UNDERSTANDING VALUE CREATION: THE VALUE MATRIX AND THE VALUE CUBE

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ABSTRACT

This thesis is about creating a better understanding of value creation. It proposes 'the value cube', a new framework to describe how organisations should align and manage their operations, resources, capabilities and competencies with their value propositions to create value.

This thesis started with an exploratory analysis in value; as a result several unsolved issues, inconsistencies and weaknesses of current solutions were identified. Based on those, this research proposed two value dimensions–Hard and Soft Value.

The value matrix was created by bringing together the two value dimensions and the propositions from Treacy and Wiersema (1996). As a result, six value propositions emerged, To describe the functionality of each value proposition in greater depth, the value matrix was extended into a cube: 'the value cube'.

Empirical evidence provided through eight case studies and a workshop-study validates the value cube, establishes the appropriate unit of analysis and the value cube's footprints.

The five research questions of this research conclude that:

(1) Value can be deployed in 'hard value' and 'soft value'.
(2) The six value propositions of the value cube are valid and two of them 'simplifiers' and 'socialisors' are novel. Thus, the value propositions of the value cube offer a wider scope and flexibility than current frameworks, to describe and/or classify business performance.
(3) The value cube can be applied to 'business unit level' or 'whole organisation'; however the application of the value cube at business unit level seems to be more sensible.
(4) Therefore, a single organisation can have more than one value proposition.
(5) The value cube provides general guidelines or 'footprints' of value creation for its six value propositions.

From the beginning of this research, criteria for the evaluation of the quality of the research were developed. The thesis concludes with the evaluation of the research against these criteria. The results demonstrate that this research has satisfactory fulfilled the criteria. Consequently, this research reached the quality standards of constructive/pure research.

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Chapter 1 Introduction

"Strategy is the Art of Creating Value"
Normann and Ramirez, 1993

The motivation on this research issue was born from the researcher's professional experience and the experience obtained during her Master's degree in Technology Management. She identified that different companies, such as Daimler-Chrysler, Rolls Royce, IBM, NCR, Fagor-Electrodomesticos, Mayer, among others, were operating differently and each company had particular activities that characterised their business models. Her Master's dissertation was focused on the analysis of what makes businesses, especially manufacturing businesses, operate and compete in different ways. The approach was based on the study of activities that create value for the organisation. This research created the initial insight for further research on value creation.

The initial findings from the exploratory research on value injected strong motivation on her studies in this field. Therefore, this chapter starts with the point of departure and the analysis of the relevant findings from the exploratory research. This continues with the discussion on the scope of the thesis and definition of the research issue and research objectives. Finally, the thesis structure is presented.

1.1 Point of Departure and Research Issue

Yin (1994), Stake (1995) and Miles and Huberman (1984) state that every research project should begin with the definition of the problems or issues to be studied[1]. Followed by the research design, which explains the connection between research questions, empirical data and different research techniques to arrive to particular deductions and finally make some contributions to knowledge (Yin, 1994; Stake, 1995).

This research started with an exploratory research of existing theories on value to familiarise with the subject and to identify novel concerns around the problem domain. Stake (1995:37) proposes that exploratory research is generally used on the study of new problems, issues or topics.

For the development of exploratory research, Phillips and Pugh (2000:50) suggest an analysis of appropriate theories, concepts and even existing methodologies. Therefore, the initial literature review on value was carried out through international journals, books, conference proceedings and some companies' reports.

The initial literature review showed a wide spectrum of the definitions of value on different fields, from economics, finance, design, IT, psychology and so on. Figure 1.1 introduces a map of the fields where the researcher identified approaches (definitions, models, applications) of value.

It could be question that "if it is certain that a lot of research has been conducted on value, why is that this researcher decided to study value?"

