbers of employees.

The details are discussed as follows.

(1) The company must be independent: Independent means that the organizations can entirely decide their own strategies rather than receive strategies from their headquarters.

(2) The company has been running for five years at least: This means that the company has robust finances and has been running for a period of time. Small to medium sized enterprises are easily established but if the company lacks the capability to deal with contingencies or emergencies, they are easily closed. Therefore, this research required that these companies have been running for five years.

(3) The company must be a manufacturing industry or service firm: From Table 6.3, it can be seen that manufacturing industries and service firms account for approximately 98.68% of GDP, in 2008. Therefore, manufacturing (including hi-tech) and service firms were chosen as the focus of this research.

Table 6.3 Structure of gross domestic production in Taiwan (Proportion to GDP)

Years	Agriculture (%)	Manufacturing industries(%)	Service firms (%)	Total
2000	1.85	29.22	68.93	100
2001	1.85	27.62	70.53	100
2002	1.86	28.05	70.09	100
2003	1.80	28.14	70.06	100
2004	1.63	29.36	69.01	100
2005	1.44	28.99	69.57	100
2006	1.45	29.37	69.18	100
2007	1.34	31.41	67.25	100
2008	1.32	31.01	67.67	100

(Source: Directorate General of Budget, Accounting and Statistics, DGBAS
Executive Yuan, Taiwan)

(4) Basically, manufacturing industries possess fixed assets such as land and buildings, plant and machinery, and fixtures and fittings. In contrast, service firms do not usually possess land and buildings or plant and machinery. This research, therefore, looks at capital for manufacturing industries, and sales for service firms. Manufacturing industries with capital less than 80 million New Taiwan dollars (NT) or fewer than 200 employees are called small to medium sized enterprises. Those with more than 80 million NT and more than 200 employees are called big corporations. Service firms with sales of less than 100 million NT or fewer than 50 employees are called small to medium sized enterprises. Those with sales exceeding 100 million NT and more than 50 employees are called big corporations (Adopted from Directorate General of Budget, Accounting and Statistics, Executive Yuan, Taiwan, briefly called DGBAS Executive Yuan, Taiwan).

6.5.2 Selecting a Sample

From Table 6.3, the proportion of GDP in manufacturing industries and service firms were 31.01% and 67.67%, respectively, in 2008. Based on the above figures, the sample was divided such that 35% were manufacturing industries and 65% were service firms, as shown in Table 6.4.

Table 6.4 Sampling proportion of manufacturing industries and service firms

			Sub-total	Total
Manufacturing industries (35%)	Big corporations	35	70	200
	Small to medium sized enterprises	35		
Service firms (65%)	Big corporations	65	130	
	Small to medium sized enterprises	65		

Thus, the sample was selected by stratified random sampling, a modification of random sampling in which the population is divided into two or more relevant and significant strata based on one or a number of attributes. Dividing the population into a series of relevant strata means that the sample is more likely to be representative. Sekaran (2000) asserts that stratification is an efficient research sampling design. As Zikmund points out,

> The reason for taking a stratified sample is to have a more efficient sample than could be taken on the basis of simple random sampling…Random sampling error is reduced because the groups are internally homogeneous but comparatively different between groups. More technically, a smaller standard error may be the result of this stratified sample because the groups are adequately represented when strata are combined.
>
> (Zikmund, 2003, 387)

6.5.3 Limitations of the Sample

Here there are three limitations of the sample, including awareness of respondents, scope of sample, and attitudes of respondents, as follows:

(1) Awareness of respondents. In order to boost the response quality of the questionnaire, this research targeted respondents who are senior managers, because they have a deeper understanding about strategic management. Notably, most Taiwanese companies are small to medium enterprises, so that they may have less

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awareness of strategic management concepts. For example, this research mentioned

Lao-Tzu's idea, fuzzy thinking and the six-views' definitions, which needed to be

understood before answering the questionnaire or interview, in order to avoid

inaccuracy of the survey data.

(2) Scope of sample. In the research, the survey carried out by the questionnaire

included the north, middle and south of Taiwan. However, most companies involved

in the interviews and case studies were located in southern Taiwan. It is worth

considering whether different results would be produced by including interviewees

from the north, middle and south districts in Taiwan.

(3) Attitude of respondents. In general, many companies are not interested in

responding to questionnaires or accepting interview. Respondents' data in the

questionnaire and interview, therefore, should be checked to increase reliability and

validity. In particular, in this research, the seventeenth question was used to check

whether or not respondents paid attention to fill the questionnaires. This research tests

the differences between two proportions H_0: $p_1 = p_2$ or H_1: $p_1 \neq p_2$, where with formula

6.1 or 6.2 ($\alpha = 0.05$).

$$z = \frac{(\hat{p}_1 - \hat{p}_2)}{\sqrt{\frac{\hat{p}_1\hat{q}_1}{n_1} + \frac{\hat{p}_2\hat{q}_2}{n_2}}} \qquad (6.1)$$

If $z < z_{(\frac{\alpha}{2})} \ or \ z > z_{(1-\frac{\alpha}{2})}$ then reject H_0; or If p_1-p_2 is located between lower interval:

$$(\hat{p}_1 - \hat{p}_2) - z_{\alpha/2}\sqrt{\frac{\hat{p}_1\hat{q}_1}{n_1} + \frac{\hat{p}_2\hat{q}_2}{n_2}} \text{ or upper interval: } (\hat{p}_1 - \hat{p}_2) + z_{\alpha/2}\sqrt{\frac{\hat{p}_1\hat{q}_1}{n_1} + \frac{\hat{p}_2\hat{q}_2}{n_2}} \text{ then}$$

receive H_0, namely,

$$(\hat{p}_1 - \hat{p}_2) - z_{\alpha/2}\sqrt{\frac{\hat{p}_1\hat{q}_1}{n_1} + \frac{\hat{p}_2\hat{q}_2}{n_2}} < p_1 - p_2 < (\hat{p}_1 - \hat{p}_2) + z_{\alpha/2}\sqrt{\frac{\hat{p}_1\hat{q}_1}{n_1} + \frac{\hat{p}_2\hat{q}_2}{n_2}} \qquad (6.2).$$

The purpose of this test attempts to enhance the reliability and validity of this thesis.

6.5.4 Limitations of Survey-based Research

Zikmund explains, survey as "A research technique in which information is gathered from a sample of people by use of a questionnaire; a method of data collection based on communication with a representative sample of individuals." (2000, 167) He further explained that such surveys require asking people, who are called respondents, for information, using either verbal or written questioning. Questionnaires or interviews are utilized to collect data on the face-to-face and by other communication media.

The possible problems in a survey-based research include: a low response rate, respondents may not completely understand questions, respondents refuse to answer questions, the bias of the object, a poor stratification of the population, and mail surveys which do not allow for easy analysis of individual responses to open-ended questions. All these variations impose limitations in interpreting the results. As Zikmund (2000) noted errors in survey research which include random sampling error and systematic error (including respondent error: non-response error and response

bias; administrative error: data processing error, sample selection error, interviewer error and interviewer cheating). Therefore, this research took into account the above variations.

6.6 Data Analysis

Respondents may fail to answer definite questions or deliberately contort the truth. It is very important, therefore, to consider how to maintain survey data while minimizing errors. In this thesis, in order to get exact data, the survey data was discussed with my learning team committee when the questionnaire responses produced problems and questions.

Basically, in data analysis we have three objectives: getting a feel for the data, testing the integrity of data, and testing the hypotheses developed for the research (Sekaran, 2000). For this research, the SAS computer package was selected to undertake the analysis. The numerical data were described using a frequency distribution; factor analysis understood the items of individual view, and each view's internal consistency with the six-views. Then, the TFN was used to see where the organizations stood on the process of strategic management in Taiwanese companies and which views of strategic management were strong or weak in companies.

Moreover, Duncan's test and paired t-test were utilized to compare manufacturing industries with service firms, and small to medium sized enterprises with big corporations, to see whether they exhibited significant differences in the six-views.

Bi-variate statistics were used to explain the relation between variables and answer the research question: how does the six-views of strategic management relate to each other? Punch (2005) points out, MLR has two advantages: it is flexible to provide different conceptual arrangements among the independent variables with joint effects on a dependent variable; it is easy to conceptualize and operationalize the approach. MLR estimates how much of the variance on the dependent is variable for explaining a particular set of the effects of the different independent variables. Moreover, which independent variables are of most and least importance in explaining variance in the dependent variable, and therefore in bringing about change in the dependent variable. It is a good way to understand what the dependent variable will be when most of the variance is explained. In contrast, if only a small proportion of the variance is accounted for, we still have a long way to go in understanding it. Therefore, MLR is used in this research for predicting an integrated six-views response variable from the six-views variables and understood among cause-and-effect relationship for the six-views model. Spearman rank correlation coefficient was used to test any variables of employee satisfaction, customer

satisfaction and stakeholders' performance indicators. Fuzzy if-then rules try to

identify strategic management by combining the planning view and the integrated

five-views, and stakeholders' performance.

6.7 Case Study

Phase three from Figure 6.1, uses qualitative research interviews. A case study was

used to promote the effectiveness of the fieldwork. The four companies and time table

of the case study are provided in Appendix I. Sekaran points out, "The case study,

which is an examination of studies done in other similar organizational situations, is

also a method of solving problems, or for understanding phenomena of interest and

generating additional knowledge in that area." (2000, 123). For the case study,

extensive preliminary research needs to be done to obtain familiarity with the

phenomena in the situation, and identify what is happening, before a model is

developed and set up as an accurate design for comprehensive investigation. For

example, Mintzberg (1980) interviewed managers to explore the nature of managerial

work. Based on the analysis of his interview data, he formulated theories of

managerial roles. The qualitative research interviews, undertaken as part of this thesis,

were used as case studies to explore in more detail the findings of the survey research.

Yin (2003) refers to the following characteristics of case study research:

(1) The research objectives are not only to explore certain phenomena, but also to recognize them within a particular context.

(2) The research does not start with a set of questions and notions about the limits within which this research will take place.

(3) The research utilizes multiple methods for collecting data which may be both qualitative and quantitative.

In a phenomenological study, it is crucial that researchers quote extensively from the data researchers have collected through the first time interviews and questionnaire (Hussey and Hussey, 1997). The purpose of this stage was to discuss the research findings with qualitative research interviewees of case study, to describe and validate the findings of the questionnaire. Finally, the six-views model was refined.

6.8 Conclusion

This chapter explains how qualitative and quantitative approaches were used to carry out a survey of strategic management for evidencing two hypotheses of this research as it happens in Taiwanese companies. An investigation method with a questionnaire and interviews were developed to understand the process of strategic management,

and organizational performance on the six-views model in Taiwanese companies.

Questionnaires were sent to 70 manufacturing organizations and 130 service firms. A simple frequently distribution was used to compare percentage of positive or neutral or negative responses for the six-views. Duncan's test and paired t-test were applied to evaluate rank of comparing individual view in order to facilitate strategic management. Relating variables of the six-views is based on bi-variate statistics and MLR to explore how important each individual variable is in predicting the dependent variable. The SAS computer package was used to analyze the survey data for statistical inference. Senior managers were interviewed in fifteen companies, including seven manufacturing firms and eight service firms by semi-structured interviews to gain in-depth insight into what kinds of strategic management companies used and how their approach could be improved and further compare the results with the questionnaire's findings.

TFN was used to deal with the survey data in this thesis. A case study with four Taiwanese companies was used to practice the six-views model by exploring the strengths or weaknesses of combining the six-views, and stakeholders' performance with fuzzy if-then rules. On the other hand, it also confirmed the questionnaire and first interviews findings. Finally, the six-views model can be inducted to form new theory by the results of case study.

CHAPTER 7: ANALYSIS OF QUESTIONNAIRE DATA

7.1 Introduction

The purpose of this chapter is to present a descriptive analysis of the questionnaire results. This analysis will assess whether there are six-views which need to be integrated into the strategic management process in Taiwanese companies. In order to encourage a high response rate, the researcher provided return stamped envelopes, assured respondents of anonymity and gave clear instructions for filling in the questionnaire. First, the questionnaires were sent to 70 manufacturing industries and 130 service firms. There were 28 responses from manufacturing industries which included 15 big corporations and 13 small to medium sized enterprises, and 37 responses from service firms which included 23 big corporations and 14 small to medium sized enterprises. The reason for the low response in the small to medium sized sector may be through lack of the recognition of strategic management in these companies. In fact, strategic management can explore the company's direction, how and when growth boosts companies' competitive advantage. These 65 responses, returned from 200 companies, gave a response rate of 32.5%. Only 63 of the returned responses were suitable for use in this research. The detailed results about these

companies' responses are shown in Table 7.1. First, factor analysis is used to present

the six-dimensions from the questionnaire data by SAS package and all items' internal

consistency reliability obtained via Cronbach' α =0.845; each factor's Cronbach' α

was 0.824, 0.883, 0.766, 0.840, 0.785, and 0.899, respectively as shown in Table 7.2.

In turn, the principal component is used to obtain the six numbers of common factors

from greater than one eigenvalue and greater than 0.5 estimated factor loadings,

which was based on varimax and factor rotation.

Table 7.1 Result of questionnaire response

| Responses | Manufacturing industries (70) | | Service firms (130) | | Total |
	Big corporations (35)	Small to medium sized enterprises (35)	Big corporations (65)	Small to medium sized enterprises (65)	(200)
Usable	14 (40%)	13 (37.1%)	23 (35.4%)	13 (20.0%)	63 (31.5%)
Not usable	1 (2.9%)	0 (0%)	0 (0%)	1 (1.5%)	2 (1%)
Not returned	20 (57.1%)	22 (62.9%)	42 (64.6%)	51 (78.5%)	135(67.5%)

7.2 Logic and Language View (Q.1-2)

As mentioned in Chapter 6, the summated ratings method (Zikmund, 2003) was

selected to measure respondents' responses. Response categories were based on five

linguistic variables: strongly agree, agree, neutral, disagree and strongly disagree.

From Table 7.3, it can be seen that about 25.4% of the 63 respondents strongly agreed

that the strategic management process must be communicated with employees and

their participation encouraged in order to boost effective strategic management, while

a further 71.4% respondents agreed with this statement. Interestingly, according to the

findings from the pilot study, a majority of companies recognized the importance of

communication.

Table 7.2 Factor analysis of the six-views

Questionnaire items	Logic and language view	Learning view	Cultural view	Political view	Ethical view	Planning view
Q1	0.548					
Q2	0.684					
Q3		0.621				
Q4		0.718				
Q5		0.809				
Q6			0.614			
Q7			0.610			
Q8			0.840			
Q9				0.820		
Q10				0.778		
Q11					0.890	
Q12					0.872	
Q13					0.662	
Q14						0.751
Q15						0.836
Q16						0.920
Each factor Cronbach' α	0.824	0.883	0.766	0.840	0.785	0.899
All items' Cronbach' α	0.845					
Proportion	15.26%	16.12%	13.23%	10.73%	11.85%	16.01%
Cumulative proportion of total	83.2%					

Table 7.3 Result of Q1

Q1: Does your company agree that the strategic management process must communicate with employees, and stakeholders in order to promote effective strategic management?			
Value label	Frequency	Valid percent	Cum. Percent
Strongly agree	16	25.4	25.4
Agree	45	71.4	96.8
Neutral	2	3.2	100
Disagree	0	0	
Strongly disagree	0	0	

However, some senior managers mentioned in the pilot study that some

companies still maintained communication in the traditional form. Managers' ideas

went beyond the practice of communication in organizations. As Q1 indicates, these

companies would become more effective in strategic management, when they applied

upward and downward, lateral, and integrated communications with employees and

stakeholders in practice, and when employees and stakeholders understand what to do

and how to do their jobs. Furthermore, they can recognize the organizational

objectives, mission, and vision. Therefore, communication is very important in

organizations.

As shown in Table 7.4, approximately 41.3% of the 63 respondents strongly

agreed and 50.8% of the 63 respondents agreed that the strategy-making process

needs fuzzy thinking rather than using crisp thinking. However, about 6.3% of the 63

respondents indicated a neutral attitude, and one company disagreed with this

statement. This suggests that this company still uses crisp thinking in developing its

strategic decisions. By and large, the figures showed that a majority of companies

were aware of the advantage of avoiding dualistic crisp thinking such as competitive

or cooperation, satisfaction or dissatisfaction, in making decisions. Therefore, for

Taiwanese companies to aim at successful decision-making, using diverse fuzzy

thinking is a crucial element.

Table 7.4 Result of Q2

Q2: Does your company believe that the strategy-making process should cultivate fuzzy thinking rather than crisp thinking?			
Value label	Frequency	Valid percent	Cum. Percent
Strongly agree	26	41.3	41.3
Agree	32	50.8	92.1
Neutral	4	6.3	98.4
Disagree	1	1.6	100
Strongly disagree	0		

The responses to these two questions about the aspect of the logic and language view are summarized in Table 7.5. For a triple comparison, responses of strongly agree and agree were considered as positive responses, while responses of disagree and strongly disagree were categorized as negative responses. However, responses of neutral mean that the respondents were not sure, and have neither positive nor negative responses. As shown in Table 7.5, the average proportion of positive responses in the logic and language view was 94.5%, while the average proportion of negative responses was 0.8%, and the average proportion of neutral responses was 4.7%.

Table 7.5 Result of logic and language view

Logic and language view		Negative responses (includes disagree and strongly disagree)		Neutral		Positive responses (includes strongly agree and agree)	
Question	Size	Frequency	Percent	Frequency	Percent	Frequency	Percent
Q1	63	0	0	2	3.2	61	96.8
Q2	63	1	1.6	4	6.3	58	92.1
Average			0.8		4.7		94.5

This implies that strategy needs upward and downward, lateral, and integrated communications for integrating suggestions from stakeholders of organizations in Taiwan. Moreover, these respondents thought that senior managers tend to avoid useless dichotomies in order to assist the creative strategic thinking process. However, only one company disagreed with the logic and language idea, while 4.7% of the 63 respondents were not sure whether their companies had a positive or negative response on this view. This is a rather interesting question which will be examined

further in relation to the interview responses (in Chapter 8).

7.3 Learning View (Q.3-5)

In Table 7.6, about 98.4% of the 63 respondents either strongly agreed or agreed that their companies need to learn and accumulate knowledge for adapting to a dynamic and complex environment. There was only one company that showed a neutral attitude and no company respondents disagreed. The unsure company may have been between a traditional and learning style of management. Evidently, if Taiwanese companies could apply learning and accumulating knowledge to their organizations, it would help them to adapt to environmental challenge.

Table 7.6 Result of Q3

Q3: Does your company believe that learning and accumulating new knowledge can help your organization to fit a dynamic and complex environment?			
Value label	Frequency	Valid percent	Cum. percent
Strongly agree	51	81.0	81.0
Agree	11	17.4	98.4
Neutral	1	1.6	100
Disagree	0	0	
Strongly disagree	0	0	

As shown in Table 7.7, about 58.7% of the respondents strongly agreed that employees need to learn together to improve strategic management, and a further 36.5% agreed with this statement. Comparing Q3 with Q4, it expresses that training and learning together enhances learning through the practice of sharing experience and knowledge in Taiwanese companies.

Table 7.7 Result of Q4

Q4: Does your company agree that employees need to learn together for promoting strategic management?			
Value label	Frequency	Valid percent	Cum. percent
Strongly agree	37	58.7	58.7
Agree	23	36.5	95.2
Neutral	3	4.8	100
Disagree	0	0	
Strongly disagree	0	0	

In particular, Taiwan is famous for its hi-tech industry which focuses on team learning for innovation and R&D. However, about 4.8% of the 63 respondents were neutral. Clearly, these figures show that most Taiwanese companies attach importance to the members of the organization developing their knowledge in order to boost strategic management.

In Table 7.8, approximately 90.5% of the 63 respondents either strongly agreed or agreed that Taiwanese companies believe learning to create good relationships with stakeholders is beneficial for strategy implementation. Conversely, about 7.9% and 1.6% of the 63 respondents showed a neutral attitude and disagreed, respectively. Comparing Q5 with Q3 and Q4, a higher proportion showed a neutral response on Q5. This implies that these companies probably agreed on Q 3 and Q 4, but were doubtful about Q5. This is perhaps because five companies of the 63 respondents thought learning to create interaction with stakeholders is more difficult than the learning expressed in the previous two questions. However, if these companies apply the learning idea in their organizations, they can adapt to environmental variation and

improve interaction with stakeholders for the purpose of successful strategic

management.

Table 7.8 Result of Q5

Q5: Can your company learn to create good interaction with stakeholders to improve strategic management?			
Value label	Frequency	Valid percent	Cum. percent
Strongly agree	16	25.4	25.4
Agree	41	65.1	90.5
Neutral	5	7.9	98.4
Disagree	1	1.6	100
Strongly disagree	0	0	

The overall response to the three questions on the aspect of the learning view is

summarized in Table 7.9. As Table 7.9 shows, about 98.4% of the respondents

believed that organizations can adapt to the environment through continuous learning

and accumulation of new knowledge, while approximately 95.2% of the respondents

agreed with the idea of employees learning together, and a further 90.5% of the

respondents thought that their companies could boost strategic management by

learning to build good relationships with stakeholders. In contrast, the average

proportion of negative responses was 0.5%, and that of neutral responses was 4.8%.

These are quite low proportions and suggest that the learning view has a strong

influence in strategic management.

Table 7.9 Result of learning view

Learning view		Negative responses		Neutral		Positive responses	
Question	Size	Frequency	Percent	Frequency	Percent	Frequency	Percent
Q3	63	0	0	1	1.6	62	98.4
Q4	63	0	0	3	4.8	60	95.2
Q5	63	1	1.6	5	7.9	57	90.5
Average			0.5		4.8		94.7

7.4 Cultural View (Q.6-8)

The following three questions are related to the cultural view. As shown in Table 7.10, about 85.7% of the 63 respondents either strongly agreed or agreed that the organizational culture can integrate individuals or groups into the organizational climate to fulfil its mission. However, about 12.7% of the 63 respondents either had a neutral attitude or disagreed. Perhaps these companies had not built their organizational culture yet or perhaps they have had a negative experience of trying to get employees to fit the desired culture. Evidently, the agree responses show that organizational culture could have a strong influence in achieving organizational objectives.

Table 7.10 Result of Q6

Q6: Does your company think that organizational culture can integrate individuals or groups into the organizational climate to achieve its objective?			
Value label	Frequency	Valid percent	Cum. percent
Strongly agree	14	22.2	22.2
Agree	40	63.5	85.7
Neutral	8	12.7	98.4
Disagree	1	1.6	100
Strongly disagree	0	0	

In Table 7.11, approximately 38.1% of the 63 respondents strongly agreed that creating organizational culture is an important element to implement strategic management successfully, and a further 47.6% of the respondents agreed with this statement. However, about 14.3% of the respondents showed a neutral attitude, suggesting that these companies lacked awareness of the importance of culture.

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Comparing Q6 with Q7, there were a high proportion of neutral attitudes in Taiwanese companies. The reason may be that organizational culture is somewhat intangible and difficult to explain. Basically, if these companies adopted an appropriate organizational culture, they could implement strategic management better. For example, TYC is a small to medium sized company which originally produced and sold car parts. It lacked a good organizational culture and strategic direction. However, in 1994, President Ho brought in the Buddhist culture: A level's employees were to wear uniforms up to built C level of the core idea of Buddhism. He also set a clear strategic direction and concentrated on producing auto lighting. By 1998, as a result, the company had become the biggest manufacturer of auto lighting in Taiwan (Ho, 2000). Another example is Chi-Mei's Lao-Tzu culture, which leads to complete empowerment and promotes employees' enthusiastic participation in making suggestions to reduce operating cost. This made Chi-Mei the biggest ABS (Acrylanitrile, Butadiene and Styrene) manufacturing firm in the world (Hung, 1996).

Table 7.11 Result of Q7

Q7: Does your company believe that creating organizational culture is an essential factor to implement effective strategic management successfully?			
Value label	Frequency	Valid percent	Cum. percent
Strongly agree	24	38.1	38.1
Agree	30	47.6	85.7
Neutral	9	14.3	100
Disagree	0	0	
Strongly disagree	0	0	

As shown in Table 7.12, approximately 30.2% of the 63 respondents strongly agreed that culture change facilitates employees' recognition in order to implement

strategy successfully, and about 61.9% of respondents agreed with this statement. However, 7.9% of respondents either showed a neutral attitude or disagreed (about Q8). This implies that some Taiwanese companies were not aware whether culture change assists in fulfilling strategy, or even doubted it. By and large, the agree responses show that organizational culture plays a significant role in sharing organizational vision and achieving strategic management in Taiwanese companies.

Table 7.12 Result of Q8

Q8: Does your company agree that cultural change facilitates employees' recognition for implementing strategy?			
Value label	Frequency	Valid percent	Cum. percent
Strongly agree	19	30.2	60.2
Agree	39	61.9	92.1
Neutral	4	6.3	98.4
Disagree	1	1.6	100
Strongly disagree	0	0	

The overall response to three questions on the aspect of the cultural view is summarized in Table 7.13. From the table, the average proportion of positive responses on organizational culture was 87.8%, while the average proportion of negative responses was 1.1%, and the average proportion of neutral responses was 11.1%. This shows that the majority of the sampled companies believe that organizational culture facilitates strategy implementation. Definitely, for Taiwanese companies, the culture view has a positive influence on strategic management. Interestingly, however, there were a comparatively high proportion of neutral responses. The reason perhaps is that cultural change needs to be combined with organizational belief over time. This issue will be explored through the interviews.

Table 7.13 Result of cultural view

Cultural view		Negative responses		Neutral		Positive responses	
Question	Size	Frequency	Percent	Frequency	Percent	Frequency	Percent
Q6	63	1	1.6	8	12.7	54	85.7
Q7	63	0	0	9	14.3	54	85.7
Q8	63	1	1.6	4	6.3	58	92.1
Average			1.1		11.1		87.8

7.5 Political View (Q.9-10)

In Table 7.14, approximately 71.4% of the 63 respondents either strongly agreed or agreed that political power can reduce disputes among employees, stakeholders, and organizations. However, about 25.4% of the 63 respondents were not sure whether their companies settle disputes by means of political power or not, and a further 3.2% of respondents expressed disagreement, which seemed a rather high proportion. These companies possibly did not like using power to coerce employees, because it is against human dignity. But, from the large number of positive responses (71.4%), it seems that the majority of Taiwanese companies still use political power to tackle issues of conflict among stakeholders.

Table 7.14 Result of Q9

Q9: Does your company believe that political power can reduce disputes among employees, stakeholders, and organizations?			
Value label	Frequency	Valid percent	Cum. percent
Strongly agree	8	12.7	12.7
Agree	37	58.7	71.4
Neutral	16	25.4	96.8
Disagree	2	3.2	100
Strongly disagree	0	0	

As shown in Table 7.15, it can be seen that only 19.0% of the 63 respondents

strongly agreed that political power could improve the cooperation of stakeholders, although a further 50.8% of respondents agreed with this statement. However, about 23.8% of the respondents were not sure whether or not political power can boost the cooperation relationship with stakeholders, while 6.4% respondents disagreed with this question. Comparing Q9 with Q10, a higher proportion showed a neutral attitude. This suggests that political power has some limitations. Basically, political power, perhaps, is a negative approach to settling conflict between stakeholders, but from the high proportion (69.8%) of positive responses, it may be widely employed in Taiwanese companies.

Table 7.15 Result of Q10

Q10: Does your company believe that political power can promote the cooperation of stakeholders?			
Value label	Frequency	Valid percent	Cum. percent
Strongly agree	12	19.0	19.0
Agree	32	50.8	69.8
Neutral	15	23.8	93.6
Disagree	4	6.4	100
Strongly disagree	0	0	

The answers to these questions on the political view are summarized in Table 7.16. Basically, the average proportion of position responses was 70.6%, while the average proportion of negative responses was 4.8%. However, quite a large proportion of the respondents (24.6%) were not sure whether to agree or disagree about the political view. Possibly these companies believe that in tackling disputes between stakeholders and organizations, the use of political power is only a temporary approach. It is worth exploring this in further detail in the face-to-face interviews. Interestingly, from the pilot study, the research found that some companies emphasized that professional power is necessary in the strategy-making process.

However, it seems insufficient because the argument may be produced among

stakeholders; therefore, this research adds the ethical view to assist in dealing with

conflict among stakeholders.

Table 7.16 Result of political view

Political view		Negative responses		Neutral		Positive responses	
Question	Size	Frequency	Percent	Frequency	Percent	Frequency	Percent
Q9	63	2	3.2	16	25.4	45	71.4
Q10	63	4	6.4	15	23.8	44	69.8
Average			4.8		24.6		70.6

7.6 Ethical View (Q.11-13)

In turn, the following three questions reflect the ethical view. As shown in Table 7.17,

about 46% of the respondents strongly agreed that creating good relationships with

stakeholders assists in fulfilling strategy, while a further 47.6% of respondents agreed

with this statement. Only 4.8% of respondents were not sure about it, and one

company disagreed with this question. Essentially, Q11 indicates that Taiwanese

companies would implement strategy successfully and serve their stakeholders better,

if they could build good relationships with stakeholders.

Table 7.17 Result of Q11

Q11: Does your company agree that creating good relationships with stakeholders is conducive to fulfil strategy?			
Value label	Frequency	Valid percent	Cum. percent
Strongly agree	29	46.0	46.0
Agree	30	47.6	93.6
Neutral	3	4.8	98.4
Disagree	1	1.6	100
Strongly disagree	0	0	

From Table 7.18, it can be seen that approximately 27.0% of the 63 respondents

strongly agreed that Lao-Tzu's idea "put yourself in others' place and be selfless" is a

strategy that can promote effective strategic management; moreover, about 47.6% of

respondents agreed with this philosophy. However, about 23.8% of the 63 respondents

were not sure whether or not their company applied Lao-Tzu's idea in their

organization and 1.6% disagreed. It is not surprising, because these companies may

not have a good awareness about Lao-Tzu's idea, or perhaps they did not know how

to apply it. In short, these companies' strategy would be more effective, if they

applied Lao-Tzu's ethical idea in strategic management.

Table 7.18 Result of Q12

Q12: Does your company agree that Lao-Tzu's idea, "put yourself in others' place and be selfless" as a strategy can promote effective strategic management?			
Value label	Frequency	Valid percent	Cum. percent
Strongly agree	17	27.0	27.0
Agree	30	47.6	74.6
Neutral	15	23.8	98.4
Disagree	1	1.6	100
Strongly disagree	0	0	

The result in Table 7.19 shows that approximately 84.1% of the 63 respondents

either strongly agreed or agreed that ethical ideas result in "mutual trust,"

"commitment," "implementation," and "reputation" with stakeholders. However,

about 15.9% of the respondents either showed a neutral attitude or disagreed with this

question, perhaps as a result of a belief that companies were harmed by stakeholders,

for example by delayed delivery. Clearly, if companies try to create a mutual trust

relationship and win good reputation in business, applying ethical ideas in their

practice could be a corner-stone.

Table 7.19 Result of Q13

Q13: Does your company believe that ethical ideas lead to "mutual trust," "commitment," "implementation," and "reputation," with stakeholders in your company?			
Value label	Frequency	Valid percent	Cum. percent
Strongly agree	17	27.0	27.0
Agree	36	57.1	84.1
Neutral	9	14.3	98.4
Disagree	1	1.6	100
Strongly disagree	0	0	

The overall response to the three questions on the aspect of the ethical view is summarized in Table 7.20. It can be seen the average proportion of positive responses on the ethical view was 84.1%. In contrast, the average proportion of negative responses was 1.6%, while the average proportion of neutral responses was 14.3%. It is clear that Taiwanese companies believe that the ethical idea can assist in promoting good relationships with stakeholders. Furthermore, it can create mutual trust, commitment, implementation, and reputation. The ethical view, therefore, has a strong influence on strategic management in Taiwanese companies.

Table 7.20 Result of ethical view

Ethical view		Negative responses		Neutral		Positive responses	
Question	Size	Frequency	Percent	Frequency	Percent	Frequency	Percent
Q11	63	1	1.6	3	4.8	59	93.6
Q12	63	1	1.6	15	23.8	47	74.6
Q13	63	1	1.6	9	14.3	53	84.1
Average			1.6		14.3		84.1

7.7 Planning View (Q.14-16)

The result from Table 7.21 indicates that about 52.3% of the 63 respondents strongly

agreed that the evaluation index of strategic management must consider both

quantitative and qualitative factors, and a further 39.7% respondents agreed. However,

approximately 6.4% of the 63 respondents were neutral and one company disagreed.

Based on the positive responses, the majority of these companies evaluated the

performance of the organization using both indexes. The company that did not

perhaps preferred to use a quantitative index to analyse organizational performance.

From the discussion above, if Taiwanese companies can use both evaluation indexes

to analyse their performance, it may give a clearer guide to strategic management.

Table 7.21 Result of Q14

Q14: Does your company believe that the evaluation index of strategic management must consider quantitative (such as markets share, profits and sales) and qualitative (such as employee satisfaction, customer satisfaction and stakeholders' performance) analyses?			
Value label	Frequency	Valid percent	Cum. percent
Strongly agree	33	52.3	52.3
Agree	25	39.7	92
Neutral	4	6.4	98.4
Disagree	1	1.6	100
Strongly disagree	0	0	

About 58.7% of the 63 respondents strongly agreed that companies cannot

formulate strategic planning by forecasting alone, as shown in Table 7.22, and

approximately 36.5% of the 63 respondents agreed. However, 4.8% of respondents

gave neutral responses. The findings suggest that most of the companies believed that

in a dynamic and turbulent environment, their companies found strategic planning by

means of predicting very difficult. Thus, Taiwanese companies may need to adjust

their strategic planning over time. Under the impact of a dynamic environment, both

the evaluation indexes mentioned in Q14 provide essential information to modify

strategic planning in organizations.

Table 7.22 Result of Q15

Q15: Does your company have to adjust strategic planning under dynamic and complex environments?			
Value label	Frequency	Valid percent	Cum. percent
Strongly agree	37	58.7	58.7
Agree	23	36.5	95.2
Neutral	3	4.8	100
Disagree	0	0	
Strongly disagree	0	0	

As shown in Table 7.23, approximately 93.6% of the 63 respondents either

strongly agreed or agreed that their companies, in order to promote strategic

management, have to integrate the logic and language, learning, cultural, political and

ethical views, based on a planning view in the strategy-making process in

organizations. However, 4.8% of the 63 respondents did not recognize that using

planning to integrate the five-views would help improve effective strategic

management. This indicates that these Taiwanese companies perhaps only use the

planning view to tackle strategy-making. Nevertheless, if Taiwanese companies can

use the planning view to combine other views in the strategy-making process, it

would be easier for them to promote effective strategic management. The strongly

positive answers from Q15, linked to Q16 which also obtained a high proportion of

positive responses, indicate that the planning view needs to consider diverse thinking

to match environmental impact.

Table 7.23 Result of Q16

Q16: Does your company believe that the strategy-making process has to integrate logic and language, learning, culture, politics and ethics, based on planning to obtain effective strategic management?			
Value label	Frequency	Valid percent	Cum. percent
Strongly agree	15	23.8	23.8
Agree	44	69.8	93.6
Neutral	3	4.8	98.4
Disagree	1	1.6	100
Strongly disagree	0	0	

The overall response to the three questions on the planning view is summarized in Table 7.24. The results indicate that the average proportion of positive responses was 93.6%, while only 1.1% of respondents gave negative responses. Clearly, many Taiwanese companies still prefer strategic planning. Moreover, the proportion of positive responses in Q15 is 95.2%, which was higher than the average proportion, 93.7%. In other words, they believe that adjusting and adapting strategic planning may be inevitable because forecasting changes in the environment is difficult.

Table 7.24 Result of planning view

Planning view		Negative responses		Neutral		Positive responses	
Question	Size	Frequency	Percent	Frequency	Percent	Frequency	Percent
Q14	63	1	1.6	4	6.3	58	92.1
Q15	63	0	0	3	4.8	60	95.2
Q16	63	1	1.6	3	4.8	59	93.7
Average			1.1		5.3		93.6

7.8 Six-views and the Six-views Model (Q.17-18)

The purpose of this question was to test whether or not the respondents had answered the questionnaire carefully. The results from Table 7.25 endorse respondents'

proportion of the six-views: the logic and language view as $\hat{p}_{11} = 90.4\%(57/63)$,

learning view as $\hat{p}_{12} = 93.7\%(59/63)$, cultural view as $\hat{p}_{13} = 85.7\%(54/63)$, political

view as $\hat{p}_{14} = 71.4\%(45/63)$, ethical view as $\hat{p}_{15} = 79.4\%(50/63)$, and planning

view as $\hat{p}_{16} = 95.2\%(60/63)$, respectively which compared with the proportion of

results from individual views, logic and language view as $\hat{p}_{21} = 94.5\%(119/126)$

including Q1 and Q2, learning view as $\hat{p}_{22} = 94.7\%(179/189)$ including Q3, Q4 and

Q5, cultural view as $\hat{p}_{23} = 87.8\%(166/189)$ including Q6, Q7 and Q8, political view

as $\hat{p}_{24} = 70.6\%(89/126)$ including Q9 and Q10, ethical view

as $\hat{p}_{25} = 79.4\%(159/189)$ including Q11, Q12 and Q13, and planning view as

$\hat{p}_{26} = 93.6\%(177/189)$ including Q14, Q15 and Q16, are shown in Tables 7.5, 7.9,

7.13, 7.16, 7.20, and 7.24, respectively. The comparison results from the formula (6.2)

are listed as follows:

(1). Logic and language view: the difference of two proportions is

$\hat{p}_{11} - \hat{p}_{21} = -0.03968$ which was located inside the acceptance range (-0.11622 to

0.036858).

(2) Learning view: the difference of two proportion is $\hat{p}_{12} - \hat{p}_{22} = -0.01058$ which

was located inside the acceptance range (-0.07589 to 0.054731).

(3) Cultural view: the difference of two proportion is $\hat{p}_{13} - \hat{p}_{23} = -0.02116$ which

was located inside the acceptance range (-0.1161 to 0.073772).

(4) Political view: the difference of two proportion is $\hat{p}_{14} - \hat{p}_{24} = 0.007937$ which

was located inside the acceptance range (-0.12943 to 0.145308).

(5) Ethical view: the difference of two proportion is $\hat{p}_{15} - \hat{p}_{25} = -0.04762$ which

was located inside the acceptance range (-0.15488 to 0.059645).

(6) Planning view: the difference of two proportion is $\hat{p}_{16} - \hat{p}_{26} = 0.015873$ which

was located inside the acceptance range (-0.015873 to 0.083336).

From the test of proportion between the six-views and individual view above,

these tests were all accepted H_0. Therefore, it revealed that all senior managers filled

the questionnaires carefully and enhanced reliability and validity of this research. In

short, the outcomes provided supporting evidence that the six-views have crucial

influence in strategic management in Taiwan.

Table 7.25 Result of Q17

Q17: Would you please rate the importance of the six-views for promoting strategic management in your company respectively? Logic and language view? Learning view? Culture view? Political view? Ethical idea? Planning view?							
Six-views		Negative responses (includes disagree and strongly disagree)		Neutral		Positive responses (includes strongly agree and agree)	
Question	Size	Frequency	Percent	Frequency	Percent	Frequency	Percent
Q17$_1$ (Logic and language view)	63	1	1.6	5	7.9	57	90.4
Q17$_2$ (Learning view)	63	1	1.6	3	4.7	59	93.7
Q17$_3$ (Cultural view)	63	2	3.2	7	11.1	54	85.7
Q17$_4$ (Political view)	63	5	8.0	13	20.6	45	71.4
Q17$_5$ (Ethical view)	63	4	6.3	9	14.3	50	79.4
Q17$_6$ (Planning view)	63	1	1.6	2	3.2	60	95.2

In Table 7.26 question 18(1-1, 1-2, and 1-3), about 47.6%, 49.2%, and 47.6% of

the 63 respondents strongly agreed that they would accept the six-views to promote

supply chain operation better in their organizations. Only 3.2%, 1.6%, and 4.8%

respondents were not sure about it, though no company disagreed or strongly

disagreed with this question. This indicated that the six-views can be considered in

Taiwanese companies which seek for an approach for improving supply chain

operation. There were 98.4%, 96.8%, and 90.4% positive responses from question

18(2-1, 2-2, and 2-3) they believed the six-views as roots for promoting employee

satisfaction, customer satisfaction, and stakeholders' performance, while there were

1.6%, 3.2%, and 8.0% companies showing uncertainty. This indicates that some

companies cannot understand performance evaluation indicators which are based on

reinforcing the six-views, particularly stakeholders' performance.

The results in Tables 7.5, 7.9, 7.13, 7.16, 7.20 and 7.24 showed that the overall

level of positive responses for the logic and language view was 94.5%, for the

learning view 94.7%, for the cultural view 87.8%, for the political view 70.6%, for the

ethical view 84.1% and for the planning view 93.7%. The results of Q1-Q16 are

consistent with Q17. Furthermore, Q18 (1-1, 1-2, and 1-3) and (2-1, 2-2, and 2-3) also

offers a definite response. The outcome of the questionnaire analysis, therefore,

implies that in the opinion of the respondents the six-views model: roots, stems, and

flowers and fruits is a potential influence on strategic management in Taiwanese

companies.

Table 7.26 Result of Q18

Q18: In terms of the answer of the six-views above, compare the supply chain operation management of your company to that of your competitors, including inputs: product design and suppliers, process: pricing, manufacturing, inventory, lead time, and outputs: transportation and service. Moreover, participants were also asked to compare the overall performance of their company to that of their competitors, considering key performance including employee satisfaction, customer satisfaction and stakeholders' performance.
18 (1-1) Better inputs; 18 (1-2) Better process; 18 (1-3) Better outputs; 18 (2-1) Better employee satisfaction ; 18 (2-2) Better customer satisfaction; 18 (2-3) Better stakeholders' performance.

Value label	Frequency						Valid percent						Cum. percent					
	18(1)			18(2)			18(1)			18(2)			18(1)			18(2)		
	1-1	1-2	1-3	2-1	2-2	2-3	1-1	1-2	1-3	2-1	2-2	2-3	1-1	1-2	1-3	2-1	2-2	2-3
Strongly agree	30	31	30	31	30	29	47.6	49.2	47.6	49.2	47.6	46.0	47.6	49.2	47.6	49.2	47.6	46.0
Agree	31	31	30	31	31	28	49.2	49.2	47.6	49.2	49.2	44.4	96.8	98.4	95.2	98.4	96.8	90.4
Neutral	2	1	3	1	2	5	3.2	1.6	4.8	1.6	3.2	8.0	100	100	100	100	100	98.4
Disagree	0	0	0	0	0	1	0	0	0			1.6						100
Strongly disagree																		

7.9 Further Analysis and Discussion of the Findings from the Questionnaires

This research here tries to discuss the research questions mentioned in Chapter 6,

based on the findings from questionnaires. Two research questions are listed and

discussed in turn as follows:

> • Is the six-views an essential factor to promote strategy formulation and implementation in
>
> the strategy-making process for Taiwanese companies?
>
> • Can the six-views as organizational roots be used to facilitate effective strategy
>
> formulation and implementation further enhance organizational performance?

7.9.1 Is the Six-views an Essential Factor to Promote Strategy Formulation and Implementation in the Strategy-making Process for Taiwanese Companies?

(1) Discussing the degree of importance of the six-views in strategy formulation and
implementation

The five linguistic variables of the questionnaire: strongly agree, agree, neutral,

disagree and strongly disagree are ambiguous judgments. Since fuzzy variables catch

measurement uncertainties as part of experimental data, they are more adaptive to

reality than crisp variables (Klir and Yuan, 1995). This research, therefore, attempts to

discover the strengths or weaknesses of the six-views using TFN for combining

strategy formulation and implementation. This research divides the survey data into

five distinct groups. The total average importance degree for every dimension of the

six-views was calculated. The results are summarized as shown in Table 7.27 (for

overall 63 companies, 151 senior managers).

Table 7.27 shows that Taiwanese companies preferred the learning view, the

six-views and the planning view. The total average importance scores for the learning

view was 79.3, namely, strong to the degree 0.56 and very strong to the degree 0.44 =

0.779, which was the highest. Q3 and Q4 had a higher ranking, but Q5 revealed a

lower ranking compared with other average scores from the questionnaire findings.

This indicates that Taiwanese companies have a strong awareness of the value of

learning together and accumulating knowledge. However, they may not believe that

creating good interaction with stakeholders can promote strategic management.

According to Taiwanese business culture, many Taiwanese companies prefer social

activities, in particular, a special dinner with bargirl accompaniment, as a way to build

a good personal relationship with stakeholders.

Table 7.27 The total average importance degree on the six-views for combining strategy formulation and implementation

Experts / Items	S_1	$S_2.....$	S_{151}	TFN: $(\overline{LS},\overline{MS},\overline{US})$	Average of Defuzzification $(\overline{DS})=(\overline{LS},\overline{MS},\overline{US})/3$	Ranking	The important degree of total average (COA)
Logic and language view							
Q1				(63,82,82)	75.7	7	75.2 (S 0.75; VS 0.25)
Q2				(61,81,82)	74.7	9	$\rightarrow$ 0.746
Learning view							
Q3				(73,92,92)	85.7	1	79.3 (S 0.56; VS 0.44)
Q4				(67,86,87)	80	3	$\rightarrow$ 0.779
Q5				(59,78,80)	72.3	12	
Cultural view							
Q6				(56,76,78)	70	14	71.7 (S 0.92; VS 0.08)
Q7				(58,78,79)	71.7	13	$\rightarrow$ 0.709
Q8				(61,79,80)	73.3	11	
Political view							
Q9				(55,72,74)	67	16	66.9 (M 0.12; S 0.88)
Q10				(55,71,74)	66.7	17	$\rightarrow$ 0.644
Ethical view							
Q11				(64,83,84)	77	6	71.7 (S 0.92; VS 0.08)
Q12				(55,73,76)	68	15	$\rightarrow$ 0.709
Q13				(57,75,78)	70	14	
Planning view							
Q14				(67,87,87)	80.3	2	77.8 (S 0.63; VS 0.37)
Q15				(66,86,86)	79.3	4	$\rightarrow$ 0.767
Q16				(60,80,81)	73.7	10	
Six-views							
Q17 (1)				(59,77,78)	71.3		
Q17 (2)				(64,83,84)	77		
Q17 (3)				(59,77,79)	71.7		73.6 (S 0.83; VS 0.17)
Q17 (4)				(60,79,80)	73		$\rightarrow$ 0.730
Q17 (5)				(54,71,75)	66.7		
Q17 (6)				(68,88,89)	81.7		
Q18(1) 1-1				(65,85,88)			
1-2				(67, 86, 86)	78.4	5	
1-3				(62,83,84)			77.0 (S 0.65; VS 0.35)
Q18(2) 2-1				(62, 81, 82)			$\rightarrow$ 0.763
2-2				(62,81,82)	75.6	8	
2-3				(64, 83, 83)			

(Note 1: 158 experts have 7 ineffective samples)
(Note 2: COA as shown formula 4.6)

Nevertheless, some companies ignore appropriate learning which can create good relationships with stakeholders. Similarly, Taiwanese companies also paid attention to the aspect of the planning view. There were higher rankings in Q14 and Q15, but Q16 obtained a lower level compared with other average scores from the survey information. This information showed that these companies emphasized quantitative and qualitative approaches to evaluate organizational performance. At the same time, they also asserted that companies need to adjust their strategic planning to adapt to environmental changes. However, in Q16 it was found that three companies

may not have a good recognition regarding whether the planning view combines the integrated five-views in the strategy-making process. However, comparing Q16 with Q18 (1-1, 1-2, and 1-3) and (2-1, 2-2, and 2-3), it seems that the majority of Taiwanese companies had high average scores, which indicates that the six-views ought to be considered as roots to improve strategy formulation and implementation, and eventually, facilitate employee satisfaction, customer satisfaction, and stakeholders' performance. Conversely, the average importance scores of 66.9, namely, moderate to the degree 0.12 and strong to the degree $0.88 = 0.644$ for the aspect of the political view was the lowest. This means that tackling disputes between organizations and stakeholders through political power may be insufficient. Therefore, this research proposes the ethical view to complement for this deficiency to promote effective strategic management.