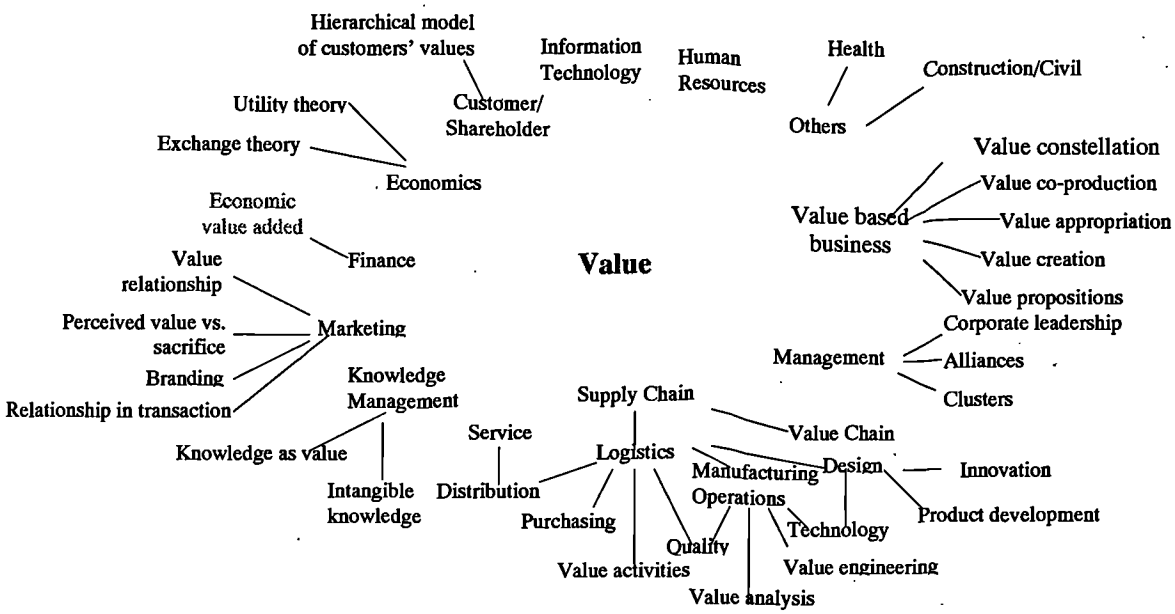


Figure 1.1 Value and its approaches

To attempt to provide an answer to the previous observation, the researcher started by solving the following question from theoretical and practical perspectives: "Why study Value?" These are the relevant findings:

a). Theoretical perspective:

- There has been a lot of work developed in value from finance, marketing and economics; now strategy and operations management are adopting it[2]. These areas define, and in some cases measure and develop theories in value, but only from the perspectives of their fields. The problem is that value does not reside in only one area and it is not created in just one area of the supply chain (Ciborra, 1995; Normann and Ramirez, 1993; Porter, 1985).
- In the value creation process, it is important to integrate customers and business insights. So far, only one approach has strongly adopted both insights i.e. Treacy and Wiersema (1996).
- Value is not static, as it has been generally defined. Value is dynamic because it depends on customers and stakeholders, and these are part of an external environment which are in continuous change (Ramirez 1999). So, if the world is dynamic and it is in continuous change,

[1] Stake (1995) constructs a hierarchical structure for developing good research questions and each layer of the structure has different categories of problems, issues, assertions and questions.
[2] Chapter 2 presents the literature review on value on areas such as marketing and finances among others.

why is it that organisations do not continuously reconfigure their opportunities - values (Kim and Mauborgne, 1999). It is also certain that there is no value model, which addresses this issue.

b). Practical perspective:

- In this century, companies still fail in defining their own value proposition, in particular, in aligning their resources towards their value creation processes.
- Some companies still think that value is just low prices or image.
- Few companies identify their value, and those who do usually fail after some time because they do not revitalise it continuously.

Logically the researcher questions, "if there is a lot of research in value why do companies still fail? What are the weaknesses of the current solutions? What are the weakest links between theory and practice?"

The results of the exploratory analysis showed that most of the current solutions lack:

- integration of the customers into their definitions, models or processes (Ciborra, 1995)
- analysis of value on a dynamic system
- a holistic definition of value. i.e. interdisciplinary definition of value
- guidelines on how to create value
- frameworks to classify value and if there are they are not complete.

Based on the initial findings, the research issue was established, i.e. "value creation in business management". Porter (1985) supports that there is not enough work done in value creation and value delivery. Thus, the aims and objectives for this research have been established.

1.2 Aims and Objectives:

Engaged in the research issue of value and having analysed relevant information on several fields, the aim was focussed on the analysis of value creation on interdisciplinary and dynamic environments, drivers of value creation and, finally, on how current frameworks manage value, the initial research objectives were:

- To provide an analysis of the different ways on how different types of organisations create values and how they interact with their customers (and stakeholders) in value creation.
- To provide an analysis of how current frameworks describe the value creation process
- To study the drivers to support sustainable value creation

1.3 Scope of the thesis

From the methodological perspective, this thesis has two main parts, i.e. theory-building and theory-testing. This thesis does not follow the classical pattern that most theses do. Theory building represents an important part of this research followed by the practical validation of the theory; therefore, the literature review is distributed (spread) throughout this thesis. Moreover, most of the research questions emerged gradually, as a result of the continuous study of the problem domain.

The literature on value dates from Greek times, although value has become more popular in the last two centuries e.g. Karl Marx (1867) popularised value in the labour theory (Arthur, 2001). There has been an evolution and immigration of the value definitions over the last century; theories from the 50's and 60's have been adapted and modified to new environments [4] or new fields, such as value in the transaction theory and the labour theory. Hence, the literature provided on this thesis has mainly focussed on the last forty years, because of the real complexity on the area. Theory relevant to the research domain on different areas is taken into account to support this study.

Although this research involves the study of different interdisciplinary areas, such as marketing, design, finance, manufacturing and services among others, it adopts a strategic management position. Thus, it does not pretend to come out with a new marketing theory to sell products/services or to provide a performance measurement system for the value created in organisations. It merely studies different values proposed by organisations to customers and the

[4] Theories such as the mass production from Henry Ford's times are not any more innovative as a driver of competitive advantage in the creation of the value.

values that customers seek. Moreover, it analyses these propositions adopted by analysing the operations[5] that support their value creation processes.

1.4 Thesis Structure

The objective of this section is to outline the structure of the thesis by highlighting the important issues on each chapter and showing how these are related to other chapters. Figure 1.2 maps the structure of the thesis. The right side of Figure 1.2 shows the research phases. These research phases are the communication interface among the thesis structure and the research design[6] presented on Chapter 4 (Section 4.5, Figure 6.1).

In Chapter1, the motivation, point of departure and the research issues of this research are discussed. These are introduced to provide a broader understanding of the problem domain by highlighting current problems in practice and theory. Hence, the initial aims and objectives are proposed. Finally, the scope of the thesis was narrowed to the areas of study.