(2) Duncan's multiple range test and paired t-test

In order to explore whether manufacturing industries, service firms, big corporations and small to medium sized enterprises are significantly different in the six-views, Duncan's test and paired-t test were carried out.

• Duncan's multiple range test

When comparing more than two means, an ANOVA F-test tells us whether the means are significantly different from each other, but it does not tell us which means differ

from other means. Black (1999) points out that   Duncan's test is designed to keep a protection level α_{prot} constant for a set of data and is more powerful in investigating differences across two or more groups.

From Table 7.28(1), it can be seen that in the companies, overall, the learning view, planning view and six-views belonged to "Group A". The six-views and the logic and language view were positioned in "Group B". The logic language view, cultural view and ethical view belonged to "Group C".   The political view, however, was placed in "Group D" and it had a significantly lower rating compared with the other views.

Table 7.28(2) indicated that the big corporations in manufacturing industries, the six-views, learning, and planning views were placed in "Group A". The six-views, planning, cultural, logic and language, and ethical views belonged to "Group B". The political view was located at a lower rank in "Group C".

Table 7.28(3) shows that small to medium sized enterprises in manufacturing industries, the six-views, learning, , planning, and logic and language views belonged to "Group A". The six-views, planning, logic and language, cultural and ethical views were located in "Group B". Finally, the political view was situated in "Group C" and it had a significantly lower score than the other views.

Table 7.28 The result of Duncan's test

(1) Duncan's test of the six-views for overall company		
Duncan grouping	Mean	Individual view and Six-views
A	4.48016	Learning view
A	4.40476	Planning view
B A	4.36905	Six-views
B C	4.23214	Logic and language view
C	4.16270	Cultural view
C	4.11111	Ethical view
D	3.91667	Political view
(2) Duncan's test of the six-views for big corporations in manufacturing industries		
Duncan grouping	Mean	Individual view and Six-views
A	4.6345	Learning view
B A	4.4578	Six-views
B A	4.4550	Planning view
B	4.3302	Cultural view
B	4.3128	Logic and language view
B	4.2904	Ethical view
C	3.9203	Political view
(3) Duncan's test of the six-views for small to medium sized enterprises in manufacturing industries		
Duncan grouping	Mean	Individual view and Six-views
A	4.6061	Learning view
B A	4.5455	Six-views
B A	4.4394	Planning view
B A	4.3636	Logic and language view
B	4.3333	Cultural view
B	4.2576	Ethical view
C	3.8636	Political view
(4) Duncan's test of the six-views for big corporations in service firms		
Duncan grouping	Mean	Individual view and Six-views
A	4.3250	Planning view
A	4.2750	Learning view
A	4.2750	Six-views
A	4.2250	Logic and language view
B	3.9833	Cultural view
B	3.9583	Ethical view
C	3.6375	Political view
(5) Duncan's test of the six-views for small to medium sized enterprises in service firms		
Duncan grouping	Mean	Individual view and Six-views
A	4.6667	Learning view
A	4.6000	Six-views
B A	4.5333	Planning view
B A	4.4000	Political view
B A	4.3333	Ethical view
B A	4.1000	Logic and language
B	3.8667	Cultural view

Table 7.28(4) reveals that in the big corporations in service firms, the seven

variables were divided into three groupings. First, "Group A" included the planning

view, learning view, and six-views. "Group B" consisted of the cultural view and ethical view, with no significant difference. And, the political view was positioned in the lowest ranked "Group C".

According to Table 7.28(5), in small to medium sized enterprises in service firms, the seven variables were segmented into two groupings. "Group A" included the learning view, six-views, planning view, political view, ethical view and logic and language view. "Group B" contained the planning view, political view, ethical view, logic and language, and cultural view.

Based on the discussion above, Duncan's test reveals that the learning, planning and six-views ranked the top three in strategic management. This implies that the learning and planning views are established concepts in the strategy-making process, and it also reveals that the six-views has a holistic impact for strategic management in Taiwanese companies. However, the political view is ranked much lower, which suggests that the majority of Taiwanese companies are seeking how to tackle stakeholders' issues.

• Paired t-test

The paired t-test is designed to discover that two groups are assigned to the experimental groups based on some traits that will influence the dependent variable (Black, 1999). The results of the paired t-test comparing manufacturing industries

with service firms and big corporations with small to medium sized enterprises are shown in Table 7.29. In this research, the level of significance adopted for statistical tests was $\alpha = 0.01$, $\alpha = 0.05$ and $\alpha = 0.10$. The results indicate that manufacturing industries and service firms were not significantly different in scores on the logic and language, political, ethical, planning and six-views. However, for the learning and cultural views, there were significant differences.

These results may be because manufacturing industries need to undertake R&D, pay attention to seek for substitute material, carry out innovation and improve the process of production, so manufacturing industries place more emphasis than service firms on these views.

In turn, there was no significant difference between big corporations and small to medium sized enterprises, for any of the views except the learning, cultural and ethical views. Basically, as a result of small to medium sized enterprises seeking for competitive advantages, perhaps they paid more attention to creating good relationships with stakeholders, such as strategic alliance with up-stream and down-stream companies. Furthermore, the small to medium sized enterprises may not focus on how to do strategic management effectively. However, big companies are more aware that learning experiences and accumulation of knowledge are essential in order to boost their competitive competences.

Table 7.29 Paired t-test compare manufacturing industries with service firms and compare big corporations with small to medium sized enterprises

Individual view and Six-views	Type	Mean	Prob. < 0.05	Significant level
Logic and language view	Manufacturing Service	8.5188 8.4222	0.3990	No significant
	Big Small to medium sized	8.4596 8.6296	0.3891	No significant
Learning view	Manufacturing Service	13.5188 12.9555	0.0452**	**Yes significant**
	Big Small to medium sized	13.2419 13.8518	0.0148**	**Yes significant**
Cultural view	Manufacturing Service	12.5943 11.9111	0.0071***	**Yes significant**
	Big Small to medium sized	12.3145 12.7407	0.0576*	**Yes significant**
Political view	Manufacturing Service	7.8113 7.4444	0.1077	No significant
	Big Small to medium sized	7.6532 7.9259	0.1648	No significant
Ethical view	Manufacturing Service	12.4245 12.0000	0.0665*	**Yes significant**
	Big Small to medium sized	12.1854 12.8148	0.0073***	**Yes significant**
Planning view	Manufacturing Service	13.2358 13.0444	0.3280	No significant
	Big Small to medium sized	13.1370 13.3703	0.2547	No significant
Six-views	Manufacturing Service	4.4056 4.3111	0.5071	No significant
	Big Small to medium sized	4.3387 4.5555	0.3253	No significant

* $\alpha = 0.10$; ** $\alpha = 0.05$;*** $\alpha = 0.01$

7.9.2 *Can the Six-view as Organizational Roots Be Used to Facilitate Effective Strategy Formulation and Implementation Further Enhance Organizational Performance?*

The Pearson correlation coefficient is widely used to discuss survey results to explore

the degree of relationship between factors (Bernard, 2000). In this research, a Pearson

correlation coefficient was computed to examine the relationship between the individual view and the six-views in strategic management. Seven variables were used for the correlation analysis: the logic and language, learning, culture, politics, ethics, planning views and six-views. The following hypothesis tests were conducted:

(1) Hypotheses. $H_0: \rho = 0,$ $H_1: \rho \neq 0,$ Where, ρ, is called the population correlation coefficient. (2) Statistic test. This research computes the statistic test by the following equation: $t = r\sqrt{\dfrac{n-2}{1-r^2}}$, if H_0 is true and the assumptions are met, the statistic is distributed as Student's t with n-2 degrees of freedom. (3) The level of significance. Let $\alpha = 0.05$. (4) Decision rule. Reject H_0 if the computed t is either $\leq -2.306\, or \geq 2.306$. (5) Calculations. When one uses a computed for correlation analysis, the computed values of r and t are usually parts of the output. Formulas for r as follows: $r = \dfrac{n\sum x_i y_i - (\sum x_i)(\sum y_i)}{\sqrt{n\sum x_i^2 - (\sum x_i)^2}\,\sqrt{n\sum y_i^2 - (\sum y_i)^2}}$ (6) Statistical decision. The decision rejects or accepts H_0. (7) Conclusion. The conclusion is that the individual view and the six-views are correlated; P< 0.010.

Table 7.30 reveals that the six-views had a higher correlation coefficient with the individual view. The highest correlation coefficient of 0.73060 is discovered between the six-views and the learning view. This shows that the learning view is an essential factor in Taiwanese companies. However, from descriptive statistics this research found that the two views above have positive influence accounting for 70.6% and

84.1%, respectively for promoting strategy formulation and implementation (see

Tables 7.16 and 7.20) so that they also were considered in the six-views model.

Table 7.30 Correlation matrix of individual view and six-views

	Logic and language view	Learning view	Cultural view	Political view	Ethical view	Planning view	Six-views
Logic and language view	1.000 P= 0.0	0.60171 P=0.0001	0.52547 P=0.0001	0.54127 P=0.0001	0.62102 P=0.0001	0.51120 P=0.0001	0.56402 P=0.0001
Learning view	0.60171 P=0.0001	1.000 P= 0.0	0.58801 P=0.0001	0.52210 P=0.0001	0.54127 P=0.0001	0.57183 P=0.0001	0.73060 P=0.0001
Cultural view	0.52547 P=0.0001	0.58801 P=0.0001	1.000 P= 0.0	0.52104 P=0.0001	0.62987 P=0.0001	0.58221 P=0.0001	0.57183 P=0.0001
Political View	0.54127 P=0.0001	0.52210 P=0.0001	0.52104 P=0.0001	1.000 P= 0.0	0.63812 P=0.0001	0.50111 P=0.0001	0.53237 P=0.0001
Ethical View	0.62102 P=0.0001	0.54127 P=0.0001	0.62987 P=0.0001	0.63812 P=0.0001	1.000 P= 0.0	0.61132 P=0.0001	0.55582 P=0.0001
Planning View	0.51120 P=0.0001	0.57183 P=0.0001	0.58221 P=0.0001	0.50111 P=0.0001	0.61132 P=0.0001	1.000 P= 0.0	0.62958 P=0.0001
Six-views	0.56402 P=0.0001	0.73060 P=0.0001	0.57183 P=0.0001	0.53237 P=0.0001	0.55582 P=0.0001	0.62958 P=0.0001	1.000 P= 0.0

This thesis, therefore, argues that the six-views can be integrated with some

degree of intersection to improve strategic management in organizations. This is

consistent with the definite response to Q18 (1-1, 1-2, and 1-3); and (2-1, 2-2, and

2-3), 96.8%, 98.4% and 95.2%; and 98.4%, 96.8% and 90.4% respondents gave

positive responses to strategy implementation and performance, respectively, as

shown in Table 7.26.

From multiple linear regression analysis, this thesis found that four views

including the cultural view, learning view, planning view, and logic and language

view had significant influence to promote strategic management as shown in Table

7.31. F= 29.557 (P<0.001) and adjusted R^2= 0.3158 showed that the regression

equation could predicted efficiency to effective strategic management. From

parameter estimates, this research discerned that the cultural view was the most

important influence variable in effective strategic management; then the sequential

order was the learning view, planning view, and logic and language view, respectively.

Table 7.31 Multiple linear regression analysis of the six-views

Variable	Parameter estimate	t	Prob>$|t|$	Variance Inflation Factor
Intercep	1.450042	2.314	0.0221	0.00000000
Logic and language view	0.113352	1.733	0.0852	1.01381858
Learning view	0.137779	2.276	0.0243	1.06913939
Cultural view	0.189405	3.032	0.0029	1.03865354
Political view	0.060195	0.860	0.3911	1.03175531
Ethical view	0.069452	0.848	0.3975	1.13479510
Planning view	0.129100	1.917	0.0572	1.04492010

The coefficient of determination from the regression equation is not high because of

the complex and dynamic characteristics in strategic management. However, there are

different requirement to R^2 in different fields. For example, natural science has a

higher requirement than social science. In general, social science, as regards

independent variables, can reasonably predict dependent variable while adjusted R^2 is

greater than 0.3 (Chen, 1996). In turn, stepwise regression obtained four views into

this model as shown in Table 7.32 and F= 29.108 (P<0.001) and adjusted R^2= 0.3208,

respectively.

Table 7.32 Stepwise regression analysis of the six-views

Variable	Parameter estimate	t	Prob>$|t|$	Variance Inflation Factor
Intercep	1.904865	3.760	0.0002	0.00000000
Logic and language view	0.113244	1.746	0.0830	1.00019818
Cultural view	0.202075	3.282	0.0013	1.01167998
Learning view	0.148006	2.530	0.0125	1.00096419
Planning view	0.135951	2.054	0.0417	1.01191328

Comparing the two adjusted R^2 of MLR and stepwise regression, this research found

that the regression model may drop out the political and ethical views. However, from

Eastern and Western management literature, this research found that powerful

leadership style has significant influence in organizational reengineering such as

Wal-Mart, Southwest Airlines, Taiyen Limited Company and Yulon Motor as

mentioned in section 2.4. In terms of the ethical view, Watkins (2003) mentioned at

Enron that ethical lapses of the leaders saturate throughout the organization and

people have much larger problems throughout with middle-lower management. Many

scholars interpret the capitalist system as a three-legged stool: economic freedom,

political freedom, and moral responsibility. The stool topples when there is a

weakness in any one. Watkins argues, "I think when you see an ethical lapse like that,

you ought to leave the company, because if it's at the top, something bad is going to

happen somewhere down the line. You want ethical leaders at the top" (2003, 17). In

fact, from descriptive statistics this research found that the political and ethical views

above have positive influence, accounting for 70.6% and 84.1%, respectively for

promoting strategy formulation and implementation (see Tables 7.16 and 7.20) so that

they also were considered in six-views model.

From the multiple linear regression analysis, this research found that the

"Variance inflation factor (VIF)" was near 1 and less than 10 (Hair *et el.,* 2006). This

showed that multicollinearity among the six-views was not a severe problem because

a value of VIF close to 1 indicates no relationship, while larger values indicate

presence of multicollinearity (Sen and Srivastava, 1990). This thesis, therefore, argues

that the six-views can be integrated to improve strategic management in organizations.

This is consistent with the definite response to Q18 (1-1, 1-2, and 1-3); and (2-1, 2-2,

and 2-3), 96.8%, 98.4% and 95.2%; and 98.4%, 96.8% and 90.4% respondents gave

positive responses, respectively, as shown in Table 7.26.

Multiple linear regression equation for the six-views and supply chain operation

of the six-views model, which included reprehensive roots, stems as independent

variables and performance evaluation as the dependent variable, was computed. As a

result, two independent variables were identified as statistically significant predictors

of performance evaluation as shown in Table 7.33. F= 21.631 (P<0.001) and adjusted

R^2 = 0.4109 displayed that six-views and supply chain operation can be predicted

capability of organizational performance.

Table 7.33 Multiple linear regression analysis among the six-views, supply chain operation
and performance evaluation

Variable	Parameter estimate	t	Prob>|t|	Variance Inflation Factor
Intercep	1.721445	3.115	0.0170	0.00000000
Six-views	0.142407	3.353	0.0038	1.04167413
Supply chain operation	0.182402	3.558	0.0089	1.07048833

VIF was less than 10 so the regression equation multi-colinearity was not serious.

In fact, the six-views puts emphasis on people's positive interaction behaviour while

supply chain operation focuses on companies' businesses, so enhancing organizational

performance. Similarly, Kaplan and Norton (1996; 2008) point out that improving organizations' financial performance should reinforce customer satisfaction, organizational employees' learning and internal operation processes. In addition, Heskett *et al*. (2008), "Putting the Service-profit Chain to Work," also mentions the above same ideas. The six-views is proposed, therefore, as organizations' roots for boosting employee satisfaction, customer satisfaction, and stakeholders' performance by supply chain operation of SBU.

7.10 Conclusion

This chapter has reported the results of a questionnaire survey from 63 companies which included 27 manufacturing industries, 36 service firms (or 37 big corporations, 26 small to medium sized enterprises) in Taiwanese companies on the subject of strategic management. Based on the foregoing discussion, six important findings are produced as follows:

(1) The majority of surveyed companies believe that strategy requires downward and upward, lateral, and integrated communications to stakeholders (Beer *et al*., 2005) and most senior managers hope to avoid dichotomies as much as possible, for aiding strategy-making, in line with critical systems thinking, which highlights holistic and

pluralistic thinking for promoting strategic management.

(2) From the survey findings, irrespective of organization type - the learning was accorded especially high importance. In particular, the learning view was always in the highest category (A) in Duncan's test, consistent with the results of the frequency distribution. Therefore, learning together is the main way to deal with the strategy-making process in Taiwanese companies.

(3) Although the political view obtained an average of 70.6% positive responses, , it also got an average of 24.6% neutral responses and 4.8% negative responses. Clearly, using political power to deal with stakeholders' issues may be difficult and unhelpful. Instead, Lao-Tzu's idea of ethics can facilitate stakeholders' cooperation. From Table 7.20, this view received positive responses from 84.1% of the sample. In particular, ethical ideas could lead to "mutual trust," "commitment," "implementation," and "reputation" with stakeholders. It is obvious that the ethical view has a significant influence in strategic management.

(4) Overall, the 63 companies believed that the planning view is needed in the strategy-making process. Particularly, these companies highlight that both indexes, the quantitative and the qualitative, must be considered in strategic management. Fuzzy if-then rules can be applied to create a series of possible situations for strategic management with the six-views and combine formulation and implementation.

(5) From Duncan's test it was found that the learning, planning and six-views are ranked as the top three views in Taiwanese companies. This represents that the planning view is a traditional tool of strategic management, the learning concept has recently become prevalent in organizations and the six-views has holistic influence for strategic management in Taiwanese companies. The political view was rated as less important, which indicates Taiwanese companies need to discover a beneficial way to assist in tackling stakeholders' issues, as indicated in Table 7.19, the ethical idea can nurture good relationships with stakeholders in organizations. Interestingly, the paired t-test revealed that the learning and cultural views are perceived significantly different between manufacturing industries and service firms. Manufacturing industries may have more learning experiences and shared experiences in order to boost R&D and capabilities of production process than service firms. Furthermore, big corporations and small to medium sized enterprises differed significantly in the ethical and learning views. Small to medium sized enterprises may pay more attention to creating good relationships with stakeholders and learning ideas in their operation process than big companies.

(6) Based on multiple linear regression analysis, this research found that four views, the cultural view, learning view, planning view, and logic and language view have a significant influence to effective strategic management. From Eastern and Western

management literature and descriptive statistics, this research discovered that the

political and ethical views can also promote effective strategic management (see

Tables 7.16 and 7.20). Furthermore, VIF of regression analysis was less than 10.

Therefore, this research inferred that multicollinearity among the six-views to

promote effective strategic management was not serious. On the other hand, the

six-views model shows that Taiwanese companies can enhance organizational

performance by reinforcing the six-views and promoting supply chain operation. In

order to shed more light on "what" is being done about strategic management in

Taiwanese companies, and "how", the face-to-face interviews will be discussed in the

next chapter.

CHAPTER 8: INTERVIEW RESULTS

8.1 Introduction

Chapter 7 has interpreted the results of the questionnaire answered by senior managers from Taiwanese companies. The first face-to-face interviews attempted to explore in more detail "what" and "how" those companies have done concerning insufficiencies of the planning view related to promoting strategic management. The sample for this purpose was fifteen of the surveyed companies from return letters including seven manufacturing industries (five big corporations and two small to medium sized enterprises) and eight service firms (three big corporations and five small to medium sized enterprises), as depicted in Table 8.1.

Table 8.1 The name of interviewees

	Manufacturing industries (7)	Service firms (8)
Big corporations (8)	**Uni-P**: Uni-President Enterprises Corporation **CMC**: Chi Mei Corporation **FLEX**: FLEXium Interconnect, Inc. **CMOC**: Chi Mei Optoelectronics Corp. **TI**: Tuntex Incorporation	**TIC**: Triumph International Corporation **UPCC**: Uni-President Cold-Chain Corporation **NIC**: Nan shan life Insurance Company
Small to medium sized enterprises (7)	**TYC**: TYC Brother Industrial Co. Ltd. **CREC**: Chih Ro Enterprise Co. Ltd.	**HK**: Hotel Kingdom **WYSER**: WYSER International Corp. **CIHC**: Central Investment Holding Co. Ltd. **CSCL**: China Securities Co. Ltd. **FCC**: Fuly Construction Corporation

This research maintains participants' anonymity, by referring to the fifteen companies as A, B, C, D, E, F, G, H, I, J, K, L, M, N and O. A detailed explanation is shown in

Appendix H.

During the interview, strict confidentially and anonymity were emphasized. Chinese, Taiwanese, and English were employed to communicate. The purpose of the investigation was explained clearly. Permission for tape-recording was sought. Notes were also taken during interviews. The use of a tape recorder does not eliminate the need for taking notes, which can at least serve two purposes. Firstly, it can formulate new questions as the interview moves along. Secondly, taking notes about what is said will facilitate later analysis, including locating important quotations from the tape itself (Patton, 1990). Simultaneously, some explanation and examples were given if some terminology, e.g., Lao-Tzu's idea, was unfamiliar to the respondents. I also had to be patient and wait while senior managers dealt with emergent matters. The interviewees were aware that this research was, to some extent, related to their work, and that detailed information and suggestions would be appreciated.

In the first interviews, interviewees were asked two main questions by means of a semi-structured interview form, as shown below:

- What the companies have done about strategy formulation and implementation in line with the six-views in Taiwan and "how".
- What improvement could be added to strategic management to make organization performance more effective?

Thus, the interviews included two parts. The first part of the interview was intended

to investigate "what" Taiwanese companies have done about strategy formulation and implementation with the six-views explained in Chapter 2, and how. The six-views model was discussed to identify "what" and "how" the companies have done about combining strategy formulation and implementation further to enhance organizational performance. In the second part, recommendations were obtained from the interviewees. The interviewees' answers and clarifications are interpreted in the following sections.

8.2 'What' and 'How' the Companies Have Done

This research here tries to recognize "what" and "how" Taiwanese companies have done in terms of the six-views.

(1) Logic and language view

One of the six insufficiencies of the planning view, is the need for organizations to recognize communication and fuzzy thinking as crucial factors to effective strategic management. Most interviewees highlighted the need to cultivate fuzzy thinking and encourage communication among organizational members to improve effective strategic management. According to the results from the questionnaire, the logic and language view had a high average score. However, six companies were not sure

whether or not communication and diverse thinking can promote strategic

management. It was considered interesting to explore this finding by means of

face-to-face interview. A president of a large service firm I endorsed the importance

of the logic and language view. He said:

> Our company's strategy needs upward and downward, lateral, even integrated
> communications for effective implementation which is based on bottom to upper.
> On the other hand, it may be produced by the leader's words. In any strategy
> formulation, we constantly debate and communicate the strategy from different
> perspectives, even including our customers and stakeholders. It is through
> communication that all people understand the company's objectives and what
> they should do.

A chairman of a small service firm L reinforced the merit of the logic and language

view. He said,

> Strategy formulation is a process of emergence, sometimes it involves intuition,
> experiential judgment and creativity. Before strategy formulation, our company
> has a series of brainstorming through meeting and face-to-face communication,
> then decides an ideal strategic direction.

A chairman of a large manufacturing company C highlighted that: "Wide

communication can canvass various opinions and benefit from them. That is what we

call three common people to a Chu, Ko-Liang (who was a famous military strategist

in Chinese history)." One senior manager from a small service firm K described:

> Communications and diverse thinking are quite important for every company.
> According to our company's experience, such as the expenses of learning are not
> enough through internal communication. However, the final decision-making still
> relies on the boss's determination. Communication, therefore, seems to be
> ineffective to our company sometimes.

The same situation also arose in another small firm H, in the service sector. The

senior manager noted that, "Strategic decisions depend on our president who is possessed of professional power without upward and downward, lateral, and integrated communications with managers."

A surprising answer was given by the senior manager in a small service organization N, who said,

> Share company is based on profit centres where salesmen work independently but not as a team because there is competition among them rather than cooperation. If they organized a team it would hurt our company, because if they left the company, they would take all the customers with them.

This is a good example of using crisp thinking and ignoring fuzzy thinking. The company thought in terms of salesmen's "competition or cooperation", rather than salesmen's "competition and cooperation". Simultaneously, this interviewee also neglected the shared experiences of salesmen and team learning. However, a very different and interesting idea in comparison with the above came from the president of a small manufacturing company G who emphasised,

> A company should avoid isolation but has to consider teamwork. In particular, small to medium sized enterprises must consider cooperation with upstream and downstream to boost the company's competitive force, such as links in the supply chain supporting each other.

From the discussion above, the majority of companies believe that upward and downward, lateral, and integrated communications and fuzzy thinking play essential roles in strategic management. For example, Uni-President Enterprises Corporation uses "joint venture" to cooperate with his competitor, 'Carrefour' for running malls in

Taiwan. WYSER Internal Corp. always thinks about cooperating with its upstream and downstream partners, and even its competitors, for achieving its strategic missions. Moreover, the boundary of the company's system did not separate the internal and external systems. Instead, it integrated supplier, customers and competitors. Those ideas highlight "fuzzy thinking", namely, the company did not only think about competition but also considered cooperation. TYC Brother Industrial Co. Ltd. is an auto light manufacturer which adopts the production system of Toyota (just in time, JIT) so that it is very crucial to communicate with suppliers to obtain raw materials at the right time and quantity. It is worth noting that the company set up a 'kids' care centre' which built a good relationship with community residents. It clearly considered all its stakeholders, besides shareholders, employees and customers. However, some companies neglected upward and downward, lateral, and integrated communications and in those cases it can be suggested that practising the logic and language view might be beneficial.

(2) Learning view

The survey findings revealed that the learning view obtained the highest agree of positive responses for strategic management in Taiwanese companies. A vice president of a manufacturing company A indicated "A boss has to support employees' learning. No learning means no innovation." Another senior director from company D

explained,

> Learning has a positive influence on actual work. In particular, middle and senior managers need to learn communication skills and management knowledge. Organizational culture makes an intangible contribution to value, but learning is tangible growth. In our company, a new recruit has to report his learning results to confirm his efforts.

Moreover, he described that company D provided a learning situation through small group action (SGA) and quality control circles (QCC) for front line employees to concentrate their strengths and share experience with each other. The president of company F also highlighted that "QCC is a very important learning process for front line employees." A senior manager from company J mentioned a similar situation to me:

> The learning view is doing very well in our company, especially educational training. In our business as a service firm, employees must provide professional knowledge to clients, otherwise how can they persuade clients to buy our product? Also learning from the experience of other colleagues is very important. Simultaneously, in a technological era, service firms need to create a client database and use information technology to recognize the attribute of clients and segment different client groups and to build long-term relationships with clients.

A leader of the planning group in firm A said,

> Each SBU of our company proposes its projects and it must be innovative. However, mistakes are inevitable. Basically, strategy emerges from the innovation process and mistakes or sharing experience step by step. Our company has become a learning organization as our president mentioned that all employees should be able to recognize Senge's (1990) "The Fifth Discipline."

He added, "Our company emphasizes QCC and total quality management (TQM) so team learning is very important for an innovative marketing approach." Another president of company I said,

If a company wants to continue to survive, "human resource" and "know-how" are very important, in particular, professional ability, management ability and general ability are based on leaning to upgrade as single-loop learning. My firm has two training programmes. One is external training; such as attending seminars and conferences. The other is internal job training such as job-rotation, e-commerce communication and how to pass ISO-9002 certification. All managers need to pass the internal managers' examination which is a certificate to check their ability. Our company also has regular meetings to share their different experiences. Learning strength, therefore, can formulate a learning culture so that our company improves constantly, which is the most important idea in our company.

A senior manager of company B described,

My company has a competitive advantage which is innovative products. It is constantly trying to develop high value products and special products so that these products can raise our competitive strength and market share. In fact, these also are strategies of our firm.

Furthermore, he pointed out, "Learning from accumulated experience is the source of innovation." Double-loop learning can enhance employees' new knowledge by the transformation of experience and information.

Interestingly, the chairman of a small service company O said,

In Taiwan society, some businessmen use debauchery and corruption to engage interactions rather than learning to create proper relationships with stakeholders. I really disagree with this horrid idea, because they will ruin the image of our company. Upright and honest business dealing is what we insist on. But, I do support the learning idea.

The same ideas came from the chairman of another firm L. He highlighted, "Mutual trust between our company and the supply chain operation is better than a special dinner with a bargir1." On the other hand, a chairman of a large manufacturing company C, pointed out, "Our products develop very fast so that R&D teamwork is

quite important for product innovation and competitive advantage. If a company does

not have good team learning to innovate new products, it will easily be pushed out of

the market."

From the interviews, it was found that both small to medium sized enterprises and

big corporations thought that innovation is a competitive weapon, and learning is the

foundation of innovation. The service firms highlighted the importance of creating a

customer database to distinguish the attributes of customers and win customer loyalty

because they sell products and services as well. Hi-tech companies pay attention to

R&D and innovation by means of team learning. Manufacturing industries emphasize

QCC, TQM and SGA in the hope of innovation in the production process, developing

new products and discovering new materials. Therefore, the learning idea is linked to

strategy formulation and implementation.

(3) Cultural view

There were nine companies whose managers were not sure whether cultural change

fulfils their strategy successfully, according to the questionnaire responses. However,

a senior manager of company B described how the cultural idea is used to implement

strategy. He said, "Our company's culture is a key success factor in implementing

strategy because it collects all employees' beliefs and values and further promotes

work motivation." Similarly, a president of company I indicated that, "A vision as a

guideline can determine where the company goes." Therefore, he proposed a motto, "Innovative, valuable and respectable merit corporation" to encourage all members of the company. He also believed,

> Strategy implementation is not easy, in other words, "Recognizing is easy but practising is difficult." I agree that leaders have to present a vision or dream in the process of strategy formulation i.e., the firm tries to become the best distribution corporation in Taiwan.

Interestingly, a senior manager, from company B, expressed a different situation. He pointed out,

> Our company has been running 30 years, but it is impossible to develop an appropriate organizational culture because of the traditional managerial style. Employees lack cohesive strength, so creating an organizational culture and building a shared vision are difficult for our company.

Another president from company G commented, "Business performance declines, not because of economic recession, but because employees do not put up a fight. This motto represents that our company tries to encourage employees' morale and strengthen their belief to implement the company's mission."

A leader of the planning department at another company A argued:

> Strategy is hard to develop. I believe that for a company to implement the wrong strategy is more serious than corruption. The pre-condition for strategy is focused on organizational culture and ethics, namely, "business spirit". Business values influence the direction of strategy. These intangible values also impact all members of company from top to bottom. Managers need, therefore, to set a good example to subordinates. As the Chinese proverb says, "If the upper beam is not straight, the lower ones will go aslant." For our company, culture, therefore, is very essential to implement strategy successfully.

The president of company F said,

> Culture is an intangible asset. In order to gather organizational culture, we have uniforms and our company assembles all employees to have an hour's Buddhist instruction on every Monday morning. This religious meeting enhances employees' beliefs and values as based on ABC level to build organizational Buddhist culture. Also, political power can be used to enforce employees' belief. However, I believe it is beneficial, if all employees can be involved in the company's culture.

From the questionnaires, it appeared that the majority of companies believed that organizational culture is important to implement effective strategic management. Moreover, from the interviews, it was found that a good organizational culture promoted more successful strategic management, compared with results from companies with a less favourable culture.

(4) Political view

The questionnaire results for the political view indicated that there were a large number of neutral responses (24.6%), where respondents were not sure whether or not their companies promote stakeholders' cooperation by political power. However, the president of company I indicated that:

> Political power plays an important role for effective strategic management, especially at the stage of fulfilment. For example, our company wants to set up 5 distribution centres, every department needs to cooperate and achieve this mission by mean of political power. In order to implement the organizational mission, I endorse the learning and cultural views, because learning can boost employees' professional capability and knowledge, and organizational culture assists in sharing vision and values to guide strategy implementation.

Furthermore, the senior manager of the R&D department in company B indicated:

> In our company, strategy formulations are based on the competitive environment, both domestic and foreign, by an ad hoc committee to plan strategy, then every

functional division implements its mission. Basically, our organization is led by a professional power leading. However, our company also highlights complete empowerment and trusts employees.

Moreover, a senior manager from company H noted that, "The real strategy implementation is based on the professional management, that is what we call power." The president of company F explained, "In the strategy process, political power is needed because it can push every department to achieve their mission." The same idea was expressed by company L's chairman. He pointed out, "Professional power, sometimes, is needed when employees argue with each other."

In contrast, the president of company E said,

SBUs are a profit centre system. Basically, our company uses a professional and command-and-control leadership style. All members of the organization are given assignments and guidelines to achieve organizational objectives. However, this has caused high employee turnover, increased the expense of training new employees and led to a lack of appropriate culture formation in my company.

The same circumstances happened at the traditional company K. The senior manager explained it in this way, "Based on leadership through political power, employees' morale is getting lower and competitive strength is becoming invisible." A very interesting example was given by a manager of company N. She said, "A new senior manager tried to reorganize our company. He applied political power to deal with the company's business and set up strict regulations. Unfortunately, it led to opposite effects. Finally, he left our company."

From the above interviews, it seems that if a company attempts to use political

power to tackle stakeholders' disputes, it needs to be applied carefully, for example, by the exercise of professional power, rather than authoritarianism. Strategic management that only relies on the political view seems insufficient.

(5) Ethical view

The results of the ethical view from the questionnaire, showed a moderate degree of importance among the six-views but also revealed that some senior managers were not sure about the effects of the ethical view. The interviews provide a more detailed interpretation. As a senior manager from company B noted,

> The chairman of Wen-Lung Shiu designed a good working environment by means of Lao-Tzu's idea which concerns spiritual and physical aspects, even social responsibilities, such as empowerment, a bonus system and about 90% of our employees are shareholders, so employees can achieve their works by themselves. Our company has also established a hospital, a museum and a symphony orchestra to serve people and then boosting our company's reputation. Moreover, he mentioned that some managers misinterpret the meaning of Lao-Tzu's words: "Govern by doing nothing that goes against nature." He explained that it highlights empowerment, trust and concerning social, which is based on ethical ideas. In fact, that is what we use in our company.

It is worth mentioning that the president of company I said, "I don't believe that Lao-Tzu's idea can promote effective strategic management." However, he completely agreed with Lao-Tzu's ethical idea as trust→ empowerment→ commitment→ implementation after my interpretation, and said he would try to apply Lao-Tzu's idea to company I. The situation here may explain the lower rating of the ethical view among the six-views, for promoting effective strategic management. A

leader of a planning group of company A pointed out,

> "Spirit of business" is a main influential factor for strategy formulation. The value judgment by a leader will guide strategic direction. Our company, is concerned about establishing our spirit of business. However, business ethics is the foundation of the "spirit of business."

He added that, "The importance of ethics not only underlies our management principles of best quality, highest credibility, and best service at a reasonable price, but also pays attention to corporate social responsibilities." An example is the following incident, reported by China Post:

> President to recall beverages. President Enterprises Corp. announced yesterday that it was recalling all its beverage products in Taiwan to end a public scare over contaminated containers. Potassium cyanide was found in two containers mailed to the company, Taiwan Television Enterprise Ltd. said. The containers were mailed as part of an extortion attempt. Three suspects have been arrested by police.
> (China Post News, Oct. 14, 1987, 11)

The leader of the planning group of Uni-President Enterprises Corp. said their company withdrew the soft drink from the market in order to bear the social responsibility, so the company won a good reputation and admiration. He also emphasized:

> Based on a good distribution channel, it is easy for our company to sell cigarettes or alcohols, but our company gave up because these acts harm the health of human beings and are unethical behaviour. Therefore, ethics is not a motto but of real significance in our firm.

Not only in manufacturing industries, but in service firms also, most interviewees recognized the importance of ethics. The senior manager at company J mentioned the importance of ethics. He said:

> It is not acceptable for a salesman, just for the sake of selling a product to clients, to conceal facts from clients. This unethical behaviour not only causes client complaints but also ruins the reputation of our company. Consequently, the client will feel deceived and refuse to buy our product anymore.

The chairman of company L commented, "Since our company belongs to small to medium sized enterprises, creating mutual trust between our company and supply chain operation is our company strategy." Another chairman from company O noted the same situation. He said,

> Our company adopts strategic alliance with upstream and downstream because it can reduce cost, boost product quality and shorten lead-time. Having trust in the supply chain increases our profits and competitive advantage.

Surprisingly, one president of a small to medium sized enterprise expressed a contrary view, "Our company applied the ethical idea of trust to stakeholders, however, the result is really bad, such as delay in delivery of goods and losing money from upstream or downstream companies." By this, he meant situations where the company performs a service for another company, but the latter does not honour its payment obligation. For instance, it sends a cheque which the bank cannot honour, for lack of funds. He believed that the ethical idea must be used with care.

The chairman of company C explained the situation as follows:

> Our companies' employees are required not to disclose business secrets to competitors, otherwise they may commit a criminal offence. To our companies, the standard of ethical morality is strict. On the other hand, some hi-tech companies, in the effort to run forever, attempt to incorporate their suppliers may lack ethical behaviour.

Based on the discussion above, it was discovered that the majority of companies

believed that ethical ideas are the core of strategic management. They also incorporated such ideas into their business. However, some companies seemed not to understand the core meaning of Lao-Tzu's ethical idea, and misinterpreted it. In fact, it is a crucial idea to practice the ethical perspective in organizations for enhancing their reputation. It was also discovered that hi-tech companies had lower trust, due to their culture of business secrecy and technological innovation. From the above mentioned, this research suggests that Taiwanese companies need to practice ethical ideas in strategic management.

(6) Planning view

The planning view has three main defects - overemphasizing the quantitative index, the difficulty of forecasting and the need for organizations to combine their strategic planning for formulation and the integrated five-views for implementation. These are discussed as follows:

Using both of evaluation indexes

Many interviewees pointed out that it is important to measure the performance of strategic management using both qualitative and quantitative approaches. One senior manager of company M said,

> We believe that the qualitative index is as important as the quantitative index, because a good qualitative index (i.e. customer satisfaction or building good relationships between company and employees) will lead to a good quantitative index i.e. increasing market share, increased sales and profits, and better

employee productivity.

The president of another firm E explained two important factors for the evaluation system in his company. He said,

> Both the sales and the profits are basic evaluation indexes in our company. In general, the objective is for sales and profits in every SBU to grow, by 15% and 8% every year, respectively. Basically, our company will dismiss the last 5% of operators, who have the worst personal performance in every quarter. Furthermore, the productive value of every employee every year (sales/employees numbers) is used to compare performance in every SBU as a standard for reward.

The chairman of organization L pointed out, "in fact, the ISO-9002 standards for evaluating a company include customer satisfaction, customer complaints, employees' working environment and product quality. Basically, I agree, therefore, that the evaluation index should include both qualitative and quantitative indexes." A senior vice president of company A indicated,

> Our company has found that we need to adjust evaluation indexes. I favour the balanced scorecard which includes four indexes as follows: current customer, internal process, employees and financial objective, instead of, as now, using only two evaluation indexes: sales per person and sales per dollar currently.

A leader of the planning group in company A described that profit is a short-term rather than long-term indicator. He explained,

> Popular products or short-term profits will disappear quickly without sustained strength. Therefore, our strategy is to look for a trend which can fit the environment 10 or 20 years in the future. Basically, the principles of strategic planning are: "When strategy conflicts with profits, prioritise strategy and when quality conflicts with profits, prioritise quality." Thus, we do not emphasize short-term profits, but focus on long-term development of strategy and product quality for people. Moreover, our company is also concerned about customers' complaints as they have positive influences on promoting the company's further

improvement to satisfy customers' needs.

Forecasting is not easy

Most interviewees thought that the environment is changing every day. It is difficult to forecast the future. The president of company E said, "Our company uses SWOT environmental analysis then adjusts planning of strategic objectives." A vice president from company A highlighted, "Environmental change now is rather rapid. We take account, therefore, of dynamic environment analysis, such as market situation survey, Porter's Five-forces analysis, and political change and economic conditions."

Company L's chairman illustrated,

> In fact, strategy formulation in our company is very easy. According to market information, intuition and experiential judgment we seek a market niche. Therefore, our company focuses on a single segment market. We never consider political and economic factors. Actually I believe that environmental change is too quick. Therefore, strategy should be emergent rather than planned.

The president of company F pointed out, "In order to obtain better effects of strategic planning, the procedures of our company's planning include Deming's (1982) PDCA problem-solving cycle: planning the direction of strategy, implementing the company's mission, checking the effectiveness of every department's implementation and feedback action.

A pluralistic thinking for promoting strategic management

In company E, which tended to favour traditional planning, the president addressed the procedure of strategy formulation as follows:

First, an ad hoc committee discusses to decide the objective and the strategy of every SBU. Second, every SBU plans its financial budget. Third, every SBU decides middle and long-term growth programmes. Finally, board of directors checks the projects of SBUs and modifies their objectives. It is based on bottom to upper strategy formulation.

The president of company I believed that, "The six-views model is very useful, especially, as strategy tries to implement practice well." He pointed out,

Strategy-making is a serious issue, which may influence a company's survival. I agree that the six-views is called the "root," then promoting supply chain operation so as to achieve performance objectives of strategic management. Our planning department is based on customers' needs and environmental analysis to set up objectives then formulate strategy. Finally, the short, middle and long-term plans are decided by senior managers, vice-presidents, president and chairman.

A leader of the planning group in company A explained, "An organization is a tree whose root is very important like the six-views, because it is the basic condition for its survival and growth. Our strategy formulation is based on SWOT analysis to seek a market niche." The president of company F highlighted, "Our company has very complete strategic planning. However, we really neglected to consider integrating the other five-views for effective strategic management."

Based on the results of interviews, some Taiwanese companies conduct strategy planning by SWOT analysis. In turn, they believed that under a dynamic environment, strategy should be adjusted by means of Five-forces analysis and macro-environment analysis. Moreover, Taiwanese companies have already noticed that qualitative and quantitative indexes are crucial for performance evaluation, rather than the traditional reliance on quantitative measurement in strategic management. Therefore, most

interviewees thought the planning view is still widely accepted way for any organization to pursue and achieve strategy formulation in Taiwan, but it needs to be modified over time to meet environmental challenges. Also, they favoured combining the integrated five-views to improve strategic management.

8.3 Recommendations from the Interviewees

In section 8.2, interviewees of fifteen companies have explained "What the companies have done about strategy formulation and implementation in line with the six-views in Taiwan and "how".In turn, these interviewees were asked to answer the next question "What improvement could be added to strategic management to make organization performance more effective?" These interviewees proposed useful suggestions which are summarized as follows:

The president of company F suggests:

Strategic management should be in line with "policy management" (or the Hoshin plan, in Japanese), so it can easily be implemented in organizations. A company has to decide on out-sourcing or self-production which is also a strategy, in other words, it is a supply chain operation strategy which influences lead-time, cost, and quality.

A senior manager of company H suggests:

Strategy, in fact, should be flexible because a company has to adjust its strategy when its competitors' strategies change or the macro-environment changes. I believe that the six-views model considers different perspectives on situations, so it is essential for adapting to environmental challenge in strategic management. Moreover, a company needs to deal with customers complaints carefully, which may lead to customer loyalty.

The chairman in company L suggests:

A company has to build mutual trust with stakeholders, such as loyalty of supply chain operation. A reputation for being upright and honest is a company's intangible asset which will bring word of mouth recommendations and growth for the company.

The president of firm G suggests:

A company should not only consider market share but also pay attention to market segment because it is market focus that leads to the competitive advantage of companies, rather than market share. In other words, the company must seek a market niche, especially in economic recession.

A vice president of company A suggests:

The strategic thinking of a company has to consider "know what" first. In turn, it needs to understand "know why?", namely, a company must recognize what it now possesses, then where it is going. Strategy needs planning, which is based on the

planning group. However, it is also necessary to pay attention to evolution, reengineering and globalization strategy. It is worth being aware that strategy should be proactive before environmental change, rather than responding after environmental change.

The senior manager of firm N suggests:

Strategic management should adapt to environmental challenge over time. For a company, how to reduce cost is very crucial when the macro-environment is very poor.

The president from company I suggests:

Strategy is an idea. Therefore, a leader's idea is very important, in particular, his values and vision, which influence a company's growth.

A senior manager in firm D suggests:

Middle and senior managers must learn new ideas, and assist in creating a learning culture in organizations. A leader must be possessed of personal charisma to lead the company.

The leader of the planning group in company A suggests:

Strategy is finding a "trend" in the future. It is an important concept that a leader must learn how to find the trend of environment. However, strategic management must be connected with project management as a supply chain operation for effective strategy

implementation. A person who is dealing with strategic planning should not only consider "profits", but also be even more aware "the approach of making money". I believe that capitalism is not a panacea. Only considering making money, may cause problems sooner or later. In fact, ethical and moral behaviour need to be incorporated in strategic management and contribute resources to the community.

In conclusion to interviewees' suggestions, the strategic thinking needs to be aware of "know what". Then, it has to understand "know why?" viz, a leader must identify what it now possesses, where it is going in the future. An idea of strategic manager should not only consider "profits" but also consider other stakeholders' expectations or social responsibilities. For example, a company should consider how to build mutual trust with the supply chain operation to win a good reputation and further to promote company development. This suggests that ethical and moral behaviour should be combined in strategic management and the company should contribute resources to the community. Leaders' ideas and vision, therefore, play a crucial role for organizational survival and growth.

Strategic planning must be flexible and has to be adjusted when the company's competitive environment or the macro-environment changes. Company strategy, therefore, should be proactive before environmental change. In order to promote effective strategy implementation, strategic management has to link to policy

management or projects management to promote effective strategy implementation. From the discussion above, it is clear that strategic management should consider pluralistic perspectives.

8.4 Conclusion

Based on the first face-to-face interviews, the interview results could be summarized as follows:

(1) Most interviewees believed that logic and language is an essential factor and recognized that upward and downward, lateral, and integrated communications and fuzzy thinking promote effective management. However, some companies ignore the importance of communications, and suffer from excessively formal communications or ineffective communications. Obviously, in order to gather more different perspectives, wide communication and fuzzy thinking are needed in organizations.

(2) Companies of all kinds are aware of the importance of learning as an innovative resource. Interestingly, it was found that manufacturing industries focus on innovative actions. Service firms tend towards sharing experiences to raise service quality and improve communication skills. Hi-tech industries have a tendency to favour team learning for developing new products. Taiwanese culture has led to some companies

lacking a right concept of learning to create appropriate relationships with stakeholders, for example: using illegal or dishonest behaviours to create relationships such as corruption. Some interviewees believed in using mutual trust and strategic alliances, as well as sharing benefits and building good interactions with stakeholders, which are encouraging signs.

(3)   From the interviews, a vision is like the steersmen of a ship, who guides the ship to its destination. As Senge (1990) points out, vision is a force in people's hearts and a force of impressive power. Members of an organization, through shared vision, can consolidate employees' centripetal strength to achieve the company's mission. However, some companies lack clear cultural values. This suggests that these companies need to learn how to build their own culture to help in implementing effective strategic management.