Chapter 2 captures and states relevant theory related to the research domain. It analyses the flow of value and how it is distributed. A particular framework, which shows a better approach to the value creation process, is analysed. This analysis highlighted new gaps; thus, it led the researcher to identify specific problems in this research domain. As a consequence the first research question was formulated- RQ1. Does value exist in hard and soft dimensions?

Having identified the research issue and objectives of this research, the next step was to study the scientific paradigms, research strategies and methods to formalise this research. The objective of Chapter 3 is to position this research within the basic principles of methodology. It defines the paradigm and the strategies used in this thesis, as well as the research questions. In this chapter, the initial criteria to evaluate the quality of the research (e.g. reliability, validity, etc.) are introduced.

[5] These operations are refers interdisciplinary activities performed with the purpose of create value to customers.

[6] Research design discusses in more detail and presents the methods used in this research.

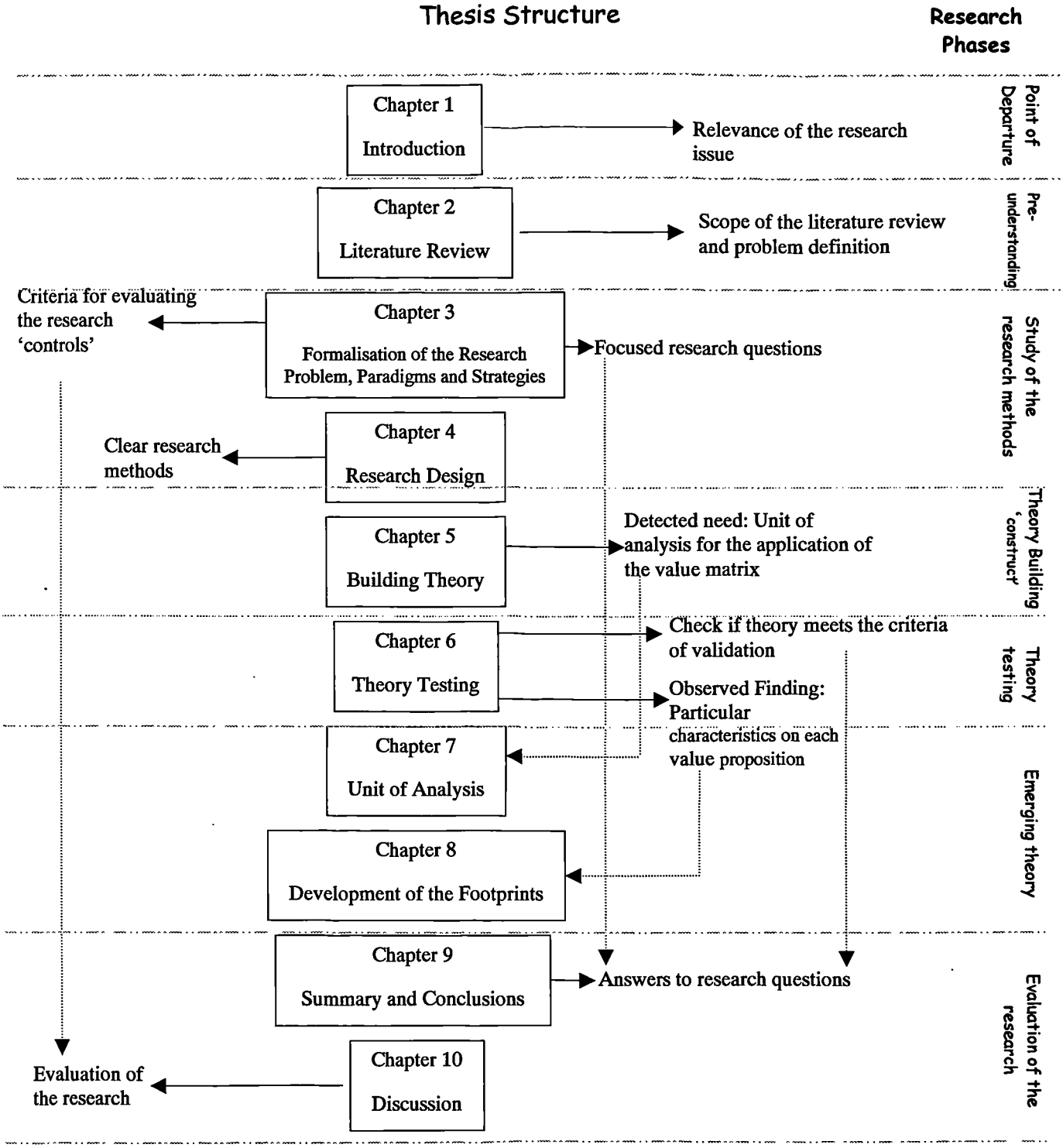


Figure 1.2 Structure of the thesis

Chapter 4 describes how research methods are selected and used to construct and validate theory. As a result, additional criteria are introduced to the initial evaluation criteria of this research.

Chapter 5 is dedicated to building theory. It is here that the main model 'construct' is built. This Chapter is split into three sections: the first section describes how the new value dimensions 'hard and soft' were built and explores the differences between each value dimension. It also presents the results of a theoretical validation of the first research question. In the second section, based on the hard and soft value dimensions, the new model "value matrix" is built. Each one of the value propositions of the value matrix are described; finally, the model is compared against other models. The third section describes the construction of the third dimension of the model, extending the value matrix into a cube. This third dimension attempts to provide a structure to describe each value proposition of the value cube. It is in this chapter where the second research question emerge- RQ2. Are the value propositions of the value cube valid?