(4)   Some small to medium sized enterprises believed that they adopted ethical principles to build mutual trust with stakeholders to achieve strategic objectives, especially, between the company and supply chain operation. However, there were also some companies that were not sure about Lao-Tzu's ethical idea or did not understand how to apply it. This suggests that a leader should learn Lao-Tzu's idea and similar ethical views, which in a narrow sense are about internal employees' empowerment and in a wide sense, are about creating mutual trust and commitment

with stakeholders and concern for society. In short, ethics in line with Lao-Tzu's principle can bring companies into harmony as chaos management concerns the idea of cosmos (Yuan, 1999), and hence contributes to more effective strategic management.

(5) From the results of questionnaires and the first interviews, it appears that sometimes, political power actually promotes strategy implementation. Based on interviewees' answers, however, some companies used political power and obtained opposite results to those expected. This means that Taiwanese companies, in dealing with stakeholders' issues, face a severe challenge and need to seek assistance to promote effective stakeholders' cooperation.

(6) The majority of Taiwanese companies believed that strategic planning is a basic task. However, under a dynamic environment, strategic planning must be modified over time by use of Porter's Five-force, and SWOT analysis.

(7) Although some companies used only quantitative indicators to evaluate their company's performance, most interviewees thought both evaluation indexes, the qualitative and the quantitative, are the key to strategic management. Basic employee satisfaction and customer satisfaction lead to high employee productivity, high sales, high quality, and stakeholders' expectations which in turn are reflected in quantitative values by reinforcing six-views. Therefore, the planning view needs to consider both

qualitative and quantitative indexes as part of analysis in the strategic management process.

(8) Most companies rely on the planning view in the strategy-making process. Definitely, for the purpose of effective strategic planning, they need to consider the integrated five-views to improve their strategy formulation and implementation. This suggests that the six-views model would be a good choice.

Based on the discussions and conclusion above, a six-views model was unveiled. Moreover, this research aimed to explore the findings from the survey research in more detail. Therefore, case studies were used to strengthen the fieldwork. For this purpose, four companies were selected for qualitative research interviews, in which the questions took up the important findings from the questionnaire and the first interviews. These will be explained in Chapter 9.

CHAPTER 9: CASE STUDY

9.1 Introduction

This chapter presents the qualitative research interviews designed to explain the eight findings from Chapters 7 and 8. The qualitative research interviews and case study reinforced the fieldwork and helped to provide a detailed understanding of the findings of the survey. Furthermore, the participants were asked whether their companies adopted some approaches related to the six-views model of strategic management, and the perceptions of these participants about the eight findings were tested. Finally, the groups' interview data were used to provide validation of the eight findings.

9.2 Case Study in Organizational Research

The case study method is "an exploratory research technique that intensively investigates one or a few situations similar to the researcher's problem situation" (Zikmund, 2003, 115). He also explains,

> The primary advantage of the case study is that an entire organization or entity can be investigated in depth and with meticulous attention to detail…like all

exploratory research, the results from case studies should be seen as tentative. Generalizing from a few can be dangerous because most situations are atypical in some sense.
(Zikmund, 2003, 116)

Yin suggests that in some research situations, this may be the preferred approach, "In general case studies are the preferred strategy when 'how' or 'why' questions are being posed, when the investigator has little control over events and when this focus is on a contemporary phenomenon within some real life context." (1994, 1)

A common criticism of case study research, however, is that its findings are not generalizable in the way that those of social research are. The question often raised is: How do we know that these findings are representative? Some advocates of case study respond to argue that it is directed towards a different kind of general conclusion from that provided by survey research: Gomm *et al*. (2000) suggest that case study work is designed to produce theories. Thus, Yin (1994) argues that case studies, as experiments, are generalizable to theoretical propositions rather than populations, while used with multiple-case studies. Furthermore, he notes,

In this sense, the case study, like the experiment, does not represent a "sample" and the investigator's goal is to expand and generalize theories (analytic generalization) and not to enumerate frequencies (statistical generalization).
(Yin, 1994, 10)

In the survey research, four Taiwanese companies were chosen to do qualitative research interviews, in order to obtain more information and findings on strategic management, and further practice a six-views model.

9.3 Qualitative Research Interview Design

From the results of the first interviews, the quantitative findings are insufficient, so at this stage, qualitative research interviews were used to understand the situation more deeply. As Bryman (2001) indicates, qualitative research interviews are meant to be flexible and to seek out the world views of research participants. King points out that there are four steps to conduct the interviews, "(1) Defining the research question, (2) Creating the interview guide, (3) Recruiting participants, (4) Carrying out the interviews." (1994, 18) These steps will be explained in detail in turn.

(1) Defining the research question

There were two research questions:

• How would the participants clarify the results of the questionnaires?

• How do companies improve their strategic management?

These two questions were to be answered by participating interviewees. First, participants would have to understand the results of the questionnaires and give comments about their strategic management process. The second question was to focus on what approaches companies should really be using to pursue effective strategic management.

(2) Creating the interview guide

According to the results of the questionnaire and interviews, eight findings were

identified and each was used as the basis for a series of questions as follows.

Finding 1: Logic and language view

Although most interviewees believed that strategy needs upward and downward, lateral, and integrated communications and it is best to avoid dichotomous thinking, some companies suffered from excessively formal communications or ineffective communications.

The following questions were used:

Q1: How do you clarify this finding?

Q2: How does your company implement upward and downward, lateral, and integrated communications?

Q3: Does your company use fuzzy thinking to facilitate the process of strategy effectively?

IF YES, how is that done?

IF NO, why does your company not do that?

Q1 was designed to ascertain how they would explain finding 1. Q2 and Q3 were planned to see whether these companies use upward and downward, lateral, and integrated communications and fuzzy thinking to promote effective strategic management. If they did use these approaches, they would be asked how effective these approaches were in strategic management. By contrast, if they did not use these

approaches, perhaps these companies need to recognize effective communications and fuzzy thinking.

Finding 2: Learning view

Small to medium sized enterprises, big corporations, manufacturing industries and service firms are all aware of the crucial role of learning as an innovative resource. However, Taiwanese custom has led some companies to lack a correct concept of learning to create appropriate relationships with stakeholders.

The following questions were used:

Q4: How do you clarify this finding?

Q5: How does your company deal with collective learning by sharing experience, developing collective beliefs and a shared vision?

Q6: Does your company build right concepts to create appropriate relationships with stakeholders?

IF YES, how is that done?

IF NO, why does your company not do that?

Q4 was designed to confirm how they would explain finding 2. Q5 was planned to recognize whether they used special approaches to deal with collective learning. Q6 was asked to unveil whether they developed appropriate relationships with stakeholders, and if they did so, how effective the approach was. In contrast, if they

did not use the approach, perhaps it would be a good opportunity to introduce it to these companies.

Finding 3: Cultural view

Most companies believed that organizational culture could consolidate employees' force to achieve the company's mission. A vision as a guideline can determine where the company goes.

The following questions were used to explore this finding:

Q7: How do you clarify this finding?

Q8: How does your company build organizational culture and vision to collect employees' force to achieve the company's mission?

Q7 was planned to ascertain whether participants in the interview understood finding 3 and how they would explain it. Q8 was asked to ascertain how they built an organizational culture and vision to encourage and promote employees' morale for achieving organizational objectives.

Finding 4: Political view

Although the political view obtained about seventy percent positive responses, it also got about twenty-five percent neutral responses. Based on interviewees' answers, it seems that some companies used political power and obtained opposite expectation results. Clearly, using political power to deal with stakeholders' issues may be

insufficient.

The following questions were used:

Q9: How do you clarify this finding?

Q10: What is the situation concerning political power?

    (1) When is political power needed for effective strategic management? Why?

    (2) When is political power insufficient for effective strategic management?

Q9 was designed to discover how they explained finding 4. Q10 was asked to understand in more detail the role that political power plays in organizations.

Finding 5: Ethical view

Most companies believed that they applied ethical principles to create mutual trust and commitment with stakeholders to achieve strategic objectives. However, some companies were not sure about Lao-Tzu's ethical idea, or did not understand how to apply it.

The following questions were used:

Q11: How do you interpret this finding?

Q12: How does your company adopt ethical ideas to build good relationships with

      stakeholders?

Q13: How does your company build mutual trust and commitment with the supply

      chain operation, especially, upstream and downstream companies?

Q14: How does your company apply Lao-Tzu's idea to promote stakeholders'

expectations?

Q11 was designed to establish how they would explain finding 5. Q12 was asked to

determine how they utilized ethical ideas to create good relationships with

stakeholders. Q13 and Q14 were planned to recognize how these companies tried to

build mutual trust and commitment with the supply chain and apply Lao-Tzu's ethical

idea to promote stakeholders' expectations for strategy implementation, respectively.

Finding 6: Using two indexes for performance evaluation

Most of the sixty-three companies believed that the planning view is needed in the

strategy-making process. In particular, most companies emphasized that both the

quantitative and the qualitative indexes must be considered in strategic management.

The following questions were used:

Q15: How do you clarify this finding?

Q16: How does your company use strategic planning in the strategy-making process?

Q17: How does your company use both the quantitative and the qualitative indexes to

evaluate the performance of strategy implementation?

Q18: Does your company use quantitative proxies for qualitative evaluation

indications? (e.g., employee satisfaction consists of employee productivity,

employee turnover and employee suggestions. Customer satisfaction includes

customer retention rate and customers complaints' compensation rate or customer complaints).

IF YES, how well does it do that?

IF NO, why does your company not do it?

Q15 was designed to understand how they would interpret finding 6. Q16 and Q17 were planned to discover how they utilized strategic planning and both the quantitative and the qualitative indexes to evaluate performance in organizations, respectively. Q18 was asked to discover whether they used the two indicators. If they did use them, they were asked how well the method worked. If they did not use them, perhaps this is a new idea in evaluation of strategic management.

Finding 7: Adjust strategic planning

Under a dynamic environment, strategic planning must be modified by the six-views, Porter's Five-forces and SWOT analysis over time. Moreover, fuzzy if-then rules can be applied to create a series of possible situations for strategic thinking.

The following questions were used to explore this finding:

Q19: How do you clarify this finding?

Q20: What approaches does your company use to be aware of environmental change?

And how effective are these approaches?

Q21: Does your company use fuzzy if-then rules to create a series of possible

situations for strategic thinking, to adapt further to environmental change?

IF YES, how is that done?

IF NO, why does your company not do that?

Q19 was asked to determine how they would interpret finding 7. Q20 was planned to discover what methods are used to analyze environmental change, and if they used some approaches, how effective these approaches were. If they did not use any methods, it may be an opportunity to learn them. Q21 was designed to recognize whether fuzzy if-then rules could be applied to develop a series of possible alternatives for strategic thinking in the future.

Finding 8: Six-views and the six-views model

Most companies rely on strategic planning. However, for the purpose of effective strategic planning, they need to consider the integrated five-views to improve their strategy formulation and implementation. The six-views model including roots, stems, and flowers and fruits may be a good choice for effective strategic management.

The following questions were used to explore this finding:

Q22: How do you interpret this finding?

Q23: What views does your company apply to promote effective strategic management?

(1) How effective are these views?

(2) Is the six-views model a good opportunity for your company?

Q24: Do you think the six-views model needs to be audited? If so, why?

Q22 was asked to discover how they would interpret finding 8. Q23 was planned to learn how the strategic management approach was applied in the company and understand whether participants were aware of diverse perspectives for promoting effective strategic management that the six-views as roots to boost strategy formulation and implementation further promoting employee satisfaction, customer satisfaction, and stakeholders' performance. If they did use these ideas, they were asked how effective these ideas were. If they did not use these ideas, it may be an opportunity to learn them to improve the effectiveness of strategic management. Q24 was asked to explain whether companies need to evaluate the six-views for promoting effective strategic management.

In order to explore how each view of strategic management was practised in Taiwanese companies all twenty-four questions were tested. In fact, every company might have different viewpoints on effective strategy formulation and implementation. Therefore, this was a very good opportunity for this research to recognize and learn from Taiwanese companies which practise effective approaches in strategic management. Based on pluralistic perspectives, the six-views model is worth introducing to Taiwanese companies.

(3). Recruiting participants

In this second round of interviews, four Taiwanese companies were selected, which included TYC, WYSER, UPCC and FLEX companies. For reasons of generalization and representativeness, these companies consisted of two manufacturing industries and two service firms. Three interviewees were selected to answer questions in each company, giving a total of 12 interviewees for this round of interviews.

(4). Carrying out the interviews

Bernard (2000) points out that group of interviewees are recruited to discuss a particular topic and are also used to assist in explaining results of survey. In turn, a series of focus groups would be run to discover why people feel as they do and how they arrive at these feelings. He adds,

> But focus groups are not just adjuncts to surveys. If you want to know why people feel as they do about something; the mental steps they went through to decide which candidate to support or which product to buy; why they like or don't like some program, like their company's health plan; or the reasons behind some complex behaviour, then a series of focus groups can provide a tremendous amount of credible information.
> (Bernard, 2000, 208)

Punch points out, the five main factors for managing interviews are: "preparation for the interview – the interview schedule; beginning the interview – establishing rapport; communication and listening skills; asking questions – the sequence and types of questions; closing the interview." (1998, 180-181)

First, this research, proposed an appropriate schedule from selected companies

and interviewees. Second, I contacted interviewees to maintain friendly relationships with them. I tried to understand their companies' outline before interviews so that I could master the business idea of their companies. The interviews were conducted in a formal manner. In order to establish rapport and trust with interviewees, I started with conversational chatting on topics of common interest. In turn, in order to get good communications and listening, an appropriate interview setting was prepared. Then, the interviewees were asked to explain how their companies achieve effective strategic management. The twenty-four questions outlined in the previous section served as a guide to explain the current situation of the company. Finally, the interviews were ended with an invitation to the interviewees to add any other comments on strategic management approaches that had not been mentioned in this interview.

9.4 Case Study Findings

The case study of four companies tried to elicit confirmation of the earlier results from the questionnaire and the first interview stages of this research. Punch notes, "All social research involves ethical issues. This is because the research involves collecting data from people, and about people."(1998, 281) Therefore, this research

preserves participants' anonymity, by referring to the four companies as A1, A2, A3 and A4. The participants' answers to the interview questions were as follows:

(1) Logic and language view (Q1-Q3)

<u>Company A1</u>

Basically, the three senior managers believe that strategy requires upward and downward, lateral, integrated communications, and fuzzy thinking, therefore this finding is generally true. However, the frequency of communication depends on the level of strategy. Higher level strategy such as corporate strategy emphasizes instincts and experience and involves less communication, whereas, lower level strategy such as operational strategy needs more communication with members of the organization for effective implementation.

Generally, corporate strategy is an end, but SBUs is a means to an end. Similarly, at another level, the SBU is an end, and supply chain operation strategy is a means to an end. Communication is essential for promoting effective strategic management, so that members of the organization know what to do, how to do it and what are the objectives of the company.

<u>Company A2</u>

The chairman of the company pointed out that whether communication is upward and downward, and lateral there are always barriers in Taiwanese companies. He believed

that this is related to Taiwanese culture. In order to implement the company's strategy easily, the company uses regular meetings with employees, and mail, to implement communications. Also, the chairman holds wide discussion with senior managers, and the chairman then makes the final decision.

Company A3

For different levels of strategy, there is different recognition in the organization. The president of the company discussed the company's strategy with senior managers and sought some suggestions from suppliers. Moreover, the company had fortnightly meetings to communicate with each other. However, the senior manager believed that strategic communication is more effective when a company belongs to a big corporation, and that in small to medium sized enterprises it is less effective because their employees lack a wide perspective.

Company A4

Basically, this company has two methods of communications: regular (or monthly) and irregular. The president of the company pointed out that the strategic process is a democratic system rather than "one person lays down the laws". Communication has a crucial objective, which is to identify the values of the company, including quality, service and interdependence.

(2) Learning view (Q4-Q6)

Company A1

This finding is positive because, in their view, all enterprises have to learn from accumulated experience to fit a dynamic environment. Under the complex interaction of human beings, the president of the company pointed out that the company is based on the Buddhist ideas: "mercy", "trust" and "give first then gain". The company always considers all stakeholders' expectations, striving for a "win-win" situation. For suppliers and customers in the supply chain operation, they utilize joint ventures to achieve interdependence. For management and employees, they have adopted a dividend system to enable them to become shareholders. They also provide education and training to upgrade them. In the case of competitors, the aim is a "friendly relationship". The company hopes to share the market with them and create pricing machinery, namely, competitors avoiding price wars but competing on reputation, product quality and service to achieve a good cycle of competition. The company, therefore, constantly considers good interactions with stakeholders for its continual growth. This is practicing Buddhist ideas in business.

Company A2

Although the company recognized that many companies in Taiwan use a special dinner with a bargirl to build relationships with customers, they did not like to do this, because what customers need and want are good quality products, timely delivery and

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good service, rather than special dinners. Therefore, the company tried to learn how to

build good relationships and create mutual trust and commitment with stakeholders,

and further boost the company's reputation. The chairman and president of the

company are very concerned about employees' learning and training. He is studying

in National Sun Yat-sen University for the degree of executive master in business

administration (EMBA) to set a good example to employees and show that continual

learning is necessary.

Company A3

In the views of the interviewees, members of the company need constant learning to

boost competitive advantage because their industry is a mature industry in Taiwan.

The company separated homogenous members into several teams and encouraged

knowledgeable colleagues to share experiences with recruits. The company also

invited experts to teach employees professional knowledge to upgrade service quality.

Company A4

Interviewees here stressed that this is a knowledge era. This company emphasizes

education, training and shared experiences to reduce the risk of mistakes happening in

the future. In particular, this company emphasizes human management, respecting

individuals, sincerity and reliability, fairness, and cooperating well in a group where

employees share their knowledge, innovate ideas, and take on responsibilities and

honour together. The company has two learning approaches. One is a suggestion system, whereby different departments' employees congregate together to discuss how to improve the operation process. The other is a visit to competitors, followed by making project reports to understand their situation and learn from their experiences.

(3) Cultural view (Q7-Q8)

Company A1

The company believes that organizational culture is linked with achieving the organizational mission. The president of the company explained the process of building organizational culture. He said the company tries constantly to interpret Buddhist philosophy - by meeting every Monday from 8:00-9:00 a.m. Then, all members of the company gradually acquire a consistent perspective over time. Based on spiritual culture, they try to use the concept of cause-effect relations (a Buddhist idea) to influence people's behaviour in life and work, rather than setting up regulations and laws to control employees' behaviour.

This intangible force leads to employees' harmony and reduces arguments with stakeholders. Moreover, a coherent organizational culture facilitates employees' cooperation and smooth strategy implementation.

Company A2

The culture of this company emphasizes that "employees must do the right thing, first

time". For example, the company hoped all employees would avoid wasting costs. If they could implement "the right thing, first time," then there would be no need for rework or repair. The company's culture, therefore, is a guide to employees' behaviour

Company A3

The company believed that organizational culture can motivate employees to achieve the organizational mission. For the company, the original employees had a good coherent force, but since some later recruits had different beliefs, this force disappeared gradually. The company, nowadays, is seeking for a significant vision to cohere employees "force". Thus, it is very important to develop cultural beliefs for the company in the future.

Company A4

The culture of this company highlights using "interdependence" to guide employees' behaviour. The recruits of this company have to train for three months to identify the company's business discipline and understand the company's core values, which include quality, service, cost, efficiency and flexibility. Those are characteristics of the company, through which they try to differentiate themselves from their competitors. Consequently, all employees need to follow this belief to achieve their missions.

(4) Political view (Q9-Q10)

Company A1

The managers said they thought that political power only fits some circumstances. Therefore, they agreed with this finding. The president of the company highlighted that senior managers use too much power, which reduces employees' creativity and pro-activity. A senior manager explained that stakeholders have different interests, so for a company to use political power to deal with stakeholders' issues is insufficient. In general, managers in higher positions use more political power. In contrast, lower level managers should be careful about using political power.

Company A2

The company believed that professional power can persuade employees, suppliers and customers to reduce arguments. Simultaneously, the company also found that when senior mangers deal with problems, they should consider other factors such as ethics and communication so as to solve problems harmoniously.

Company A3

Senior managers believed that the finding that the political view got twenty-five percent neutral responses is very justified, because when problems are simple, power may be used to deal with them effectively, but complex problems tend to need more communication and negotiation. Generally, problems with external suppliers, customers or the local community were solved by communication, discussion and

negotiation. In contrast, the company tackled problems related to internal employees by political power. To avoid conflicts between the company and stakeholders, the company believed that applying ethical ideas could improve stakeholders' relationships.

Company A4

The president of the company mentioned that the level of strategy belongs to 'collective leadership', but the levels of operation and management should be completely delegated to the front line managers. Political power is always used to decide corporate development strategy and reengineering in this company. In fact, the company believed that political power sometimes produced conflicts. Thus, the managers must consider other factors in making strategic decisions, for example, communication with employees, customers, suppliers and shareholders, to establish harmony.

(5) Ethical view (Q11-Q14)

Company A1

The president of the company believes that this finding means that companies applied the ethical principles to create mutual trust with stakeholders to achieve strategic objectives which are meaningful, because "no individual independent existence" is a constant rationale. The ideas of "give first then gain" and "trust" must be built first.

He said he always advises employees that "to suffer loss is to be in an advantageous position". For example, when the company gives benefits to upstream and downstream partners, employees and stakeholders, they may gain some benefits from them, which is a good interaction relationship.

Company A2

The chairman of the company noted that if there is no trust, many things cannot be done. The company seeks constantly to build good relationships with stakeholders such as suppliers, banks and customers, by means of mutual trust and commitment.

On the other hand, the company identified that it is very difficult to have complete empowerment in organizations, because in a hi-tech industry involving technological business secrets, if these secrets were disclosed, it would threaten the whole company's survival. Therefore, every employee had a contract with the company, but this seemed not to be enough. Senior managers mentioned that personal morals played an essential role in hi-tech companies. The company agreed that Lao-Tzu's ethical idea should be applied in "trust" to capture employees' hearts.

Company A3

To encourage employees to achieve "self-actualization", the company absolutely trusts employees and it also emphasizes complete empowerment so employees can do their best to gain "achievement". The company always pursues "harmlessness" first.

Therefore, the company tried to avoid contacting competitors' customers, even if their customers tried to buy the company's products. Interestingly, the company had a good relationship with competitors.

The company produces differential products, the cooperation and trust between company and the supply chain operation are very important, and the process of tackling problems is as follows: "harmlessness $\rightarrow$ trust$\rightarrow$ profits". This shows that Lao-Tzu's ethical idea was incorporated into the company's business activities.

Company A4

The company relied completely on mutual trust to deal with stakeholders. The company believed that interdependence is a basic survival condition because the company's survival depends on its suppliers and customers. The success of the company's rapid development was also attributed to its behaving as a good citizen that cares for society. The governing philosophy in the company is "take from society, return to society". The company has frequently organized and sponsored public welfare events to strive for the healthy and happy lives of people worldwide. Therefore, Lao-Tzu's ethical idea was applied in this company, which had helped it to gain the confidence of the public and society.

(6) Planning view (Q15-Q21)

<u>Company A1</u>

The managers believe that planning is needed, and both the quantitative and the qualitative indicators must be considered in strategic management. Also, strategic planning must be adjusted by Five-forces and six-views analysis, and fuzzy if-then rules applied to create a series of possible situations for strategic thinking which is correct. The company utilizes four steps: plan, do, check and action to implement strategic planning. In general, qualitative and quantitative indicators must be used to measure strategic performance, as a balanced scorecard highlights both the qualitative and the quantitative indicators. A senior manager noted that the quantitative indicators of the company include revenue, profits, reduce cycle time, reduced defect rate, new products sale and new product items. The qualitative indicators focus on boosting customer satisfaction (including external customers and internal customers).

The finding coincides with the company's strategic planning. Five-forces and SWOT are the basic analysis tools in the company, with SWOT analysis being used to identify the company's competitive advantage. For example, the company's products belong to the second grade, but they have to understand the first, third and fourth grade products' technology and pricing in order to adjust the company's strategy. The Five-forces analysis enables the company to identify suppliers' and customers' situations and competitors' circumstances.

<u>Company A2</u>

The company emphasizes management by objectives (MBO), which uses only quantitative indicators for strategic management. But managers believed that good qualitative indicators can lead to higher quantitative indicators. For example, good product quality brings a higher customer retention rate. Senior managers of the company pointed out that they discussed planning objectives with the chairman and president, and then decided on short-term, middle-term and long-term objectives, so strategy implementation was not difficult, because strategy formulation and implementation are combined together in the company. Finally, those objectives will be modified by regular meetings. The company thought that customer satisfaction and employee satisfaction are essential factors as the quality system (QS 9000) requires the company to do surveys of customer satisfaction. Since qualitative indicators are difficult to measure, the company thought that quantitative indicators can be proxies for qualitative measurement, which may be a feasible approach.

The company has planning objectives and assigns a budget for 3-5 years in the future. Also this company tries to understand the economic situation and industry changes to adjust the company's planning. Basically, the company believes that there are too many variables in environmental changes, so forecasting is impossible. However, a senior manager noted that if-then rules are used to set some decision

alternatives.

<u>Company A3</u>

The company thought that the quantitative indicators are as important as the qualitative indictors. For example, "high employee turnover" leads to "waste of training expenditure"; when "customer complaints" are fewer and "product quality" is improved, there is a "higher customer retention rate". Therefore, the company highlighted "decreasing customer complaints" for boosting customer satisfaction.

The company is an international trading company, so it pays attention to environmental changes, such as the US stock market index, suppliers' prices and exchange rate. The company adjusts its strategic direction in relation to changes in these factors. The company had no special approach to gaining insight into environmental changes but the president of the company always had an ad hoc committee for alternative plans which includes senior managers, president and chairman to deal with important decisions to enable adaptation to environmental change.

<u>Company A4</u>

This company focuses on a key performance index (KPI), which consists of performance indicators such as productivity (for example, productivity of delivery, productivity of load and productivity of package) and service indicators such as

customers' needs (for example, timely delivery and customer satisfaction). Basically, because employees play an important role in service firms, this company agreed that employee satisfaction must be achieved first; then, customer satisfaction can be achieved. Finally, the president of the company pointed out that employee and customer satisfaction can be measured by means of employee productivity, employee turnover rate and employee suggestions, and the purchase proportion per customer in each single product, customer retention rate and customer complaints in service firms. This view is consistent with this research's proposition.

This company did not have a special approach to collect information in order to anticipate environmental change. It depended on a consultant, Meiji, in Japan, for this purpose. Generally, the company adjusted its strategic direction in accordance with the Japanese trend. At the same time, this company also researched information from domestic and foreign magazines to understand the change of Macro-economy. The president of the company believed that environmental change is difficult to forecast but it is essential that strategy is appropriately modified to fit environmental change in order to enlarge marketing opportunities and fend off competitors' actions.

(7) Six-views (Q22-Q24)

Company A1

The company highlighted that strategic planning must coincide with "policy

management" for promoting strategy implementation. In fact, the managers understand that strategic management must consider holistic operation in organizations. Consequently, if a company wants to implement effective strategic management, the six-views model is needed because six-views is seen as roots to boost, effectively and efficiently, supply chain operation. Finally, the company can promote employee satisfaction, customer satisfaction, and stakeholders' performance.

Company A2

It was agreed that companies needed to combine six-views to do strategic management, especially big corporations. The chairman of the company pointed out that combining the six-views is needed because a company attempts to attain effective strategic management, which is not only to perform the planning view for formulation but also should combine the integrated five-views for implementation. Basically, the company does not use special approaches to undertake strategic planning. It only sets up objectives for 3-5 years, assigns budget for achieving those missions, and communicates objectives to employees to implement the mission smoothly.

Company A3

The president of the company believed that the six-views model is appropriate to big corporations because they have more good organizational systems than small to medium sized enterprises. For small to medium sized enterprises, the six-views model

provides a kind of new pluralistic thinking and is worth trying from building

organizational roots to promote employee satisfaction, customer satisfaction, and

stakeholders' performance.

Company A4

The president of the company noted that the six-views model for strategic

management, which contains different views of strategic management and provides an

integration approach, could help Taiwanese companies to improve the effectiveness of

strategy formulation and implementation. In fact, this company has considered the

six-views in its strategy-making process. In particular, they perceived the logic and

language, learning and planning views as giving the company special advantages in

competing with competitors.

9.5 Interpretation of Case Study Findings

Based on the discussion above, the four companies' interpretations of eight findings

are described in turn.

Company A1

This company focuses on strategic planning. It has a complete process of planning.

During strategic planning, the company is always able to gain insight into

environmental change in order to adjust corporate strategy. The company highlights that corporation strategy needs to be linked to policy management for effective strategy implementation. For example, the company tries to build a culture based on the Buddhist values and to promote a 'win-win' situation for supply chain partners. Consequently, the company not only emphasizes the planning view but is also concerned with integrated five-views for strategy implementation.

<u>Company A2</u>

This company emphasizes management by objectives, in which strategic planning only considers short-term objectives covering about 3-5 years. They consider forecasting to be impossible; therefore, the company does not use a special approach to gain insight into environmental change, but uses quarterly meetings and observation of competitors' dynamics to adjust the planning of the company.

Although the company recognizes that organizational culture is very important, there is a lack of awareness of how to use an effective approach for achieving cohesion and harmonizing employees' efforts.

<u>Company A3</u>

Basically, the small to medium sized company does not have any special strategic planning, but focuses on the chairman's idea, which is to obtain more information from suppliers, competitors and customers to decide the corporation's strategy. The

chairman believes that a company has to discard traditional management and should cultivate employees' creative and productive abilities. Therefore, the company aims for employees to achieve 'self-actualization' and also strives to maintain a very good relationship with partners in the supply chain operation and has even built a good interaction with competitors.

Company A4

This company highlighted strategic announcement by political power, but operational management focused on complete empowerment of middle managers. Basically, this company has a significant organizational culture – a philosophy of interdependence. The president of the company explained that service firms have an essential characteristic – 'employees', which are the crucial asset of the company. Therefore, the basic policy of the company is to seek mutual support among employees by constant communications, pluralistic thinking, shared experiences and deliberate planning to achieve effective strategic management.

9.6 Conclusion

The results of this case study support the eight findings of the survey. The case study findings can be summarized as follows.

(1) From groups interviewed in the four companies, it was discovered that there are significant differences in the use of appropriate methods for promoting effective strategic management. Only one of the companies highlighted a complete planning process. However, they thought that strategic planning is a basic requirement for effective strategic management. Besides, they were also concerned to gain insight into environmental change in order to adjust corporate strategy by SWOT, Five-forces, and six-views analysis. The results of the case study compared with the questionnaire survey findings, where ninety-five percent of Taiwanese companies investigated suggested that they needed to be proactive to environmental change.

(2) Approximately, thirteen percent of respondents to the questionnaires were not sure whether their organizational culture was appropriate, and the interview responses revealed some problems in this area for Taiwanese companies. The companies believe that organizational culture is intangible, thus it is very difficult to interpret. In fact, organizational culture was formulated in terms of a governing idea, for example, one of building four kinds of organizational culture (adaptability, mission, clan, and bureaucratic) by conducting the ABC levels of culture as mentioned Chapter 2, or applying Lao-Tzu's idea or Buddhist principles.

(3) 'Trust' and "commitment" seem to play a crucial role for effective strategic management in Taiwanese companies. The majority of Taiwanese companies try to

build good relationships with partners in the supply chain operation to assist strategy implementation. There is also a trend away from traditional management, in favour of trusting employees, and further empowering them for 'self-actualization' in their work.

(4) In recent years, learning has become a very popular idea and is applied in strategic management. Because environmental change is rapid, most interviewees agreed that a company that seeks to maintain a competitive advantage and innovation must constantly accumulate knowledge to fit the environment.

(5) Most interviewees felt that quantitative and qualitative indicators are equally important for performance evaluation. However, they believed that qualitative indicators such as customer satisfaction and employee satisfaction are rather difficult to measure. It might be a help to use quantitative proxies for qualitative indicators. As Heskett *et al.* mention,

> "The service-profit chain, developed from analyses of successful service organizations, puts "hard" values on "soft" measures. It helps managers target new investments to develop service and satisfaction levels for maximum competitive impact, widening the gap between service leaders and their merely good competitors."
>
> (Heskett *et al.*, 2008, 118-120)

(6) Most companies agree that companies should promote stakeholders' expectations and corporate social responsibility. However, most senior managers do not know how to evaluate these. This research proposes that a stakeholder's expectation and

corporate social issues may be a good tool for measuring stakeholders' performance with fuzzy if-then rules.

(7) Under a dynamic and complex environment, most senior managers think that effective strategic management requires comprehensive thinking and they suggest that strengths and weaknesses in relation to the six-views need to be reinforced in order to promote supply chain operation. Finally, a company can enhance its performance and perform its strategy objectives.

As shown in the literature review in Chapter 2, companies, irrespective of size or type - endorse that strategic management plays an essential role for companies' survival and growth. Based on the questionnaire survey, interviews and case study, it was confirmed that most Taiwanese companies are also aware that strategic management needs to be considered from pluralistic viewpoints to combine the planning view and integrated five-views. A pluralistic strategic management approach using the six-views model will be practiced in the next chapter.

PART 3: THE SIX-VIEWS MODEL OF STRATEGIC MANAGEMENT WITH FUZZY LOGIC

CHAPTER 10: THE SIX-VIEWS MODEL

10.1 Introduction

This research practices the six-views model in four Taiwanese companies. This model combines the six-views to overcome current deficiencies of strategic planning, and further links strategy formulation and implementation. First, the audit result of the six-views was interpreted. Second, the foresight of environment and strategic thinking were explained by the six-views, Five-forces, and supply chain operation strategy. Third, performance evaluation of strategic management and improvement of the six-views were described. Finally, a conclusion was derived from the discussions mentioned above.

Based on the literature review discussions from Chapter 2 to Chapter 5, the six-views model was proposed. The fieldwork was conducted in Taiwanese companies by means of a questionnaire, interviews and case study, to observe whether the model could usefully contribute to promote effective strategic management. In this chapter, the "roots theory" is an integrating of the ideas of the six-views,

environmental foresight for SBUs to boost supply chain operation efficiently and effectively for performance evaluation, finally, fulfil strategic management successfully. Basically, an organization, like a tree, aims to grow. It needs to seek survival first, and then pursue development. Just as a tree has to avoid harm by previous preparation against destructive forces such as a typhoon, an organization must prepare itself to withstand future eventualities. During the process of growth, an organization faces a business cycle like the four seasons: Spring, Summer, Autumn, and Winter; more or fewer "leaves" (or companies' sales) will be produced at different times according to the season (or stage of the business cycle). Further, strong roots are necessary for a tree to produce fruit bountifully. Similarly, the six-views leads to satisfy employees and customers to increase the profits of the organization and share benefits with stakeholders, conceived to include society as a whole.

The six-views model is, therefore, to consolidate the basic foundation of organizations, in order not only to achieve company survival but also to promote further development. In turn, a series of instruments are practiced to improve strategic management in organizations.

10.2 Roots: The Audit Result of the Six-views

Companies A1-A4 had significant gaps between the planning view and integrated

five-views: 0.099, 0.156, 0.109, and 0.122, respectively as shown in Table 10.1. This indicates that the four companies should improve their integrated five-views in order to close the gaps between formulation and implementation. As Mankins and Steele (2005) illustrate the reward for closing the strategy-to-performance gap is significant to enhance performance of anywhere from 60% to 100% for most companies. It may ignore long-run plans, misapply resources and break downs in communication, performance bottlenecks are invisible to top management and foster an under-performance culture. In turn, this research would like to calculate strategic management by if-then rules to express the truth of the precondition. There are several ways to define this rule. Here, Mamdani and Assilian's (1975) method is follows, as mentioned in section 4.3.3.

Table 10.1 The gap between planning view and integrated five-views

Company	Planning view	Integrated five-views	Gaps
A1	0.872	0.773	0.872-0.773=0.099
A2	0.840	0.684	0.840-0.684=0.156
A3	0.818	0.709	0.818-0.709=0.109
A4	0.799	0.677	0.799-0.677=0.122

(Source: from Table 10.2)

Based on audit data of the six-views, the aggregated average expression of TFN of the individual view, planning view and integrated five-views are shown in Table 10.2. Based on Table 10.1 and Figure 4.4 the linguistic translation of the numerical data for companies A1-A4 is shown in Table 10.3.

Table 10.2 Audit of individual view, planning view, integrated five-views, and the six-views in companies A1-A4

Company	LLV	LV	CV	PV	EV	PLV
A1	0.855	0.855	0.760	0.715	0.787	0.872
	★six-views = 0.823; ☆five-views=0.773; ☆PLV=0.872					
A2	0.699	0.832	0.608	0.668	0.691	0.840
	★six-views = 0.800; ☆five-views=0.684; ☆PLV=0.840					
A3	0.715	0.810	0.640	0.657	0.787	0.818
	★six-views = 0.768; ☆five-views=0.709; ☆PLV=0.818					
A4	0.787	0.761	0.570	0.603	0.773	0.799
	★six-views = 0.723; ☆five-views=0.677; ☆PLV=0.799					

Based on combining the planning view and integrated five-views, the 25 if-then rules in Table 4.3 and Table 10.3, and the results of the degree of truth from the "if" parts for companies A1-A4, only four rules have to be fired as shown in Table 10.4.

Table 10.3 Linguistic translation of the numerical data for companies A1-A4

Company	Planning view	Integrated five-views
A1	{S=0.621, VS=0.379}	{M=0.168, S=0.832}
A2	{S=0.857, VS=0.143}	{M=0.488, S=0.513}
A3	{M=0.007, S=0.993}	{M=0.396, S=0.604}
A4	{M=0.075, S=0.925}	{M=0.500, S=0.500}

Table 10.4 The degree of truth of the "if" parts for companies A1-A4

Company A1	
Rule 2: Min(five-views=0.832, PLV=0.379)=VS=0.379	Max{0.379}=VS=0.379
Rule 5: Min(five-views=0.832, PLV=0.621)=S=0.621	Max{0.621, 0.168, 0.168}=S=0.621
Rule 6: Min(five-views=0.168, PLV=0.379)=S=0.168	
Rule 8: Min(five-views=0.168, PLV=0.621)=S=0.168	
$\text{Strategic management} = \dfrac{0.773\times19.688+0.967\times5.817}{19.688+5.817}=0.823$	
Company A2	
Rule 3: Min(five-views=0.513, PLV=0.143)=VS=0.143	Max{0.143}=VS=0.143
Rule 5: Min(five-views=0.513, PLV=0.857)=S=0.513	Max{0.513, 0.143, 0.488}=S=0.513
Rule 6: Min(five-views=0.488, PLV=0.143)=S=0.143	
Rule 8: Min(five-views=0.488, PLV=0.857)=S=0.488	
$\text{Strategic management} = \dfrac{0.773\times14.921+0.967\times2.393}{14.921+2.393}=0.800$	
Company A3	
Rule 5: Min(five-views=0.604, PLV=0.993)=S=0.604	Max{0.604, 0.007, 0.396}=S=0.604
Rule 7: Min(five-views=0.604, PLV=0.007)=S=0.007	
Rule 6: Min(five-views=0.396, PLV=0.993)=S=0.396	
Rule 8: Min(five-views=0.396, PLV=0.007)=M=0.007	Max{0.007}=M=0.007
$\text{Strategic management} = \dfrac{0.533\times0.405+0.773\times18.586}{0.405+18.586}=0.768$	
Company A4	
Rule 5: Min(five-views=0.5, PLV=0.925)=S=0.5	Max{0.5, 0.075, 0.5}=S=0.5
Rule 7: Min(five-views=0.5, PLV=0.075)=S=0.075	
Rule 8: Min(five-views=0.5, PLV=0.925)=S=0.5	
Rule 11: Min(five-views=0.5, PLV=0.075)=M=0.075	Max{0.075}=M=0.075
$\text{Strategic management} = \dfrac{0.533\times4.187+0.773\times15.750}{4.187+15.75}=0.723$	

This research found that for company A1, VS=0.379; S=0.621, S=0.168, and S=0.168 with operation min. In turn, aggregating the control outputs yielded VS=0.379 and S=0.621 with operation max. After defuzzication with COA by formula (4.6) and

Figure 4.4, the output is "strategic management (SM)" with ★six-views=0.823.

Similarly, for company A2, four rules were calculated: VS=0.143; S=0.513, S=0.143,

and S=0.488 and aggregating the control outputs yielded VS=0.143 and S=0.513, then

"strategic management" was ★six-views=0.800. In turn, "strategic management" for

companies A3 and A4 was ★six-views=0.768 and ★six-views=0.723, respectively.

Roots: the six-views

The results of the audits from a six-views perspective found that company A1

possessed a strong level of the ★six-views=0.823. This company should adopt

development strategy as the company proposes projects of an integration strategy,

which include vertical and horizontal strategies, whereby it tries to cooperate with its

suppliers, customers and competitors. The planning view, logic and language view

and the learning view were very strong at ☆PLV=0.872, LLV=0.855, and LV=0.855,

but the cultural view, the ethical view, and the political view were strong level at

CV=0.760, EV=0.787, and PV=0.715, respectively as shown in Figure 10.1. More

detailed calculation is explained in Appendix N.

R O O T S			
	Very weak (0-0.2)		
	Weak (0.1 -0.4)		
	Moderate (0.3 -0.7)		
	Strong (0.6 -0.9)		CV(0.76); EV(0.787); PV(0.715) ☆**five-views**(0.773);
	Very strong (0.8 -1.0)	☆**PLV**(0.872)	LLV(0.855); LV(0.855)
	Combining strategic formulation and implementation	Strategic management with ★**six-views**(0.823)	

Figure 10.1 Strategic management combines planning view and integrated
five-views in company A1

Clearly, company A1 adopted a planning view and also considered the logic and language view and learning view in setting strategy. This research suggests that company A1 should improve the integrated five-views in order to reduce the gap between formulation and implementation and further reinforce successful strategic management. President Ho commented and indicated that the company was moving towards reinforcing leaders' leadership style as this research suggests, from basic foundation of compliance, through power sharing, and transferring to power distribution (see Table 2.7).

In company A2, audit revealed that the six-views were strong at ★six-views=0.800. Company A2, therefore, is appropriate to conduct a development strategy. It showed that the learning view was a strong LV=0.832 in line with the results of interviews with the chairman of company A2, who had a very good R&D team which highlighted learning activity for strategy. However, the company needed to reinforce the other four views, including LLV=0.699, PV=0.668, EV=0.691, and particularly CV=0.608, in order to promote strategy implementation as shown in Figure 10.2.

Very weak (0-0.2)		
Weak (0.1 -0.4)		
Moderate (0.3 -0.7)		CV(0.608)
Strong (0.6 -0.9)	☆**PLV**(0.840)	LV(0.832); PV(0.668); ☆**five-views**(0.684); EV(0.691); LLV(0.699)
Very strong (0.8 -1.0)	☆**PLV**(0.840)	
Combining strategic formulation and implementation	Strategic management with ★**six-views**(0.800)	

Figure 10.2 Strategic management combines planning view and integrated five-views in company A2

Company A3 was a small to medium sized service firm. The six-views was categorized as strong level with ★six-views=0.768. The learning view, ethical view, logic and language view, and political view were strong with LV=0.81, EV=0.787, LLV=0.715, and PV=0.657. The cultural view obtained moderate with CV=0.640. From yearly sales revenue classified by market character, the commercial trade declined from 52.5% to 8.0%. However, the automotive, trade i.e., professional product service, increased from 36.9% to 67.0%. This indicates that the company highlights a differentiation-focused strategy for survival as shown in Figure 10.3.

R O O T S	Very weak (0-0.2)		
	Weak (0.1 -0.4)		
	Moderate (0.3 -0.7)		CV(0.64)
	Strong (0.6 -0.9)	☆**PLV**(0.818)	LV(0.81); EV(0.787) ; PV(0.657); LLV(0.715); ☆**five-views**(0.709)
	Very strong (0.8 -1.0)		
	Combining strategic formulation and implementation	Strategic management with ★**six-views**(0.768)	

Figure 10.3 Strategic management combines planning view and integrated five-views in company A3

Company A4 was a new service firm which acted as a bridge to deliver suppliers' products to customers and was categorized as strong in the six-views with ★six-views=0.723. The company emphasizes that strategy is a set of survival by way

of differentiation focus. Clearly, integrated five-views with ☆five-views=0.677 was

weaker than the planning view with ☆PLV=0.799. Comparing the interview's

findings, company A4 highlighted learning and sharing partners' experience in

organizations, sought to create supply chain operation interdependence, made quality

a priority, encouraged employees' enthusiasm for service and promoted customer

satisfaction are coherent. In fact, these ideas are close to the six-views perspectives

for implementation rather than the planning view only. It is suggested that the

company can achieve its mission of moving from the third rank up to the first rank in

the delivery service industry, in Taiwan, by means of reinforcing the other five-views

to improve its implementation in organizations, as shown in Figure 10.4.

R O O T S	Very weak (0-0.2)		
	Weak (0.1 0.4)		
	Moderate (0.3 -0.7)		CV(0.570); PV(0.603);
	Strong (0.6 -0.9)	☆**PLV**(0.799)	LV(0.761); EV(0.773); LLV(0.787); ☆**five-view**s(0.677)
	Very strong (0.8 -1.0)		
	Combining strategic formulation and implementation	Strategic management with ★**six-views**(0.723)	

Figure 10.4 Strategic management combines planning view and integrated
five-views in company A4

In conclusion, company A1 had a significant strength in the planning view.

However, emphasizing the planning view only is not enough for company A4.

Therefore, the president of company A1 acknowledged that the company needed to

reinforce the other five-views for improving strategic management, especially the

political view. Company A2 had significant strengths in the planning and learning views, but the other four views had significant weaknesses. In interviews, the chairman of the company pointed out that the high-tech company reinforced learning for innovative activities and needed to prepare a 3-5 year activity plan. Therefore, the chairman of the company A2 suggested that the company might need to create cultural belief from level A, to level B then to level C, and reinforce implementation of strategic management by means of cultural belief. Company A3 had significant strengths in the planning, learning and ethical views. However, comparing the planning view, company A3 was lower than companies A1 and A2, because the chairman of company A3 viewed the strategic thinking process as more one of intuition and experience than planning. Company A4 was a new company, which needed to improve the cultural and political views in order to promote the change of leadership style, from compliance and power sharing, to power distribution, and to build an appropriate organizational culture, such as the adaptability culture, mission culture, clan culture, or bureaucratic culture.