Chapter 6 is dedicated to test theory by answering the first two research questions. It is presented in three stages. The first stage develops the research tools and applies a case study to gain feedback. The second stage is focused on the presentation of six case studies. The last stage is focused on the analysis of the evidence provided by the four testing methods to validate the proposed model 'value cube' and answers the research questions one and two. As a result of the new insights provided by the case studies, the research questions 3, 4 and 5 are formulated.

Chapter 7 deals with the study of the application of the unit of analysis for the value matrix. This chapter raises an interesting controversy form theory and facts based on practice. This chapter discusses the unit of analysis for two companies. Finally, the chapter concludes by answering research questions 3 and 4.

Chapter 8 is focused on the development of the footprints[7] for each value proposition of the value matrix. It starts with the research method applied to identify and develop these footprints.

[7] The terminology used as "footprint" in this thesis refers to the particular characteristics that different groups of businesses follow even if these come from different industrial sectors.

This Chapter shows the application of them during a workshop and introduces the gap assessment tool. In this Chapter the research question 5 is answered.

Chapter 9 summarises and concludes the content and structure of the new model, answers the research questions and discusses the contributions to knowledge and practice made by this research as well as the limitations. The chapter concludes with a discussion on the potential issues for future research.

Chapter 10 discusses the results from the validation of the model and compares against the controls established in Chapter 3 and 4. The result reveals that the proposed model 'construct' is valid, demonstrating the validity and reliability of the research. Finally, the chapter closes with a critical retrospective analysis of this investigation.

Conclusions of the Chapter

The point of departure of this research has been established through an exploratory analysis of value. This analysis identified some weaknesses from theory and from practice and, based on these findings, the research issue was identified, i.e. value creation in business management.

From the definition of the research, the initial aims and objectives were established:

- To provide an analysis of the different ways in which different types of organisations create value and their interaction with their stakeholders in value creation.
- To provide an analysis of current frameworks used to describe the value creation process
- To study the value drivers to support the sustainable value creation

The scope of this research classifies this thesis as a theory building and theory testing. The thesis contains literature on value from the last forty years. Finally, the Chapter concludes with the brief introduction of the thesis structure. In this, seven research phases are recognised.

Chapter 2. Literature Review

Engineering is the art or science of making practical.
Samuel C. Florman

The combined impact of globalisation, the development of new technology and the increased competition do make customers and shareholders more informed and more demanding. Product differentiators from the 90's are now the product qualifiers of the XXI century. Global competition has changed in a way that Henry Ford never dreamed. Consequently, organisations have to re-configure their strategies and competencies by developing new ways of doing business. Thus, factors that have always been seen as tangential[1] turn out to be key drivers of change (DTI 2001, Larréché 2000, Martinez and Bititci 2001, Normann and Ramirez 1993).

Woodruff (1997) and Treacy and Wiersema (1996) see value as the next source of competitive advantage and suggest that organisations should reinvent their businesses. Moreover, Ramirez (1999) proposes the continuous re-configuration of opportunities as a critical element to enable long-standing firms to produce value over time.

To create a solid pre-understanding of the research issue, this chapter starts by defining the scope of the literature review. The definition of value from different fields is discussed and, as a result, a scheme of the value flow is proposed. The chapter continues with the analysis of a framework on value creation and the results and findings of this analysis are discussed. The chapter finishes by drawing conclusions on the state of the art and the identification of the first research question.

2.1 Defining the Scope of the Literature Review

Value has been the object of definition since the Greek époque. Nowadays, the concept of value is of increasing interest to both academics and practitioners. The terminology of 'value' has been growing exponentially by the adoption of 'value' by different fields, each field taking different approaches. Consequently, the literature on value has become extensive, hence the importance of defining the scope of the literature review.

Chapter 1 started with an exploratory analysis to get familiar with the research domain and identify the research issue, i.e. "value creation in business management." To create a solid pre-understanding of the research issue, Chapter 2 starts by defining the scope of the literature review. This review is mainly focussed on business and strategy management, although the scope of the literature review covers some fields that surround the business environment.

The objective of the following section is to undertake a comprehensive literature review of the different perspectives of value. It starts by identifying different fields where value has been approached (defined, adopted and/or practised). These fields cover economics and finance, marketing, services, business strategy, operations and customers/shareholders.

Some fields, such as construction, statistics, health care and so on, are out of the scope of this literature review because these focus on issues that differ from the business and operation management areas. For instance, the interpretation of value in construction/ civil engineering is focused on the efficiency of material and designs used on the construction of buildings (Neap and Celik, 1999). Although interesting, its purpose differs from the purpose of this research.