The four companies highlighted the planning view and paid attention to the learning view. However, from comparison of the six-views, the cultural and political views were placed in a weaker position. This suggests a lack of attention in Taiwanese companies, to building organizational culture, in particular, in small to medium sized

enterprises, and the political view should be implemented carefully in the process of strategic management. Furthermore, this research finds that four companies emphasized strategy formulation with the planning view, but paid insufficient attention to the integrated five-views for implementation, as shown in Figure 10.5. Three of four companies were located in Quadrant I_4, reflecting, strong PLV and moderate integrated five-views. Therefore, these companies should reinforce their strategy implementation to promote strategic management.
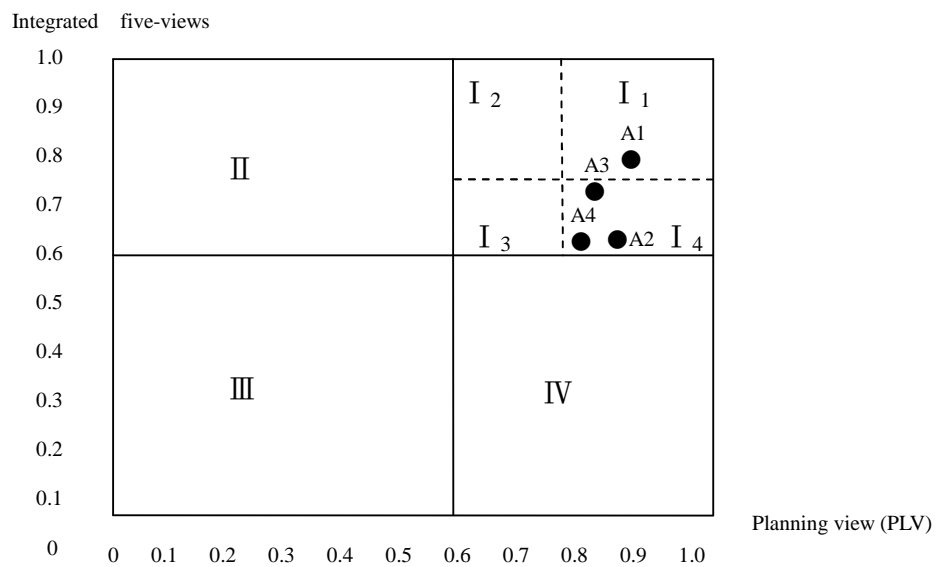
Figure 10.5 Compare the PLV and integrated five-views matrix in companies A1-A4

[Note: Company A1 (0.872, 0.773); A2 (0.840, 0. 684); A3 (0.818, 0.709); A4 (0.799, 0.677)]

10.3 Stems: Foresight Environment and Strategic Thinking

Strategic decision rules matrix

According to the six-views analysis found that companies A1, A2, A3, and A4 are belonged to a strong level. Therefore, the four companies should be to be conducting development strategy, but the other three companies should be to be implementing development strategy.

Based on the TFN in Table 10.5, company A1 obtained the average of Five-forces 91, 69, 85, 77, 88 and from Figure 4.4 got a strong or weak degree of Five-forces: H=0.36, VH=0.64; M=0.46, H=0.54; H=0.79, VH=0.21; M=0.18, H=0.82; and H=0.57, VH=0.43, respectively. Finally, based on COA formula for company A1, defuzzification of Five-forces were "RA"

$$= \frac{12.4056 \times 0.773 + 0.96688 \times 8.64}{12.4056 + 8.64} = 0.8526 \rightarrow \text{high; similarly, "TNE"} = 0.6402 \rightarrow \text{moderate;}$$

"CPOS" = 0.8015 → high; "ST" = 0.6965 → high; and "POB" = 0.8261 → high, respectively.

Table 10.5 Competitive intensity of Five-forces for companies A1-A4

Company	Five-forces				
	RA	TNE	CPOS	ST	POB
A1	(82, 94, 98); 91	(44, 73, 91); 69	(68, 88, 97); 85	(54, 82, 96); 77	(80, 86, 97); 88
	H=0.36,VH=0.64	M=0.46,H=0.54	H=0.79, VH=0.21	M=0.18, H=0.82	H=0.57, VH=0.43
	0.8526→H	0.6402→M	0.8015→H	0.6965→H	0.8261→H
	From if-then rule 2, Five-forces→ High (H)				
A2	(54, 78, 87); 70	(44, 73, 91); 69	(55, 75, 87); 72	(24, 54, 82); 53	(33, 63, 87); 61
	M=0.43, H=0.57	M=0.46, H=0.54	M=0.36, H=0.64	W=0.03, M=0.97	M=0.75, H=0.25
	0.6449→H	0.6403→M	0.6568→H	0.5212→M	0.5936→M
	From if-then rule 7, Five-forces→ Moderate (M)				
A3	(95, 96, 96); 96	(54, 82, 96); 77	(74, 87, 97); 86	(69, 81, 93); 81	(68, 87, 94); 83
	VH=1	M=0.18, H=0.82	H=0.71, VH=0.29	M=0.04, H=0.96	H=0.93, VH=0.07
	0.9669→H	0.6965→H	0.8107→H	0.7494→H	0.7837→H
	From if-then rule 1, Five-forces→ High (H)				
A4	(49, 69, 88); 69	(24, 54, 82); 53	(46, 73, 91); 70	(54, 82, 96); 77	(34, 63, 87); 61
	M=0.46, H=0.54	W=0.03,M=0.97	M=0.43, H=0.57	M=0.18, H=0.82	M=0.75, H=0.25
	0.6403→M	0.5212→M	0.6449→H	0.6965→H	0.5936→M
	From if-then rule 7, Five-forces→ Moderate (M)				

[Note: how did we identify competitive intensity of Five-forces, see Appendix O]

Similarly, companies A2-A4 obtained the average of Five-forces, 70, 69, 72, 53, and 61; 96, 77, 86, 81, and 83; 69, 53, 70, 77, and 61 and further from Figure 4.4 got a strong or weak degree of Five-forces, company A2: (M=0.43, H=0.57; M=0.46, H=0.54; M=0.36, H=0.64; W=0.03, M=0.97; M=0.75, H=0.25); company A3: (VH=1; M=0.18, H=0.82; H=0.71, VH=0.29; M=0.04, H=0.96; H=0.93, VH=0.07); company A4: (M=0.46, H=0.54; W=0.03, M=0.97; M=0.43, H=0.57; M=0.18, H=0.82; M=0.75, H=0.25), respectively. Finally, defuzzification of Five-forces were company A2=0.6449→H, 0.6403→M, 0.6568→H, 0.5212→M, and 0.5936→M; company A3=0.9669→H, 0.6965→H, 0.8107→H, 0.7494→H, and 0.7837→H; company A4=0.6403→M, 0.5212→M, 0.6449→H, 0.6965→H, and 0.5936→M, respectively.

Therefore, companies A1-A4 were based on if-then rules of 2, 7, 1, and 7, the competitive intensity of Five-forces in companies A1 was "H"; A2 was "M"; A3 was "H" and A4 was "M", as shown in Table 10.5. From the case study analysis, this research found that companies A1 and A3 should use efficient (innovation or liquidation or divestiture) strategy, but companies A2 and A4 could adopt a responsive and efficient strategy, because companies A1 and A3 belonged to maturity and decline stages, and companies A2 and A4 belonged to growth stages of PLC, as shown in Figure 10.6 and the strategic decision rule matrix, as shown in Table 10.6.

	Competitive intensity of Five-forces		
	Low (0-0.4)	Moderate (0.3 -0.7)	High (0.6 -1.0)
Product life cycle (PLC)	Introduction stage	Growth stage **Companies A2 and A4**	Maturity and Decline stage **Companies A1 and A3**
Supply chain operation strategy	Responsive strategy	Responsive and efficient strategy	Efficient, Liquidation, Innovation, Divestiture strategy

Figure 10.6   Results of strategy fit

Table 10.6   The strategic decision rule matrix

	If-conditions	And-condition	**Then**-decision
	Input	Output	
Six-views	Logic and language Learning Cultural Political Ethical Planning	Company A1 was strong Company A2 was strong Company A3 was strong Company A4 was strong	Companies A1, A2, A3, A4 →Development strategy
Five-forces analysis	RA CPOS POB TEN ST	The competitive intension of Five-forces in companies A1-A4 belonged to H, M, H, and M, respectively.	Company A1→ Maturity and decline Company A2→ Growth Company A3→ Maturity and decline Company A4→ Growth
Supply chain operation strategy	The competitive intension of Five-forces were: Company A1→ H Company A2→ M Company A3→ H Company A4→ M	PLC of four companies were: Company A1→ Maturity and decline Company A2→ Growth Company A3→ Maturity and decline Company A4→ Growth	A1 and A3→ Efficient strategy or (innovation or Liquidation or divestiture) A2 and A4 → responsive and efficient strategy

10.4 Flowers and Fruits: Performance Evaluation in Strategic Management

The literature of internal marketing has appeared as an approach to enable

companies to obtain, motivate and maintain customer-conscious employees

(George and Gronroos, 1989). If a company wants to satisfy its customers,

therefore, it should satisfy its employees in advance because internal marketing

mentions that employee satisfaction leads to good products and service quality; furthermore, good products and service quality give rise to the customer retention rate; additionally, high customer retention rate promotes customer satisfaction (Ahmed and Rafiq, 2002), as shown in Figure 10.7. In turn, the indicators of employee satisfaction and customer satisfaction will be tested by a Spearman rank correlation coefficient in this research. Finally, evaluation of employee and customer satisfaction, and stakeholders' performance are explained as follows:
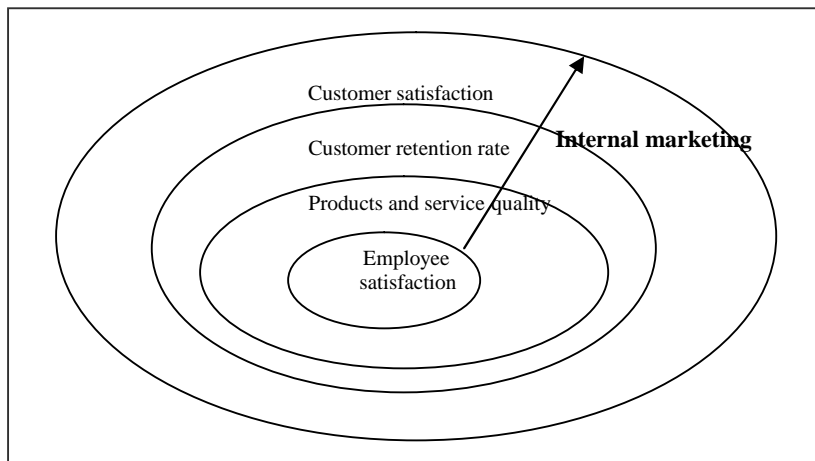
Figure 10.7 The internal marketing onion for quality and customer
satisfaction (Source: Adapted from Ahmed and Rafiq, 2002, 122)

10.4.1 Use of a Spearman Rank Correlation Coefficient to Test Performance Evaluation Indicators

When the assumptions underlying the parametric correlation analysis are not met one of the simplest and widely used indicators is the Spearman rank correlation coefficient by $r_s = 1 - \dfrac{6 \sum d_i^2}{n(n^2 - 1)}$ which is computed from data consisting of ranks, where d

represents the differences between the two variables' ranks (Lin, 2003). In this research, the method will be used to conduct the rank correlation analysis of the companies' performance evaluation indicators with the four companies of the case study as mentioned in section 10.4. Suppose that the observations in their original form are not ranks; then, the Spearman rank correlation coefficient is used as a measure of correlation if the observations can be ranked according to magnitude from smallest to largest. If the two rankings are perfectly and directly corrected, the rank of employee productivity will equal the rank of employee suggestions for all pairs. If the rankings are perfectly and inversely corrected, the smallest employee productivity rank will be paired with the largest employee suggestions rank. The data of performance evaluation indicators of the Taiwanese companies are shown in Appendix J.

Employee satisfaction

For employee satisfaction, can this research conclude from the four companies that there is a direct relationship between employee productivity and employee suggestions? Are employee productivity and employee turnover inversely correlated? Further, are employee turnover and employee suggestions inversely correlated?

Applying the Spearman rank correlation test to company A1 discovered that employee productivity and employee suggestions were directly correlated

(p=0.0186<0.05); employee productivity and employee turnover were inversely correlated (p=0.0001<0.001); and employee suggestions and employee turnover were inversely correlated (p=0.0133<0.05). Applying the Spearman rank correlation test to company A2 found out that employee productivity and employee suggestions were directly correlated (p=0.0001<0.001); employee productivity and employee turnover had not inversely correlated (p=0.8780>0.1); and employee suggestions and employee turnover had not inversely correlated (p=0.8780>0.1). Company A3 only tested employee productivity and employee turnover because there was no employee suggestions data. The Spearman rank correlation test found that there was no significant inverse correlation because more than one half of employee turnover was zero during eleven years. Applicattion of the Spearman rank correlation test to company A4 found out that employee productivity and employee suggestions were directly correlated (p=0.0048<0.01); employee productivity and employee turnover were inversely correlated (p=0.0188<0.05); and employee suggestions and employee turnover were inversely correlated (p=0.0724<0.1), as shown in Table 10.7.

Employee satisfaction indicators are based on the Spearman rank correlation coefficient to test any two variables in the hypotheses. The results of the test concluded that employee productivity and employee suggestions were directly correlated for companies A1, A2 and A4. Employee productivity and employee

turnover were inversely correlated for companies A1 and A4 while company A2 did

not have significant inverse correlation. Company A3 did not have employee

suggestions and did not have significant inverse correlation between employee

productivity and employee turnover. This may suggest focusing on one industry or

testing more companies to gain a general conclusion because the four companies have

different characteristics.

Table 10.7 Use Spearman rank correlation coefficient to test any two variables of employee satisfaction indicators for companies A1-A4

The two variables	N	Mean	Spearman rank correlation coefficient and p value
Company A1			
Employee productivity (EP) and employee suggestions (ES)	10	EP=£205544 ES=3.54PYPP	ES EP 0.72121 0.0186 (**)
EP and employee turnover (ET)	10	EP=£205544 ET=0.048/year	ET EP -0.92727 0.0001 (***)
ES and ET	10	ES=3.54PYPP ET=0.048/year	ET ES -0.74545 0.0133 (**)
Company A2			
EP and ES	7	EP=£49306 ES=1.54PYPP	ES EP 1.00000 0.0001 (***)
EP and ET	7	EP=£49306 ET=0.03/year	ET EP -0.07207 0.8780
ES and ET	7	ES=1.54PYPP ET=0.03/year	ET ES -0.07207 0.8780
Company A3			
EP and ET	11	EP=£327000 ET=0.037/year	ET EP 0.26271 0.4351
Company A4			
EP and ES	6	EP=£158148 ES=0.30PYPP	ES EP 0.94286 0.0048 (**)
EP and ET	6	EP=£158148 ET=0.007/year	ET EP -0.88571 0.0188 (**)
ES and ET	6	ES=0.30PYPP ET=0.007/year	ET ES -0.77143 0.0724 (*)

(Note: * one-tailed test, $p<0.10$; ** one-tailed test, $p<0.05$; *** one-tailed test, $p<0.001$)

Customer satisfaction

In regard to customer satisfaction (CSA), is the Spearman test effective in

determining whether the purchase proportion per customer in each single product and customer retention rate (CRR) are they directly correlated? Are the purchase proportions per customer in each single product and customer complaints (CC) inversely correlated? Are customer retention rate and customer complaints inversely correlated?

Basically, it was difficult to discover the purchase proportion per customer in each single product when I interviewed the senior managers because they believed that a company cannot gain such precise information. Therefore, this research did not adopt this indicator. From interviewee responses, company A1 and company A3 use the customer complaints compensation rate (compensation/sales) to express customer satisfaction of product or service because the two companies have the same characteristics which provide auto parts.

In turn, the statistical test discovered that the customer retention rate and customer complaints compensation rate (CCCR) were inversely correlated in companies A1 (p=0.0003<0.001) and A3 (p=0.0048<0.005), respectively. However, companies A2 and A4 adopted customer complaints to understand the response of product or service. The results of the Spearman rank correlated test showed that company A2 did not have the inverse correlation (p=0.215>0.1) because this company is a growing company, in spite of complaints, the customer retention level is

maintained. On the other hand, company A4 were inversely correlated

(p=0.0046<0.05) between the customer retention rate and customer complaints, as

shown in Table 10.8. From the conclusion of the customer satisfaction indicators test,

it appears that the customer retention rate and customer complaints compensation rate

(or customer complaints) are significant inversely correlated while the purchase

proportion per customer in each single product information cannot be gained from the

four companies' customers.

Table 10.8 Use Spearman rank correlation coefficient to test two variables of customer
satisfaction indicators for companies A1-A4

Company A1			
The two variables	N	Mean	Spearman rank correlation coefficient and p value
Customer retention rate (CRR) and customer complaints' compensation rate (CCCR)	6	CRR=0.84/year CCCR=0.0064/year	CCCR CR -0.98561 0.0003 (***)
Company A2			
CRR and customer complaints (CC)	7	CRR=0.92/year CC=188.6/year	CCCR CR -0.53588 0.2150
Company A3			
CRR and CCCR	6	CRR=0.73/year CCCR=0.0087/year	CCCR CR -0.94286 0.0048 (**)
Company A4			
CRR and CC	6	CRR=0.90/year CC=8.67/year	CC CR -0.94388 0.0046 (**)

(Note: * one-tailed test, p<0.10; ** one-tailed test, p<0.05; *** one-tailed test, p<0.001)

10.4.2 Evaluation of Employee Satisfaction and Customer Satisfaction

From the results of the Spearman rank correlation test, this research understood that

the customer satisfaction indicator should be corrected to two variables from the

original three variables as mentioned in Chapter 5. In this research, therefore, fuzzy

if-then rules are used to combine employee productivity, employee turnover (or employee retention= 1- employee turnover) and employee suggestions into a measure of employee satisfaction, and to combine the customer retention rate and customer complaints' compensation rate (or customer complaints) into a measure of customer satisfaction with Mamdani and Assiliav's (1975) method.

(1) Fuzzy rules of employee satisfaction

The form of the fuzzy if-then rules used in measurement of employee satisfaction is:

If EP and ER and ES, then ESA (or If EP and ET, then ESA or If EP and ES, then ESA). Where EP, ER, ET, ES and ESA denote the following fuzzy sets: EP: Employee productivity; ER: Employee retention; ES: Employee suggestions; ET: Employee turnover; ESA: Employee satisfaction. Each fuzzy set is described using the following three linguistic variables: low (L); moderate (M); high (H). Linguistic variables have to be defined for all variables used in the "if-then" rules. For employee satisfaction assessment, the terms are shown in Table 10.9.

Table 10.9 Linguistic variable possible values for employee satisfaction

Input linguistic variables	Linguistic variable possible values	Output linguistic variable	Linguistic variable possible values
Employee productivity	∈ {L, M, H}	Employee satisfaction	∈ {L, M, H}
Employee retention (or employee turnover)	∈ {L, M, H}		
Employee suggestions	∈ {L, M, H}		

For every linguistic variable of employee satisfaction, each term is defined by its membership function. Three possible definitions of input variables are shown in

Figures 10.8, 10.9, 10.10 and 10.11 and one output variable is shown in Figure 10.12.

From the *Common Wealth Magazine* (2002) survey of 500 top manufacturing industries and service firms, this research gained the mean employee productivity $(\bar{x})$ as $5549 per person, and standard deviation ($s_{\bar{x}}$) as $1149 per person in manufacturing industries. The mean and standard deviation of service firms are $\bar{x} = 3931 per person, $s_{\bar{x}} = 1371 per person, respectively. This research uses $\bar{x}$, $\bar{x} \pm s_{\bar{x}}$, *and* $\bar{x} \pm 2s_{\bar{x}}$ to represent low, moderate and high employee productivity, as shown in Figure 10.8.

MI	3251	4400	5549	6697	7846
SF	1189	2560	3931	5302	6674

Figure 10.8 Linguistic variable "employee productivity"
(Source: Adapted from *Common Wealth Magazine*, April 26, 2002)
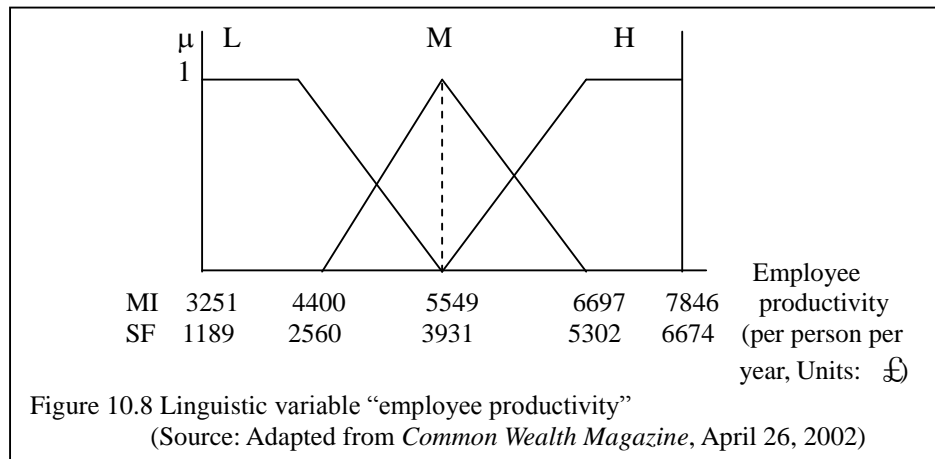
(Note: MI represents manufacturing industries; SF represents service firms)

However, employee turnover and employee productivity were inversely correlated as well as employee turnover and employee suggestion. Therefore, this research used employee retention = (1- employee turnover) to replace employee turnover for explaining the consistency of employee satisfaction by employee productivity, employee retention, and employee suggestion. This research collected the mean of employee turnover ($\bar{x}$), from 11 companies between 1999 and 2001. Consequently,

the mean of employee turnover is 0.0286/year and standard deviation ($s_{\bar{x}}$) is 0.011/year. $\bar{x}$, $\bar{x} \pm s_{\bar{x}}$, and $\bar{x} \pm 2s_{\bar{x}}$ representing employee turnover, as shown in Figure 10.9. Employee retention is used instead as shown in Figure 10.10.

Figure 10.9 Linguistic variable "employee turnover"

Figure 10.10 Linguistic variable "employee retention"
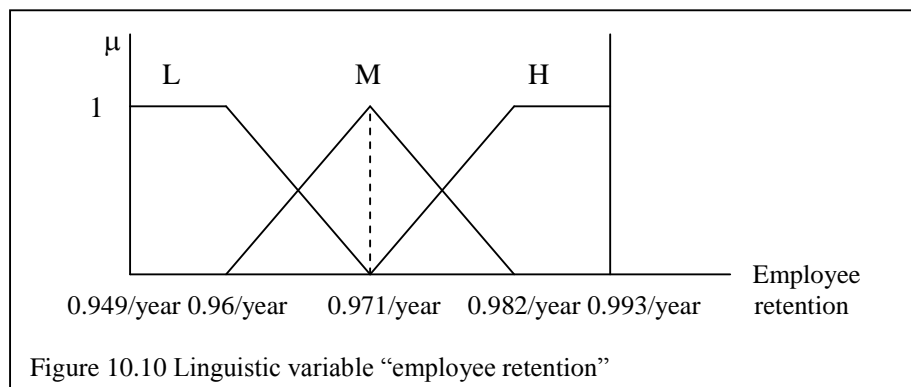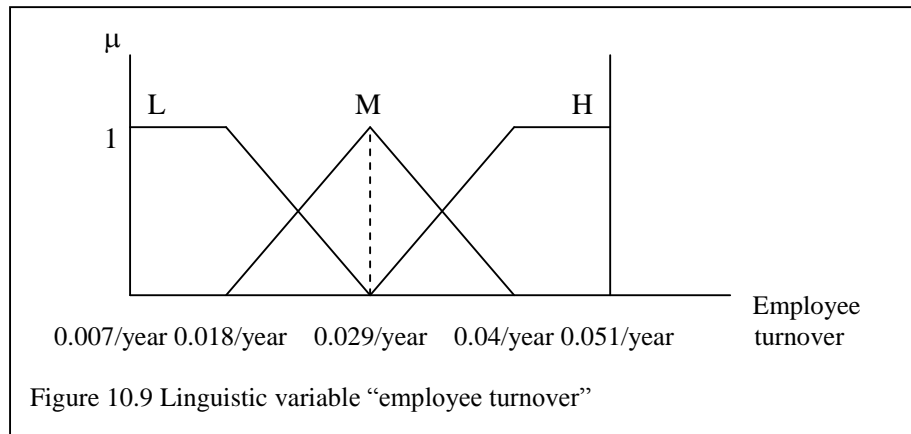
(Source: from Figure 10.9, employee retention = 1- employee turnover, and be placed opposite location)

Based on the four companies' suggestion data, the mean and standard deviation of employee suggestions are $\bar{x} = 1.63PYPP$, $s_{\bar{x}} = 1.55PYPP$, respectively. This research uses $\bar{x}$, $\bar{x} \pm s_{\bar{x}}$ and $\bar{x} \pm 2s_{\bar{x}}$, to represent low, moderate and high employee suggestions, as shown in Figure 10.11.

From fuzzy logic inference, using this value for comparison, it has to be translated into a numerical value by defuzzification. Figure 10.12 plots the

membership functions for the linguistic variable "employee satisfaction" and formula (4.5) is used to calculate it.

Figure 10.11 Linguistic variable "employee suggestions"
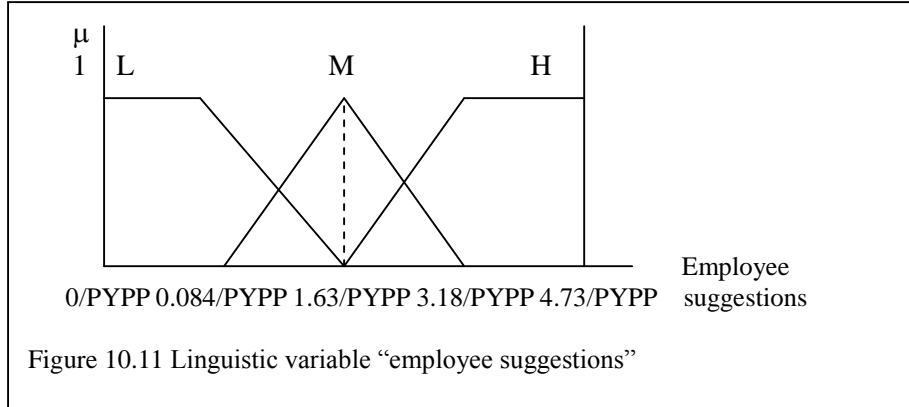
(Note: PYPP represents per year per person)

Figure 10.12 Linguistic variable "employee satisfaction"
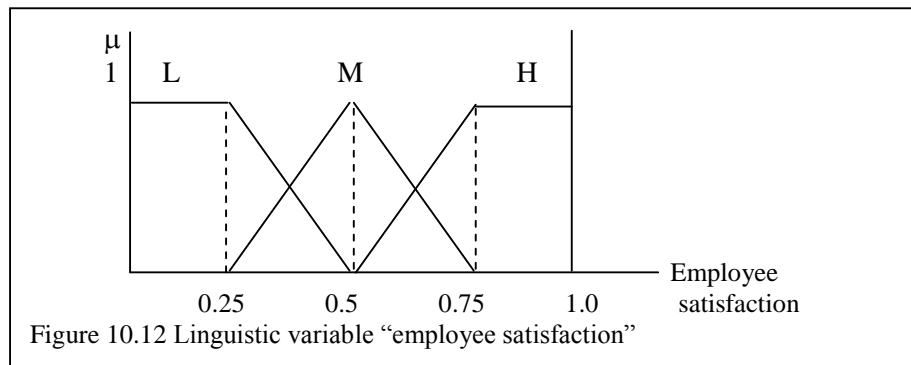
Based on a repeated combination formula C_r^{n+r-1}, ten possible rules of employee satisfaction are shown in Table 10.10.

Evaluation employee satisfaction for companies A1-A4

Based on Appendix J, the mean of employee productivity, employee turnover (or employee retention) and employee suggestions for companies A1-A4 are shown in Table 10.11. Linguistic translation of the numerical data for companies A1-A4 is shown in Table 10.12 which is based on Table 10.11, and Figures 10.8, 10.9, 10.10

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and 10.11.

Table 10.10 Ten if- rules for employee satisfaction

Possible rules for repeated combination	If: Condition			Then Conclusion
				Employee satisfaction
Rule 1	H	H	H	H
Rule 2	H	H	M	H
Rule 3	H	H	L	H
Rule 4	H	M	M	M
Rule 5	H	M	L	M
Rule 6	M	M	M	M
Rule 7	M	M	L	M
Rule 8	H	L	L	L
Rule 9	M	L	L	L
Rule 10	L	L	L	L

Table 10.11 The mean of employee productivity, employee turnover (or employee retention) and employee suggestions for companies A1-A4

Company	Employee productivity	Employee turnover (or employee retention=1-employee turnover)	Employee suggestions
A1	£5873/per person per year	0.048 (1-0.048=0.952)	3.54/PYPP
A2	£1409/per person per year	0.030 (1-0.030=0.97)	1.54/PYPP
A3	£9343/ per person per year	0.037	-
A4	£4519/ per person per year	0.007 (1-0.007=0.993)	0.30/PYPP

Table 10.12 Linguistic translation of the numerical data for companies A1-A4

Company	Employee productivity	Employee turnover (ET) (or employee retention, ER)	Employee suggestions
A1	{L=0,M=0.28, H=0.72}	ER→{L=1, M=0, H=0}	{L=0, M=0, H=1}
A2	{L=1, M=0, H=0}	ER→{L=0.09,M=0.91, H=0}	{L=0.06, M=0.94,H=0}
A3	{L=0, M=0, H=1}	ET→{L=0,M=0.27, H=0.73}	-
A4	{L=0,M=0.43, H=0.57}	ER→{L=0, M=0, H=1}	{L=0.86, M=0.14, H=0}

(Note: High, moderate and low value of employee turnover in company A3 is based on Table 10.11 and Figure 10.9. However, high, moderate and low value of employee retention in companies A1, A2 and A4 are based on Table 10.11 and Figure 10.10)

Company A1

Based on ten rules of employee satisfaction in Table 10.10 and Table 10.12, this research concluded that the degree of truth of the "if" parts for company A1 in each rule gained the result of Table 10.13. Hence, the value of the linguistic variable "employee satisfaction" for company A1 would be

Employee satisfaction = {low=0, moderate=0.28, high=0.72}

Table 10. 13 The degree of truth of the "if" parts for company A1

Rule 1: Min {H=0.72 ,H=0 ,H=1} =H=0		Max {0, 0, 0.72}=H=0.72
Rule 2: Min{H=0.72, H=0, M=0} =H=0 Min {H=0.72, M=0, H=1} =H=0 Min {M=0.28, H=0, H=1} =H=0	Max {0, 0, 0}=H=0	
Rule 3: Min {H=0.72 ,H=0 ,L=0} =H=0 Min {H=0.72 ,L=1 ,H=1} =H=0.72 Min {L=0 ,H=0 ,H=1} =H=0	Max {0, 0.72, 0}=H=0.72	
Rule 4: Min {H=0.72, M=0, M=0} =M=0 Min {M=0.28, H=0, M=0} =M=0 Min {M=0.28, M=0, H=1} =M=0	Max {0, 0, 0}=M=0	Max{0, 0.28, 0, 0}=M=0.28
Rule 5: Min {H=0.72, M=0, L=0} =M=0 Min {M=0.28, H=0, L=0} =M=0 Min {L=0, M=0, H=1} =M=0 Min {L=0, H=0, M=0} =M=0 Min {H=0.72, L=1, M=0} =M=0 Min{M=0.28, L=1, H=1} =M=0.28	Max {0, 0, 0, 0, 0, 0.28}=M=0.28	
Rule 6: Min {M=0.28, M=0, M=0} =M=0		
Rule 7: Min {M=0.28, M=0, L=0} =M=0 Min {M=0.28, L=1, M=0} =M=0 Min {L=0, M=0, M=0} =M=0	Max {0, 0, 0}=M=0	
Rule 8: Min {H=0.72, L=1, L=0} =L=0 Min {L=0, H=0, L=0} =L=0 Min {L=0, L=1, H=1} =L=0	Max {0, 0, 0}=L=0	Max {0, 0, 0}=L= 0
Rule 9: Min {M=0.28, L=1, L=0} =L=0 Min {L=0, M=0, L=0} =L=0 Min {L=0, L=1, M=0} =L=0	Max {0, 0, 0}=L=0	
Rule 10: Min {L=0, L=1, L=0} =L=0		

A linguistic explanation of this result could be "a little moderate, rather high employee satisfaction". Finally, in defuzzification, the relation between linguistic values and corresponding real values is always defined using membership function definitions in Figure 10.12 and calculation formulation (4.5), therefore

Employee satisfaction $= \dfrac{(0.5 \times 0.1204) + (0.81 \times 0.2952)}{(0.1204 + 0.2952)} = 0.72$, where centroid value is 0.5 and 0.81, and trapezoid area is 0.1204 and 0.2952, more detailed explanation appears in Appendix K.

Company A2

Based on the Spearman rank correlation coefficient to test any two variables hypotheses for employee satisfaction, the result of the test revealed that employee

productivity and employee turnover did not have inverse correlation and employee

suggestions and employee turnover were also not inversely correlated. Therefore, this

research only used employee productivity and employee suggestions to measure

employee satisfaction for company A2. Nine rules of employee satisfaction are shown

in Table 10.14. Furthermore, the degree of truth of the "if" parts for company A2 in

each rule are based on employee productivity and employee suggestions of company

A2 in Table 10.12, and Table 10.14, gaining the result of Table 10.15.

Table 10.14 Nine if-then rules of employee satisfaction for company A2

Nine Rules	If: Condition		Then Conclusion
	Employee productivity	Employee suggestions	Employee satisfaction
Rule 1:	H_{EP}	H_{ES}	H
Rule 2:	M_{EP}	H_{ES}	H
Rule 3:	H_{EP}	M_{ES}	H
Rule 4:	L_{EP}	H_{ES}	M
Rule 5:	M_{EP}	M_{ES}	M
Rule 6:	H_{EP}	L_{ES}	M
Rule 7:	L_{EP}	M_{ES}	L
Rule 8:	M_{EP}	L_{ES}	L
Rule 9:	L_{EP}	L_{ES}	L

Table 10.15 The degree of truth of the "if" parts for company A2

Rule 1: Min { H_{EP}=0, H_{ES} =0}=H=0	Max {0, 0, 0}=H=0
Rule 2: Min{M_{EP}=0, H_{ES}=0}=H=0	
Rule 3: Min {H_{EP}=0, M_{ES}=0.94}=H=0	
Rule 4: Min {L_{EP}=1, H_{ES}=0}=M=0	Max {0, 0, 0}=M=0
Rule 5: Min {M_{EP}=0, M_{ES}=0.94}=M=0	
Rule 6:Min {H_{EP}=0, L_{ES}=0.06}=M=0	
Rule 7: Min {L_{EP}=1, M_{ES}=0.94}=L=0.94	Max {0.94, 0, 0.06}=L=0.94
Rule 8: Min {M_{EP}=0, L_{ES}=0.06}=L=0	
Rule 9: Min {L_{EP}=1, L_{ES}=0.06}=L=0.06	

Hence, the value of the linguistic variable "employee satisfaction" for company A2

would be employee satisfaction = {low=0.94, moderate=0, high=0}. A linguistic

explanation of this result could be "a very low employee satisfaction". Finally, in

defuzzification, it is

$$\text{Employee satisfaction} = \frac{(0.19 \times 0.2491) + (0.5 \times 0) + (0.81 \times 0)}{(0.2491 + 0 + 0)} = 0.19$$

Company A3

According to company A3, it had no employee suggestions. Therefore, evaluation of

employee satisfaction only used employee productivity and employee turnover for the

company. Nine rules of employee satisfaction are shown in Table 10.16. The degree of

truth of the "if" parts for company A3 in each rule are based on employee productivity

and employee turnover of company A3 in Table 10.12 and Table 10.16, gaining the

result of Table 10.17.

Table 10.16 Nine if-then rules of employee satisfaction for company A3

Nine Rules	If: Condition		Then Conclusion
	Employee productivity	Employee turnover	Employee satisfaction
Rule 1:	H_{EP}	L_{ET}	H
Rule 2:	M_{EP}	L_{ET}	H
Rule 3:	L_{EP}	L_{ET}	M
Rule 4:	H_{EP}	M_{ET}	M
Rule 5:	M_{EP}	M_{ET}	M
Rule 6:	L_{EP}	M_{ET}	M
Rule 7:	H_{EP}	H_{ET}	M
Rule 8:	M_{EP}	H_{ET}	L
Rule 9:	L_{EP}	H_{ET}	L

Table 10.17 The degree of truth of the "if" parts for company A3

Rule 1: Min {H_{EP}=1, L_{ET}=0}=H=0	Max {0, 0}=H=0
Rule 2: Min {M_{EP}=0, L_{ET}=0}=H=0	
Rule 3: Min {L_{EP}=0, L_{ET}=0}=M=0	Max {0, 0.27, 0, 0, 0.73}=M=0.73
Rule 4: Min {H_{EP}=1, M_{ET}=0.27}=M=0.27	
Rule 5: Min {M_{EP}=0, M_{ET}=0.27}=M=0	
Rule 6: Min {L_{EP}=0, M_{ET}=0.27}=M=0	
Rule 7: Min {H_{EP}=1, H_{ET}=0.73}=M=0.73	
Rule 8: Min {M_{EP}=0, H_{ET}=0.73}=L=0	Max {0, 0}=L=0
Rule 9: Min {L_{EP}=0, H_{ET}=0.73}=L=0	

Hence, the value of the linguistic variable "employee satisfaction" for company A3

would be employee satisfaction = {low=0, moderate=0.73, high=0}. A linguistic

explanation of this result could be "rather moderate employee satisfaction". Finally, defuzzification, is

$$\text{Employee satisfaction} = \frac{(0.19 \times 0) + (0.5 \times 0.3157) + (0.81 \times 0)}{(0 + 0.3157 + 0)} = 0.5$$

Company A4

Based on ten rules of employee satisfaction in Table 10.10 and Table 10.12, the result of the degree of truth of the "if" parts for company A4 in each rule are shown in Table 10.18.

Table 10.18 The degree of truth of the "if" parts for company A4

Rule1: Min {H=0.57 ,H=1 ,H=0} =H=0		Max {0, 0.14, 0.57}=H=0.57
Rule2: Min{H=0.57, H=1, M=0.14} =H=0.14	Max {0.14, 0, 0}=H=0.14	
Min {H=0.57, M=0, H=0} =H=0		
Min {M=0.43, H=1, H=0} =H=0		
Rule3: Min {H=0.57 ,H=1 ,L=0.68} =H=0.57	Max {0.57, 0, 0}=H=0.57	
Min {H=0.57 ,L=0 ,H=0} =H=0		
Min {L=0 ,H=1 ,H=0} =H=0		
Rule4: Min {H=0.57, M=0, M=0.14} =M=0	Max {0, 0.14, 0}=M=0.14	Max{0.14, 0.43, 0, 0}=M=0.43
Min {M=0.43, H=1, M=0.14} =M=0.14		
Min {M=0.43, M=0, H=0} =M=0		
Rule5: Min {H=0.57, M=0, L=0.86} =M=0	Max {0, 0.43, 0, 0, 0}=M=0.43	
Min {M=0.43, H=1, L=0.86} =M=0.43		
Min {L=0, M=0, H=0} =M=0		
Min {L=0, H=1, M=0.14} =M=0		
Min {H=0.57, L=0, M=0.14} =M=0		
Min {M=0.43, L=0, H=0} =M=0		
Rule6: Min {M=0.43, M=0, M=0.14} =M=0		
Rule7: Min {M=0.43, M=0, L=0.86} =M=0	Max {0, 0, 0}=M=0	
Min {M=0.43, L=0, M=0.14} =M=0		
Min {L=0, M=0, M=0.14} =M=0		
Rule8: Min {H=0.57, L=0, L=0.86} =L=0	Max {0, 0, 0}=L=0	Max {0, 0, 0}=L=0
Min {L=0, H=1, L=0.86} =L=0		
Min {L=0, L=0, H=0} =L=0		
Rule9: Min {M=0.43, L=0, L=0.86} =L=0	Max {0, 0, 0}=L=0	
Min {L=0, M=0, L=0.86} =L=0		
Min {L=0, L=0, M=0.14} =L=0		
Rule10: Min {L=0, L=0, L=0.86} =L=0		

Hence, the value of the linguistic variable "employee satisfaction" for company A4 would be employee satisfaction = {low=0, moderate=0.43, high=0.57}. A linguistic explanation of this result could be "a middle moderate, rather high employee satisfaction". Finally, defuzzification, is

Employee satisfaction$= \dfrac{(0.19 \times 0)+(0.5 \times 0.1688)+(0.81 \times 0.2444)}{(0+0.1688+0.2444)} = 0.68$

(2) Fuzzy rule of customer satisfaction

The form of the fuzzy rules used in customer satisfaction is:

If CRR and CCCR (or CC), then CSA. Where CRR, CCCR (or CC) and CSA denote

the following fuzzy sets: CRR: Customer retention rate; CC: Customer complaints;

CCCR: Customer complaints' compensation rate; CSA: Customer satisfaction; Each

fuzzy set is described using the following three linguistic variables: low (L); moderate

(M); high (H). For customer satisfaction assessment, the terms are shown in Table

10.19.

Table 10.19 Linguistic variable possible values for customer satisfaction

Input linguistic variables	Linguistic variable possible values	Output linguistic variable	Linguistic variable possible values
Customer retention rate	$\in$ {L, M, H}	Customer satisfaction	$\in$ {L, M, H}
Customer complaints' compensation rate (or customer complaints)	$\in$ {L, M, H}		

For every linguistic variable of customer satisfaction, each term is defined by its

membership function. Two possible definitions of input variables are shown in

Figures 10.13, 10.14 and 10.15, and one output variable is shown in Figure 10.16.

According to my learning team committee's discussion and from some senior

managers' suggestions from interviews, when the customer retention rate reaches 0.5,

then we call it completely moderate, as shown in Figure 10.13.

Figure 10.13 Linguistic variable "customer retention rate"
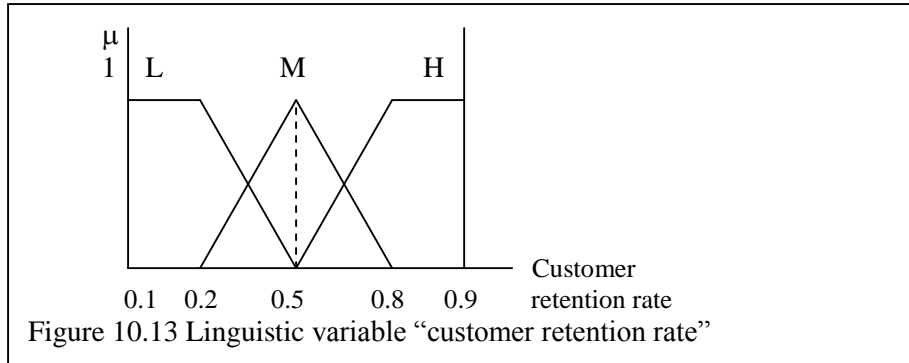
Based on data of companies A1 and A3, the mean and standard deviation of customer complaints' compensation rate are $\bar{x} = 0.00758$, $s_{\bar{x}} = 0.004032$, respectively. This research adopts $\bar{x}$, $\bar{x} \pm s_{\bar{x}}$ and $\bar{x} \pm 2s_{\bar{x}}$ to represent low, moderate and high customer complaints' compensation rate, as shown in Figure 10.14.

Figure 10.14 Linguistic variable "customer complaints' compensation rate"
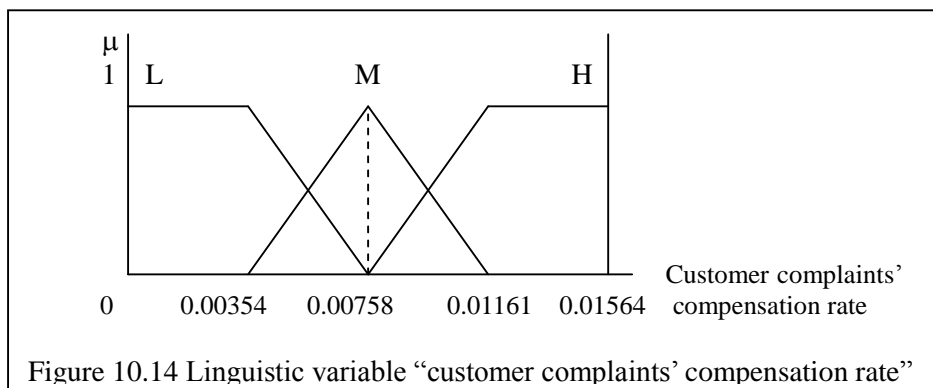
According to company A4, it has no customer complaints' compensation rate, this research uses the number of customers' complaints instead. The mean and standard deviation of customer complaints come from two companies in the same industry, $\bar{x} = 8.67$, $s_{\bar{x}} = 1.63$, respectively. This research uses $\bar{x}$, $\bar{x} \pm s_{\bar{x}}$ and $\bar{x} \pm 2s_{\bar{x}}$ to represent low, moderate and high customer complaints, as shown in Figure 10.15.

As the result of customer satisfaction is given a linguistic variable value it has to be translated into a numerical value for comparisons by defuzzication. Figure 10.16

plots the membership functions for the linguistic variable "customer satisfaction" and

formula (4.5) is used to measure it.

Figure 10.15 Linguistic variable "customer complaints"

Figure 10.16 Linguistic variable "customer satisfaction"
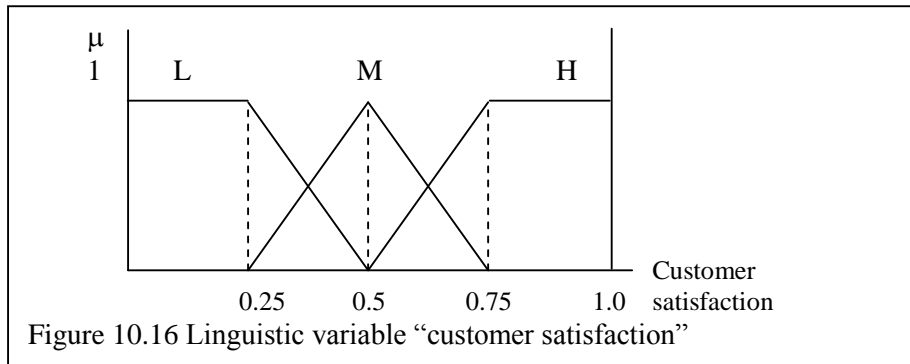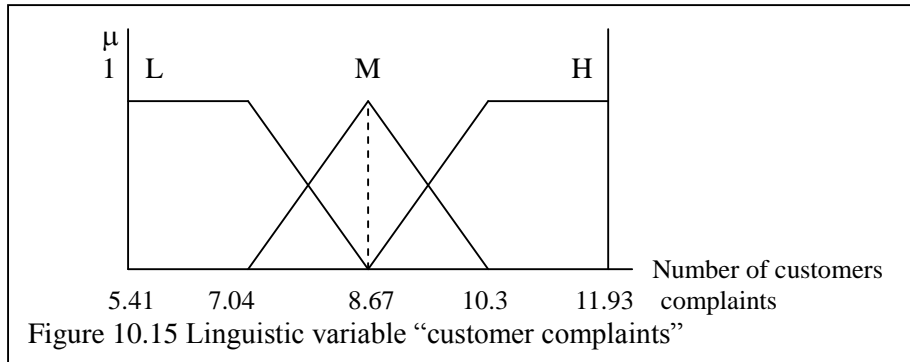
Based on repeated combination formula C_r^{n+r-1}, nine possible rules of customer

satisfaction are shown in Table 10.20.

Table 10.20 Nine if-then rules for customer satisfaction

Nine rules	If: Condition		Then Conclusion
	Customer retention rate	Customer complaints' compensation rate (compensation/sales)	Customer satisfaction
Rule1:	H_{CRR}	L_{CCCR}	H
Rule2:	M_{CRR}	L_{CCCR}	H
Rule3:	L_{CRR}	L_{CCCR}	M
Rule4:	H_{CRR}	M_{CCCR}	M
Rule5:	M_{CRR}	M_{CCCR}	M
Rule6:	L_{CRR}	M_{CCCR}	M
Rule7:	H_{CRR}	H_{CCCR}	M
Rule8:	M_{CRR}	H_{CCCR}	L
Rule9:	L_{CRR}	H_{CCCR}	L

Evaluation of customer satisfaction for companies A1-A4

Based on Appendix J, the mean of customer retention rate and customer complaints'

compensation rate (or customer complaints) for companies A1-A4 is shown in Table

10.21. Based on Table 10.21, and Figures 10.13, 10.14 and 10.15, the linguistic

translation of the numerical data for companies A1-A4, is shown in Table 10.22.

Table 10.21 The average of customer retention rate and customer complaints' compensation rate for companies A1-A4

Company	Customer retention rate	Customer complaints' compensation rate (compensation/sales)
A1	0.84	0.00642
A2	0.91	188.6 (Number of customer complaints per year)
A3	0.73	0.00873
A4	0.90	8.67 (Number of customer complaints per year)

Table 10.22 Linguistic translation of the numerical data for companies A1-A4

Company	Customer retention rate	Customer complaints' compensation rate (compensation/sales)
A1	{L=0, M=0, H=1}	{L=0.29, M=0.71, H=0}
A2	{L=0, M=0, H=1}	{L=0, M=1, H=0} (Number of customer complaints per year)
A3	{L=0, M=0.35, H=0.65}	{L=0, M=0.71, H=0.29}
A4	{L=0, M=0, H=1}	{L=0, M=1, H=0} (Number of customer complaints per year)

Companies A1, A3 and A4

From nine rules of customer satisfaction in Table 10.20 and Table 10.22, the result of

the degree of truth from the "if" parts for companies A1, A3 and A4 in each rule, is

shown in Tables 10.23, 10.24 and 10.25, respectively.

Table 10.23 The degree of truth of the "if" parts for company A1

Rule 1: Min {H_{CRR}=1, L_{CCCR}=0.29}=H=0.29	Max {0.29, 0}=H=0.29
Rule 2: Min {M_{CRR}=0, L_{CCCR}=0.29}=H=0	
Rule 3: Min {L_{CRR}=0, L_{CCCR}=0.29}=M=0	Max {0, 0.71, 0, 0, 0}=M=0.71
Rule 4: Min {H_{CRR}=1, M_{CCCR}=0.71}=M=0.71	
Rule 5: Min {M_{CRR}=0, M_{CCCR}=0.71}=M=0	
Rule 6: Min {L_{CRR}=0, M_{CCCR}=0.71}=M=0	
Rule 7: Min {H_{CRR}=1, H_{CCCR}=0}=M=0	
Rule 8: Min {M_{CRR}=0, H_{CCCR}=0}=L=0	Max {0, 0}=L=0
Rule 9: Min {L_{CRR}=0, H_{CCCR}=0}=L=0	

Table 10.24 The degree of truth of the "if" parts for company A3

Rule 1: Min {H_{CRR}=0.65, L_{CCCR}=0}=H=0	Max {0, 0}=H=0
Rule 2: Min {M_{CRR}=0.35, L_{CCCR}=0}=H=0	
Rule 3: Min {L_{CRR}=0, L_{CCCR}=0}=M=0	Max {0, 0.65, 0.35, 0, 0.29}=M=0.65
Rule 4: Min {H_{CRR}=0.65, M_{CCCR}=0.71}=M=0.65	
Rule 5: Min {M_{CRR}=0.35, M_{CCCR}=0.71}=M=0.35	
Rule 6: Min {L_{CRR}=0, M_{CCCR}=0.71}=M=0	
Rule 7: Min {H_{CRR}=0.65, H_{CCCR}=0.29}=M=0.29	
Rule 8: Min {M_{CRR}=0.35, H_{CCCR}=0.29}=L=0.29	Max {0.29, 0}=L=0.29
Rule 9: Min {L_{CRR}=0, H_{CCCR}=0.29}=L=0	

Table 10.25 The degree of truth of the "if" parts for company A4

Rule1: Min {H_{CRR}=1, L_{CC}=0}=H=0	Max {0, 0}=H=0
Rule2: Min {M_{CRR}=0, L_{CC}=0}=H=0	
Rule3: Min {L_{CRR}=0, L_{CC}=0}=M=0	Max {0, 1, 0, 0, 0}=M=1
Rule4: Min {H_{CRR}=1, M_{CC}=1}=M=1	
Rule5: Min {M_{CRR}=0, M_{CC}=1}=M=0	
Rule6: Min {L_{CRR}=0, M_{CC}=1}=M=0	
Rule7: Min {H_{CRR}=1, H_{CC}=0}=M=0	
Rule8: Min {M_{CRR}=0, H_{CC}=0}=L=0	Max {0, 0}=L=0
Rule9: Min {L_{CRR}=0, H_{CC}=0}=L=0	

Hence, the value of the linguistic variable customer satisfaction of company A1 was

{low=0, moderate=0.71, high=0.29}. A linguistic explanation of this result could be

"rather moderate and a little high customer satisfaction." Customer satisfaction of

company A3 was {low=0.29, moderate=0.65, high=0}. A linguistic explanation of this

result could be "a little low and rather moderate customer satisfaction". Customer

satisfaction of company A4 was {low=0, moderate=1 high=0}. A linguistic

explanation of this result could be "complete moderate customer satisfaction."

Finally, in defuzzification for companies A1, A3, and A4, used membership

function as shown in Figure 10.16 and formulation (4.5), therefore

$$\text{Customer satisfaction of A1} = \frac{(0.19 \times 0) + (0.5 \times 0.22898) + (0.81 \times 0.13449)}{(0 + 0.22898 + 0.13449)} = 0.61.$$

$$\text{Customer satisfaction of A3} = \frac{(0.19 \times 0.13449) + (0.5 \times 0.21938) + (0.81 \times 0)}{(0.13449 + 0.21938 + 0)} = 0.38$$

Customer satisfaction of A4 $= \dfrac{(0.19 \times 0) + (0.5 \times 0.25) + (0.81 \times 0)}{(0 + 0.25 + 0)} = 0.5$

Company A2

According to the customer retention rate and customer complaints no significant

inverse correlation by the Spearman rank correlation coefficient test for company A2

was found. Therefore, this research did not measure customer satisfaction of company

A2.

(3) The Spearman rank correlation test for employee and customer satisfaction, and stakeholders' performance

From the Spearman rank correlation coefficient analysis by the data of Table 10.26,

this research concluded that employee satisfaction and customer satisfaction were

directly correlated for companies A1-A4, similar to the causal relationships among

employee satisfaction, customer satisfaction, and eventually financial performance

(Heskett *et al*., 2008). Employee satisfaction and stakeholders' performance have

significant direct correlation, however, customer satisfaction and stakeholders'

performance did not have significant direct correlation, as shown in Table 10.27.

Table 10.26 Employee and customer satisfaction and stakeholders' performance

Company	Employee satisfaction	Customer satisfaction	Stakeholders' performance
A1	[L=0, M=0.28, H=0.72] → 0.72	[L=0, M=0.71, H=0.29] → 0.61	0.7349 (Rank 1)
A2	[L=0.94, M=0, H=0] → 0.19	-	0.6659 (Rank 4)
A3	[L=0, M=0.73, H=0] → 0.5	[L=0.29, M=0.65, H=0] → 0.38	0.7186 (Rank 2)
A4	[L=0, M=0.43, H=0.57] → 0.68	[L=0, M=1, H=0] → 0.5	0.7129 (Rank 3)

(Source of stakeholders' performance: From Tables 10.34)

As a result of the above discussion, it revealed that evaluation of stakeholders'

performance may be too complex to evaluate because leaders have different

recognition about the stakeholders such as how to recognize stakeholders' weight, and how to identify internal or external stakeholders. In the strategic management field, finally, Taiwanese companies may pay more attention to promote effective strategic management by means of evaluation of employee and customer satisfaction, and stakeholders' performance evaluation in the future.

Table 10.27 Spearman rank correlation coefficient to test employee and customer satisfaction, and stakeholders' performance

Variables	Sample	Mean	Spearman rank correlation coefficient and p value		
Employee satisfaction (ESA) and customer satisfaction (CSA)	4	ESA=0.52 CSA=0.37		CSA	
			ESA	1	
				0.0001 (***)	
ESA and stakeholders' performance (SP)	4	ESA=0.52 SP=0.65		SP	
			EAS	1	
				0.088 (*)	
CSA and SP	4	CSA=0.37 SP=0.65		SP	
			CSA	0.8	
				0.133	

(Note: * one-tailed test, p<0.10; ** one-tailed test, p<0.05; *** one-tailed test, p<0.001)

10.4.3 Evaluation of Corporate Social Issues, Stakeholders' Expectations and Stakeholders' Performance

The result of case study investigation from the four companies was an evaluation of their fulfilment of corporate social issues (CSI) and stakeholders' expectations (SE) for stakeholders' performance (SP). These will be explained as follows.

(1) Explanation of corporate social issues and stakeholders' expectations

Based on the literature review in Chapter 5, the stakeholders' expectation and corporate social issues matrix are combined to evaluate the stakeholders' performance with regard to each key stakeholder and for each corporate social issue.

Senior managers are asked to evaluate the organization's current implementation

for each corporate social issue using five linguistic variables: very poor (VP), poor (P),

moderate (M), good (G) and very good (VG), and to measure the fulfilment of

stakeholders' expectations by five linguistic variables: unrelated (UNR), poor (P),

moderate (M), good (G) and very good (VG). After completing these entries, senior

managers would have a more comprehensive picture of how the company meets the

different social demands made by its stakeholders. Moreover, the combined total of all

the evaluations on the different issues gives an indicator of how well the company is

dealing with the social issues it faces. This evaluation includes four phases. First of all,

every senior manager is asked to assign a set of ratings from 0 to 100.

Then, three senior managers from every company have to apply the five

linguistic variables to fill in the survey table of corporate social issues and

stakeholders' expectations, as shown in Appendix L. Third, TFN are used to measure

the survey data and COA is used to calculate defuzzication and further obtain

evaluations of individual social issues, and individual implementation in fulfilling

stakeholders' expectations. Finally, stakeholders' expectations and corporate social

issues are combined to measure stakeholders' performance with fuzzy if-then rules.

(2) Stakeholders' performance evaluation with fuzzy if-then rules

The terms of five linguistic variables for two inputs: corporate social issues and

stakeholders' expectations have been mentioned above, and one output: stakeholders'

performance by the same membership functions, as shown in Figure 10.17.

$\mu(CSI)\, or\, \mu(SE)\, or\, \mu_{agg}(SP)$
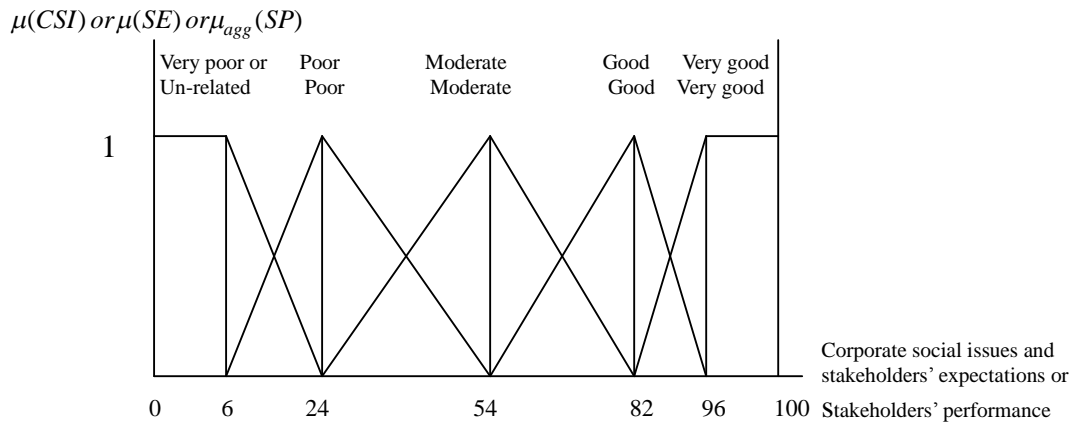
Figure 10.17 The membership function of the input, corporate social issues and
stakeholders' expectations and output stakeholders' performance
(Source: From Appendix M)

The decision table of stakeholders' performance is shown in Table 10.28. The if-then

rules for stakeholders' performance are designed to produce a consequence (5×5=25),

different outputs as shown in Table 10.29. In turn, COA is used to identify the

degree of strengths or weaknesses of individual corporate social issues and

stakeholders' expectations with formula (4.6) and Figure 10.17. Finally, if-then rules

follow Mamdani and Assilian's (1975) method and COA is used for defuzzication to

produce stakeholders' performance with membership function $\mu_{agg}(SP)$.

Table 10.28 Decision table: If-then rules for stakeholders' performance

Stakeholders' performance		Corporate social issues				
		VP	P	M	G	VG
Stakeholders' expectations	UNR	VP	VP	P	M	M
	P	VP	P	P	M	M
	M	P	P	M	G	G
	G	M	M	G	G	VG
	VG	M	M	G	VG	VG

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Table 10.29   Twenty-five if-then rules for stakeholders' performance

Rules	If: Condition			Then
	Stakeholders' expectations	Corporate social issues	Operator ∧ (min)	Stakeholders' performance Operator ∨ (max)
Rule 1	VG	VG	Min {VG, VG}=VG1	Max{VG1, VG2, VG3}=VG
Rule 2	VG	G	Min{VG, G}=VG2	
Rule 3	G	VG	Min{G, VG}=VG3	
Rule 4	M	VG	Min{M, VG}=G1	Max{G1, G2, G3, G4, G5}=G
Rule 5	G	G	Min{G, G}=G2	
Rule 6	VG	M	Min{VG, M}=G3	
Rule 7	M	G	Min{M, G}=G4	
Rule 8	G	M	Min{G, M}=G5	
Rule 9	P	VG	Min{P, VG}=M1	Max{M1, M2, M3, M4,M5, M6, M7, M8, M9}=M
Rule 10	P	G	Min{P, G}=M2	
Rule 11	M	M	Min{M, M}=M3	
Rule 12	VG	P	Min{VG, P}=M4	
Rule 13	P	VG	Min{P, VG}=M5	
Rule 14	UNR	VG	Min{UNR, VG}=M6	
Rule 15	UNR	G	Min{UNR, G}=M7	
Rule 16	VG	VP	Min{VG, VP}=M8	
Rule 17	G	VP	Min{G, VP}=M9	
Rule 18	VP	M	Min{VP, M}=P1	Max{P1, P2, P3, P4, P5}=P
Rule 19	P	M	Min{P, M}=P2	
Rule 20	M	P	Min{M, P}=P3	
Rule 21	P	VP	Min{P, VP}=P4	
Rule 22	P	P	Min{P, P}=P5	
Rule 23	UNR	P	Min{UNR, P}=VP1	Max{VP1, VP2, VP3}=VP
Rule 24	P	VP	Min{P, VP}=VP2	
Rule 25	UNR	VP	Min{UNR, VP}=VP3	

(3) Result of corporate social issues, stakeholders' expectations and stakeholders' performance

<u>Company A1</u>

In respect of social issues, company A1 scored better on co-opetition (good to the degree 0.64 and very good to the degree 0.36) than on the other social issues. However, the personnel system, obtained with a rating of "moderate to the degree 0.31 good to the degree 0.69," was rated significantly lower. This is reflected in its high employee turnover, about 0.048/year. Company A1 seems to be effective in its treatment of the co-opetition issue. In particular, qualitative analysis found that it adopted the idea of "just in time" to cooperate with its stakeholders and emphasized Buddhist ideas "Give first then gain" for pursuing a win-win objective. Management of stakeholders' expectations was "good to the degree 0.88 and very good to the

degree 0.12." Suppliers were "good to the degree 0.71 and very good to the degree

0.29." And customers were "good to the degree 0.92 and very good to the degree

0.08." The company seems to be effective in the treatment of management, suppliers

and customers' expectations because from the qualitative data analysis obtained that

lean management is an interdependence system for boosting competitive advantage in

organizations. However, treatment of government, which obtained "moderate to the

degree 0.67 and good to the degree 0.33," was rated lower, suggesting a need for

improvement in this area, as shown in Table 10.30

Table 10.30 Stakeholders' performance for company A1

Corporate social issues items	Ratings of stakeholders' expectations								Ratings of corporate social issues
	Resource-based			Industry structure			Social political arena		
	Shareholders	Employees	Customers	Suppliers	Competitors	Management	Government	Local communities	
Economics G 0.91;VG 0.09 →0.787	M →0.03 (area=0.4046) S →0.97 (area=21.000957) COA=0.768			M →0.029 (area=1.657785) S →0.971 (area=20.9765) COA=0.755			M →0.3 (area=14.805) G →0.7 (area=19.075) COA=0.668		M 0.07; G 0.93 →0.735 .
Environment G 0.08; VG 0.92 →0.787									
Discrimination M 0.26; G 0.74 →0.677									
Personnel M 0.31; G 0.69 →0.666									
Products G 1.0 →0.773									
Community involvement M 0.18; G 0.82 →0.697									
Co-opetition G 0.64; VG 0.36 →0.818									
Individual stakeholders' expectations	G 1.0 →0.773	M 0.14 G 0.86 →0.708	G 0.92; VG 0.08 →0.787	G 0.71; VG 0.29 →0.811	M 0.29 G 0.71 →0.670	G 0.88; VG 0.12 →0.791	M 0.67; G 0.33 →0.603	M 0.04; G 0.96 →0.749	Stakeholders' Performance was M 0.07; G 0.9 →0.7349
Stakeholders' expectations	M 0.1; G 0.9 →0.723								

(Note : →G 0.9 represents good to the degree 0.9)

<u>Company A2</u>

In regard to social issues, company A2 scored well on economics, obtaining "good to

the degree 0.67 and very good to the degree 0.33," as shown in Table 10.31. In

contrast, community involvement was "poor to the degree 0.5 and moderate to the

degree 0.5," and the personnel system was "moderate to the degree 0.49 and good to

the degree 0.51," which need to improve. Obviously, the company neglected

community involvement, and needs to improve training and education of personnel.

Table 10.31 Stakeholders' performance for company A2

Corporate social issues items	Ratings of stakeholders' expectations								Ratings of corporate social issues
	Resource-based			Industry structure			Social political arena		
	Shareholders	Employees	Customers	Suppliers	Competitors	Management	Government	Local communities	
Economics G 0.67;VG 0.33 →0.815	M →0.31 (area=15.2055) G→0.69 (area=18.9543) COA=0.666			M →0.24 (area=12.252) G →0.76 (area=19.7828) COA=0.681			M →0.4 (area=18.58) G →0.6 (area=17.61) COA=0.650		M 0.32; G 0.68 → 0.664
Environment M 0.13;G 0.87 →0.712									
Discrimination M 0.01;G 0.99 →0.767									
Personnel M 0.49; G 0.51 →0.635									
Products M 0.01; G 0.99 →0.767									
Community involvement P 0.5; M 0.5 →0.418									
Co-opetition M 0.24; G 0.76 →0.681									
Individual stakeholders' expectations	M 0.39; G 0.61 →0.652	M 0.42; G 0.58 →0.647	M 0.07; G 0.93 →0.735	M 0.31; G 0.69 →0.666	M 0.17; G 0.83 →0.699	M 0.35; G 0.65 →0.659	M 0.37; G 0.63 →0.655	M 0.43; G 0.57 →0.645	Stakeholders' performance was M 0.31; G 0.68 → 0.6659
Stakeholders' expectations	M 0.31; G 0.69 → 0.667								

(Note: →P 0.5 represents poor to the degree 0.5)

Local communities, employees of stakeholders' expectations were "moderate to

the degree 0.43 and good to the degree 0.57," and "moderate to the degree 0.42 and

good to the degree 0.58," respectively. Thus, company A2 needed to improve its

performance in fulfilling local communities' and employees' expectations.

Company A3

There were significant corporate social issues in environment, rated "good to the

degree 0.02 and very good to the degree 0.98," as shown in Table 10.32 because the

company is a service firm, so it is easy to control environmental influence and the

leaders have a good idea about environmental protection.

Table 10.32 Stakeholders' performance for company A3

Corporate social issues items	Ratings of stakeholders' expectations								Ratings of corporate social issues
	Resource-based			Industry structure			Social political arena		
	Shareholders	Employees	Customers	Suppliers	Competitors	Management	Government	Local communities	
Economics M 0.19; G 0.81 →0.694	M →0.11 (area=6.028) G →0.89 (area=20.7548) COA=0.719			M →0.1 (area=5.5) G →0.9 (area=20.88) COA=0.723			M →0.1 (area=5.5) G →0.9 (area=20.88) COA=0.723		M 0.14; G 0.86 →0.707
Environment G 0.02; VG 0.98 →0.953									
Discrimination M 0.03; G 0.97 →0.761									
Personnel M 0.22; G 0.78 →0.686									
Products G 0.88; VG 0.12 →0.791									
Community involvement M 0.52; G 0.48 →0.631									
Co-opetition M 0.52; G 0.48 →0.631									
Individual stakeholders' expectations	M 0.46; G 0.54 →0.640	M 0.15; G 0.85 →0.708	G 0.67; VG 0.33 →0.815	M 0.04; G 0.96 →0.479	M 0.18; G 0.82 →0.697	G 1.0 →0.773	M 0.03; G 0.97 →0.761	M 0.19; G 0.81 →0.694	Stakeholders' Performance was M 0.11; G 0.86 →0.7186
Stakeholders' expectations	M 0.11; G 0.89 → 0.719.								

Conversely, there were two social issues on which more awareness is needed, because

community involvement was "moderate to the degree 0.52 and good to the degree

0.48" and co-opetition was "moderate to the degree 0.52 and good to the degree 0.48." Therefore, small to medium sized service firms, in particular, have to pay attention to cooperating with suppliers and customers to boost their competitive advantage and they also should be involved in community activities.

In terms of stakeholders' expectations, customers obtained "good to the degree 0.67 and very good to the degree 0.33," suggesting they were better treated than others. From interviews data revealed that company A3 provided a custom-made service so that it got customers' expectation better. This company needed to be more aware of shareholders ("moderate to the degree 0.46 and good to the degree 0.54").

Company A4

Company A4 had significant corporate social issues in products, with "good to the degree 0.57 and very good to the degree 0.43," as shown in Table 10.33. The president of the company mentioned that the company always provides on time delivery of goods and maintains good product quality to customers. However, community involvement, moderate to the degree 0.75 and good to the degree 0.25, needed to improve in the company.

In regard to stakeholders' expectations in company A4, customers, with "good to the degree 0.69 and very good to the degree 0.31," were in the best position because it could cater for the main customers' needs. However, it is worth noting that

performance in relation to shareholders was rated "moderate to the degree 0.49 and good to the degree 0.51" and in relation to local communities was "moderate to the degree 0.65 and good to the degree 0.35." The company perhaps needed to improve its strategy-making in fulfilling these stakeholders' expectations, in particular, in the shareholders' and local communities' areas.

Table 10.33 Stakeholders' performance for company A4

Corporate social issues items	Ratings of stakeholders' expectations								Ratings of corporate social issues
	Resource-based			Industry structure			Social political arena		
	Shareholders	Employees	Customers	Suppliers	Competitors	Management	Government	Local communities	
Economics G 0.86; VG 0.14 →0.793	M →0.17 (area=9.027) G →0.83 (area=20.3682) COA=0.699			M →0.15 (area=8.04) G →0.85 (area=20.57) COA=0.706			M →0.55 (area=23.1) G →0.45 (area=14.56) COA=0.626		M 0.12; G 0.88 → 0.715
Environment M 0.04; G 0.96 →0.749									
Discrimination M 0.15; G 0.85 →0.708									
Personnel M 0.07; G 0.93 →0.735									
Products G 0.57; VG 0.43 →0.826									
Community involvement M 0.75; G 0.25 →0.594									
Co-opetition M 0.15; G 0.85 →0.708									
Individual stakeholders' expectations	M 0.49; G 0.51 →0.635	M 0.1; G 0.9 →0.723	G 0.69; VG 0.31 →0.813	M 0.08; G 0.92 →0.731	M 0.22; G 0.78 →0.686	M 0.24; G 0.76 →0.681	M 0.45; G 0.55 →0.642	M 0.65; G 0.35 →0.611	Stakeholders' Performance was M 0.12; G 0.74 → 0.7129
Stakeholders' expectations	M 0.26; G 0.74 → 0.677								

According to Table 10.30, stakeholders' expectations were "moderate to the degree 0.1 and good to the degree 0.9"; corporate social issues were "moderate to the degree 0.07 and good to the degree 0.93." Furthermore, based on if-then rules (see Table 10.29) for stakeholders' performance from Table 10.34, this research

ascertained that company A1 was G=0.9, G=0.1, G=0.07, and M=0.07 with operation min. In turn, to aggregate the control output presented M=0.07, G=0.9 with operation max. Defuzzification with COA, the stakeholders' performance for company A1 was 0.735. Similarly, for company A2, four rules were calculated G=0.68, G=0.31, G=0.32, and M=0.31 and aggregate the control output presented M=0.31 and G=0.68, then stakeholders' performance was 0.666. In turn, stakeholders' performance for companies A3 and A4 were 0.719 and 0.713, respectively.

Table 10.34 The degree of the truth of the "if" parts for companies A1-A4

Company A1	
Rule 5: Min(SE=0.9, CSI=0.93)=G=0.9	Max{0.9, 0.1, 0.07}=G=0.9
Rule 7: Min(SE=0.1, CSI=0.93)=G=0.1	
Rule 8: Min(SE=0.9, CSI=0.07)=G=0.07	
Rule 11: Min(SE=0.1, CSI=0.07)=M=0.07	Max{0.07}=M=0.07
Stakeholders' performance= $\dfrac{0.533 \times 3.9165 + 0.773 \times 20.79}{3.9165 + 20.79} = 0.735$	
Company A2	
Rule 5: Min(SE=0.69, CSI=0.68)=G=0.68	Max{0.68, 0.31, 0.32}=G=0.68
Rule 7: Min(SE=0.31, CSI=0.68)=G=0.31	
Rule 8: Min(SE=0.69, CSI=0.32)=G=0.32	
Rule 11: Min(SE=0.31, CSI=0.32)=M=0.31	Max{0.31}=M=0.31
Stakeholders' performance= $\dfrac{0.533 \times 15.19 + 0.773 \times 18.8632}{15.19 + 18.8632} = 0.666$	
Company A3	
Rule 5: Min(SE=0.89, CSI=0.86)=G=0.86	Max{0.86, 0.11, 0.14}=G=0.86
Rule 7: Min(SE=0.11, CSI=0.86)=G=0.11	
Rule 8: Min(SE=0.89, CSI=0.14)=G=0.14	
Rule 11: Min(SE=0.11, CSI=0.14)=M=0.11	Max{0.11}=M=0.11
Stakeholders' performance= $\dfrac{0.533 \times 6.0288 + 0.773 \times 20.5798}{6.028 + 20.5798} = 0.719$	
Company A4	
Rule 5: Min(SE=0.74, CSI=0.88)=G=0.74	Max{0.74, 0.26, 0.12}=G=0.74
Rule 7: Min(SE=0.26, CSI=0.88)=G=0.26	
Rule 8: Min(SE=0.74, CSI=0.12)=G=0.12	
Rule 11: Min(SE=0.26, CSI=0.12)=M=0.12	Max{0.12}=M=0.12
Stakeholders' performance= $\dfrac{0.533 \times 6.54 + 0.773 \times 19.5878}{6.54 + 19.5878} = 0.713$	

In short, this research found that company A1 had the best stakeholders'

performance "Resource-based= 0.768, industry structure= 0.735 and social political arena= 0.668 → 0.735," locating it in first place. The stakeholders' performance for company A3 was "Resource-based= 0.719, industry structure= 0.723 and social political arena= 0.723 → 0.719," placing it second. The stakeholders' performance for company A4 was "Resource-based= 0.699, industry structure= 0.706 and social political arena= 0.626 → 0.713." The lowest rank was company A2 with "Resource-based= 0.666, industry structure= 0.681 and social political arena= 0.650 → 0.666," as shown in Table 10.35.

Moreover, from the measurement of employee satisfaction and customer satisfaction, this research found that companies A1- A4 are better resource-based yielding better employee and customer satisfaction. The rating level of the industry structure is also consistent with the audit of the ethical view; namely, a better industry structure rating level yields a better ethical view that is companies A1–A4 obtained industry structure as 0.735, 0.681, 0.723 and 0.706; ethical view as 0.787, 0.691, 0.787, and 0.773, respectively. Therefore, the quantitative analysis is consistent in comparison with qualitative analysis.

Table 10.35 Strategic management links to stakeholders' performance for companies A1-A4

| Company | Strategy formulation and implementation | | Strategic management with six-views | Stakeholder groups | | | Stakeholders' performance |
	Strategy formulation	Strategy implementation		Resource -based	Industry structure	Social political arena	
A1	0.872	0.773	0.823	0.768	0.735	0.668	0.735
A2	0.840	0.684	0.800	0.666	0.681	0.650	0.666
A3	0.818	0.709	0.768	0.719	0.723	0.723	0.719
A4	0.799	0.677	0.723	0.699	0.706	0.626	0.713

10.4.4 Strategic Management Links to Stakeholders' Performance

Table 10.35 showed that strategic management for companies A1-A4 were 0.823, 0.800, 0.768, and 0.723, respectively. Stakeholders' performances of companies A1-A4 were 0.735, 0.666, 0.719 and 0.713, respectively. The results disclosed, in terms of characteristics of industry, was consistent with a positive tendency between strategic management and stakeholders' performance as manufacturing industries companies A1-A2, and service firms companies A3-A4. In addition, it is worth noting that companies A1, A2 and A4 did not conduct an ideal social political arena of stakeholders' groups compared with company A3 in line with a strong level of EV=0.787. This is in line with Smith's assertion of business leaders' claims in the U.K., "balance and trade off the competing claims of customers, suppliers, employees, investors and the communities within which it operates" (2003, 71). Therefore, Taiwanese companies should be concerned with stakeholders' cooperation relationships and corporate social responsibility for promoting strategic management successfully.

From the result of questionnaire and interviews, the stakeholders' performance is in line with the six-views. This is a rather interesting issue that it will be explored in the next section.

10.5 Practicing the Six-views Model in Four Taiwanese Companies

This section tries to explore companies A1-A4, to show their historic practicing activities and how company strategy can be rechecked by the six-views model. In turn, conclusions drawn from the foregoing discussion are presented.

In 1989, the president of company A1 was replaced in order to build a new leadership style which was conducive to competitive advantage in the auto parts industry. Company A1 adopted a cost focus strategy for survival first, then in 1991, the company used a development strategy of diversification while the six-views attained a strong level. The company organized a strong planning board which decided to focus on a single product, "auto lighting", as a planning view, and further proposed an efficient supply chain strategy, namely launching just in time management (JIT) to reduce cost for customers' need. Company A1, therefore, had a higher growth of sales in auto parts (Ho, 2000). In Figure 10.18, company A1 had a very strong planning board and 9 functional boards with ☆PLV=0.872, so the company proposed projects of an integration strategy to cooperate with its suppliers, customers and competitors. It further aimed to create a short-cut channel to contact customers direct and to create good relationships. Clearly, company A1 adopted a planning view in setting strategy.
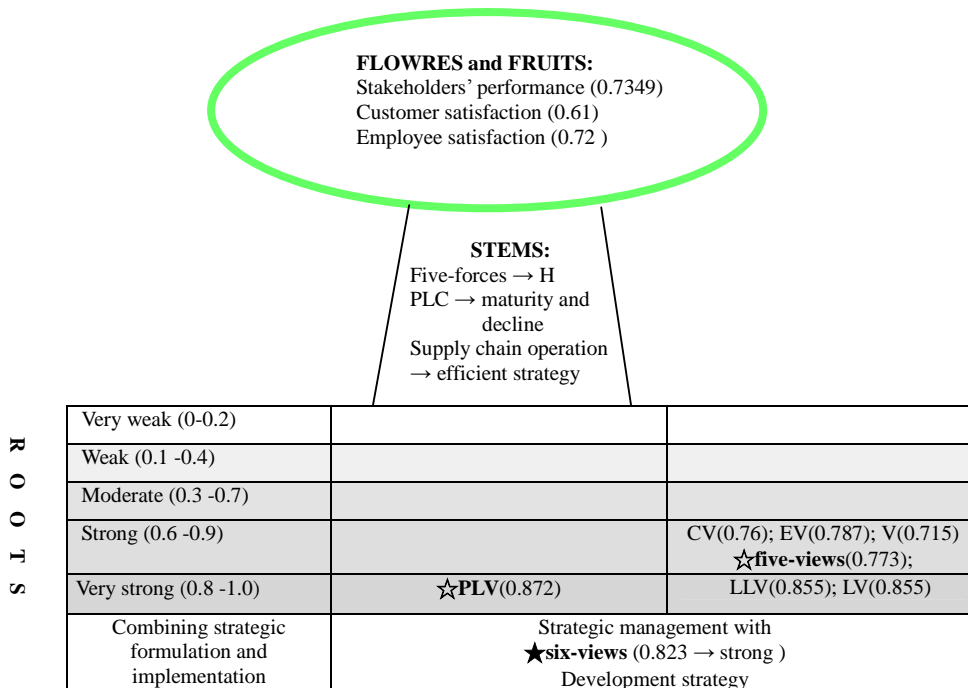
Figure 10.18 Practicing the six-views model in company A1

However, based on the President's words, the integrated five-views, in particular the political view for implementation should be improved for successful strategic management. President Ho (2000) indicated that the company was moving towards reinforcing leaders' leadership style, organizational culture, learning and innovative concepts and trust with stakeholders as an integrated, developing, strategy to achieve a strategic alliance with suppliers, customers and competitors.

From the results of interviews in company A2, it highlighted the R&D team and learning activity for strategy in line with a strong level of LV=0.832. The company, therefore, adopted a cost leadership strategy by professional production. Furthermore, the chairman of company A2 pointed out that focus on a developing strategy with

★six-views=0.800 may be a suitable adaptive direction in the future. But based on

the roots theory, the company needed to reinforce four views (LLV=0.699, CV=0.608,

PV=0.668, and, EV=0.691) to reinforce the implementation, as shown in Figure

10.19.

FLOWRES and FRUITS:
Stakeholders' performance (0.666)
Customer satisfaction   -
Employee satisfaction (0.19)

STEMS:
Five-forces → M
PLC → growth
Supply chain operation
→ responsive and
efficient strategy

R O O T S	Very weak (0-0.2)		
	Weak (0.1 -0.4)		
	Moderate (0.3 -0.7)		CV(0.608)
	Strong (0.6 -0.9)	☆**PLV**(0.840)	LV(0.832); LLV(0.699); PV(0.668); EV(0.691);☆**five-views**(0.684);
	Very strong (0.8 -1.0)	☆**PLV**(0.840)	
	Combining strategic formulation and implementation	Strategic management with ★**six-views** (0.800 → strong) Development strategy	

Figure 10.19 Practicing the six-views model in company A2

According to the roots theory, company A2 may use a responsive and efficient

strategy to achieve a competitive advantage when competitors are very few and the

company's product - flexible printed circuit board - is in the growth stage, with more

than 20% growth each year. As the chairman of company A2 mentioned, the company

adopted a low cost and delivery strategy by means of cooperative relationships along

the supply chain for the company's development. According to company A2, it did not

collect the customer complaints' compensation rate, therefore, customer satisfaction

could not be evaluated.

Company A3 was a small to medium sized service firm. The six-views was categorized as towards strong with ★six-views=0.768 in Figure 10.20. For building a market niche, company A3 enhanced its professional product service from 36.9% to 67.0%. This indicated that the company highlighted a differentiation-focused strategy for survival first and in turn there was a vertical integration with suppliers and customers for development.

FLOWRES and FRUITS:
Stakeholders' performance (0.719)
Customer satisfaction (0.38)
Employee satisfaction (0.5)

STEMS:
Five-forces → H
PLC → maturity and decline
Supply chain operation →efficient and innovative strategy

R O O T S			
Very weak (0-0.2)			
Weak (0.1 -0.4)			
Moderate (0.3 -0.7)			CV(0.64)
Strong (0.6 -0.9)		☆**PLV**(0.818)	LV(0.81); EV(0.787); LLV(0.715); ☆**five-views**(0.709); PV(0.657)
Very strong (0.8 -1.0)			
Combining strategic formulation and implementation		Strategic management with ★**six-views** (0.768 → strong) Development strategy	

Figure 10.20 Practicing the six-views model in company A3

The fastener industry is a mature industry and is at a decline stage of PLC in Taiwan. So company A3 adopted an efficient supply chain operation strategy to reduce cost, and used cooperation of the supply chain and suppliers' commitment to achieve innovation activities. During the survival phase, the chairman expounded the values of the company in seven points: customers are the most valuable asset, people

make the organization, long-term growth, commitment to quality, innovative and aggressive leadership, safety is priority, and suppliers are important to our success.

Furthermore, company A3 had seven expectations of suppliers, which included complying with the law, treating its people with respect, addressing issues before they become a problem, committing to high quality and low cost, long-term focus, committing to innovation, and integrity and honesty. From the chairman's words, this research recognized that people were an essential factor for the company's success. Moreover, he emphasized that the strategy-making process should be based more on experience and intuition than planning, but PLV=0.818 belonged to a strong level. The company now focuses on a vertical integration strategy which tries to create a competitive advantage by means of cooperation of the supply chain operation. In fact, those ideas imply that a company should pay attention to implementation (☆five-views), such as effective inter-organization and intra-organization communication, cultural cohesion, and leadership style for effective strategic management.

The company A4 was a new service firm which acted as a branch of Uni-President Enterprises Cop., as a bridge to deliver suppliers' products to customers. Company A4, had a strong level in the six-views ★six-views=0.723, as shown in Figure 10.21.

FLOWRES and FRUITS:
Stakeholders' performance (0.713)
Customer satisfaction (0.5)
Employee satisfaction (0.68)

STEMS:
Five-forces → M
PLC → growth
Supply chain operation
→efficient and
responsive strategy

R O O T S		
Very weak (0-0.2)		
Weak (0.1 -0.4)		
Moderate (0.3 -0.7)		CV(0.570); PV(0.603);
Strong (0.6 -0.9)	☆**PLV**(0.799)	LV(0.761); EV(0.773); LLV(0.787); ☆**five-view**s(0.677)
Very strong (0.8 -1.0)		
Combining strategic formulation and implementation	Strategic management with ★**six-views** (0.723 → strong) Development strategy	

Figure 10.21 Practicing the six-views model in company A4

Basically, the company emphasized that strategy was a set of the planning and logic and language view by wide communication. According to the integrated five-views it was weaker than the planning view, therefore, company A4 has to reinforce the integrated five-views for promoting strategy implementation, for example, cultivating organizational culture with Lao-Tzu's ideas to implement ethical discipline. This research believes that the company can achieve its mission of moving from the third rank up to the first rank in the delivery service industry by means of reinforcing the integrated five-views in organizations.

From the above results, this thesis found that four companies emphasized the strategy formulation with the planning view, but they seemed to neglect the integrated five-views to promote implementation, while their employee satisfaction, customer

satisfaction, and stakeholders' performance gained a moderate level. In fact, there are some different characteristics between manufacturing industries and service firms. Thus, this thesis compared manufacturing industries, company A1 with company A2 which found strong six-views leading to employee satisfaction and better stakeholders' performance . On the other hand, comparing service firms with companies A3 and A4, found that the strengths or weaknesses of six-views were consistent with stakeholders' performance, but six-views with employee satisfaction and customer satisfaction were inconsistent. Therefore, this thesis suggests that academia and management practicing the six-views model appropriately may focus on one industry.

Moreover, cross comparison with qualitative data analysis found that company A1 conducts a more complete strategic planning move including Five-forces analysis and SWOT for adjusting strategic direction, using PDCA to implement strategic planning, cultivating organizational culture with Buddhism, emphasizing JIT with interdependence relationships in supply chain, and linking corporate strategy to operation with policy management and integrated communication. Therefore, company A1 has better employee satisfaction, customer satisfaction and stakeholders' performance than the other three companies. In others words, the results from quantitative analysis is consistent with qualitative analysis.

10.6 Limitations of the Six-views Model

It is necessary to consider some possible limitations when companies practice the six-views model in organizations. This research explains them as follows.

(1) The limitation of concepts

First, an organization should be aware that creating a planning unit is a starting point for integrating the six-views in strategic management. This research hopes that the planning unit of an organization can manage the strategy-making process by combining the integrated five-views for promoting strategy formulation and implementation. Second, the leader's strategy ideas play an essential role to support the practice of the six-views in strategic management, especially small to medium sized enterprises, which lack awareness of how to build strategic direction in the future. Third, most companies are concerned about short-term profits, but they often ignore long-term indicators, such as employees' learning, coherent culture of organization, effective communication with employees and stakeholders, ethical behaviour responsibilities, and strategic direction in the future. Fourth, leaders have different awareness about the stakeholders' boundary and the company's boundary. This lack of holistic awareness will lead to significant differences in the strategy-making process. Finally, corporate social responsibilities are not confined to

narrow obligations, such as shareholders' benefits, but also include wide obligations,

such as customers' benefits, stakeholders' expectations and ethical issues.

(2) Recognition limitation of applying the tool

This research applies some ideas of fuzzy logic, such as triangular fuzzy numbers,

fuzzy if-then rules to tackle issues of strategic management. It is necessary for

Taiwanese companies to know how to build triangular fuzzy numbers by membership

function and how to create if-then rules.

(3) Limitation of data collecting

In this research, quantitative proxies were applied for qualitative evaluation indicators.

Therefore, Taiwanese companies need to collect the related data in order to practice

easily on performance measurement.

10.7 Conclusion

This chapter practiced the six-views model which provides an essential framework

and useful instruments for closing strategy formulation and implementation. The

integration of the six-views is a basic foundation in organizations which enriches

recognition of the entire spectrum of strategy-making activities. Audit of combining

the six-views identifies the organizational roots for organizational survival and

development, further combined foresight of the organization and strategic thinking to meet a competitive environment. Moreover, using the Spearman rank correlation coefficient tests any two variables for employee and customer satisfaction indicators, and stakeholders' performance discovered that there was significant direct correlation between employee productivity and employee suggestions in companies A1, A2 and A4. There was significant inverse correlation between employee productivity and employee turnover in companies A1 and A4. Customer satisfaction, customer retention rate and customer complaints' compensation rate (or customer complaints) were inversely correlated in four companies. Therefore, the indicators of customer satisfaction adopted two variables including the customer retention rate and customer complaints' compensation rate (or customer complaints). In turn, employee satisfaction and customer satisfaction were directly correlated while employee satisfaction and stakeholders' performance were directly correlated. However, customer satisfaction and stakeholders' performance did not have significant direct correlation. This may inform us that stakeholders' performance is a complex issue in organizations so that it may provide a new research direction for later research.

In order to assess the model's feasibility, this research not only includes a theoretical exploration, but also a practical validation through four Taiwanese companies. It revealed that the four Taiwanese companies were almost toward the

planning view to formulate strategy-making. In fact, successful strategic management

should combine strategy formulation and implementation as in the six-views.

Therefore, the six-views model can be used to complement the deficiency of the

planning view and promote effective strategic management.

CHAPTER 11: CONCLUSION

11.1 Introduction

The purpose of this thesis was to surface the main issues of strategic management in line with defects of strategy implementation in the planning view and to propose a pluralistic six-views model for achieving the four original objectives, as explained in Chapter 1. This chapter provides a summary and draws implications from the research in three sections. The first shows how the model was carried out in Taiwanese companies. Second, the contributions of this research are described. Finally, future research and recommendations are revealed.

11.2 Summary of the Thesis

This thesis contained an exploratory study of the six-views in strategic management and presented a six-views model to complement insufficiencies of the planning view for combining strategy formulation and implementation to further enhance organizational performance in Taiwanese company. This research found that successful strategic management not only emphasizes the planning view but also reinforces the integrated five-views. In terms of theory, in revisiting the six

insufficiencies of the planning view, as mentioned in Chapter1, this research tackled

these questions by a six-views model, more details explained as follows:

(a) Strategy is implemented by means of people, whose behaviour cannot be

determined by a plan. Based on the above reasoning, the strategy-making process

should combine the integrated five-views by expanding value, from shareholders'

profits, customers' value to stakeholders' expectations, adjusting relationships, from

competitive relationships, cooperation relationships to corporate social responsibility,

and proactive dynamic environmental change from static planning objectives to

emerge innovative capability with knowledge-based economy by means of organic

thinking highlighting people-dependence to enhance strategy implementation.

(b) Strategy needs wide communication in an organization. This thesis proposes a

logic and language view with integrated communication and fuzzy thinking to

breakthrough the organizational boundary for promoting stakeholders' cooperation.

(c) Strategy formulation is separated from implementation. This thesis emphasizes

that strategy formulation with the planning view combines strategy implementation

with the integrated five-views by fuzzy logic. Strategy formulation and

implementation should not be separated from each other.

(d) The strategic planning process may contribute to only part of the organization.

There are some strategic scholars, for example Ansoff (1994), Grant (2003), Harreld

et al. (2007) and Cummings and Dallenbach (2009), who point out that strategic planning has transformed to several forms for proactive environmental change. Thus, this research proposes a pluralistic approach by extending the theory of the planning view.

(e) Planning neglects the dynamic environment and interactive influence relationships. This thesis proposes the learning view for advancing knowledge to boost the innovative capability and Lao-Tzu's ethical ideas to build stakeholders' positive relationships, and further create corporate reputation.

(f) Performance measurement neglects qualitative data such as employee satisfaction, customer satisfaction and stakeholders' performance (Kaplan and Norton, 2004). This thesis applies quantitative proxies for qualitative measurement for employee satisfaction, customer satisfaction, and stakeholders' performance by fuzzy if-then rules. It helps senior managers to recognize more about employee satisfaction, customer satisfaction, and corporate social issues to meet stakeholders' expectations in Taiwanese companies.

From the case study, it reveals that the six-views model can explain the phenomenon of strategic management for four Taiwanese companies such as the companies were almost moving toward the planning view to formulate strategy-making, but committed to strategy implementation. Therefore, there is a gap

existing between strategy formulation and implementation. To close the gap, this research provides an improvement approach with a robust planning view combining the integrated five-views for promoting strategy implementation and boosting organizational performance.

11.3 Main Contributions

Based on discussion of processes and objectives in this research, the following contributions are made in this thesis.

Contribution 1: Closing the gap between strategy formulation and implementation

From the survey, this research found that strategic planning for formulation is still a mainstream for the strategy-making process in Taiwanese companies, but it lacks the strategy implementation for improving effective strategic management in organizations. Taiwanese companies, therefore, have to combine a production-based economy of planning view with scientific thinking, which emphasies people's efficiency and a knowledge-based economy of the integrated five-views with organic thinking, which emphasies people's interaction to share, create, and accumulate knowledge for promoting strategic management. Besides a robust strategic planning move, companies have to consider the following activities:

1. Solving problems with people's dialogue and fuzzy thinking;

2. Learning and accumulating experience, know-how and skills to share people in the workplace;

3. Cohering people's beliefs and values to build people's trust and commitment behaviours;

4. Negotiating people's conflicts and facilitating people's centripetal force by leadership;

5. Emphasizing corporate social responsibility, especially, stakeholder management.

Essentially, this research provides some feasible improvements for the six-views, from a basic level upgrade to a strong level for reinforcing organizational foundation for closing the gap between strategy formulation and implementation in the following rules:

Rule 1: A robust strategic planning move consists of recognizing the competitive environment, identifying the company's crucial issues, evaluating implementation capability within the company, exploring the stakeholders' expectations for upholding of stakeholders, balancing short-run and long-run objectives in the company, modifying the strategic planning move in a dynamic complex environment by constant learning disciplines.