[1] "Tangential" from the perspective of non-core activities, issues, etc. For more information go to

2.2 Value

Economics and Finance

Economics was one of the first fields to approach value. Table 2.1 summarises the origins and evolution of the theory of value. The debate on value dates from the Greek times with the theory of exchange from Aristotle in the 4th century BC, then Socrates' followers introduced a new view of value based on utility. The Greek era was followed by the pre-classical era with writers like Petty (1623-1687), Cantillon (1734), Galiani (1728-1787) and Law (1671-1729) introducing the factors of production, which founded the labour theory. In 1723, Adam Smith initiated "the classical era" together with Ricardo (1772-1823), Mills (1806-1873) and Marx (1818-1883). They provided a new dimension to value by the introduction of Labour cost, command and cost of production. It is at this point that Marx developed the original rate of exploitation and its resulting critique of capitalism. The neo-classical era was led by Jvons (1835-1882), Menger (1840-1921), Walras (1834-1910) and Marshall (1842-1924) and they focused on the utility the buyer expects to receive and the cost of production (Fogarty, 1996). It is interesting how these economic theories have influenced some value theories from different fields. Table 2.1 illustrates some of the many adoptions of these 'value theories' by other fields.

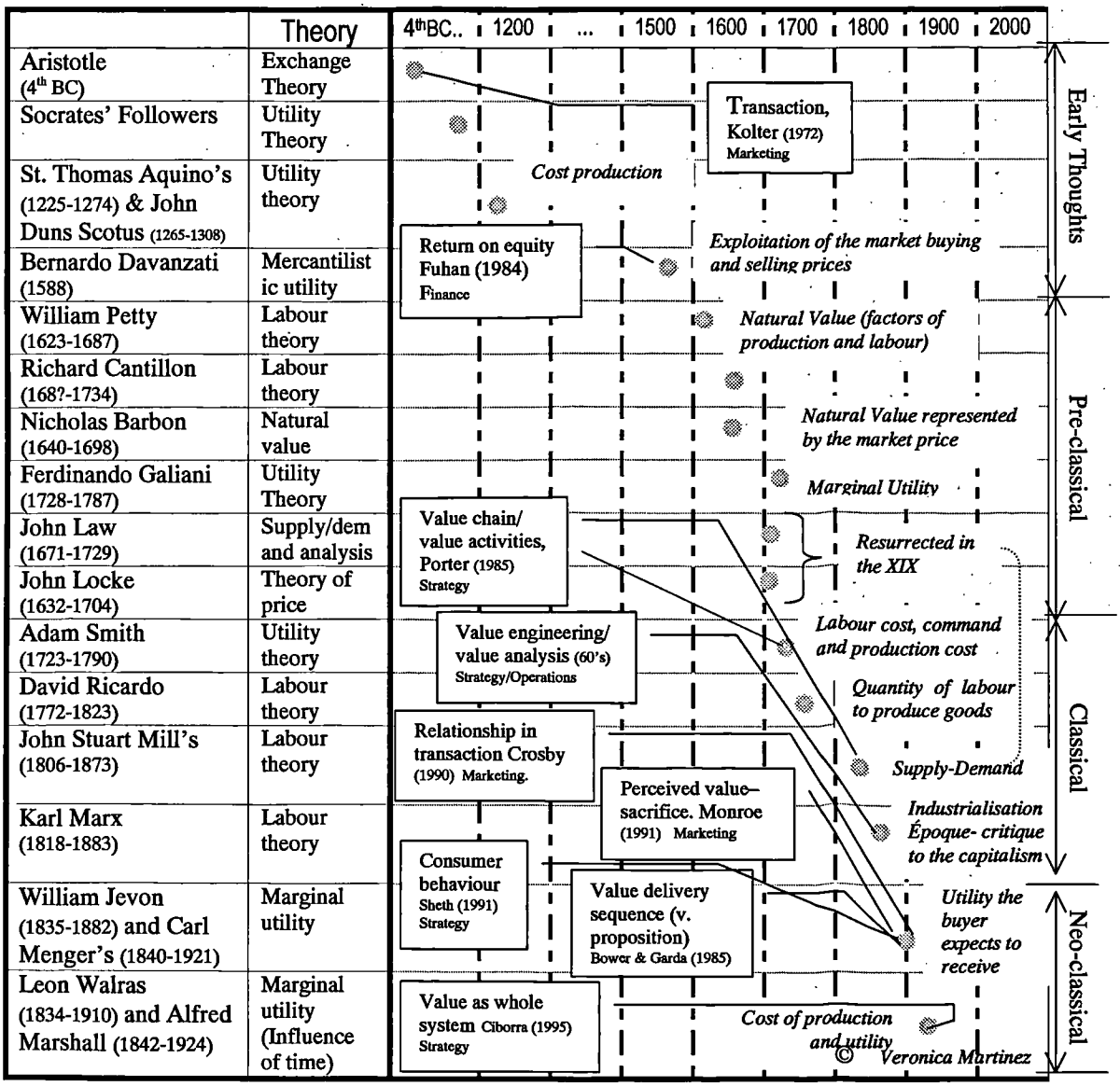
At micro-economic level, economists support that consumers spend their incomes proportionally as they maximise their satisfaction from acquired products (Bowman and Ambrosini, 2000). In contrast, at macro-economic level, value seems to be influenced by factors such as the impact of intangibles and intellectual capital, which play an important role especially in enterprise relationships and internal structures (Allee, 2000, Rivette and Kline, 2000).

Economists have proposed some tools, such as economic value added (EVA) to measure the value generated; however, these tools have failed because they do not measure intangibles (Hatlestad, 1998).

Finance has been focused on the analysis of business value by studying the financial resources and the product-market opportunities, although they usually refer to value as a return on equity based on the stock markets (Fruhan, 1984).

Normann and Ramirez 1993.

Finances and economics fields are characterised by their rational and pragmatic approach to value; however, these fields do not analyse factors, issues and causes on how value is created.



Note: the capsules (boxes) indicate the adoption of a value theory by other field. The dates into the capsules do not imply that these theories were discovered on the same year as the above dates.

Table 2.1 The origins of value and their evolution.

Marketing Management

Not far from the economics' theories, marketeers have also approached value as the process of exchange, as a transaction between two different parties (Kolter, 1972; Bagozzi, 1975; Brandenburger and Stuart, 1996); however, marketeers' approaches go deeper in the study of factors that make a buyer select a product over others. Hence, marketing has been seen as a process to support the creation of perceived value for customers (Gronroos, 1997).

Woodruff and Gardial (1996) have found that some factors, such as superior qualities, aesthetics, functionality and service, are associated with perceived value. On the contrary, some authors, such as Anderson, Jain and Chintagunta (1993) support that the perceived-value is variable, because it depends on the situation of the context of the transaction (Garver and Gardial, 1996).

Wilson and Jantrania (1994) highlight the economic and non-economic aspects of value intrinsic to the product and extrinsic to the business-vendor (Tzokas and Saren 2001). Table 2.2 shows the components of product value, which are close to the definitions of tangibles and intangibles. The intrinsic aspects are related to the product, such as performance, price, style, brand name, etc. and are classified into economic and non-economic aspects. In contrast, extrinsic aspects are related to the vendor's qualities.

	Economic	**Non-economic**
Intrinsic (Product)	*Performance* *Reliability* *Technology* *Price*	*Brand name* *Styling* *Packaging* *Appearance*
Extrinsic (Vendor)	*Operator Training* *Maintenance training* *Warranty* *Parts* *Identifiable post-purchase costs*	*Reputation* *Reliability* *Responsibility* *Dyad relations* *Service*
Source: Tzokas and Saren (2001)		

Table 2.2 Components of product value

It can be inferred that, in marketing, value (price) is perceived by the customers as an inherent part of the product or service (Levitt, 1981).

Zeithaml (1988) highlighted the links between price, perceived-quality and perceived-value (Payne and Holt, 2001).

Monroe (1991) expands Zeithaml's observation and states that customer-perceived value increases proportionally as the perceived benefits increase and it decreases as the perceived sacrifices increase (see the formula below). Perceived benefits refer to attributes such as physical, service and technical support; and perceived sacrifices refer to difficulties to acquire the product such as price and availability of the product[2].

$$\text{Customer-perceived value} = \frac{\text{Perceived benefits}}{\text{Perceived sacrifices}}$$

Ravald and Gronroos (1996) suggest that, in the transaction, an important factor is the relationship because it can influence the customer's perception of value and the final customer decision. As a result, they extended Monroe's formula (1991) to:

$$\text{Total episode value} = \frac{\text{Episode}^{3}\text{ benefits + relationship benefits}}{\text{Episode sacrifice + relationship sacrifice}}$$

Value-added strategies look for different ways for maximising the benefits (episode + relationship) and for minimising the sacrifices. Ravald and Gronroos (1996) state that the relationship itself might have a major effect on the total value perceived; shifting the focus on the evaluation of separate offerings[4] to evaluate the relationship as a whole.

The relationship factor turned out to be one of the most important factors in the transaction theory of value creation. Crosby, Evans and Cowles (1990), Gummersson (1999) and Tzokas

[2] Note that when the author refer to product, it means product and/or service
[3] Ravald and Gronroos (1996) refer to episode as offerings, e.g. goods, physical attributes of products and services.
[4] Offerings ussually refers to the product and / or service provided

and Saren (2001) support that value comes as a result of interactions and relationship between customers, suppliers and different stakeholders.

Wilson and Jantrania (1994) state that any relationship creates value to both parties and how this value is shared is likely to be a major factor in the life of the relationship (Payne and Holt, 2001).

To keep a close relationship with the customer and deliver a feeling of superior value, mass marketing is shifting to micro-marketing (Christopher, 1996; Kolter, 1988). In doing so, marketers have suggested creating new brands or sub-brands from the core brands and focussing on small group of customers (Aaker, 1997).

Marketers have enriched the transaction theory by the study of factors that make customers select some products over others. Areas such as psychology and consumer behaviour have been deeply used in their studies.

Services Management

The addition of the relationships as a factor of perceived-value for the customers has been one of the most important contributions from marketing to the transaction theory. Hence, services have been considered as an influential source of value.

Service and delivery are two powerful platforms from organisations that customers appreciate (Kim and Mauborgne, 1997). In some cases, service is the main product delivered to customers and, in others, it is an extension (support) to the product.

Berry and Yadav (1996) argue that services are more difficult to quantify due to the fact that most of them are intangible. In buying the offer's performance, Service customers buy a promise. In some cases, they cannot see the tangible product, but they agree to pay for it before experiencing it.

Berry and Yadav (1996) propose three strategies to make services more valuable (relevant) to customers:

1) Benefits - communicate a clear association between service attributes and benefits delivered (with the sort of things that the customer values).
2) Relationships - involve, attract and maintain a strong relationship with customers in a multi-service organisation. For example, long-term contracts sell two or more services bundled together among others.
3) Efficient operating prices - focus on designing a service system that aligns the cost of the activity with its value to targeted customers, by eliminating some activities entirely or streamline low-priority elements of the service chain. I.e. on delivering the best and most cost-effective way the customers' most valuable aspects of the service. For example price bundling - saves time and money working with one provider, optimisation of activities.