Rule 2: Reinforcing the logic and language view from the basic level, upward and

downward communication, lateral communication in the moderate level, to

the strongest level, integrated communication.

Rule 3: Reinforcing the learning view from the basic level, single-loop, double-loop

in the moderate level, to the strongest level, triple-loop.

Rule 4: Reinforcing the cultural view from the basic level artefacts and etiquette,

behaviour and actions in the moderate level, to the strongest level, core value.

Rule 5: Reinforcing the political view from the basic level, foundation compliance,

and power sharing in the moderate level, to the strongest level, power

distribution.

Rule 6: Reinforcing the ethical view from the basic level, right, justice in the

moderate level, to the strongest level, utilitarianism.

Contribution 2: Appling Chinese philosophy discipline: Lao-Tzu's idea in strategic

management

The fieldwork survey revealed that the majority of Taiwanese companies believe in

Lao-Tzu's ethical ideas: "put yourself in others' place" and "be selfless", which can

improve stakeholders' relationships, expectations, and corporate reputation.

Taiwanese companies can fulfil stakeholders' expectations which are designed in the

supply chain operation, for example, customers' value propositions, peoples' image,

and co-opetition as Porter and Kramer (2006) mention perceiving social responsibility

as building shared value rather than as damage control or as a public relations campaign will require dramatically different thinking in business. Conversely, some Chinese companies provided tainted milk powder, fake medicines, poisoned dumplings, lead contaminated toys thereby damaging their reputation because of their unethical behaviours. Eventually, these companies caused their employees to lose their jobs, customers to lose their health and even die, created bad images of the companies, and other countries to reject Chinese products.

In terms of internal organizations Lao-Tzu's core idea "to govern by doing nothing that goes against nature" is the highest philosophy of management, namely a leader should set a good example for employees, because "people do what people see." Furthermore, leaders have to build trust, commitment and complete empowerment with stakeholders for strategy implementation. This thesis highlights that applying ethical ideas lead to trust relationships (Cummings and Daellenbach, 2009) outcomes: better problem solving, sharing of responsibility, greater communication and feedback, effective empowerment and encourages people to cooperate voluntarily in implementation.. Therefore, Lao-Tzu's ethical idea is becoming one of the mainstreams by taking care of internal and external stakeholders' expectations in strategic management.

Contribution 3: Developing a pluralistic approach – the six-views model

In a dynamic and complex environment, strategic management will tend towards a pluralistic approach by critical systems thinking. The six-views model combines changing of boundaries (from shareholders' profits, customers' value, and corporate social responsibility), change relationship (from partners' relationships extending to stakeholders' relationships) and competitive dynamics thinking (from static planning to dynamic knowledge learning) by means of the overview of strategic management as Cummings and Daellenbach (2009) point out knowledge learning, networks relationships, culture, ethics and social responsibility are a mainstream in strategic management.

The novel model is underlining diverse viewpoints in line with organizational roots, stems, and flowers and fruits to deal with the six insufficiencies of the planning view for promoting strategic management. In particular, this thesis proposed applying fuzzy if-then rules to identify a strong or weak degree of the six-views, to foresee a competitive environment, and to recognize supply chain operation strategy for promoting organizational performance including employees satisfaction, customers satisfaction and stakeholders' performance. Additionally, part of the thesis has been published in five conferences and a journal (*Operation Management Review*) as shown in Appendix P.

11.4 Limitations

This thesis argues that an organization shows its excellent performance depends on a robust planning view to link the integrated five-views for conducting effective strategy implementation. However, the six-views model still faces limitations to its practice, as explained as follows:

• The trap of creating a planning unit or a strategic planning board. If an organization does not have a planning unit or strategic planning board, it will be very difficult to evaluate the other five-views' strengths or weaknesses. Consequently, the organization cannot integrate the other five-views' function which is based on pluralistic thinking for promoting strategy formulation and implementation in the planning process.

• The trap of leaders' mental thinking. Leaders' ideas are an essential factor in implementing the model. Organizational leaders steer ships ahead as the strategy-making process depends on leaders' perspectives to guide the future direction of the organization.

• The trap of profit. If an organization seeks to gain profit only, its strategy may be dominated by economic considerations. However, this research believes that the pyramid of corporate social responsibility (see Figure 2.7) should be considered in the strategy-making process, rather than depending on more or less profit, to show ethical

behaviour and social responsibilities. As Henry Ford quotes, a business that makes nothing but money is a poor kind of business (Brougham, 2008).

 • The trap of stakeholders' boundary. The recognition of the stakeholders' boundary will affect how effectively the model can be implemented, because strategy implementation needs the appropriate incorporation of stakeholders. Therefore, how the stakeholders' boundary of an organization is defined influences the success of strategic management.

11.5 Future Research

This thesis makes some meaningful contributions to the strategic management field in practice. However, there are some issues to be further explored that could be the focus of future research as follows:

 • Focusing on an industry

The selection of sample industries in this thesis enabled issues of strategic management to be identified and the findings afforded insight into the current situation of strategic management in Taiwan. However, if further researchers were to concentrate on one industry, it may enable the characteristics of strategic management to be understood more deeply in that industry.

• Rethinking stakeholders' performance

Although this thesis provides stakeholders' performance including stakeholders' expectation and corporate social issues, it is likely to be insufficient. For example, Lee (2004) mentions the best supply chain is not just fast and cost-effective. Rather, it is also agile and adaptable, and aligned (3A)." As Porter and Kramer's (2006) argue, corporate social responsibility should be applied in supply chain operation in the future.

However, an organization may have to prioritize among multi-objectives, so the organization needs to identify the relative weights of corporate social issues for achieving its objectives.

• Applying the six-views in different departments

This research proposes a system approach - the perspectives of the six-views and the audit of the six-views were applied in strategic management. This approach could be applied to audit individual departments or compare different departments in terms of their strengths or weaknesses in the six-views, in order to adjust the efficiency and effectiveness of management in organizations. This possibility would be an appropriate direction for further research.

11.6 Recommendations

This exploratory research has tried to develop a novel strategic management approach using fuzzy logic. Based on the literature review, questionnaire survey, interviews and case study, issues and findings of strategic management have been revealed: the six-views model has been developed to promote successful strategic management in Taiwanese companies. It is worth mentioning that during the research process, this research found that many Taiwanese companies, especially small to medium sized enterprises, had difficulty with strategic management because they did not even have a planning department. In fact, Taiwanese companies should set up a planning department to employ better strategic management. Moreover, organizations pay much attention to quantitative and resource measurements but at the expense of more qualitative measurements. In this thesis, it was found that quantitative data can be used as proxies for qualitative measurement with fuzzy logic.

Organizational leaders should seek competitive advantages by creating good relationships with stakeholders as strategic alliance with up-stream and down-stream firms, further to achieve companies' objectives. Therefore, a leader of an organization should not pay attention to short-term profits only, but should consider stakeholders' expectations and corporate social responsibilities in the strategy decision-making process.

APPENDICES

Appendix A: Nine linguistic variables from A to I for cultural and political views

Managers	A	B	C	D	E	F	G	H	I
1	(0,0,12)	(10,13,16)	(14,19,24)	(22,29,36)	(34,38,42)	(40,50,60)	(62,67,72)	(70,76,82)	(80,100,100)
2	(0,0,10)	(8,11,14)	(16,19,22)	(20,25,30)	(32,38,44)	(40,51,62)	(60,67,74)	(70,77,84)	(80,100,100)
3	(0,0,8)	(7,11,15)	(13,18,23)	(20,27,34)	(30,37,44)	(42,51,60)	(57,65,73)	(70,78,86)	(82,100,100)
4	(0,0,10)	(11,14,17)	(16,20,24)	(20,28,36)	(30,36,42)	(41,51,61)	(58,65,72)	(70,78,86)	(80,100,100)
5	(0,0,9)	(8,11,14)	(13,18,23)	(20,27,34)	(32,38,44)	(40,50,60)	(56,65,74)	(72,78,84)	(86,100,100)
6	(0,0,11)	(10,14,18)	(15,20,25)	(22,30,38)	(36,39,42)	(38,49,60)	(58,64,70)	(68,75,82)	(80,100,100)
7	(0,0,10)	(8,13,18)	(16,21,26)	(24,30,36)	(34,37,40)	(42,52,62)	(60,66,72)	(70,77,84)	(82,100,100)
8	(0,0,8)	(10,15,20)	(22,28,34)	(30,37,44)	(40,45,50)	(44,52,60)	(62,66,70)	(72,79,86)	(84,100,100)
9	(0,0,12)	(10,16,22)	(20,26,32)	(31,36,41)	(40,46,52)	(50,56,62)	(60,66,72)	(70,77,84)	(82,100,100)
10	(0,0,8)	(10,15,20)	(22,25,28)	(30,35,40)	(42,48,54)	(50,55,60)	(58,65,72)	(68,74,80)	(78,100,100)
11	(0,0,15)	(10,14,18)	(20,25,30)	(32,37,42)	(44,50,56)	(52,57,62)	(60,67,74)	(72,77,82)	(80,100,100)
12	(0,0,10)	(8,13,18)	(20,25,30)	(32,36,40)	(42,47,52)	(50,56,62)	(58,64,70)	(72,76,80)	(90,100,100)
Aggregated average expression	(0,0,10)	(9,13,18)	(17,22,27)	(25,31,38)	(36,42,47)	(44,53,60)	(59,66,72)	(70,77,83)	(82,100,100)

Appendix B: Evolution of fuzzy logic

Evolution of fuzzy logic

Future events are not yet true or false. For example, tomorrow may or may not rain.

Their true value is unknown; it will be determined when the events happen. The

classical logic is not sufficient to describe the truth value of these type of events.

Hence it can be useful to allow a third truth value other than pure truth or falsity

which leads to the introduction of three-valued logics. Here the three-valued logic

proposed by Lukasiewicz (1920) is discussed.

Suppose that a proposition has three truth values: true denoted by 1, false

denoted by 0, and neutral or indeterminate denoted by $\frac{1}{2}$. They form the truth value

set T = {0, $\frac{1}{2}$, 1}. A further generalization allows a proposition to have more than

three truth values. If for any given natural number $n \geqq 3$, the truth values are

represented by rational numbers in the interval [0,1]. The Lukasiewicz n-valued logic

is called infinite-value logic.

The founder of fuzzy logic is Lotfi Zadeh (1983). Fuzzy sets are a generalization

of classical sets and infinite-valued logic is a generalization of classical logic. Fuzzy

logic focuses on variables in natural language and aims to provide foundations for

approximate reasoning with imprecise propositions. It reflects both the rightness and

vagueness of natural language in common-sense reasoning.

The relations between classical sets, classical logic, fuzzy sets, infinite-valued logic, and fuzzy logic are shown on Figure. 1 (Bojadziev and Bojadziev, 1997).

Figure. 1 Evolvement of fuzzy logic (Source: Bojadziev and Bojadziev, 1997, 44)
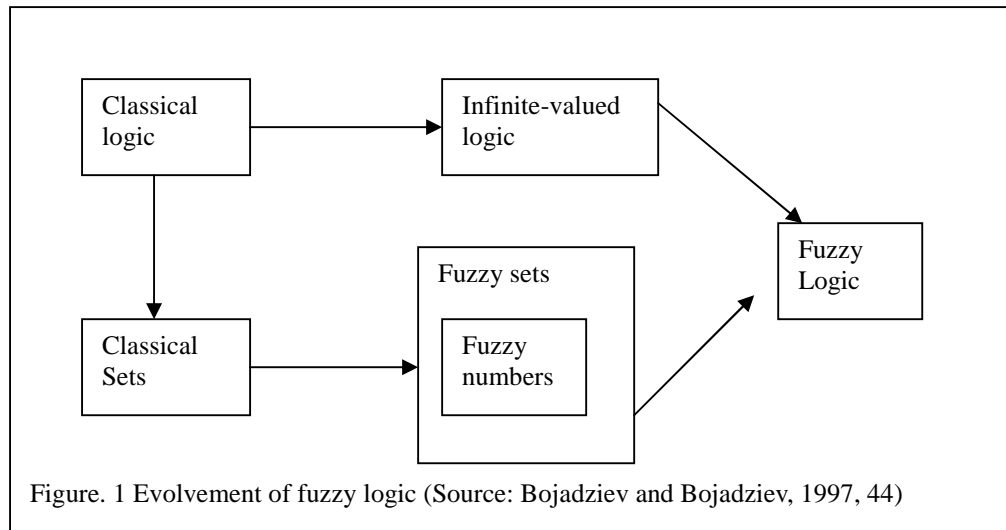
How to apply fuzzy logic

Fuzzy logic is a method for understanding, quantifying with vague, ambiguous and uncertain characteristics, ideas and judgments. In fact, fuzzy logic is the notion of a fuzzy set. A fuzzy set B is characterized by the membership function m (B), which takes values in the interval [0,1], that is, m (B): U→[0,1], where U is a universe of discourse in which B is defined (Zadeh, 1965).

For example, if the universe of discourse U includes all proposals generated by a group of stakeholders participating in a consensus-seeking enterprise in response to the question: 'How to move out of the present state of standstill in negotiation?', then the fuzzy set of stakeholders' creativity can be depicted using a membership function equal to 0 for stakeholder(s) unable to produce any single proposal, and then

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increasing to 1 towards stakeholders with a maximum number of proposals (say 10).

The fuzzy set can be characterized by a linguistic variable corresponding to a set of values of the membership function. The linguistic variables have fuzzy boundaries. In other words, two 'neighbour' variables always have a 'non-zero overlap'. In the above example, if stakeholders E and F offer five proposals each, their creativity can be considered both as 'medium' with a degree of membership, say 0.7 and 'low' with degree of membership, say 0.4. This occurs because the neighbour linguistic variables 'low' and 'medium' have a non-zero overlap. Fuzzy logic helps us to quantify also the degree of truth of a fuzzy statement. The standard definitions in fuzzy logic are:

· degree of truth (n)

· degree of truth (NOT n) = 1 − degree of truth (n)

· degree of truth (n AND m) = min [(degree of truth (n), degree of truth (m))]

· degree of truth (n OR m) = max [(degree of truth (n), degree of truth (m))

Where n and m represent some fuzzy statements.

For example, if the degree of truth of the statement n = 'Creativity of stakeholder A is Not low' is 0.8, then the degree of truth of the statement NOT n = 'Creativity of stakeholder A is NOT low' will be 0.2; that is, 1 − 0.8 = 0.2. If the degree of truth of the statement m = 'Creativity of stakeholder B is high' is 0.8, and the degree of truth of the statement z = 'Stakeholder B's willingness to participate in dialogue is high' is

0.6, then the degree of the statement (m AND z) = 'Stakeholder B have high creativity AND his (her) willingness to participate in dialogue is also high' = min (0.8, 0.6) = 0.6.

Fuzzy rules are of the form IF…THEN…, where both IF and THEN terms are natural language expressions of some fuzzy sets or their combinations. Fuzzy logic provides powerful computational techniques for manipulations with these classes aimed at specific problem-solving (Dimitrov, 1997).

Appendix C: Questionnaire (問卷設計)

本人是英國赫爾大學管理學院，管理系統科學系博士候選人，主修策略管理。本問卷調查是為了驗證本人研究論文的主題，亦即想透過了解目前台灣的公司在策略管理之實際運作，藉以評估本人所提出的策略管理之 6 個面向模式（包括邏輯和語言、學習、領導權力、文化、倫理及規劃的觀念）。希望您能利用幾分鐘時間完成此問卷。所有的回答將被機密的保存，而且只作為本學術研究之用。

說明：(1) 策略管理係指一個組織整體的運作，其涉及策略的形成及執行。組織在動態及複雜的環境下，經營管理整個組織必須透過策略的調整和改變，以完成組織的目標。(2) 邏輯和語言面的觀念係指一個組織必須促進整體員工的參與溝通，以了解組織的任務使命並且培養多樣彈性化避免二分法（對或錯；黑或白）的思考邏輯，使能了解更多不確定或複雜的情境，以便達成有效的策略管理。(3) 學習面的觀念係指一個組織在動態及複雜環境下，所有員工必須學習累積知識和專業能力，去幫助組織完成任務。(4) 組織文化面的觀念係指文化意味著一個公司的價值觀，這些價值、意見和行為形成組織的行事風格，便於策略的有效執行。(5) 領導權力面的觀念係指領導者的領導風格將影響員工與組織的合作或爭議，甚至影響到與利害關係群體的良好互動，進而衝擊策略形成和執行。(6) 倫理面的觀念係指人際關係中的規範標準，組織的領導者必須具備良好倫理道德觀念（即老子的替人著想和無私的概念），建立與利害關係群體的良好互動而獲得互信與建立商譽，進而以利策略的執行。(7) 規劃面的觀念係指組織必須透過規劃工作來整合以上 5 種觀念，以促進有效策略形成與執行。首先請您對以下五種語言： "強烈同意"，"同意"，"不確定"，"不同意"，"強烈不同意"，給予權數區間，從 100-0 填入以下空格，例如"強烈同意"給予 100-89，"同意"給予 90-70，"不確定"給予 71-40，"不同意"給予 41-20，"強烈不同意"給予 21-0。

專家	強烈同意	同意	不確定	不同意	強烈不同意
經理人	100-89	90-70	71-40	41-20	21-0

This questionnaire is designed to rate model of six views (including logical and language, learning, cultural, political, ethical and planning views) for understanding the current situation of strategic management in Taiwanese companies. We would be grateful if you could take a few minutes to complete this questionnaire. All answers will be kept confidentially and used for strategic management academic research only. In turn, could you please define five linguistic variables that the range is from 100-0, such as "strongly agree" represents 100-89; "agree" represents 90-70; "neutral" represents 72-40; "disagree" represents 41-20; "strongly disagree" represents 21-0.

Experts	strongly agree	agree	neutral	disagree	strongly disagree
Senior manager	100-89	90-70	71-40	41-20	21-0

請儘可能正確回答以下問題，並圈選適合的答案。
Please answer questions as accurately as possible by circling the number on the scales as appropriate.

邏輯和語言面 (Logical and language view)

	強烈同意 Strongly agree	同意 Agree	不確定 Neutral	不同意 Disagree	強烈不同意 Strongly disagree
1. 您認為策略的決策過程需要與員工溝通，以促進有效的策略管理嗎？ Does your company agree that strategic management process must communicate with employees and stakeholders in order to promote effective strategic management?	☐	☐	☐	☐	☐
2. 您認為貴公司的策略決策過程，必須避免二分法的思考而建立多樣彈性化的思考嗎？ Does your company believe that strategy-making process should cultivate fuzzy thinking rather than crisp thinking?	☐	☐	☐	☐	☐

學習面 (Learning view)

3. 您是否同意學習及累積新知識可使貴公司更能適應動態複雜的環境？ Does your company believe that learning and accumulating new knowledge can help your organization to fit a dynamic and complex environment?	☐	☐	☐	☐	☐

4. 您是否同意員工必須一起學習，以增進有效的策略管理？ Does your company agree that employees need to learn together for promoting strategic management?	☐	☐	☐	☐	☐

5. 您認為貴公司可經由教育與學習，建立與利害關係群體的良好互動進而改善策略管理嗎？ Can your company learn to create good interaction with stakeholders to improve strategic management?	☐	☐	☐	☐	☐

文化面 (Cultural view)

6. 您認為組織的文化能夠整合個別或群體的共同願景，而形成組織的行事風格以完成組織的目標嗎？ Does your company think that organizational culture can integrate individuals or groups into the organizational climate to achieve its objective?	☐	☐	☐	☐	☐

7. 您認為塑造貴公司的組織文化是實行策略管理成功的重要因素嗎？ Does your company believe that creating organizational culture is an essential factor to implement effective strategic management successfully?	☐	☐	☐	☐	☐

8. 您認為組織文化的改變能夠促進整體員工的認知以利策略的執行嗎？ Does your company agree that cultural change facilitates employees' recognition for implementing strategy?	☐	☐	☐	☐	☐

領導權力面 (Political view)

9. 您認為貴公司的領導權力能化解員工、利害關係群體與組織的衝突嗎？ Does your company believe that political power can reduce disputes among employee, stakeholders, and organization?	☐	☐	☐	☐	☐

10. 您認為貴公司的領導權力能夠促進利害關係群體的合作嗎？ . Does your company believe that political power can promote the cooperation of stakeholders?	☐	☐	☐	☐	☐

倫理面 (Ethical view)

11. 您認為與利害關係群體(例如供應商、 員工、顧客或地方居民等)建立良好的關係有助於策略的執行嗎？ Does your company agree that creating good relationships with stakeholders is conducive to fulfill strategy?	☐	☐	☐	☐	☐

12. 您是否同意應用老子的倫理道德觀念 (替人著想和無	☐	☐	☐	☐	☐

私)，作爲一種策略去促進有效策略管理? Does your company agree that Lao-Tzu's idea, "put yourself in others' place and be selfless" as a strategy can promote effective strategic management?					

13. 您認爲倫理的觀念能導致利害關係群體與貴公司彼此互信與建立商譽嗎? Does your company believe that ethical ideas lead to "mutual trust," "commitment," "implementation" and "reputation" with stakeholders in your company?	☐	☐	☐	☐	☐

規劃面 (Planning view)

14. 您認爲貴公司在策略管理過程的評估指標必須考慮量 (如市場佔有率，利潤，銷售額) 與質 (如員工與顧客的滿意度，利害關係群體績效) 的分析嗎? Does your company believe that the evaluation index of strategic management must consider quantitative (such as markets share, profits and sales) and qualitative (such as employee satisfaction, customer satisfaction and stakeholders' performance) analyses?	☐	☐	☐	☐	☐

15. 您認爲貴公司必須隨著動態環境的變化擬定與調整策略規劃嗎? Does your company believe that have to adjust strategic planning under dynamic and complex environments?	☐	☐	☐	☐	☐

16. 您認爲貴公司在策略決策過程必須以規劃來整合以上五種觀念 (邏輯和語言、學習、文化、領導權力和倫理) 以達到有效的策略管理嗎? Does your company believe that the strategy-making process has to integrate logic and language, learning, culture, politics and ethics, based on planning to obtain effective strategic management?	☐	☐	☐	☐	☐

17. 請您分別評估下列各項觀念在策略形成及執行的重要性? 邏輯和語言面 Logic and language view-------------------------------- 學習面 Learning view--- 文化面 Cultural view--- 領導權力面 Political view-- 倫理面 Ethical view-- 規劃面 Planning view-- Would you please rate the importance of the six-views for promoting strategic management in your company respectively? Logic and language view? Learning view? Culture view? Political view? Ethical idea ? Planning view?	☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐

18. 您認爲整合 6 個面: 邏輯和語言、學習、文化、領導權力、倫理及規劃面的觀點，能促進供應鏈營運及提升利害關係群體的期望嗎? In terms of the answer of the six-views above, compare the supply chain operation management of their company to that of their competitors, including inputs: product design and suppliers, process: pricing, manufacturing, inventory, lead time, and outputs: transportation and service. Moreover, participants were also asked to compare the overall performance of your company to that of your competitors, considering key performance including employee satisfaction, customer satisfaction and stakeholders' performance. (Note: Better employee satisfaction consists of high employee productivity, low employee turnover (or high employee retention) and high employee suggestions; Better customer satisfaction combines low customer retention rate and low customer complaints;	

Better stakeholders' performance includes suppliers, management, local communities, government, customers, shareholders, employees and competitor for enhancing their expectations including economics, environment, discrimination, personnel, products, community involvement, co-opetition; The better supply chain operation management promotes the activities of inputs, process, and outputs efficiently and effectively)					
18 (1-1) 較佳的生產投入 Better inputs	☐	☐	☐	☐	☐
18 (1-2) 較佳的生產過程 Better process	☐	☐	☐	☐	☐
18 (1-3) 較佳的生產產出 Better outputs	☐	☐	☐	☐	☐
18 (2-1) 較佳員工滿意度 Better employee satisfaction	☐	☐	☐	☐	☐
18 (2-2) 較佳顧客滿意度 Better customer satisfaction	☐	☐	☐	☐	☐
18 (2-3) 較佳利害關係群體績效 Better stakeholders' performance	☐	☐	☐	☐	☐

19. 請你提供貴公司的基本資料。
   I would like to know more information about your company:
(1)年銷售額(Sales/Year)_____ ；資本額(Capital)_____ ；
   員工人數(Number of Employees)_____ ；貴公司由誰下策略(Who decide strategy?)_____
(2)填表人的職稱(Title)_____ ；貴公司名稱 (Company) _____

謝謝你提供以上資訊，我們將會作以下第二階段的研究，此一研究將包含 60 分鐘的面談，討論有關您組織內的策略管理過程，假如您願意參與第二將階段的研究，請填妥以下資料與問卷一併寄回，假如你不願意參與第二階段的研究，請直接將問卷寄回。
Thank you for providing the valuable information above. We intend to conduct a second phase of research. It would involve a sixty minutes interview aimed at ascertaining more detailed information about the strategic management in your organization. If you are willing to be a part of this second phase of research, please give the following information.

我有意願參與第二階段的研究 (I am willing to participate in the second phase of this research)
姓名 (Name):
職稱 (Title):
部門 (Function):
組織 (Organization):

<div align="center">

感謝您誠摯的幫忙 (Thank you for your kind help)

</div>

Appendix D: Fuzzy language of one hundred and fifty-eight senior managers in five different linguistic variables

經理人 Senior manager	強烈不同意 Strongly disagree	不同意 Disagree	普通 Neutral	同意 Agree	強烈同意 Strongly agree
1	(0,0,25)	(26,26,50)	(51,61,70)	(71,85,85)	(86,100,100)
2	(0,0,10)	(11,11,40)	(41,51,60)	(61,90,90)	(91,100,100)
3	(0,0,20)	(21,21,40)	(41,51,60)	(61,80,80)	(81,95,95)
4	(0,0,15)	(16,16,35)	(36,51,65)	(66,85,85)	(86,97,97)
5	(0,0,20)	(21,21,35)	(36,43,50)	(51,75,75)	(76,95,95)
6	(0,0,15)	(16,16,30)	(31,43,55)	(56,70,70)	(71,99,99)
7	(0,0,10)	(11,11,25)	(26,38,50)	(51,75,75)	(76,100,100)
8	(0,0,25)	(26,26,45)	(46,53,60)	(61,80,80)	(81,100,100)
9	(0,0,15)	(16,16,30)	(31,36,40)	(41,75,75)	(76,95,95)
10	(0,0,30)	(31,31,45)	(46,56,65)	(66,85,85)	(86,100,100)
11	(0,0,5)	(6,6,25)	(26,36,45)	(46,70,70)	(71,99,99)
12	(0,0,10)	(11,11,35)	(36,43,50)	(51,80,80)	(81,95,95)
13	(0,0,15)	(16,16,30)	(31,38,45)	(46,65,65)	(66,90,90)
14	(0,0,20)	(21,21,40)	(41,46,50)	(51,75,75)	(76,100,100)
15	(0,0,10)	(11,11,25)	(26,38,50)	(51,75,75)	(76,100,100)
16	(0,0,15)	(16,16,30)	(31,43,55)	(56,70,70)	(71,99,99)
17	(0,0,15)	(16,16,35)	(36,51,65)	(66,85,85)	(86,97,97)
18	(0,0,25)	(26,26,50)	(51,61,70)	(71,85,85)	(86,100,100)
19	(0,0,10)	(11,11,40)	(41,51,60)	(61,89,89)	(90,100,100)
20	(0,0,19)	(20,20,35)	(36,48,59)	(60,79,79)	(80,95,95)
21	(0,0,9)	(10,10,25)	(26,36,45)	(46,79,79)	(80,90,90)
22	(0,0,16)	(17,17,29)	(30,42,54)	(55,69,69)	(70,100,100)
23	(0,0,15)	(16,16,30)	(31,43,55)	(56,70,70)	(71,99,99)
24	(0,0,30)	(31,31,45)	(46,56,65)	(66,85,85)	(86,100,100)
25	(0,0,11)	(12,12,26)	(27,37,46)	(47,66,66)	(67,99,99)
26	(0,0,20)	(21,21,30)	(31,43,55)	(56,79,79)	(80,100,100)
27	(0,0,5)	(6,6,20)	(21,35,49)	(50,75,75)	(76,95,95)
28	(0,0,9)	(10,10,25)	(26,35,44)	(45,65,65)	(66,90,90)
29	(0,0,10)	(11,11,20)	(21,33,45)	(46,70,70)	(71,100,100)
30	(0,0,20)	(21,21,40)	(41,46,50)	(51,75,75)	(76,100,100)
31	(0,0,20)	(21,21,35)	(36,43,50)	(51,75,75)	(76,95,95)
32	(0,0,30)	(31,31,45)	(46,56,65)	(66,85,85)	(86,100,100)
33	(0,0,15)	(16,16,35)	(36,51,65)	(66,85,85)	(86,97,97)
34	(0,0,16)	(17,17,29)	(30,42,54)	(55,69,69)	(70,100,100)
35	(0,0,30)	(31,31,45)	(46,56,65)	(66,85,85)	(86,100,100)
36	(0,0,13)	(14,14,26)	(27,38,48)	(49,77,77)	(78,100,100)
37	(0,0,8)	(9,9,24)	(25,40,55)	(56,87,87)	(88,96,96)
38	(0,0,20)	(21,21,35)	(36,43,50)	(51,75,75)	(76,95,95)
39	(0,0,16)	(17,17,29)	(30,42,54)	(55,69,69)	(70,100,100)
40	(0,0,15)	(16,16,30)	(31,38,45)	(46,65,65)	(66,90,90)
41	(0,0,16)	(17,17,29)	(30,42,54)	(55,69,69)	(70,100,100)
42	(0,0,15)	(16,16,30)	(31,43,55)	(56,70,70)	(71,99,99)
43	(0,0,15)	(16,16,35)	(36,51,65)	(66,85,85)	(86,97,97)
44	(0,0,10)	(11,11,20)	(21,28,35)	(36,60,60)	(61,90,90)

45	(0,0,20)	(21,21,40)	(41,51,60)	(61,80,80)	(81,100,100)
46	(0,0,5)	(6,6,20)	(21,35,49)	(50,75,75)	(76,95,95)
47	(0,0,19)	(20,20,39)	(40,50,59)	(60,79,79)	(80,99,99)
48	(0,0,15)	(15,15,27)	(28,37,46)	(47,68,68)	(69,95,95)
49	(0,0,18)	(19,19,26)	(27,42,56)	(57,75,75)	(76,99,99)
50	(0,0,10)	(11,11,25)	(26,38,50)	(51,75,75)	(76,100,100)
51	(0,0,15)	(16,16,30)	(31,43,55)	(56,70,70)	(71,99,99)
52	(0,0,16)	(17,17,29)	(30,42,54)	(55,69,69)	(70,100,100)
53	(0,0,30)	(31,31,45)	(46,56,65)	(66,85,85)	(86,100,100)
54	(0,0,16)	(17,17,29)	(30,42,54)	(55,69,69)	(70,100,100)
55	(0,0,15)	(16,16,30)	(31,38,45)	(46,65,65)	(66,90,90)
56	(0,0,9)	(10,10,25)	(26,36,45)	(46,79,79)	(80,90,90)
57	(0,0,15)	(16,16,30)	(31,38,45)	(46,65,65)	(66,90,90)
58	(0,0,5)	(6,6,20)	(21,35,49)	(50,75,75)	(76,95,95)
59	(0,0,5)	(6,6,25)	(26,36,45)	(46,70,70)	(71,99,99)
60	(0,0,10)	(11,11,35)	(36,43,50)	(51,80,80)	(81,95,95)
61	(0,0,8)	(9,9,24)	(25,40,55)	(56,87,87)	(88,96,96)
62	(0,0,15)	(16,16,30)	(31,43,55)	(56,70,70)	(71,99,99)
63	(0,0,20)	(21,21,40)	(41,51,60)	(61,80,80)	(81,100,100)
64	(0,0,20)	(21,21,40)	(41,46,50)	(51,75,75)	(76,100,100)
65	(0,0,25)	(26,26,50)	(51,61,70)	(71,85,85)	(86,100,100)
66	(0,0,15)	(16,16,30)	(31,38,45)	(46,65,65)	(66,90,90)
67	(0,0,30)	(31,31,45)	(46,56,65)	(66,85,85)	(86,100,100)
68	(0,0,12)	(13,13,26)	(27,42,56)	(57,78,78)	(79,96,96)
69	(0,0,6)	(7,7,15)	(16,28,40)	(41,78,78)	(79,100,100)
70	(0,0,10)	(11,11,25)	(26,38,50)	(51,75,75)	(76,100,100)
71	(0,0,15)	(16,16,30)	(31,36,40)	(41,75,75)	(76,95,95)
72	(0,0,30)	(31,31,45)	(46,56,65)	(66,85,85)	(86,100,100)
73	(0,0,15)	(16,16,30)	(31,43,55)	(56,70,70)	(71,99,99)
74	(0,0,16)	(17,17,29)	(30,42,54)	(55,69,69)	(70,100,100)
75	(0,0,5)	(6,6,20)	(21,35,49)	(50,75,75)	(76,95,95)
76	(0,0,9)	(10,10,25)	(26,35,44)	(45,65,65)	(66,90,90)
77	(0,0,18)	(19,19,26)	(27,42,56)	(57,75,75)	(76,99,99)
78	(0,0,30)	(31,31,45)	(46,56,65)	(66,85,85)	(86,100,100)
79	(0,0,15)	(16,16,30)	(31,43,55)	(56,70,70)	(71,99,99)
80	(0,0,5)	(6,6,25)	(26,36,45)	(46,70,70)	(71,99,99)
81	(0,0,30)	(31,31,45)	(46,56,65)	(66,85,85)	(86,100,100)
82	(0,0,30)	(31,31,45)	(46,56,65)	(66,85,85)	(86,100,100)
83	(0,0,20)	(21,21,35)	(36,43,50)	(51,75,75)	(76,95,95)
84	(0,0,15)	(16,16,30)	(31,43,55)	(56,70,70)	(71,99,99)
85	(0,0,16)	(17,17,29)	(30,42,54)	(55,69,69)	(70,100,100)
86	(0,0,30)	(31,31,45)	(46,56,65)	(66,85,85)	(86,100,100)
87	(0,0,30)	(31,31,45)	(46,56,65)	(66,85,85)	(86,100,100)
88	(0,0,30)	(31,31,45)	(46,56,65)	(66,85,85)	(86,100,100)
89	(0,0,30)	(31,31,45)	(46,56,65)	(66,85,85)	(86,100,100)
90	(0,0,5)	(6,6,25)	(26,36,45)	(46,70,70)	(71,99,99)
91	(0,0,6)	(7,7,15)	(16,28,40)	(41,78,78)	(79,100,100)
92	(0,0,5)	(6,6,20)	(21,35,49)	(50,75,75)	(76,95,95)
93	(0,0,10)	(11,11,25)	(26,38,50)	(51,75,75)	(76,100,100)
94	(0,0,6)	(7,7,18)	(19,32,45)	(46,77,77)	(78,99,99)
95	(0,0,20)	(21,21,40)	(41,51,60)	(61,80,80)	(81,95,95)
96	(0,0,15)	(16,16,35)	(36,51,65	(66,85,85)	(86,97,97)
97	(0,0,15)	(16,16,30)	(31,43,55)	(56,70,70)	(71,99,99)

98	(0,0,20)	(21,21,40)	(41,51,60)	(61,80,80)	(81,100,100)
99	(0,0,8)	(9,9,24)	(25,40,55)	(56,87,87)	(88,96,96)
100	(0,0,20)	(21,21,30)	(31,43,55)	(56,79,79)	(80,100,100)
101	(0,0,14)	(15,15,25)	(26,36,45)	(46,75,75)	(76,99,99)
102	(0,0,10)	(11,11,40)	(41,51,60)	(61,89,89)	(90,100,100)
103	(0,0,19)	(20,20,35)	(36,48,59)	(60,79,79)	(80,95,95)
104	(0,0,19)	(20,20,35)	(36,48,59)	(60,79,79)	(80,95,95)
105	(0,0,22)	(23,23,39)	(40,51,61)	(62,88,88)	(89,100,100)
106	(0,0,30)	(31,31,45)	(46,56,65)	(66,85,85)	(86,100,100)
107	(0,0,20)	(21,21,40)	(41,46,50)	(51,75,75)	(76,100,100)
108	(0,0,16)	(17,17,29)	(30,42,54)	(55,69,69)	(70,100,100)
109	(0,0,25)	(26,26,45)	(46,53,60)	(61,80,80)	(81,100,100)
110	(0,0,15)	(16,16,35)	(36,51,65)	(66,85,85)	(86,97,97)
111	(0,0,15)	(16,16,30)	(31,38,45)	(46,65,65)	(66,90,90)
112	(0,0,30)	(31,31,45)	(46,56,65)	(66,85,85)	(86,100,100)
113	(0,0,15)	(16,16,30)	(31,43,55)	(56,70,70)	(71,99,99)
114	(0,0,30)	(31,31,45)	(46,56,65)	(66,85,85)	(86,100,100)
115	(0,0,16)	(17,17,29)	(30,42,54)	(55,69,69)	(70,100,100)
116	(0,0,15)	(16,16,30)	(31,38,45)	(46,65,65)	(66,90,90)
117	(0,0,25)	(26,26,50)	(51,61,70)	(71,85,85)	(86,100,100)
118	(0,0,20)	(21,21,40)	(41,51,60)	(61,80,80)	(81,95,95)
119	(0,0,30)	(31,31,45)	(46,56,65)	(66,85,85)	(86,100,100)
120	(0,0,16)	(17,17,29)	(30,42,54)	(55,69,69)	(70,100,100)
121	(0,0,30)	(31,31,45)	(46,56,65)	(66,85,85)	(86,100,100)
122	(0,0,12)	(13,13,26)	(27,42,56)	(57,78,78)	(79,96,96)
123	(0,0,25)	(26,26,50)	(51,61,70)	(71,85,85)	(86,100,100)
124	(0,0,22)	(23,23,40)	(41,51,60)	(61,79,79)	(80,100,100)
125	(0,0,10)	(11,11,40)	(41,51,60)	(61,89,89)	(90,100,100)
126	(0,0,16)	(17,17,29)	(30,42,54)	(55,69,69)	(70,100,100)
127	(0,0,10)	(11,11,25)	(26,38,50)	(51,75,75)	(76,100,100)
128	(0,0,20)	(21,21,43)	(44,50,55)	(56,70,70)	(71,95,95)
129	(0,0,20)	(21,21,40)	(41,46,50)	(51,75,75)	(76,100,100)
130	(0,0,15)	(16,16,35)	(36,41,45)	(46,70,70)	(71,99,99)
131	(0,0,10)	(11,11,35)	(36,43,50)	(51,80,80)	(81,95,95)
132	(0,0,10)	(11,11,40)	(41,51,60)	(61,89,89)	(90,100,100)
133	(0,0,19)	(20,20,35)	(36,48,59)	(60,79,79)	(80,95,95)
134	(0,0,9)	(10,10,25)	(26,41,55)	(56,85,85)	(86,100,100)
135	(0,0,10)	(11,11,40)	(41,51,60)	(61,90,90)	(91,100,100)
136	(0,0,20)	(21,21,40)	(41,51,60)	(61,80,80)	(81,95,95)
137	(0,0,25)	(26,26,40)	(41,53,65)	(66,80,80)	(81,99,99)
138	(0,0,20)	(21,21,35)	(36,43,50)	(51,75,75)	(76,95,95)
139	(0,0,30)	(31,31,45)	(46,56,65)	(66,85,85)	(86,100,100)
140	(0,0,20)	(21,21,40)	(41,51,60)	(61,80,80)	(81,100,100)
141	(0,0,20)	(21,21,35)	(36,43,50)	(51,75,75)	(76,95,95)
142	(0,0,16)	(17,17,29)	(30,42,54)	(55,69,69)	(70,100,100)
143	(0,0,15)	(16,16,35)	(36,51,65)	(66,85,85)	(86,97,97)
144	(0,0,25)	(26,26,50)	(51,61,70)	(71,85,85)	(86,100,100)
145	(0,0,10)	(11,11,40)	(41,51,60)	(61,89,89)	(90,100,100)
146	(0,0,19)	(20,20,35)	(36,48,59)	(60,79,79)	(80,95,95)
147	(0,0,18)	(19,19,26)	(27,34,40)	(41,79,79)	(80,100,100)
148	(0,0,10)	(11,11,25)	(26,38,50)	(51,75,75)	(76,100,100)
149	(0,0,10)	(11,11,25)	(26,38,50)	(51,75,75)	(76,100,100)
150	(0,0,25)	(26,26,45)	(46,53,60)	(61,80,80)	(81,100,100)

151	(0,0,15)	(16,16,30)	(31,36,40)	(41,75,75)	(76,95,95)
152	(0,0,15)	(16,16,30)	(31,43,55)	(56,70,70)	(71,99,99)
153	(0,0,20)	(21,21,40)	(41,46,50)	(51,75,75)	(76,100,100)
154	(0,0,16)	(17,17,29)	(30,42,54)	(55,69,69)	(70,100,100)
155	(0,0,15)	(16,16,30)	(31,43,55)	(56,70,70)	(71,99,99)
156	(0,0,10)	(11,11,25)	(26,38,50)	(51,75,75)	(76,100,100)
157	(0,0,6)	(7,7,16)	(17,28,39)	(40,69,69)	(70,94,94)
158	(0,0,15)	(16,16,30)	(31,36,40)	(41,75,75)	(76,95,95
Aggregated average expression	(0,0,17)	(18,18,33)	(34,45,55)	(56,77,77)	(78,98,98)
Defuzzification	17/3 =6	(18+18+33)/3 =23	(34+45+55)/3 =45	(56+77+77)/3 =70	(78+98+98)/3 =91

Appendix E: Two letters

Dear Senior Manager:

Our team is writing to ask you to participate in a questionnaire and interview study sponsored by our learning team committee. Mr. Kan is carrying out a doctoral thesis examining the strategic management of organizations in Taiwan. Your organization is one of two hundred for questionnaire and may be one of fifteen for interview that has been selected to investigate the scope of strategic management. Thank you for your kind assistance.

Yours sincerely,

Professor Dr. Fu-Zang Tang
The Department and Graduate Institute of Business Administration
Nation Taiwan University, Taiwan

Professor Dr. Ta-Chung Chu
The Department and Graduate Institute of Industrial Management
Southern Taiwan University of Technology, Taiwan

Associate Dr. Chin-Lu Chyu
The Department and Graduate Institute of Marketing and Logistics Management
Southern Taiwan University of Technology, Taiwan

Associate Dr. Chung-Cheng Huang
The Department and Graduate Institute of Marketing and Logistics Management
Southern Taiwan University of Technology, Taiwan

Mr. Chun-Cheng Chen
The Chairman of Spring Plastic Enterprise Co. Ltd., Taiwan
Mr. David Ho
The president of T.Y.C. Industrial Co. Ltd., Taiwan

To whom it may concern

Re: Mr. Chao-Chin Kan

Mr. Kan is a post-graduate student who is studying in the Business School at Hull University where I am his supervisor. This letter is to introduce him to you and to ask for your assistance with his research towards his PhD. Mr Kan will be contacting a number of organizations in Taiwan in the next few months to ask for help in completing a questionnaire and in participating in interviews. Any help that you could give to Mr Kan would be of vital importance in the completion of his studies.

Should you have any queries about this letter, please do not hesitate to contact me on (+44)-1482-465960 or e-mail: w.j.Gregory@hull.ac.uk.

Thank you.

Yours sincerely

Dr W.J.Gregory
Deputy Director (Research)

Appendix F: Seventy manufacturing industries (including thirty-five big corporations and thirty-five small to medium sized enterprises) and one hundred and thirty service firms (including sixty-five big corporations and sixty-five small to medium sized enterprises)

(1) Big manufacturing industries (capital is more than NT$ 80 million and more than 200 employees)

The questionnaire was sent to 35 companies and replies were received from 15 companies, as shown in Table 1.

Table 1 Thirty-five big manufacturing industries   (Note: 1£≈NT$50)

Name of companies	Capital	Employees
1 LITE-ON Technology Corp.	19094 million	27000
2 China Motor Corporation Ltd.	11253 million	2519
3 Formosa Plastics Corporation	45347 million	4471
4 Wei-Chuan Foods Corp.	5060 million	2655
5 Sampo Corporation	13000 million	1650
6 China Steel Corporation	106000 million	8731
7 Tatung Co. Ltd.	36764 million	35000
8 AGV Products Corp.	3000 million	750
9 YIH Industrial Co. Ltd.	726.3 million	638
10 Carnival Industrial Corporation	4,157 million	500
11 Formose Taffeta Co. Ltd.	15412 million	5325
12 Tainan Spinning Co. Ltd.	15013 million	2250
13 Universal Cement Corporation	3469 million	1266
14 Taiwan Semiconductor Manufacturing Corp.	125880 million	15000
15 Chunghwa Picture Tubes Ltd.	51062 million	18000
16 HP Technological Corp.	396 million	800
17 Hua Eng Wire & Cable Co. Ltd.	5990 million	572
18 Hey-Song Co. Ltd.	5000 million	620
19 Tsann Kuen Enterprise Co. Ltd.	4360 million	19000
20 Fwusow Industry Co. Ltd.	2450 million	720
15 replying companies		
21 Chi Mei Corporation	14000 million	1500
22 Inventec Company	18350 million	2000
23 VIA Technology	12000 million	2000

Corporation		
24 Tuntex Incorporation	1200 million	320
25 Kai Jack Industrial Co. Ltd.	102 million	400
26 Taiwan Fu Husing Industrial Co. Ltd.	1500 million	900
27 Ta Fa Motor Co. Ltd.	5200 million	4000
28 Chi Mei Optoelectronics Corp.	20000 million	1000
29 FLEXium Interconnect, Inc.	600 million	400
30 Hamstar Co. Ltd.	30000 million	3500
31 Wei Tao Technology Co. Ltd.	1000 million	200
32 Greatwall Enterprise Ltd.	4521 million	500
33 Uni-President Enterprises Corp.	34200 million	5200
34 Taiwan Sugar Co. Ltd.	80000 million	8000
35 First International Computer, Inc.	400 million	380

(2) Small to medium sized manufacturing industries (capital is less than NT$ 80 million or fewer than 200 employees)

The questionnaire was sent to 35 companies and 13 companies replied, as shown in Table 2.

Table 2 Thirty-five small to medium sized manufacturing industries

Name of companies	Capital	Employees
1 Dah Lih Machinery Industry Co. Ltd.	18 million	260
2 Tsu Kong Co. Ltd.	30 million	8
3 Acetrikes Industrial Co. Ltd.	60 million	220
4 Tong Yang Industry	75 million	1252
5 Shuan Hwa Industrial Co. Ltd.	150 million	100
6 Taiwan Uyemura Co. Ltd.	60 million	124
7 Hung Jwu Enterprise Co. Ltd.	4 million	10
8 Fairly Bike Manufacturing Co. Ltd.	70 million	260
9 Linkwdrd Electronic Co. Ltd.	72 million	38
10 Foster Electric Co. (Taiwan) Ltd.	79 million	302
11 She Hong Industrial Co.	80 million	195

Ltd.		
12 Proview Electronics Co. Ltd.	80 million	176
13 Fupao Chemical Co. Ltd.	100 million	57
14 Taiwan Kansaipaint Co. Ltd.	90 million	145
15 Jau Yeou Industry Co. Ltd.	100 million	148
16 Toshiba Electronic Taiwan Corp.	100 million	165
17 Vantico Corp.	103 million	76
18 Kinyo Co. Ltd.	100 million	111
19 K.T.L. Metel Industrial Corp.	105 million	41
20 Amada Taiwan Inc.	83 million	97
21 Dee Van Enterprise Co. Ltd.	66 million	315
22 Swanson Plastics Corp.	393 million	134
13 replying companies		
23 Jih Hao Co.	2 million	15
24 Hsin Tung Enterprise Co. Ltd.	5 million	30
25 Chih Ro Enterprise Co. Ltd.	15 million	50
26 Lung I Construction Co. Ltd.	25 million	10
27 Tai Tzu Construction Co. Ltd.	9200 million	130
28 TYC Brother Industrial Co. Ltd.	52 million	1000
29 Yao Chun Technology Co.	200 million	80
30 Shang Hsing Steel Co. Ltd.	120 million	116
31 Mao Lin Electric Equipment Co. Ltd.	14 million	33
32 Spring Plastic Enterprise Co. Ltd.	20 million	35
33 Family Food Enterprise Co. Ltd.	8 million	34
34 Sung Hong Enterprise Company Limited	5 million	13
35 Hsin Yeh Industrial Co. Ltd.	5 million	18

(3) Big service firms (sales are more than NT$ 100 million and more than 50 employees)

The questionnaire was sent to 65 companies and 23 companies replied, as shown in Table 3.