Buzzell and Gale (1987) identified a high level of correlation between quality of the service and profitability and its relationship to value.

For some authors such as Schlesinger and Heskett (1991) and Buzzell and Gale (1987) the front line personnel play an essential role in the value creation process of services. Schlesinger and Heskett's research (1991) shows that companies such as Marriott Corporation, Dayton's of Dayton Hudson and Au Bon Pain, which provide extensive training and empowerment to their front line personnel, lead to employee satisfaction and positive attitudes. Logically, these employees' feelings are transformed to customer satisfaction, loyalty and continuity in the buyer-consumer relationship. Consequently, the value perceived by their customers increases.

So far we have seen the evolution of the transaction theory, from the pragmatic definition from economics to the marketing factors that make customers select a product, to the importance of service on the transaction relationship.

This review has shown that too much research has been carried out on a transactional context of value and not sufficient on value creation and value delivery (Grönroos, 1997; Bower and Garda, 1985). For some authors such as Hamel and Prahalad (1989), Demb and Neubauer (1990) and Campbell and Goold (1988) value also comes from the creativeness to manage the organisation

to create competitive advantage through the products/service. Thus, let us turn to the strategy side of value creation.

Strategic Management

The research carried out by Campbell and Goold (1988) at 16 major British companies, concludes that the creation of value is influenced by the management style of the organisation. They identified three management styles; its characteristics and limitations to promote value creation are shown in Table 2.3.

Each style provides benefits and limitations, but the best way to handle value creation is by maximising the opportunities provided by the benefits of the management style and handle the limitations.

Management Style	Advantages	Disadvantages
Strategic Planning	It is based on strong central leadership from corporation generally peruses long-term goals to build core business.	Employees lack of freedom to bring new ideas.
Financial Control	It is based on budgeting planing and autonomy on the business units. Generally, it follows short-term goals under tight control.	This management style has fast reaction; there is not room for extensive projects. Therefore, they might loose some opportunities on long-term projects to create value.
Strategic Control	It is based on extensive planning that allows to decentralise power on its business units. This management style works with long and short-term projects.	The support on extensive projects depends on the involvement of the core management.

Table 2.3. Three management styles in value creation.

Demb and Neubauer (1990) states that, independently of the management style, the board of directors should add value by:

- monitoring and controlling,
- using experience to build and support the organisational strategy

- following core corporate governance such as performance measurement, identification of key trends among others.

At the end of the day, strategy creates value for customers when it has purpose (market segment), insight to perceive, understand and exploit the natural abilities of the organisation (Campbell and Alexander, 1997).

Hamel and Prahalad (1989) go further by stating that creating value is not just finding the opportunity - purpose and insight; value emerges from the inventiveness, and versatility of organisations to build competitive advantages. In addition, the creation of value requires free traffic of cross-functional knowledge to create skills, which later become expertise.

Companies that give a quantum leap make the competition irrelevant by focusing in the customer relationship and how to deliver value; i.e. redefining the problem and offering new and superior value. In other words by creating new and continuous demand (Kim and Mauborgne, 1999).

Value follows the theory of creative destruction, from the Austrian Joseph Shumpeter, to vitalise the stakeholders' value (Payne and Holt, 2001). Shumpeter argues that value should be continuously re-invented.

Hoover, Eloranta, Holmström and Huttunen (2001:32-68) state that 'value innovation' is a new way of re-inventing/re-configuring business models by building a co-evolutionary relationship in the demand-supply chain[5]. Value innovation can be created from three different dimensions: 1) re-shaping the customer relationship, 2) extending delivery to fulfilment and/or 3) taking a new perspective on costs.

To evolve, value should be shared. In contrast, the appropriation of knowledge and skills lead to value destruction (Ghoshal et al. 1999). By sharing the best capabilities and competencies from each player, alliances create value. Anand and Khanna (2000) found strong evidence that firms speed up the learning process on value creation as they accumulate experience from joint

[5] The demand-supply chain help to understand the customer's buying process and how provides the best offer.

ventures, collaborations, outsourcing agreements, product licensing and co-operative research among others. Hamel, Doz and Prahalad's research (1989) shows that competitive collaborations are catalysts to promote better learners, to build new process capabilities and to win new product and technology battles; collaboration can be a low cost strategy for doing both.

Creating value-adding strategy is not done by setting out and beating the competition, but by setting out and understanding how best to provide value to customers. The real challenge in creating value is to continuously build dominant core competencies, capabilities and resources in areas that customers will continue to value over time by developing dynamic capabilities (Ohmae, 1988; Quinn and Hilmer, 1994; Teece et al. 1997; Hammer and Stanton, 1999, Drejer 2001). Larréché (2000) proposes that the two main drivers of value creation are the continuous development of fundamental capabilities and the creation of new business models.

To have a better understanding of further discussions, the researcher proposes to define capabilities, core competencies and resources concepts.