Table 3 Sixty-five big service firms

Name of companies	Sales	Employees
1 T. Join Transpiration Co. Ltd.	5100 million	3972
2 Fubon Financial Holding Co. Ltd.	82541 million	4785
3 Sinyi Realty Inc.	825 million	1200
4 Far Eastern Department Stores Ltd.	10001 million	2000
5 Mercuries & Associates, Ltd.	5507 million	1160
6 Grand Hi Lai Hotel	1000 million	315
7 The Ambassador Hotel, Ltd.	400 million	322
8 China Airlines Ltd.	25426 million	7560
9 EVA Airways Corporation	24250 million	4394
10 Chang Hwa Commercial Bank, Ltd.	36094 million	5692
11 Taiwan Sing Po Security Co. Ltd.	305 million	202
12 Chain Development Industrial Bank	84634 million	4002
13 Dimerco Travel Agency	40 million	300
14 VXIS Technology Corporation	300 million	55
15 The China Post	430 million	354
16 Chinatrust Commercial Bank	48554 million	5704
17 Cardif Life	938 million	850
18 Ten Ren Tea Co. Ltd.	460 million	304
19 Lesenpnant Co. Ltd.	1139 million	564
20 Happy Steak Chain	3000 million	300
21 Transasia Air Ways	3468 million	2350
22 The Shanghai Commercial and Savings Bank Ltd.	42000 million	2000
23 Capital Securities Corporation	12300 million	1700
24 Jih Sun Security Company Ltd.	21900 million	3600
25 The Tainan sixth Credit Cooperative	17000 million	180
26 Linden Hotel	380 million	350
27 Evergreen Laurel Hotel	420 million	308
28 Fareast Air	3056 million	2268

29 Uni Air	3034 million	2100
30 Shin Kong Insurance Co. Ltd.	56880 million	1250
31 Cathay Financial Holding Co. Ltd.	83074 million	62
32 Taiwan Life Insurance Co. Ltd.	3510 million	1200
33 Taipei Bank Co. Ltd.	672000 million	3384
34 Truswell Security Co. Ltd.	110000 million	80
35 TAYIH Landis	256 million	397
36 Fu Hwa Great Hotel	19770 million	1020
37 Takkyubin Co. Ltd.	900 million	1200
38 Famous Assets & Credit Management Co. Ltd.	125000 million	300
39 Hua Nan Financial Holdings Co. Ltd.	13000 million	70
40 Mega Holdings Co. Ltd.	120000 million	52
41 Waterland Financial Holdings Co. Ltd.	21198 million	1150
42 President Securities Corp.	1140 million	1150
23 replying companies		
43 Cheng Kung Construction &Development Co.	15 00 million	150
44 Ta Feng Fu Developing Co. Ltd	150 million	200
45 Lu Yu Enterprise Co. Ltd.	200 million	100
46 Tainan Business Bank	120000 million	1200
47 Grand Commercial Bank	10000 million	1200
48 Hotel Kingdom	220 million	200
49 Taiwan Bank	1279000 million	7000
50 Triumph International Corp.	2000 million	1500
51 Yuanta Core Pacific Securities Co. Ltd.	24000 million	126
52 Tainan Hotel Co. Ltd.	300 million	200
53 I Ho Co. Ltd.	350 million	250
54 Chung Hua Newspaper Co. Ltd.	1300 million	385
55 T.N. Soong	2000 million	1400
56 Hen Lien Co. Ltd.	40000 million	1500
57 INTEL	240000 million	80000
58 Uni-President Chain Store Co. Ltd.	7720 million	5000
59 Chu Chiang Co. Ltd.	800 million	650

60 Lai Lai Sheraton Hotel	200 million	1000
61 Nan Shan Life Insurance Corp.	15000 million	40000
62 Chinese Petroleum Corporation	150000 million	15000
63 Chunghwa Telecom Co. Ltd.	1800 million	28000
64 Taiwan Security Co. Ltd.	5560 million	1600
65 Uni-President Cold-Chain Corporation	10000 million	1000

(4) Small to medium sized service firms (sales are less than NT$ 100 million or fewer than 50 employees)

The questionnaire was sent to 65 companies and 14 companies replied as shown in Table 4.

Table 4 Sixty-five small to medium sized service firms

Name of companies	Sales	Employees
1 Provence Coffee Co. Ltd.	13 million	20
2 Beauty Style Interchange Association of R.O.C.	23 million	44
3 Mili Enterprise Co. Ltd.	50 million	10
4 Medeya Computer	11 million	21
5 Ls Slon	12 million	30
6 Royal Hotel	15 million	24
7 Natural Beauty	74 million	11
8 Ease Your Life Co. Ltd.	88 million	22
9 Artru Interior Design Co. Ltd.	21 million	9
10 Cambridge Hotel	85 million	60
11 Hsiang Shou Air-conditioning Engineer Co.	50 million	20
12 Scholars Book Co. Ltd.	55 million	30
13 Mother Nature Science Education Center	20 million	24
14 Aurora Business	15 million	15
15 Kai Li Enterprise Co. Ltd.	30 million	18
16 3 Royal and 3 House	100 million	45
17 Zeta Co. Ltd.	33 million	26
18 Buxton International Corp.	45 million	34
19 Uniauto Inc.	23 million	22
20 Autobacs Seven (Taiwan) Co. Ltd.	67 million	54
21 Wheels World	54 million	44

International Inc.		
22 Fonnex Industrial Corp.	71 million	36
23 Rota Oriens Co. Ltd.	76 million	43
24 Per Esse Co. Ltd.	81 million	58
25 Maxhealth Corporation	74 million	41
26 Arthur Anderson Ind. Co. Ltd.	45 million	29
27 Shiniest Industries Inc.	88 million	44
28 Topy International Ltd.	16 million	15
29 Richard Hung Enterprise Co. Ltd.	39 million	36
30 Long Shern Enterprise Co. Ltd.	73 million	48
31 Asia Active Co. Ltd.	28 million	32
32 South Canal International Co. Ltd.	52 million	35
33 Liagfam Co. Ltd.	48 million	34
34 Speed & Action Technology Inc.	50 million	41
35 Trade Union International Inc.	34 million	25
36 Tair Wang Enterprise Co. Ltd.	24 million	17
37 Chung Pu Car Cushion Industry Co. Ltd.	89 million	48
38 John Sagacity Enterprises Ltd.	36 million	25
39 Yuan Feng Industrial Co., Ace Alloy Co. Ltd.	77 million	61
40 Kosei Aluminum Co. Ltd.	84 million	48
41 Caves Books Co. Ltd.	65 million	43
42 Family Convenient Chain Enterprise Co. Ltd.	38 million	26
43 Ya Ti Hotel	30 million	6
44 Chia Lin Air-conditioning & Refrigeration Co.	10 million	8
45 Tsui Tien Ti Roasted Seafoof Restaurant	28 million	16
46 Tainan Education Centre	12 million	6
47 Bamboo Japanese Seafood Restaurant	40 million	20
48 Chia Hung Yu Frozen Foods Co.	30 million	20
49 Sheng I Nursery	15 million	15
50 98 Light Food Enterprise Ltd.	30 million	7
51 Acer TWP Corporation	82 million	24

14 replying companies		
52 Ti Szu Te Co. Ltd.	60 million	20
53 China Security Co. Ltd.	10000 million	26
54 Chi Lu Investment Holding Co. Ltd.	1500 million	20
55 Sheng Chang Investment Holding Co. Ltd.	1900 million	10
56 WYSER International Corp.	200 million	35
57 Fuly Construction Corporation	400 million	15
58 Nan Tu TOYOTA Motor Co. Ltd.	500 million	40
59 Leo International Co. Ltd.	13 million	12
60 Yu Chen Enterprise Co. Ltd.	36 million	15
61 Kao Chao Enterprise Co. Ltd.	6 million	15
62 Sung Pao Seedling Co.	5 million	8
63 Three Point Enterprise Co. Ltd.	4 million	6
64 Central Investment Holding Co. Ltd.	20000 million	33
65 ORCHIS Floriculturing Inc.	100 million	16

Appendix G: Interview questions (訪談問題)

1. 請您介紹您在貴公司擔任的職位和工作性質。

   Please tell me about the role of your department and your personal job function.

2. 目前貴公司如何形成及執行策略? 其優缺點為何? 應如何改善?

   What is the current strategic management of your organization? What are the strengths and weaknesses? How can it be improved?

3. 請您以邏輯和語言面、學習面、文化面、領導權力面、老子的倫理道德面及規劃面的觀點說明對貴公司策略管理 (策略形成及執行) 的影響?

   Would you please explain the influences of the six-views on strategic management in your company? (1)Logic and language view? (2) Learning view? (3) Cultural view? (4) Political view? (5) Ethical view? (6) Planning view?

4. 目前貴公司使用何種評估系統來評估策略執行的效果,請分別就量 (如市場佔有率、銷售額和利潤) 和質 (如員工滿意度、顧客滿意度及利害關係群體績效) 的方法說明?

   What type of evaluation system is used to rate the effectiveness of strategy in your organization? Please explain for quantitative (e.g. market share, profits and sales) and qualitative (e.g. employee satisfaction, customer satisfaction and stakeholders' performance) approaches, respectively.

5. 您認為面對動態和複雜的環境,貴公司在未來應如何形成並執行策略?

   How does your company tackle the process of strategic management under a dynamic and complex environment?

6: 貴公司認為藉由強化組織的六構面,進而提升供應鏈的營運效果,能實現較佳的員工滿意、顧客滿意與利害關係人績效?

   How does your company produce better employee satisfaction, customer satisfaction, and stakeholders' performance by enhancing the six-views as roots to facilitate efficiencies and effectiveness of supply chain operation?

7. 除了邏輯和語言面、學習面、文化面、領導面、老子的倫理面及規劃面的觀點之外,您對於策略管理是否有其他寶貴的經驗和建議可提供本研究參考?

   What suggestions for the strategic management at your company, that this research have not mentioned, do you find important?

Appendix H: Time table of interviews

Planning Companies of Interview

Name of Corporation	Address
Manufacturing Industries	
1. Uni-President Enterprises Corp. 　統一企業公司	Tainan (06) 2532121; Taipei (02) 27478088 www.uni-president.com.tw
2. Chi Mei Corporation 　奇美實業有限公司	Tainan (06) 2663000
3. TYC Brother Industrial Co. Ltd. 　堤維西交通工業公司	Tainan (06) 2658781 or 0932704099 E-mail: tyc.com.tw
4. FLEXium Interconnect, Inc. 　台郡科技股份有限公司	Kaushiung (07) 7871008 E-mail: walter@flexium.com.tw
5. Chi Mei Optoelectronics Corp. 　奇美電子股份有限公司	Tainan (06) 5051888 E-mail: chen_y_t@cmo.com.tw
6. Tuntex Incorporation 　東豐纖維企業股份有限公司	Kaohsiung (07) 6975455
7. Chih Ro Enterprise Co, Ltd. 　志友實業	Tainan (06) 2793313
Service Firms	
1. Triumph International Corporation 　黛安芬國際股份有限公司	Southern of Taiwan (07) 5563383
2. Fuly Construction Corporation 　富立建設股份有限公司	Tainan (06) 2977858 E-mail: fuly.com.tw
3. Hotel Kingdom 　華王飯店	Kaushiung (07) 5518211 E-mail: kingdoms@ms23.hinet.net
4. WYSER International Corp. 　緯聯股份有限公司	Tainan (06) 2395239 E-mail: wyser@wyser.com.tw
5. Central Investment Holding Co. Ltd. 　中央投資股份有限公司	Taipei (02) 27819271 E-mail: hiy@khih.com.tw
6. China Securities Co. Ltd. 　中信證券股份有限公司	Taiana (06) 2347622 www.KGI.com.tw
7. Uni-President Cold-Chain Corporation 　統昶行銷股份有限公司	Tainan (06) 5013200 E-mail: stcheng@upcc.com.tw
8. Nan Shan Life Insurance Corporation 　南山人壽保險股份有限公司	Tainan (06) 2988850 www.nanshanlife.com.tw

Interviews for 15 Taiwanese companies

Corporation name	Name (Position)	Time	Place
1. Hotel Kingdom	Erwin Chen (Vice-president)	15/10/02 3:30 – 4:30 pm.	His office
2. Triumph International Corporation	Ging-Kau Ho (Senior manager)	29/10/02 10:30 – 11:30 am.	His office
3. Fuly Construction Corporation	Tsung-Tu Chen (President)	30/10/02 1:30 – 2: 40 pm.	His office
4. WYSER International Corp.	Thomas Kan (Chairman)	31/10/02 11:00 – 12:00 am.	His office
5. TYC Brother Industrial Co. Ltd.	David Ho (President)	1/11/02 9:30 – 11:00 am.	His office
6. Central Investment Holding Co. Ltd.	Johnny Huang (Assistant Vice-president)	4/11/02 2:00 -3:00 pm.	His office
7. Chi Mei Optoelectronics Corporation	Yao-Tung Chen (LCM MFG. Head Division Senior Director)	6/11/02 2:20 – 3:30 pm.	His office
8. Chi Mei Corporation	James C. M. Chang (R&D Dept. Manager)	7/11/02 1:30 – 2:30 pm.	His office
9. China Securities Co. Ltd.	Wen-Hua Lee (Senior manager)	7/11/02 3:00 – 4:00 pm.	His office
10. Nan Shan Life Insurance Corporation	Jack Chen (Senior manager)	8/11/02 3:30 – 4:30 pm.	His office
11. FLEXium Interconnect, Inc.	Walter Cheng (Chairman)	12/11/02 3:00 – 4:00 pm.	His office
12. Tuntex Incorporation	Jen-Chieh Chen (President)	15/11/02 2:00 – 3:00 pm.	His office
13. Uni-President Cold-Chain Corporation	Tung-Ho Cheng (President)	21/11/02 2:30 – 4:00 pm.	His office
14. Chih Ro Enterprise Co. Ltd.	Kao-Sung Chien (President)	20/11/02 2:00 – 4:00 pm.	His office
15. Uni-President Enterprises Corporation	Wen-Lung Yang (President of Beverage Group Corporation, President)	5/11/02 9:00 – 10:10 am.	His office
Uni-President Enterprises Corporation	Hing-Ying Huang (Corporate Planning Office, Vice-president)	8/11/02 1:00 – 2:00 pm.	His office
Uni-President Enterprises Corporation	Cong-Ming Lee (Production Technology Group,	13/11/02 10:00 – 11:00 am.	His office

	Vice-president)		
Uni-President Enterprises Corporation	Chang-Gin Chen (Distribution Group, Vice-president)	13/11/02 11:00 – 12:00 am.	His office
Uni-President Enterprises Corporation	Sinclair C. Liang (International Division, Senior manager)	14/11/02 10:00 – 11:00 am.	His office
Uni-President Enterprises Corporation	Jean-Yves Yao (Marketing Planning Group, Senior manager)	14/11/02 11:00 – 12:00 am.	His office

Appendix I: Four companies and time table of case study

Case study for four Taiwanese companies

	Corporate Name	Time	Interviewee	Place
Manufacturing industries	1. TYC Brother Industrial Co. Ltd.	6/12/02 8:30-10:30 am.	David Ho (President)	His office
	2. FLEXium Interconnect Inc.	10/12/02 3:30-5:30 pm.	Walter Cheng (Chairman)	His office
Service Firms	3. Uni-President Cold-Chain Corporation	10/12/02 10:00-12:00 am.	Tung-Ho Cheng (President)	His office
	4. WYSER International Corp.	9/12/02 2:00-4:00 pm.	Thomas Kan (Chairman)	His office

Appendix J: The data of employee and customer satisfaction indicators for Companies A1-A4

Company A1

Year	Sales Employees' numbers	Employee productivity	Employee turnover (Employee retention=1-employee turnover)	Employee Suggestions (per year per person, PYPP)
1995	£21600000 150 employees	£144000	0.089	200 (1.33 PYPP)
1996	£30240000 202	£149703	0.066	610 (3.02 PYPP)
1997	£34560000 212 employees	£163019	0.058	660 (3.11 PYPP)
1998	£47520000 252 employees	£188571	0.055	608 (2.41PYPP)
1999	£60480000 264 employees	£229091	0.044	666 (2.52 PYPP)
2000	£57600000 241 employees	£239004	0.038	852 (3.54 PPPY)
2001	£63360000 266 employees	£238195	0.025	904 (3.40 PYPP)
2002	£80640000 341 employees	£236481	0.037	1404 (4.12 PYPP)
2003	£86400000 382 employees	£226178	0.040	2270 (5.94 PYPP)
2004	£96480000 400 employees	£241200	0.028	2382 (6.0 PYPP)
Average		£205544×50= NT$10277200÷35 = US$293634	0.048 (Employee retention=1-0.048=0.952)	1056 (3.54PYPP)

The data of the purchase proportion per customer in each single product, customer retention rate and customer complaints for company A1

Year	The purchase proportion per customer in each single product	customer retention rate	customer complaints compensation rate (compensation/sales)
1999	-	0.88	0.0083
2000	-	0.84	0.0077
2001	-	0.94	0.0023
2002	-	0.76	0.0087
2003	-	0.82	0.0078
2004	-	0.82	0.0082
Average		0.84	0.0064

Company A2

Year	Sales / Employees' numbers	Employee productivity	Employee Turnover (Employee retention=1-employee turnover)	Employee Suggestions (per year per person, PYPP)
1998	3900320 / 80 employees	48754	0.13	105 (1.3 PYPP)
1999	6396861 / 123 employees	52007	0.081	188 (1.53 PYPP)
2000	10288788 / 201 employees	51188	0.010	286 (1.43 PYPP)
2001	16106286 / 336 employees	47935	0.012	352 (1.05 PYPP)
2002	21709728 / 416 employees	52187	0.072	655 (1.57 PYPP)
2003	31655776 / 777 employees	40741	0.013	799 (1.03 PYPP)
2004	51656873 / 989 employees	52331	0.008	2835 (2.87 PYPP)
Average		49306×50= NT$ 2465300÷35 = US $70437	0.030 (Employee retention=1-0.030=0.70)	745(1.54PYPP)

The data of the purchase proportion per customer in each single product, customer retention rate and customer complaints for company A2

Year	The purchase proportion per customer in each single product	customer retention rate	customer complaints
1998	-	0.94	82
1999	-	0.93	120
2000	-	0.93	171
2001	-	0.92	179
2002	-	0.90	185
2003	-	0.91	327
2004	-	0.93	256
Average		0.92	188.6

Company A3

Year	Sales / Employees' numbers	Employee productivity	Employee turnover	Employee Suggestions (per year per person, PYPP)
1994	£1240000 / 5 employees	£248000	0	-
1995	£1400000 / 5 employees	£280000	0	-
1996	£2023000 / 6 employees	£337000	0	-
1997	£2205000 / 7 employees	£315000	0.14	-
1998	£3010000 / 8 employees	£376000	0	-
1999	£4095000 / 11 employees	£372000	0	-
2000	£4375000 / 12 employees	£365000	0.083	-
2001	£4460000 / 13 employees	£343000	0.076	-
2002	£6119000 / 16 employees	£382000	0	-
2003	£6944000 / 24 employees	£289000	0.042	-
2004	£8610000 / 30 employees	£287000	0.067	-
Average		£327000× 50 = NT$16350000 ÷35 = US$467143	0.408 ÷11= 0.037	

The data of the purchase proportion per customer in each single product, customer retention rate and customer complaints for company A3

Year	The purchase proportion per customer in each single product	customer retention rate	customer complaints compensation rate (compensation/sales)
1999	-	0.77	0.0030
2000	-	0.78	0.0032
2001	-	0.66	0.0147
2002	-	0.73	0.0111
2003	-	0.71	0.0132
2004	-	0.75	0.0072
Average		0.73	0.0087

Company A4

Year	Sales / Employees' numbers	Employee productivity	Employee turnover (Employee retention=1-employee turnover)	Employee suggestions (per person per year, PYPP)
1999	£37960000 / 422 employees	£89953	0.016	112 (0.27PPPY)
2000	£98680000 / 811 employees	£121677	0.005	202 (0.25PYPP)
2001	£138180000 / 930 employees	£148581	0.003	282 (0.30PYPP)
2002	£161110000 / 1090 employees	£147807	0.012	308 (0.28PYPP)
2003	£201150000 / 1010 employees	£199158	0.004	323 (0.32PYPP)
2004	£245340000 / 1015 employees	£241714	0.002	334 (0.36PYPP)
Average		£158148×50= NT$ 7907400÷35 = US$ 225925	0.007 (Employee retention =1-0.007=0.993)	260 (0.30PYPP)

The data of the purchase proportion per customer in each single product, customer retention rate and customer complaints for company A4

Year	The purchase proportion per customer in each single product	customer retention rate	customer complaints
1999	-	0.90	8
2000	-	0.91	7
2001	-	0.88	10
2002	-	0.86	11
2003	-	0.90	9
2004	-	0.93	7
Average		0.90	8.67

Appendix K: The operation of centroid value and trapezoid area

(1) The operation of centroid value

Figure 1 The membership functions of trapezoidal fuzzy numbers
for centroid value

If we set $l(x) = f(x) = \dfrac{x-L}{M-L}$; $r(x) = f(x) = \dfrac{U-x}{U-M}$, then the centroid value of trapezoidal fuzzy numbers as follows:

$$\frac{\int_L^M x \times (1)dx + \int_M^U x(\frac{U-x}{U-M})dx}{\int_L^M (1)dx + \int_M^U (\frac{U-x}{U-M})dx} = \frac{\left.\frac{x^2}{x}\right|_L^M + \frac{1}{U-M}\left[\frac{x^2}{2}U - \frac{x^3}{3}\right]_M^U}{(M-L) + \frac{1}{U-M}\left[U \times x - \frac{x^2}{2}\right]_M^U}$$

$$= \frac{\frac{1}{2}\left[M^2 - L^2\right] + \frac{1}{U-M}\left[(\frac{U^3}{2} - \frac{U^3}{3}) - (\frac{M^2 \times U}{2} - \frac{M^3}{3})\right]}{(M-L) + \frac{1}{U-M}\left[(U^2 - \frac{U^2}{2}) - (U \times M - \frac{M^2}{2})\right]}$$

When L=0, M= 0.25, U= 0.5, then the centroid value of trapezoidal fuzzy numbers is equal to

$$\frac{\frac{1}{2}\left[0.25^2 - 0^2\right] + \frac{1}{0.5-0.25}\left[(\frac{0.5^3}{2} - \frac{0.5^3}{3}) - (\frac{0.25^2 \times 0.5}{2} - \frac{0.25^3}{3})\right]}{(0.25-0) + \frac{1}{0.5-0.25}\left[(0.5^2 - \frac{0.5^2}{2}) - (0.5 \times 0.25 - \frac{0.25^2}{2})\right]}$$

$$= \frac{0.03125 + 4(0.010405)}{0.25 + 4(0.03125)} = 0.19432 \approx 0.19$$
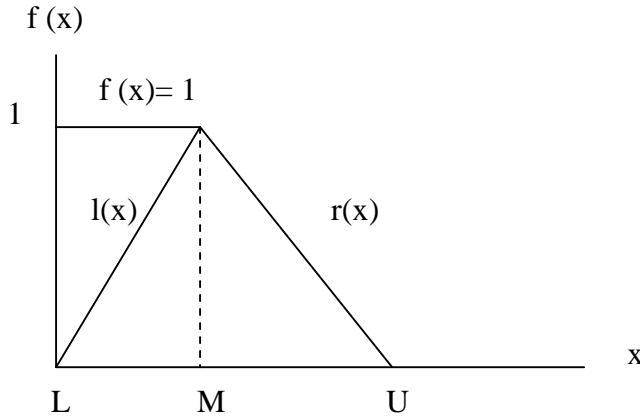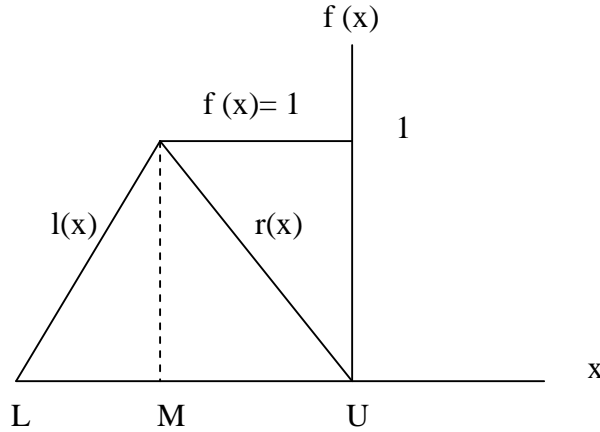
Figure 2 The membership functions of trapezoidal fuzzy numbers
for centroid value

If we set $1(x) = f(x) = \dfrac{x-L}{M-L}$; $r(x) = f(x) = \dfrac{U-x}{U-M}$, then the centroid value of trapezoidal fuzzy numbers as follows:

$$\frac{\displaystyle\int_L^M x \times (\frac{x-L}{M-L})dx + \int_M^U x \times (1)dx}{\displaystyle\int_L^M (\frac{x-L}{M-L})dx + \int_M^U (1)dx} = \frac{\dfrac{1}{M-L}\left[\dfrac{x^3}{3} - \dfrac{L \times x^2}{2}\right]_L^M + \dfrac{x^2}{2}\Big]_M^U}{\dfrac{1}{M-L}\left[\dfrac{x^2}{2} - L \times x\right]_L^M + (U-M)}$$

$$= \frac{\dfrac{1}{M-L}\left[(\dfrac{M^3}{3} - \dfrac{M^2 \times L}{2}) - (\dfrac{L^3}{3} - \dfrac{L^3}{2})\right] + \dfrac{1}{2}(U^2 - M^2)}{\dfrac{1}{M-L}\left[(\dfrac{M^2}{2} - L \times M) - (\dfrac{L^2}{2} - L^2)\right] + (U-M)}$$

When L=0.5, M= 0.75, U= 1, then the centroid value of trapezoidal fuzzy numbers is equal to

$$\frac{\dfrac{1}{0.75-0.5}\left[(\dfrac{0.75^3}{3} - \dfrac{0.75^3 \times 0.5}{2}) - (\dfrac{0.5^3}{3} - \dfrac{0.5^3}{2})\right] + \dfrac{1}{2}(1^2 - 0.75^2)}{\dfrac{1}{0.75-0.5}\left[(\dfrac{0.75^2}{2} - 0.5 \times 0.75) - (\dfrac{0.5^2}{2} - 0.5^2)\right] + (1-0.75)}$$

$$= \frac{(0.083336) + (0.21875)}{0.125 + 0.25} = \frac{0.302086}{0.375} = 0.80556 \approx 0.81$$

Similarly, when L=0.7, M= 0.91, U= 1, then the centroid value of trapezoidal fuzzy numbers is equal to =0.93237 ≒ 0.93
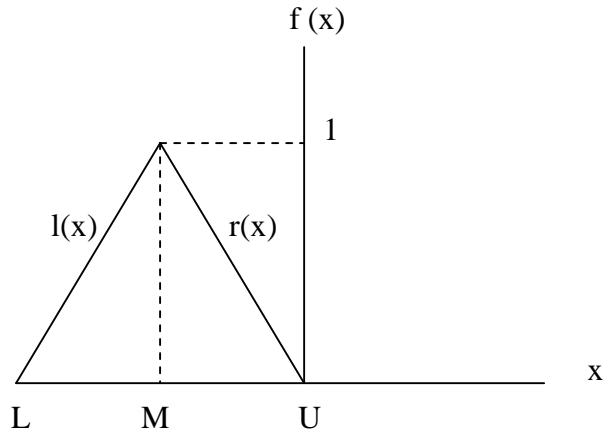
When L= 0.25, M=0.5, U= 0.75, then the centroid value of triangular fuzzy numbers as the average = (L+M+U)/3 = (0.25+0.5+0.75)/3 = 0.5

(2) The operation of trapezoid area

$$\frac{0.28}{1} = \frac{0.75 - x}{0.25} \rightarrow x = 0.68; \quad \frac{0.28}{1} = \frac{y - 0.25}{0.25} \rightarrow y = 0.32; \quad \frac{zt}{0.25} = \frac{0.28}{1} \rightarrow zt = 0.07$$

Trapezoid abcd area is 0.1204= [(0.18+0.18) + (0.75-0.25)]×0.28×0.5;

Trapezoid wzrs area is 0.2952= [(0.25+0.07)+0.5]× 0.72×0.5 as shown as follows:
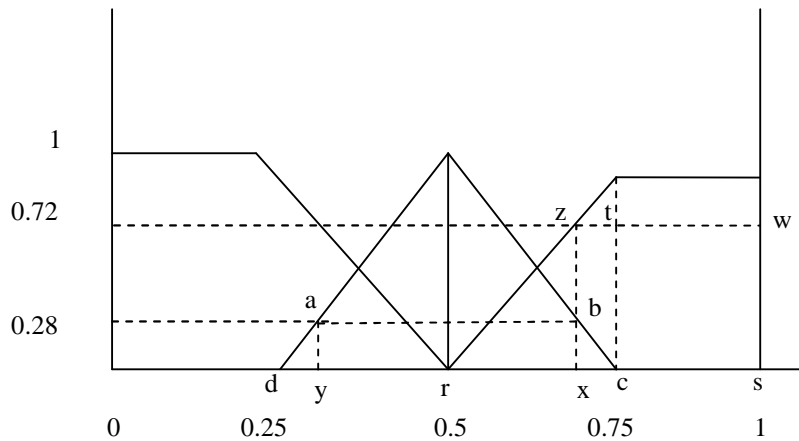
Appendix L: The survey table of corporate social issues and stakeholders' expectations

Table 1 Measurement of corporate social issues

	Very poor	Poor	Moderate	Good	Very good
Economics:					
Profitability	——	——	——	——	——
Market share	——	——	——	——	——
Customer loyalty and goodwill	——	——	——	——	——
Financial stability	——	——	——	——	——
Environment:					
Pollution control	——	——	——	——	——
Repair of environment	——	——	——	——	——
Recycling of waste material	——	——	——	——	——
Discrimination:					
Minority employment	——	——	——	——	——
Employment of women	——	——	——	——	——
Equal opportunities	——	——	——	——	——
Minority business partners	——	——	——	——	——
Personnel:					
Occupational health and safety	——	——	——	——	——
Salary level	——	——	——	——	——
Training; education	——	——	——	——	——
Counseling	——	——	——	——	——
Products:					
Safety	——	——	——	——	——
Quality	——	——	——	——	——
Product improvement	——	——	——	——	——
Community involvement:					
Community activities	——	——	——	——	——
Public health	——	——	——	——	——
Education; arts	——	——	——	——	——
Co-opetition:					
Joint ventures	——	——	——	——	——

Strategic alliance	___	___	___	___	___
Licensing	___	___	___	___	___
Franchising	___	___	___	___	___

Table 2 Measurement of stakeholders' expectations

	Un-related	Poor	Moderate	Good	Very good
Suppliers:					
Economics	___	___	___	___	___
Environment	___	___	___	___	___
Discrimination	___	___	___	___	___
Personnel	___	___	___	___	___
Products	___	___	___	___	___
Community involvement	___	___	___	___	___
Co-opetition	___	___	___	___	___
Management:					
Economics	___	___	___	___	___
Environment	___	___	___	___	___
Discrimination	___	___	___	___	___
Personnel	___	___	___	___	___
Products	___	___	___	___	___
Community involvement	___	___	___	___	___
Co-opetition	___	___	___	___	___
Local communication:					
Economics	___	___	___	___	___
Environment	___	___	___	___	___
Discrimination	___	___	___	___	___
Personnel	___	___	___	___	___
Products	___	___	___	___	___
Community involvement	___	___	___	___	___
Co-opetition	___	___	___	___	___
Government:					
Economics	___	___	___	___	___
Environment	___	___	___	___	___
Discrimination	___	___	___	___	___

Personnel	——	——	——	——	——
Products	——	——	——	——	——
Community involvement	——	——	——	——	——
Co-opetition	——	——	——	——	——
Customers:					
Economics	——	——	——	——	——
Environment	——	——	——	——	——
Discrimination	——	——	——	——	——
Personnel	——	——	——	——	——
Products	——	——	——	——	——
Community involvement	——	——	——	——	——
Co-opetition	——	——	——	——	——
Shareholders:					
Economics	——	——	——	——	——
Environment	——	——	——	——	——
Discrimination	——	——	——	——	——
Personnel	——	——	——	——	——
Products	——	——	——	——	——
Community involvement	——	——	——	——	——
Co-opetition	——	——	——	——	——
Employees:					
Economics	——	——	——	——	——
Environment	——	——	——	——	——
Discrimination	——	——	——	——	——
Personnel	——	——	——	——	——
Products	——	——	——	——	——
Community involvement	——	——	——	——	——
Co-opetition	——	——	——	——	——
Competitors:					
Economics	——	——	——	——	——
Environment	——	——	——	——	——
Discrimination	——	——	——	——	——
Personnel	——	——	——	——	——
Products	——	——	——	——	——
Community involvement	——	——	——	——	——
Co-opetition	——	——	——	——	——

Appendix M: Five linguistic variables for auditing the six-views and stakeholders'
performance

Senior managers	Strongly negative (or Very weak)	Negative (or Weak)	Moderate	Positive (or Strong)	Strongly positive (or Very strong)
FLEXium 1 (A2)	(0,0,19)	(18,18,39)	(40,55,69)	(70,90,90)	(89,100,100)
FLEXium 2	(0,0,20)	(21,21,40)	(42,56,70)	(72,90,90)	(91,100,100)
FLEXium 3	(0,0,19)	(18,18,39)	(40,55,69)	(70,90,90)	(89,100,100)
WYSER 4 (A3)	(0,0,15)	(14,14,39)	(37,54,71)	(70,90,90)	(88,100,100)
WYSER 5	(0,0,18)	(15,15,40)	(38,53,68)	(65,90,90)	(89,100,100)
WYSER 6	(0,0,17)	(15,15,39)	(37,51,65)	(64,88,88)	(85,100,100)
TYC 7 (A1)	(0,0,20)	(16,16,40)	(38,53,68)	(65,90,90)	(85,100,100)
TYC 8	(0,0,18)	(15,15,40)	(35,53,70)	(67,90,90)	(88,100,100)
TYC 9	(0,0,15)	(14,14,37)	(38,54,70)	(68,90,90)	(89,100,100)
UPCC 10 (A4)	(0,0,20)	(18,18,40)	(38,53,68)	(65,88,88)	(85,100,100)
UPCC 11	(0,0,18)	(15,15,40)	(35,53,70)	(68,90,90)	(88,100,100)
UPCC 12	(0,0,15)	(14,14,37)	(35,53,70)	(65,88,88)	(88,100,100)
Aggregated average expression	(0,0,18)	(16,16,39)	(38,54,69)	(67,90,90)	(88,100,100)
Defuzzification	18/3 = 6	(16+16+39)/3 =24	(38+54+69)/3 =54	(67+90+90)/3 =82	(88+100+100)/3 =96

Appendix N: Calculating for identifying strong level or weak level of the boundaries in the six-views

Company A1: (see p.333)

1. **★six-views = 0.823** is belonging to both strong level and very strong level from the boundaries of the Figure 2.9.

   (1) the degree of strong level

   $$\frac{0.9-0.75}{0.9-0.823}=\frac{1}{x}\Rightarrow 0.15x=0.077\qquad \therefore x=0.51$$

   (2) the degree of very strong level

   $$\frac{0.75-0.9}{0.8-0.823}=\frac{1}{x}\Rightarrow 0.15x=0.023\qquad \therefore x=0.15$$

   (3) decision ★six-views is belonging to strong level or very strong level.

   ∵ the degree of strong level is equal to 0.51 more than the degree of very strong level 0.15.

   ∴ The ★six-views is belonging to strong level.

2. **PLV = 0.872** is belonging to both strong level and very strong level from the boundaries of the Figure 2.9.

   (1) the degree of strong level

   $$\frac{0.75-0.9}{0.872-0.9}=\frac{1}{x}\Rightarrow 0.15x=0.028\qquad \therefore x=0.19$$

   (2) the degree of very strong level

   $$\frac{0.9-0.8}{0.872-0.8}=\frac{1}{x}\Rightarrow 0.1x=0.072\qquad \therefore x=0.72$$

   (3) decision **PLV** is belonging to strong level or very strong level.

   ∵ the degree of strong level is equal to 0.19 less than the degree of very strong level is equal to 0.72.

   ∴ the **PLV** is belonging to very strong level.

3. **Integrated five-view=0.773** is belonging to strong level only from the boundaries of
   the Figure 2.9.

4. **LV = 0.855** is belonging to both strong level and very strong level from the boundaries of the Figure 2.9.

   (1) the degree of strong level

$$\frac{0.9 - 0.75}{0.9 - 0.855} = \frac{1}{x} \Rightarrow 0.15x = 0.045 \qquad \therefore x = 0.3$$

(2) the degree of very strong

$$\frac{0.75 - 0.9}{0.8 - 0.855} = \frac{1}{x} \Rightarrow 0.15x = 0.055 \qquad \therefore x = 0.37$$

(3) decision **LV** is belonging to strong level or very strong level.

∵ the degree of very strong level is equal to 0.37 more than the degree of strong level is equal to 0.3.

∴ the **LV** is belonging to very strong level.

5. **LLV=0.855** is the same **LV** (see calculation of **LLV**).

∴ the **LLV** is belonging to very strong level.

6. **CV=0.76** is belonging to strong level only from the boundaries of the Figure 2.9.
7. **EV=0.787** is belonging to strong level only from the boundaries of the Figure 2.9.
8. **PV=0.715** is belonging to strong level only from the boundaries of the Figure 2.9.

<u>Company A2:</u> (see p.334)

1. ★<u>**six-views = 0.800**</u> is belonging to strong level only from the boundaries of the Figure 2.9.

2. <u>**PLV = 0.84**</u> is belonging to both strong level and very strong level from the boundaries of the Figure 2.9.

   (1) the degree of strong level

$$\frac{0.9-0.75}{0.9-0.84}=\frac{1}{x} \Rightarrow 0.15x=0.06 \qquad \therefore x=0.4$$

   (2) the degree of very strong level

$$\frac{0.8-0.9}{0.8-0.84}=\frac{1}{x} \Rightarrow 0.1x=0.04 \qquad \therefore x=0.4$$

   (3) decision **PLV** is belonging to strong level or very strong level.

      ∵ the degree of strong level = 0.4 is equal to the degree of very strong level = 0.4.

      ∴ the **PLV** is belonging to strong level and very strong level.

3. <u>**Integrated five-view=0.684**</u> is belonging to both moderate level and strong level from the boundaries of the Figure 2.9.

   (1) the degree of moderate level

$$\frac{0.7-0.5}{0.7-0.684}=\frac{1}{x} \Rightarrow 0.2x=0.016 \qquad \therefore x=0.08$$

   (2) the degree of strong level

$$\frac{0.6-0.75}{0.6-0.684}=\frac{1}{x} \Rightarrow 0.15x=0.084 \qquad \therefore x=0.56$$

   (3) decision **Integrated five-views** is belonging to moderate level or strong level.

      ∵ the degree of strong level is equal to 0.56 more than the degree of very strong level is equal to 0.08.

      ∴ The **Integrated five-views** is belonging to strong level.

4. <u>**LV = 0.832**</u> is belonging to both strong level and very strong level from the boundaries of the Figure 2.9.

   (1) the degree of strong level

$$\frac{0.9-0.75}{0.9-0.832}=\frac{1}{x} \Rightarrow 0.15x=0.068 \qquad \therefore x=0.45$$

   (2) the degree of very strong

$$\frac{0.8-0.9}{0.8-0.832}=\frac{1}{x} \Rightarrow 0.1x=0.032 \qquad \therefore x=0.32$$

(3) decision **LV** is belonging to strong level or very strong level.

∵ the degree of strong level is equal to 0.45 more than the degree of very strong level is equal to 0.32.

∴ the **LV** is belonging to strong level.

5. **CV = 0.608** is belonging to both moderate level and strong level from the boundaries of the Figure 2.9.

(1) the degree of moderate level

$$\frac{0.7-0.5}{0.7-0.608}=\frac{1}{x} \Rightarrow 0.2x=0.092 \qquad \therefore x=0.46$$

(2) the degree of strong level

$$\frac{0.6-0.75}{0.6-0.608}=\frac{1}{x} \Rightarrow 0.15x=0.008 \qquad \therefore x=0.05$$

(3) decision **CV** is belonging to moderate level or strong level.

∵ the degree of moderate level is equal to 0.46 more than the degree of strong level is equal to 0.05.

∴ the **CV** is belonging to moderate level.

6. **EV = 0.691** is belonging to both moderate level and strong level from the boundaries of the Figure 2.9.

(1) the degree of strong level

$$\frac{0.7-0.5}{0.7-0.691}=\frac{1}{x} \Rightarrow 0.2x=0.009 \qquad \therefore x=0.045$$

(2) the degree of very strong level

$$\frac{0.6-0.75}{0.6-0.691}=\frac{1}{x} \Rightarrow 0.15x=0.091 \qquad \therefore x=0.61$$

(3) decision **EV** is belonging to moderate level or strong level.

∵ the degree of strong level is equal to 0.61 more than the degree of moderate level is equal to 0.045.

∴ The **EV** is belonging to strong level.

7. **PV = 0.668** is belonging to both moderate level and strong level from the boundaries of the Figure 2.9.

(1)the degree of moderate level

$$\frac{0.7-0.5}{0.7-0.668}=\frac{1}{x} \Rightarrow 0.2x=0.032 \qquad \therefore x=0.16$$

(2)the degree of strong level

$$\frac{0.6-0.75}{0.6-0.668}=\frac{1}{x}\Rightarrow 0.15x=0.068 \qquad \therefore x=0.45$$

(3) decision **PV** is belonging to moderate level or strong level.

∵ the degree of strong level is equal to 0.45 more than the degree of moderate level is equal to 0.16.

∴ the **PV** is belonging to strong level.

8. **LLV = 0.699** is belonging to both moderate level and strong level from the boundaries of the Figure 2.9.

(1) the degree of strong level

$$\frac{0.7-0.5}{0.7-0.699}=\frac{1}{x}\Rightarrow 0.2x=0.001 \qquad \therefore x=0.005$$

(2) the degree of very strong level

$$\frac{0.6-0.75}{0.6-0.699}=\frac{1}{x}\Rightarrow 0.15x=0.099 \qquad \therefore x=0.66$$

(3) decision **LLV** is belonging to moderate level or strong level.

∵ the degree of strong level is equal to 0.66 more than the degree of moderate level is equal to 0.005.

∴ the **LLV** is belonging to strong level.

<u>**Company A3**</u>:

1. ★<u>**six-views = 0.823**</u> is belonging to strong level only from the boundaries of the Figure 2.9.

2. <u>**PLV=0.818**</u> is belonging to both strong level and very strong level from the boundaries of the Figure 2.9.

   (1) the degree of strong level

   $$\frac{0.9-0.75}{0.9-0.818}=\frac{1}{x} \Rightarrow 0.15x=0.082 \qquad \therefore x=0.55$$

   (2) the degree of very strong level

   $$\frac{0.8-0.9}{0.8-0.818}=\frac{1}{x} \Rightarrow 0.1x=0.018 \qquad \therefore x=0.18$$

   (3) decision **PLV** is belonging to strong level or very strong level.
   - ∵ the degree of strong level is equal to 0.55 more than the degree of very strong level is equal to 0.18
   - ∴ The **PLV** belonging to strong level.

3. <u>**Integrated five-views=0.709**</u> is belonging to strong level only from the boundaries of the Figure 2.9.

4. <u>**LV=0.81**</u> is belonging to both strong level and very strong level from the boundaries of the Figure 2.9.

   (1) the degree of strong level

   $$\frac{0.9-0.75}{0.9-0.81}=\frac{1}{x} \Rightarrow 0.15x=0.09 \qquad \therefore x=0.6$$

   (2) the degree of very strong level

   $$\frac{0.8-0.9}{0.8-0.81}=\frac{1}{x} \Rightarrow 0.1x=0.01 \qquad \therefore x=0.1$$

   (3) decision **LV** is belonging to strong level or very strong level.
   - ∵ the degree of strong level is equal to 0.6 more than the degree of very strong level is equal to 0.1
   - ∴ The **LV** belonging to strong level.

5. <u>**LLV=0.715**</u> is belonging to strong level only from the boundaries of the Figure 2.9.

6. <u>**CV=0.64**</u> is belonging to both moderate level and strong level from the boundaries of the Figure 2.9.

(1) the degree of moderate level

$$\frac{0.7-0.5}{0.7-0.64}=\frac{1}{x} \Rightarrow 0.2x = 0.06 \qquad \therefore x = 0.3$$

(2) the degree of strong level

$$\frac{0.6-0.75}{0.6-0.64}=\frac{1}{x} \Rightarrow 0.15x = 0.04 \qquad \therefore x = 0.27$$

(3) decision **CV** is belonging to moderate level or strong level.

∵ the degree of moderate level is equal to 0.3 more than the degree of strong level is equal to 0.27

∴ The **CV** belonging to moderate level.

7. **EC=0.787** is belonging to strong level only from the boundaries of the Figure 2.9.

8. **PV=0.657** is belonging to both moderate level and strong level from the boundaries of the Figure 2.9.

(1) the degree of moderate level

$$\frac{0.7-0.5}{0.7-0.657}=\frac{1}{x} \Rightarrow 0.2x = 0.043 \qquad \therefore x = 0.22$$

(2) the degree of strong level

$$\frac{0.6-0.75}{0.6-0.657}=\frac{1}{x} \Rightarrow 0.15x = 0.057 \qquad \therefore x = 0.38$$

(3) decision **PV** is belonging to moderate level or strong level.

∵ the degree of moderate level is equal to 0.38 more than the degree of strong level is equal to 0.22

∴ The **PV** belonging to strong level.

<u>**Company A4**</u>: (see p.p.336)

1. ★**<u>six-views=0.723</u>** is belonging to strong level only from the boundaries of the Figure 2.9.

2. **<u>PLV=0.799</u>** is belonging to strong level only from the boundaries of the Figure 2.9.

3. **<u>Integrated five-views=0.677</u>** is belonging to both moderate level and strong level from the boundaries of the Figure 2.9.

    (1) the degree of moderate level

    $$\frac{0.7-0.5}{0.7-0.677}=\frac{1}{x} \Rightarrow 0.2x=0.023 \qquad \therefore x=0.12$$

    (2) the degree of strong level

    $$\frac{0.6-0.75}{0.6-0.677}=\frac{1}{x} \Rightarrow 0.15x=0.077 \qquad \therefore x=0.51$$

    (3) decision **Integrated five-views** is belonging to moderate level or strong level.

    ∵ the degree of strong level is equal to 0.51 more than the degree of moderate level is equal to 0.12

    ∴ The **Integrated five-views** belonging to strong level.

4. **<u>LV=0.761</u>** is belonging to strong level only from the boundaries of the Figure 2.9.

5. **<u>LLV=0.787</u>** is belonging to strong level only from the boundaries of the Figure 2.9.

6. **<u>CV=0.57</u>** is belonging to moderate level only from the boundaries of the Figure 2.9.

7. **<u>EV=0.773</u>** is belonging to strong level only from the boundaries of the Figure 2.9.

8. **<u>PV=0.603</u>** is belonging to both moderate level and strong level from the boundaries of the Figure 2.9.

    (1) the degree of moderate level

    $$\frac{0.7-0.5}{0.7-0.603}=\frac{1}{x} \Rightarrow 0.2x=0.097 \qquad \therefore x=0.49$$

    (2) the degree of strong level

    $$\frac{0.6-0.75}{0.6-0.603}=\frac{1}{x} \Rightarrow 0.15x=0.003 \qquad \therefore x=0.02$$

    (3) decision **PV** is belonging to moderate level or strong level.

∵ the degree of moderate level is equal to 0.49 more than the degree of strong level is equal to 0.02

∴ The **PV** belonging to moderate level.

Appendix O: Calculating for identifying the low or moderate or high boundaries of Five-forces

Company A1: competitive intensity of Five-forces

1. RA=0.8526 is belonging to **high** only from the boundaries of the Figure 3.6.

2. TNE=0.6402 is belonging to both moderate and high competition from the boundaries of the Figure 3.6.

    (1) the degree of moderate competition

$$\frac{0.7-0.5}{0.7-0.6402} = \frac{1}{x} \Rightarrow 0.2x = 0.06 \qquad \therefore x \approx 0.3$$

    (2) the degree of high competition

$$\frac{0.6-0.75}{0.6-0.6402} = \frac{1}{x} \Rightarrow 0.15x = 0.0002 \qquad \therefore x \approx 0.001$$

    (3) decision TNE is belonging to moderate or high competition

      ∵ the degree of moderate competition is equal to 0.3 more than the degree of high competition is equal to 0.001

      ∴ The TNE is belonging to moderate competition.

3. CPOS=0.8015 is belonging to high competition only from the boundaries of the Figure 3.6

4. ST=0.6965 is belonging to both moderate competition and high competition from the boundaries of the Figure 3.6.

    (1) the degree of moderate competition

$$\frac{0.7-0.5}{0.7-0.6965} = \frac{1}{x} \Rightarrow 0.2x = 0.02 \qquad \therefore x = 0.1$$

    (2) the degree of high competition

$$\frac{0.6-0.75}{0.6-0.6965} = \frac{1}{x} \Rightarrow 0.15x = 0.0965 \qquad \therefore x \approx 0.64$$

    (3) decision ST is belonging to moderate or high competition

      ∵ the degree of moderate competition is equal to 0.1 less than the degree of high competition is equal to 0.64

      ∴ The ST is belonging to high competition.

5. POB=0.8261 is belonging to high competition only from the boundaries of the Figure 3.6.

Therefore, the competitive intensity of Five-forces for company A1 is belonging to "RA→H, TNE→M, CPOS→H, ST→H, POB→H," respectively.

Company A2: competitive intensity of Five-forces

1.RA=0.6449 is belonging to both moderate and high competition from the boundaries of the Figure 3.6.

    (1) the degree of moderate competition

$$\frac{0.7-0.5}{0.7-0.6449}=\frac{1}{x} \Rightarrow 0.2x=0.0551 \qquad \therefore x \approx 0.28$$

    (2) the degree of high competition

$$\frac{0.6-0.75}{0.6-0.6449}=\frac{1}{x} \Rightarrow 0.15x=0.0449 \qquad \therefore x \approx 0.30$$

    (3) decision RA is belonging to moderate or high competition

      ∵ the degree of moderate competition is equal to 0.28 less than the degree of high competition is equal to 0.3

     ∴ The RA is belonging to high competition.

2.TNE=0.6403 is belonging to both moderate and high competition from the boundaries of the Figure 3.6.

    (1) the degree of moderate competition

$$\frac{0.7-0.5}{0.7-0.6403}=\frac{1}{x} \Rightarrow 0.2x=0.0597 \qquad \therefore x \approx 0.3$$

    (2) the degree of high competition

$$\frac{0.6-0.75}{0.6-0.6403}=\frac{1}{x} \Rightarrow 0.15x=0.0403 \qquad \therefore x \approx 0.27$$

    (3) decision TNE is belonging to moderate or high competition

      ∵ the degree of moderate competition is equal to 0.3 more than the degree of high competition is equal to 0.27

     ∴ The TNE is belonging to moderate competition.

3.CPOS=0.6568 is belonging to both moderate and high competition from the boundaries of the Figure 3.6.

    (1) the degree of moderate competition

$$\frac{0.7-0.5}{0.7-0.6568}=\frac{1}{x} \Rightarrow 0.2x=0.0432 \qquad \therefore x \approx 0.22$$

    (2) the degree of high competition

$$\frac{0.6-0.75}{0.6-0.6568}=\frac{1}{x} \Rightarrow 0.15x=0.0568 \qquad \therefore x \approx 0.38$$

    (3) decision CPOS is belonging to moderate or high competition

      ∵ the degree of moderate competition is equal to 0.22 less than the degree of high competition is equal to 0.38

∴ The CPOS is belonging to high competition.

4. ST=0.5212 is belonging to moderate competition only from the boundaries of the Figure 3.6.

5. POB=0.5936 is belonging to moderate competition only from the boundaries of the Figure 3.6.

Therefore, the competitive intensity of Five-forces for company A2 is belonging to "RA→H, TNE→M, CPOS→H, ST→M, POB→M"

Company A3: competitive intensity of Five-forces
1. RA=0.9669 is belonging to high competition only from the boundaries of the Figure 3.6.

2. TNE=0.6965 is belonging to both moderate and high competition from the boundaries of the Figure 3.6.

(1) the degree of moderate competition

$$\frac{0.7-0.5}{0.7-0.6965} = \frac{1}{x} \Rightarrow 0.2x = 0.0035 \qquad \therefore x \approx 0.02$$

(2) the degree of high competition

$$\frac{0.6-0.75}{0.6-0.6965} = \frac{1}{x} \Rightarrow 0.15x = 0.0965 \qquad \therefore x \approx 0.64$$

(3) decision TNE is belonging to moderate or high competition

∵ the degree of moderate competition is equal to 0.02 less than the degree of high competition is equal to 0.64

∴ The TNE is belonging to high competition.

3. CPOS=0.8107 is belonging to high competition only from the boundaries of the Figure 3.6.

4. ST=0.7494 is belonging to high competition only from the boundaries of the Figure 3.6.

5. POB=0.7837 is belonging to high competition only from the boundaries of the Figure 3.6.

Therefore, the competitive intensity of Five-forces for company A3 is belonging to "RA→H, TNE→H, CPOS→H, ST→H, POB→H"

Company A4: competitive intensity of Five-forces

1. RA=0.6403 is belonging to both moderate and high competition from the boundaries of the Figure 3.6.

   (1) the degree of moderate competition

   $$\frac{0.7-0.5}{0.7-0.6403}=\frac{1}{x} \Rightarrow 0.2x = 0.0597 \qquad \therefore x \approx 0.3$$

   (2) the degree of high competition

   $$\frac{0.6-0.75}{0.6-0.6403}=\frac{1}{x} \Rightarrow 0.15x = 0.0403 \qquad \therefore x \approx 0.27$$

   (3) decision TNE is belonging to moderate or high competition

   ∵ the degree of moderate competition is equal to 0.3 more than the degree of high competition is equal to 0.27

   ∴ The TNE is belonging to moderate competition.

2. TNE=0.5212 is belonging to moderate competition only from the boundaries of the Figure 3.6.

3. CPOS=0.6449 is belonging to both moderate and high competition from the boundaries of the Figure 3.6.

   (1) the degree of moderate competition

   $$\frac{0.7-0.5}{0.7-0.6449}=\frac{1}{x} \Rightarrow 0.2x = 0.0551 \qquad \therefore x \approx 0.28$$

   (2) the degree of high competition

   $$\frac{0.6-0.75}{0.6-0.6449}=\frac{1}{x} \Rightarrow 0.15x = 0.0449 \qquad \therefore x \approx 0.30$$

   (3) decision COPS is belonging to moderate or high competition

   ∵ the degree of moderate competition is equal to 0.28 less than the degree of high competition is equal to 0.3

   ∴ The COPS is belonging to high competition.

4.ST=0.6965 is belonging to both moderate competition and high competition from the boundaries of the Figure 3.6.

   (1) the degree of moderate competition

   $$\frac{0.7-0.5}{0.7-0.6965}=\frac{1}{x} \Rightarrow 0.2x = 0.02 \qquad \therefore x = 0.1$$

   (2) the degree of high competition

   $$\frac{0.6-0.75}{0.6-0.6965}=\frac{1}{x} \Rightarrow 0.15x = 0.0965 \qquad \therefore x \approx 0.64$$

(3) decision ST is belonging to moderate or high competition

∵ the degree of moderate competition is equal to 0.1 less than the degree of high competition is equal to 0.64

∴ The ST is belonging to high competition.

5. POB=0.5936 is belonging to moderate competition only from the boundaries of the Figure 3.6.

Therefore, the competitive intensity of Five-forces for company A4 is belonging to "RA→M, TNE→M, CPOS→H, ST→H, POB→M"

Appendix P: Research method of my thesis was published in the five conferences and a journal

No.	Article title	Published in conference	Related Chap. of my thesis	Research method	Main issue
1	Applying Quantitative Proxies for Qualitative Evaluation Indicators: Employee Satisfaction and Customer Satisfaction	*The 42th Chinese Society for Quality (CSQ) Congress & The 12th CSQ Symposium*; Nov. 14, 2006, National Chin-Yi University of Technology , Taichung, Taiwan	Chapter 5 and Chapter 10	Questionnaire, interview, case study were used to measure customer satisfaction and employee satisfaction by fuzzy logic	Performance evaluation for strategic management with quantitative proxies for qualitative evaluation indicators
2	The Roots Theory for Promoting Strategic Management	*Proceeding of 2007 International Conference on Knowledge-based Economy & Global Management*; Dec. 6-7, 2007, Southern Taiwan University College of Commerce & College of Management (STUT), Tainan, Taiwan	Chapters 2-5 and Chapter 10	Questionnaire, interview, case study were used to analyze an organizational roots, six-views, competitive environment including Five-forces and supply chain operation, and strategy implementation and performance by fuzzy logic	The six-views model consists of three interconnected parts: roots, stem, and flowers and fruits as the organizational roots boost employee satisfaction, customer satisfaction, and stakeholders' performance
3	Strategic Management of Six-views with Fuzzy Logic	*Conference on Business Model New Think of Service Firms' Innovation*, Dec. 8, 2007, **Chinese Management Association** *(CMA)*; Taipei, Taiwan	Chapter 2 and Chapter 10	Questionnaire of 200 companies, interview for 15 companies, case study with 4 companies were used to analyze six-views, Five-forces, and supply chain strategy for promoting strategic management by fuzzy logic	According to planning view shows insufficiencies of strategy implementation, effective strategic management, results from combining the six-views as roots to integrate strategy formulation and implementation
4	Strategy Fit with Fuzzy Logic: A Case Study for Taiwanese Companies	*2008 International Conference on Business Management and Information Systems*, June, 13, 2008, SHU-TE University; Kaohsiung, Taiwan	Chapter 3 and Chapter 10	Case study with Five-forces analysis, supply chain operation, and the stage of PLC for combining SBUs' strategy and supply chain strategy	Strategy fit combining SBU and supply chain operation strategy in an organization

				by fuzzy logic in four Taiwanese companies	
5	Strategy Origin and Practice in Uni-President	The 2009 International Conference Management and Information: Challenges and Vision in the 21th Century, May/1-2, Shih Chien University College of Business and Information, Kashsiung , Taiwan	Chapter 1	Case study with three dimensions: boundary, relationships and competitive dynamic thinking by developing process of Uni-President Enterprise Corp.	Strategy origin from an invisible hand, visible hand, and transfer to hand and mind tandem
6	The Strategic Management Theory and Practices of Supply-demand Side and Three-color Ocean with Uni-President Enterprise	*Operation Management Reviews,* Special Issue Dec 2009, pp.117-139	Chapter 1, Chapter 7, and Chapter 8	Case study with Uni-president	The origin of Strategic management with Uni-president Enterprises Corp.

REFERENCES

Abernathy, W.J. and Wayne, K. (1974). Limits of the Learning Curve. *Harvard Business Review*, 52(5), 109-119.

Ackoff, R.L. (1974). The Systems Revolution. *Long Range Planning*, 7, 2-20.

Ackoff, R.L. (1981). *Creating the Corporate Future*. Wiley, New York.

Ackoff, R.L. (1983). Beyond Prediction and Preparation. *Journal of Management Studies*, 1(January), 59-69.

Ahmed, P.K. and Rafiq, M. (2002). *Internal Marketing: Tools and Concepts for Customer-focused Management*. Butterworth-Heinemann, London.

Akcakaya, H.R., Ferson, S., Burgman, M.A., Keith, D.A., Mace, G.M., and Todd, C.R. (2000). In press. *Making Consistent IUCN Classifications under Uncertainty*. Biological Conservation.

Altrock, C.V. (1997). *Fuzzy Logic and Neurofuzzy Applications in Business and Finance*. Prentice-Hall, New Jersey.

American Psychological Association. (1974). Standards for Education and Psychological Tests Washington: American Psychological Association.

Anderson, G. (1994). Fuzzy Logic: What It Is; What It Does; What It Can Do. *Production*, October, 38-42.

Ansoff, H.I. (1965). *Corporate Strategy*. Penguin, London.

Ansoff, H.I. (1979). *Strategic Management*. Macmillan, London.

Ansfff, H.I. (1994). Comment on Henry Mintzberg's Rethinking Strategic Planning. *Long Range Planning*, 27(3), 31-32.

Argyris, C. (1990). *Overcoming Organizational Defenses: Facilitating Organizational Learning*. Allyn and Bacon, MA, Wellesley.

Argyris, C. (1992). *On Organizational Learning*. Blackwell, MA, Cambridge.

Astley, W.G. (1985). The Two Ecologies: Population and Community Perspectives on Organizational Evolution. *Administrative Science Quarterly*, 30(2), 224-241.

Bain, J.S. (1951). Relation of Profit Rate to Industry Concentration: American Manufacturing, 1936-1940. *Quarterly Journal of Economics*, August, 293-324.

Bain, J.S. (1965). *Barriers to New Competition*. Harvard University Press, Cambridge, MA.

Barney, J. B. (1991). Firm Resources and Sustained Competitive Advantages. *Journal of Management*, 17, 99-120.

Beer, M., Voelpel, S.C., Leibold, M. and Tekie, E.B. (2005). Strategic Management as Organizational Learning: Developing Fit and Alignment Through a Disciplined Process. *Long Range Planning*, 38, 445-465.

Bentham, J. (1948). *Introduction to Principles of Morals and Legislation*. Hafner, Macmillan, New York.

Bernard, H.R. (2000). *Social Research Methods: Qualitative and Quantitative Approaches*. Sage, London.

Beth, S., Burt, D.N., Copacino, W., Gopal, C., Lee, H.L., Lynch, R.P. and Morris, S. (2003). Supply Chain Challenges: Building Relationships. *Harvard Business Review*, 81(7), 64-73.

Black, T.R. (1999). *Doing Quantitative Research in the Social Sciences: An Integrated Approach to Research Design, Measurement and Statistics*. Sage, London.

Blake, R.R. and Mouton, J.S. (1964). *The Managerial Grid*. Gulf Publishing Company, London.

Boddy, D. and Paton, R. (1998). *Management: An Introduction*. Prentice-Hall Europe, London.

Bojadziev, G. and Bojadziev, M. (1997). *Fuzzy Logic for Business, Finance, and Management*. World Scientific, London.

Bolman, L.G. and Deal, T. (1997). *Reframing Organizations: Artistry, Choice, and Leadership*. Jossey- Bass Publishers, San Francisco.

Bonn, I. and Christodoulou, C. (1996). Form Strategic Planning to Strategic Management. *Long Range Planning*, 29(4), 543-551.

Bossidy, L. and Charan, R. (2002). *Execution: The Discipline of Getting Things Done*. Crown Business, New York.

Bower, J.L. and Gilbert, C.G. (2007). How Managers' Everyday Decisions Create or Destroy Your Company's Strategy. *Harvard Business Review*, 85(2), 72-79.

Brandenburger, A. and Nalebuff, B. (1996). *Co-opetition*. Doubleday, London.

Brougham, D. (2008). *Henry Ford's Model T*. Studio Classroom (Oct.), Taipei.

Bryman, A. (2001). *Social Research Methods*. Oxford University, New York.

Burton, D. (2000). *Research Training for Social Scientists*. Sage, London

Campbell, A., Goold, M. and Alexander, M. (1995). The Value of the Parent Company. *California Management Review*, 38(1), 79-97.

Carroll, A.B. (1979). A Three-dimensional Corporate Model of Corporate Performance. *Academy of Management Review*, 4(4), 497-505.

Cavanagh, G.F., Moberg, D.J. and Velasquez, M. (1981). The Ethics of Organizational Politics. *Academy of Management Review*, 3(3), 363-374.

Caves, R.E. and Porter, M.E. (1977). From Entry Barriers to Mobility Barriers: Conjectural Decisions and Contrived Deterrence to New Competition. *Quarterly Journal of Economics*, 91, 241-262.

Caywood, C.L. (1997). *The Handbook of Strategic Public Relations & Integrated Communication*. Prentice-Hall, Englewood Cliffs.

Chamberlin, E.H. (1933). *Theory of Monopolistic Competition: A Reorientation of the Theory of Value*. Harvard University Press, Cambridge, MA.

Chandler, A.D. (1962). *Strategy and Structure*. MIT Press, Cambridge, MA.

Checkland, P.B. (1978). The Origins and Nature of "Hard" Systems Thinking. *Journal of Applied Systems Analysis*, 5, 99-110.

Checkland, P.B. (1981). *Systems Thinking, Systems Practice*. Wiley, New York.

Chen, M.J. (1996). Competitor Analysis and Interfirm Rivalry: Toward a Theoretical Integration. *Academy of Management Review*, 21, 100-134.

Chen, S.J. and Hwang, C. L. (1992). *Fuzzy Multiple Attribute Decision Making*. Springer-Verlag, New York.

Chen, S.Y. (1996). Regression Analysis. Hwa Tai Publishing, Taipei. (In Chinese).

Chopra, S. and Meindl, P. (2001). *Supply Chain Management: Strategy, Planning, and Operation*. Prentice-Hall, Taipei.

Cronbach, L.J. (1951). Coefficient Alpha and the Internal Structure of Test. *Psychometrika*, 16, 297-334.

Crook, T.R., Ketchen, D.J. Jr, Crmbs, J.G, Todd, S.Y. (2008). *Strategic Management Journal*, 29(11), 1141-1154.

Cummings, S. and Daellenbach, U. (2009). A Guide to the Future of Strategy? The History of Long Range Planning. *Long Range Planning*, 42, 234-236.

David, F.R. (1993). *Concept of Strategic Management*. Macmillan Publishing Company, New York.

David, F.R. (1999). *Strategic Management*. Prentice-Hall, London.

Deal, T.E. and Kennedy, A.A. (1982). *Corporate Culture: The Rites and Rituals of Corporate Life*. Addison-Wesley, Reading, Mass.

Deming, W.E. (1982). *Quality, Productivity and Competitive Position*. MIT-CAEA, Cambridge, MA.

Dibb, S., Simkin, L., Pride, W.M., and Ferrell, O.C. (2001). *Marketing: Concepts and Strategies*. Houghton Mifflin, New York.

Dimitrov, V. (1997). Use of Fuzzy Logic When Dealing with Social Complexity. *Complexity International*, 1-.11. (http://www.csu.edu.au/ci/vo104/dimitrov1/dimitrov.htm).

Directorate General of Budget, Accounting and Statistics, DGBAS Executive Yuan, Taiwan. *Quarterly National Economic Trends, Taiwan*. Executive Yuan, 4-5. www.cier.edu.tw/cef/p2.pdf

Donaldson, T. and Dunfee, T. (1999). *Ties That Bind: A Social Contracts Approach to Business Ethics*. Harvard Business School Press, Boston.

Dooley, K., Johnson, T., and Bush, D. (1995). TQM, Chaos, and Complexity. *Human System Management*, 14, 1-16.

Dooley, K. (2001). *Complex Adaptive Systems: A Nominal Definition*. Arizona State University, 1-2. (http://www.eas.asu.edu/~kdooley/casopdef.html).

Draft, R.L. (1998). *Organization Design and Theory*. South-western College, Ohio.

Drever, E. (1995). *Using Semi-structured Interviews in Small-scale Research*. Scottish Council for Research in Education, Glasgow.

Drucker, P.F. (1954). *The Practice of Management*. Harper & Row, New York.

Drucker, P.F. (1973). *Management: Tasks, Responsibilities, Practices*. Harper & Row, New York.

Dubois, D. and Prade, H. (1978). Operation on Fuzzy Numbers. *International Journal of Systems Science*, 9, 613-626.

Duncan, T.R. and Caywood, C. (1996). The Concept, Process, and Evolution of Integrated Marketing Communication. In Thorson, E. and Moore, E. (eds) *Integrated Communication*. Lawerence Erlbaum Association, Mahwah.

Earl, E. (1995). *Microeconomics for Business and Marketing*. Edward Elgar Publishing Ltd., Northampton.

Edmondson, A.C. (2008). The Competitive Imperative of Learning. *Harvard Business Review*, 86(7-8), 60-67.

Efstathiou, J. and Rajkovic, V. (1979). Multiattribute Decision Making Using a Fuzzy Heuristic Approach. *IEEE Transactions on Systems, Man and Cybernetics SMC-9*, 326-333.

Finkelman, D.P. and Goland, R. (1990). How Not to Satisfy Your Customers. *Mckinsey Quarterly*, 7(Winter), 2-11.

Finkelstein, S. and Hambrick, D. (1996). *Strategic Leadership*. West Educational Publishing, ST. Paul.

Fisher, M.L. (1997). What is the Right Supply for Your Product? *Harvard Business Review*, 75(2), 105-116.

Flood, R.L. (1990). *Liberating Systems Theory*. Plenum Press, New York.

Flood, R.L. (1993). *Beyond TQM*. John Wiley & Sons, New York.

Flood, R.L. and Carson, E.R. (1993). *Dealing with Complexity: An Introduction to the Theory and Application of Systems Science* (2nd). Plenum Press, London.

Ford, J.D. and Ford, L.W. (1994). Logics of Identity, Contradiction, and Attraction in Change. *Academy of Management Review*, 19(4), 756-785.

Forrester, J. (1958). Industrial Dynamics: A Major Breakthrough for Decision-making. *Harvard Business Review*, 36(4). 37-66.

Freeman, R.E. (1984). *Strategic Management: A Stakeholder Approach*. Pitman, Boston.

Freeman, R.E. and Gilbert, D.R. (1988). *Corporate Strategy and the Search for Ethics*. Prentice-Hall, Englewood Cliffs, NJ.

Friedman, M. (1962). *Capitalism and Freedom*. University of Chicago Press, Chicago.

Fritzsche, D. (1997). *Business Ethics: A Global and Managerial Perspective*. The McGraw-Hill, New York.

Gamble, P.R., Stone, M. and Woodcock, N. (1999). *Up Close and Personal? Customer Relationship Marketing Work*. Kogan Page, London.

George, W.R. and Gronroos, C. (1989). Developing Customer-conscious Employees at Every Level – Internal Marketing. In Congram, C.A. and Friedman, M.L. (eds), *Handbook of Services Marketing*, AMACOM, New York.

Geschka, H. and Hubner, H. (1992). *Innovation Strategies: Theoretical Approaches – Experience – Improvement*. Elsevier, London.

Ghemawat, P., Collis, D.J., Pisano, G.P. and Rivkin, J.W. (1999). *Strategy and the Business Landscape Text and Cases*. Addison-Wesley, New York.

Gilbert, D.R. (1996). *Ethics Through Corporate Strategy*. Oxford University Press, New York.

Glaister, K.W. and Falshaw, J.R. (1999). Strategic Planning: Still Going Strong? *Long Range Planning*, 32(1), 107-116.

Glaser, B.G. and Strauss, L. (1967). *The Discovery of Grounded Theory: Strategies for Qualitative Research*. Aldine de Gruyter, New York.

Gluck, F.W., Kaufman, S.P. and Walleck, A.S. (1980). Strategic Management for Competitive Advantage. *Harvard Business Review*, 58(4), 154-161.

Gomm, R., Hammersley, M. and Foster, P. (2000). *Case Study Method*. Sage, London.

Grant, R.N. (2003). Strategic Planning in a Turbulent Environment: Evidence from the Oil Majors. *Strategic Management Journal*, 24, 491-517.

Gregory, W.J. (1996). Discordant Pluralism: A New Strategy for Critical System Thinking. *Systems Practice*, 9(6), 605-625.

Grint, K. (1997). *Fuzzy Management: Contemporary Ideas and Practices at Work*. Oxford University Press, Oxford.

Gronstedt, A. (1996). Integrating Marketing Communication and Public Relations: A Stakeholder Relations Model. In Thorson, E. and Moore, E. (eds) *Integrated Communication*. Lawerwnce Erlbaum Associates, Hillsdale.

Hair, J.T., Black, W.C., Babin, B.J., Anderson, R.E., and Tatham, R.L. (2006). *Multivariate Data Analysis (6th)*. Education, Inc., Upper Saddle River, New Jersey.

Halal, W.E. (1977). A Return-on-resources Model of Corporate Performance. *California Management Review*, 19(4), 23-34.

Hall, R. (1992). The Strategic Analysis of Intangible Resources. *Strategic Management Journal*, 13, 135-144.

Hall, W. (1995). *Managing Cultures*. Wiley, Chichester.

Hamel, G. and Prahalad, C.K. (1994). *Competing for the Future*. Harvard Business School Press, Boston.

Hammer, M. and James, C. (1993). *Reengineering the Corporation: A Mainfecto for Business Revolution*. HarperCollins Publishers, New York.

Hargrove, R. (2000). *Masterful Coaching Field: Grow Your Business, Multiply Your Profits, Win the Talent War!* Jossey-Bass, San Francisco.

Harland, C.M. (1996). Supply Chain Management: Relationship, Chains, Network. *British Journal of Management*, 7, Special Issue, 63-80.

Harreld, J.B., O'Reilly III, C.A. and Tushman, M.L. (2007). Dynamic Capabilities at IBM: Driving Strategy into Action. *California Management Review*, 49(4), 21-43.

Harrison, J.S. and St. John, C.H. (1994). *Strategic Management of Organizations and Stakeholders*. West Publishing Company.

Hayes R.H. and Abernathy, W.J. (1980). Managing Our Way to Economic Decline. *Harvard Business Review*, 58(4), 67-77.

Henderson, B.D. (1984). *The Logic of Business Strategy*. Ballinger Publishing, Cambridge, MA.

Heskett, J.H., Jones, T.O., Loveman, G. W., Sasser, W. E., and Schlesinger, L. A. (2008). Putting the Service-Profit Chain to Work. *Harvard Business Review*, 86(7-8), 118-129.

Ho, David K.Y. (2000). *Strategic Planning Project*. TYC Brother Industrial Co., Ltd. Tainan.

Hofstede, G. (1991). *Cultures and Organizations*. McGraw-Hill, London.

Hoskisson, R.E., Hitt, M.A., Wan, W.P. and Yiu, D. (1999). Theory and Research in Strategic Management: Swings of a Pendulum. *Journal of Management*, 25(3), 417-456.

Hosmer, L.T. (1994). Strategic Planning as if Ethics Mattered. *Strategic Management Journal*, Summer Special Issue, 15, 17-34.

Hull, R. (2000). Ethic, Innovation and Innovation Studies. *Technology Analysis & Strategic Management*, 12(3), 349-355.

Hung, Y.H. (1996). *Idea: Wen-Lung Shiu and Chi Mei Kingdom*. Business Weekly, Taipei.

Hussey, J., and Hussey, R. (1997). *Business Research: A Practical Guide for Undergraduate and Postgraduate Students*. Macmillan Press Ltd., London.

Ittner, C.D. and Larcker, V. F. (2003). Coming Up Short on Nonfinancial Performance Measurement. *Harvard Business Review*, 81(11), 88-95.

Jackson, M.C. (1991). The Origins and Nature of Critical Systems Thinking. *Systems Practice*, 4, 131-149.

Jackson, M.C. (2000). *Systems Approaches to Management*. Kluwer Academic/Plenum Publishers, London.

Jackson, M.C. and Keys, P. (1984). Toward a System of Systems Methodologies. *JORS*, 35, 473-486.

Jain, R. (1976). Decision-making in the Presence of Fuzzy Variables. *IEEE Transactions on Systems, Man, and Cybernetics*, 6, 698-703.

Jarzabkowski, P. and Fenton, E. (2006). Strategizing and Organizing in Pluralistic Contexts. *Long Range Planning*, 39, 631-648.

Johnson, G. (1987). *Strategic Change and the Management Process*. Basil Blackwell, New York.

Johnson, G. and Scholes, K. (1997). *Exploring Corporate Strategy: Text and Cases*. Prentice-Hall, London.

Johnson, G. and Scholes, K. (2002). *Exploring Corporate Strategy: Text and Cases*. Prentice-Hall, London

Jones, T.M., Felps, W. and Bigley, G.A. (2007). Ethical Theory and Stakeholder-related Decisions: The Role of Stakeholder Culture. *Academy of Management Review*, 32(1), 137-155.

Joyce, W., Nohria, N., and Roberson B. (2003). *What Really Works: The 4+2 Formula for Sustained Business Success*. Harper Business, New York.

Kalakota, R. and Robinson, M. (1999). e-*Business: Roadmap for Success*. Addison-Wesley, N.J.

Kaplan, R.S. and Norton, D.P. (1996). Using the Balanced Scorecard as a Strategic Management System. *Harvard Business Review*, 74(1), 75-85.

Kaplan, R.S. and Norton, D.P. (2004).Measuring the Strategic Readiness of Intangible Assets. *Harvard Business Review*, 88(2), 75-85.

Kaplan, R.S. and Norton, D.P. (2006). How to Implement a New Strategy Wthout Disrupting Your Organization. *Harvard Business Review*, 84(3), 100-109.

Kaplan, R.S. and Norton, D.P. (2008). Mastering the Management System. *Harvard Business Review*, 86(1), 63-77.

Kast, F.E. and Rosenzweig J.E. (1970). *Organization and Management: A Systems Approach*. McGraw-Hill, New York.

Kaufmann, S.A. and Gupta, M. (1985). *Introduction to Fuzzy Arithmetic*. Van Nostrand Reinhold Company, New York.

Kaufmann, S.A. and Gupta, M. (1988). *Fuzzy Mathematical Models in Engineering and Management Science*. North-Holland, Amsterdam.

Kim, W.C. and Mauborgne, R. (2003). Fair Process: Managing in the Knowledge Economy. *Harvard Business Review*, 81(1), 127-136.

Kim, W.C. and Mauborgne, R. (2005). *Blue Ocean Strategy: How to Create*

Uncontested Market Space and Make the Competition Irrelevant. Harvard Business Publishing, Boston.

King, N. (1994). *The Qualitative Research Interview*, in Cassel, C. and Symon, G. (eds) Qualitative Methods in Organizational Research: A Practical Guide, Sage Publication, London.

Kinicki, A. and Kreitner, R. (2003). *Organizational Behaviour*. McGraw-Hill, New York.

Kinicki, A. and Kreitner, R. (2006). *Organizational Behaviour*. McGraw-Hill, New York.

Klir, G.J. and Yuan, B. (1995). *Fuzzy Sets and Fuzzy Logic: Theory and Applications*. Prentice-Hall International Limited, London.

Konrad, W. (1992). Small Selling. *Business Week*, August 3, 46-51.

Kor, Y.Y., Mahoney, J.T. (2005). How Dynamics, Management, and Governance of Resource Deployments Influence Firm-level Performance. *Strategic Management Journal*, 26(5), 489-496.

Kosko, B. (1994). *Fuzzy Thinking: The New Science of Fuzzy Logic*. Flamingo, London.

Kosko, B. (1999). *Fuzzy Future: From Society and Science to Heaven in a Chip*. Harmony Books, New York.

Learned, E.P., Christensen, C.R., Andrews, K.R, and Guth, W.D. (1965/1969). *Business Policy: Text and Case* (rev. ed.). Richard D. Irwin, Homewood, IL.

Lee, H.L. (2004). The Triple-A Supply Chain. *Harvard Business Review*, 88(10), 102-112.

Levy, D. (1994). Chaos Theory and Strategy: Theory, Applications, and Managerial Implications. *Strategic Management Journal*, 15, 167-178.

Lewin, R. (1992). *Complexity: Life at the Edge of Chaos*. MacMillan, New York.

Lin, C.T. and George-Lee, C.S. (1999). *Neural Fuzzy Systems: A Neuro-Fuzzy Synergism to Intelligent Systems*. Prentice-Hall, London.

Lin, H.L. (2003). *Applied Statistics*. Yeh Yeh Book Gallery, Taipei.

Lindblom, C.E. (1959). The Science of Muddling Through. *Public Administration Review*, 19(2), 79-88.

Linstone, H.A. (1984). *Multiple Perspectives for Decision Making*. Wiley, New York.

Malhotra, N.K. and Birks, D. (1999). *Marketing Research: An Applied Approach*. Prentice-Hall, London.

Mamdani, E.H. and Assilian, S. (1975). An Experiment in Linguistic Synthesis with a Fuzzy Logic Controller, *Int. Journal Man-Machine Studies*, 7, 1-13.

Mankins, M.C. and Steele, R. (2005). Turning Great Strategy into Great Performance. *Harvard Business Review*, 83(7), 65-72.

March, J.G. and Simon, H.A. (1958). *Organizations*. Wiley, New York.

Marshall, A. (1890). *Principles of Economics*. Macmillan, London.

Mckiernan, P. (1997). Strategy Past; Strategy Futures. *Long Range Planning*, 30, 190-198.

Midgley, G., Munlo, I. and Brown, M. (1998). The Theory and Practice of Boundary Critique: Developing Housing Service for Older People. *Journal of the Operational Research Society*, 49, 467-478.

Midgley, G. (2003). *Systems Thinking* (Volume 4). Sage, London.

Miller, A. (1998). *Strategic Management*. McGraw-Hill, New York.

Miller, A. and Dess, G.G. (1996). *Strategic Management*. McGraw-Hill, New York.

Millett, S.M. (1988). How Scenarios Trigger Strategic Thinking. *Long Range Planning*, 21(5), 61-68.

Mingers, J.C. and Gill, A. (1997). *Multimethodology – The Theory and Practice of Combining Management Science Methodologies.* Wiley, Chichester.

Mintzberg, H. (1980). *The Nature of Managerial Work*. Prentice-Hall, London.

Mintzberg, H. (1987a). The Strategy Concept. Ⅰ: Five P's of Strategy. *California Management Review*, 30(1), 11-24.

Mintzberg, H. (1987b). Crafting Strategy. *Harvard Business Review*, 65(4), 66-75.

Mintzberg, H. (1991). Learning 1. Planning 0 Reply to Igor Ansoff, *Strategic Management Journal*, 12, 463-466.

Mintzberg, H. (1994a). *The Rise and Fall of Strategic Planning*. Prentice-Hall, Englewood Cliffs.

Mintzberg, H. (1994b). Rethinking Strategic Planning, Part 1: Pitfalls and Fallacies. *Long Range Planning*, 27(3), 12-21.

Mintzberg, H., Ahlstrand, B. and Lampel, J. (1998). *Strategy Safari: A Guided Tour Through the Wilds of Strategic Management*. Prentic-Hall, London.

Mintzberg, H. and Quinn, J.B. (1996). *The Strategy Process: Concepts, Contexts, Cases*. Prentice-Hall, London.

Mintzberg, H. and Waters, J. (1985). Of Strategies, Deliberate and Emergent. *Strategic Management Journal*, 6(3), 257-272.

Moore, G.E. (1971). *Principal Ethics*. Cambridge University Press, London.

Mullins, L.J. (1999). *Management and Organizational Behaviour*. Financial Times, London.

Murphy, P.E., Wood, G. and Laczniak, G.R. (1996). Relationship Marketing = Ethical Marketing, *European Society for Opinion and Marketing Research*. Eleventh, May 2002, Saturday, http://www.warc.com

Neilson, G.L., Martin, K.L. and Powers, E. (2008). The Secrets to Successful: Strategy Execution. *Harvard Business Review*, 86(6), 61-70.

Neuman, W.L. (1997). *Social Research Methods: Qualitative and Quantitative Approaches*. Allyn and Bacon, Boston.

Paine, L.S. (1994). Managing for Organizational Integrity. *Harvard Business Review,* 72(2), 106-117.

Pascale, R.T. (1991). *Managing on the Edge: How Successful Companies Use Conflict to Stay Ahead*. Viking Penguin, London.

Patton, M.Q. (1990). *Qualitative Evaluation and Research Methods*. Sage, London.

Pearce, J. and Robinson, R. (2003). *Strategic Management: Formulation, Implementation, and Control*. McGraw-Hill, New York.

Penrose, E.T. (1959). *The Theory of the Growth of the Firm*. Basil Blackwell, Oxford.

Perreault, Jr. W. D. and McCarthy, E. J. (2006). *Essentials of Marketing*. McGraw-Hill, New York.

Peteraf, M.A. (1993). The Cornerstones of Competitive Advantage: A Resource-based View. *Strategic Management Journal*, 14, 179-191.

Peters, T. and Waterman, R. (1982). *In Search of Excellence*. Harper and Row, New York.

Petrack, F. (1990). Corporate Culture Enhances Profits. *HR Magazine*, 35(11), 64-66.

Porter, M.E. (1980). *Competitive Strategy: Techniques for Analyzing Industries and Competitors*. The Free Press, New York.

Porter, M.E. (1985). *Competitive Advantage*. The Free Press, New York.

Porter, M.E. (2001). Strategy and the Internet. *Harvard Business Review*, 79(3), 63-78.

Porter, M.E. (2008). The Five Competitive Forces That Shape Strategy. *Harvard Business Review*, 86(1), 78-93.

Porter, M.E. and Kramer, M.M. (2006). Strategy Society: The Link Between Competitive Advantage and Corporate Social Responsibility. *Harvard Business Review*, 84 (12), 78-92.

Post, J.E., Preston, L.E. and Sachs, S. (2002). Managing the Extended Enterprise: The New Stakeholder View. *Academy of Management Review*, 45(1), 6-28.

Prahalad, C.K. and Hamel, G. (1990). The Core Competence of the Corporation. *Harvard Business Review*, 68(3), 79-91.

Punch, K.F. (1998). *Introduction to Social Research: Quantitative and Qualitative Approaches*. Sage, London.

Punch, K.F. (2005). *Introduction to Social Research: Quantitative and Qualitative Approach*. Sage, London.

Quinn, J.B. (1980). *Strategies for Change: Logical Incrementalism*. Irwin, Homewood, IL.

Robbins, S.P. (2003). *Essentials of Organizational Behavior*. Prentice-Hall, Jew Jersey.

Robinson, J. (1933). *The Economics of Imperfect Competition*. Macmillan, London.

Rowe, A.J., Mason, R.O., Dickel, K.E., Mann, R.B. and Mockler, R.J. (1994). *Strategic Management*. Addison-Wesley, New York.

Rumelt, R.P. (1974). *Strategy, Structure, and Economic Performance*. Harvard University Press, Cambridge, MA.

Rumelt, R.P. (1980). The Evaluation of Business Strategy, in Glueck, W.F. (eds). *Business Policy and Strategic Management*. McGraw-Hill, New York, 359-367.

Rumelt, R.P. (1991). How Much Does Industry Matter? *Strategic Management Journal*, 12(3), 167-186.

Santosus, M. (1998). Simple, Yet Complex- Business Management. *Issue of CIO Enterprise Magazine*, 1-7, Tuesday September 25, http://www.cio.com/archive/enterprise.

Schein, E.H. (1985). *Organizational Culture and Leadership*. Jossey-Bass, San Francisco.

Schendel, D. and Hatten, K.J. (1972). Business Policy or Strategic Management: A Broader View for an Emerging Disciple. *Academy of Management Proceedings*, 99-102.

Schermerhorn, Jr. J.R., Hunt, J.G. and Osborn, R.N. (1994). *Managing Organizational Behaviour*. John Wiley & Sons, New York.

Schumpeter, J.A. (1947). The Creative Response in Economic History. *Journal of Economic History*, November, 149-159.

Schwab, B. (1996). A Note on Ethics and Strategy: Do Good Ethics Always Make for Good Business?. *Strategic Management Journal*, 17, 499-500.

Sekaran, U. (2000). *Research Methods for Business: A Skill-Building Approach*. John Wiley Sons, New York.

Selznick, P. (1957). *Leadership in Administration: A Sociological Interpretation.* Row, Peterson, Evanston, IL.

Sen, Ashish and Srivastava, M. (1990). *Regression Analysis: Theory, Methods, and Applications.* Springer, New York.

Senge, P.M. (1990). *The Fifth Discipline: The Art of Practice of the Learning Organization*. Random House, London.

Sigband, N.B. (1981). *Business Communications Readings*. The University of Southern California.

Silverman, D. (1993). *Interpreting Qualitative Data*. Sage, London.

Simon, H.A. (1947). *Administrative Behaviour* (2nd). Macmillan, London.

Sirmon, D.G., Hitt, M.A., Ireland, R.D. (2007). Managing Firm Resources in Dynamic Environments to Create Value: Looking Inside the Black Box. *Academy of Management Review*, 32(1), 273-292.

Sirmon, D.G., Gove, S., Hitt, M.A. (2008). Resource Management in Dynamic Competitive Rivalry: The Effects of Resource Building and Deployment. *Academy of Management Journal*, 51(5), 918-935.

Sirmon, D.G. and Hitt, M.A. (2009). Contingencies within Dynamic Managerial Capabilities: Interdependent Effects of Resource Investment and Deployment on Firm Performance. *Strategic Management Journal*, 30, 1375-1394.

Smith, N.C. (2003). Corporate Social Responsibility: Whether or How? *California Management Review*, 45(4), 52-76.

Spender, J.C. and Grant, R.M. (1996). Knowledge and the Firm: Overview. *Strategic Management Journal*, 17 (Special Issue), 5-9.

Stacey, R.D. (1992). *Managing the Unknowable: The Strategic Boundaries between Order and Chaos*. Jossey-Bass, San Franciso.

Stacey, R.D. (1993). Strategy as Order Emerging from Chaos. *Long Range Planning*, 26(1), 10-17.

Stacey, R.D. (1995). The Science of Complexity: An Alternative Perspective for Strategic Change Process. *Strategic Management Journal*, 16, 477-495.

Stacey, R.D. (1996a). Emerging Strategies for a Chaotic Environment. *Long Range Planning*, 29(2), 182-189.

Stacey, R.D. (1996b). *Strategic Management and Organizational Dynamics*. Pitman, London.

Stacey, R.D. (2000). *Strategic Management and Organizational Dynamics: The Challenge of Complexity*. Prentice-Hall, London.

Stead, J.G. and Stead, E. (2000). Eco-Enterprise Strategy: Standing for Sustainability, *Journal of Business Ethics*, 24, 313-329.

Steiner, G.A. (1979). *Strategic Planning: What Every Manager Must Know*. Free Press, New York.

Stern, C.W. and George Stalk, Jr. (1998). *Perspectives on Strategy from the Boston Consulting Group*. John Wiley & Sons, New York.

Structure of Domestic Production (Proportion to GDP) (2009). Directorate-General of Budget, Accounting and Statistics, Executive Yuan. www.moeasmea.gov.tw

Taylor, B. (1997). The Return of Strategic Planning – Once More, with Feeling. *Long Range Planning*, 30(3), 334-344.

Teece, D.J., Pisano, G. and Shuen, A. (1992). *Dynamic Capabilities and Strategic Management*, Mimeo, New York.

Teece, D.J., Pisano, G., Shuen, A. (1997). Dynamic Capabilities and Strategic Management. *Strategic Management Journal*, 18(7), 509-533.

Thompson, J.L. (1997). *Strategic Management: Awareness and Change*. International Thamson Business, London.

Thurston, P.H. (1983). Should Smaller Companies Make Formal Plans? *Harvard*

Business Review, 61(5), 162-188.

Treadwell, W.A., (1995). Fuzzy Set Theory Movement in the Social Sciences. *Public Administration Review*, 55**,** 91-98.

Tyler, T., Dienhart, J. and Thomas, T. (2008). The Ethical Commitment to Compliance: Building Value-Based Cultures. *California Management Review*, 50(2), 31-51.

Ulrich, W. (1983). *Critical Heuristics of Social Planning: A New Approach to Practical Philosophy*. Haupt, Bern.

Vickers, G. (1970). *Freedom in a Rocking Boat*. Allen Lane, London.

Walker, F.D. (1999). Corporate Character and Ethics – A Competitive Difference? *Business and Society Review*, 104(4), 439-458.

Warren, K., Franklin, C. and Streeter, C.L. (1998). New Directions in Systems Theory: Chaos and Complexity. *Social Work*, 43(4), 357-372.

Watkins, S.S. (2003). Ethical Conflicts at Enron: Moral Responsibility in Corporate Capitalism. *California Management Review*, 45(4), 6-19.

Weiss, J. (1994). *Business Ethics: A Managerial Stakeholder Approach*. Wadsworth Publishing Company, Belmont.

Wernerfelt, B. (1984). A Resource-based View of the Firm. *Strategic Management Journal*, 5, 171-180.

Wit, B.D. and Meyer, R. (1998). *Strategy: Process, Content, Context*. International Thomson Publishing Company, London.

Yager, R.I. (1980). Satisfaction and Fuzzy Decision Functions. In P. Wang and S. Chang ed., *Fuzzy Set: Theory and Applications to Policy Analysis and Information Systems*. Plenum Press, New York.

Yen, H.C. and Chen, H.T. (2002). Service Firms and Manufacturing Industries' Performance (2002). *Common Wealth Magazine*, April, 114-121; 225-229.

Yin, R.K. (1994). *Case Study Research: Design and Methods*. Sage, Beverly.

Yin, R.K. (2003). *Case Study Research: Design and Methods*. Sage, Beverly.

Yuan, C. (1999). *Chaos Management*. Sheng-Chih Book Company, Taipei.

Zadeh, L.A. (1965). Fuzzy Sets. *Information and Control*, 8, 338-353; also in Fuzzy Sets and Applications Selected Papers by L. A. Zadeh. John Wiley & Sons, New York, 28-44 (1987).

Zadeh, L.A. (1973). Outline of a New Approach to the Analysis of Complex Systems and Decision Processes. *IEEE Trans. Systems Man Cybernetic*, 3, 28-44.

Zadeh, L.A. (1996). Fuzzy Control: A Personal Perspective by Lotif A. Zadeh. *Control Engineering*, 43(10), 51-52.

Zikmund, W.G. (2000). *Business Research Methods*. Dryden, Orlando.

Zikmund, W.G. (2003). *Business Research Methods*. South-Western, United Kingdom.