- Resources are the inputs into the production process such as all assets, capital equipment, capabilities, employees' skills, knowledge, patents, brand names, finances and so on (Barney, 1991). Grant (1991) categorises resources into six types: financial resources, physical, human, technological, reputation and organisational.
- Capability is the capacity for a team of resources to perform some task or activity (Stalk, 1992). Mathur and Kenyo (1998) define capabilities as the skills to co-ordinate resources, and perfecting that co-ordination requires learning through repetition. Capabilities are dispersed over the entire value chain. Capabilities tend to have an intangible link to the end product (e.g. co-ordination, management style, teamwork, etc.) whereas competencies are related to technology and tend to have a tangible link to the end product (Martinez, 2001).
- Core competencies are the firm collective learning - specifically how to co-ordinate different production skills and integrate multiple streams of technology (Prahalad and Hamel, 1990). Core competencies describe the strategic capabilities of the firm. Competencies tend to be on specific points of the value chain and have a tangible link to the end product. The core competencies are those that really give competitive advantage to organisations to create value.

Competencies are more focused on the creation of value through technological and production expertise, whereas capabilities are focused on value creation through the development and integration of abilities and skills to manage, market, organise, sell, etc.
Figure 2.1 shows the relationship of these three concepts and the importance of their evolution to address a dynamic environment.

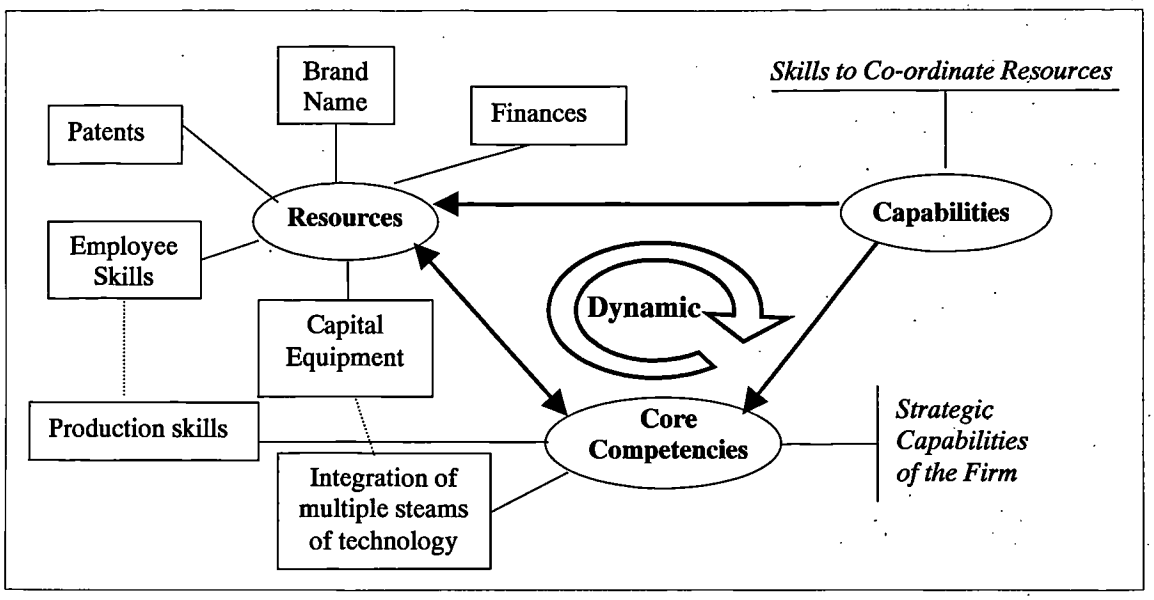


Figure 2.1 Dynamic environment of firm resources, capabilities and core competencies

Operations Management

Karl Marx (1867) was one of the proponents of the labour theory on value who argued, in his classical work "Das Kapital", that "value was gained by the application of labour in the production process"; his definition involved moral and judicial implications (Arthur, 2001; Fogarty, 1996). Then, during the 1950's and 1960's, the industrialisation époque- mass production, engineering adapted the labour theory into what we know as value analysis and value engineering. These engineering theories perceive value as the maximisation of process efficiency through the identification and elimination of waste[6] at the business process level (Gage, 1967; Chatterjee, 1998). The adding value technique, kaizen and the seven-value stream

mapping tools are some tools and techniques that support these theories (Hines and Rich, 1997; Ross, 2002; O'Connor, 2002).

The introduction of Porter's Competitive Advantage revolutionised the manufacturing-operations world, through his concepts of value chain and competitive advantage (i.e. differentiation and cost leadership). Porter defines value (1985, 33) as the amount buyers are willing to pay for what a firm provides for them, which is very close to the definition of value from economics. Therefore, the competitive advantage comes from offering lower prices than competitors for equivalent benefits or providing unique benefits that compensate a higher price. The firm's value is measured by total revenue, a reflection of the price a firm's product commands and the units it can sell.

Porter (1985) proposes that the value chain displays the total value of a firm. This consists of value activities and margin. The value activities[7] are defined by Porter (1985, 38) as the discrete building blocks of competitive advantage; in other words, these are the internal managing processes. There are two types of activity: primary activities (i.e. operations, marketing, logistics and service) and support activities (i.e. procurement, technology development and human resource management). Porter infers that each activity adds equal value to the final product.

The importance of Porter's contribution underpins the business system concept because it addresses activities and sub-activities rather than functions and shows how these activities are interrelated.

Cox (1999) differentiates value chain from the supply chain by identifying the properties of power i.e. skills, resources and capabilities to create products. Value chain refers to the flow of revenue (also named power exchange) from the end customer to each stage of the supply chain. So, the supply chain is built from structural properties of power, the power associated with each point of the value chain is proportional to the value appropriation between buyers and suppliers.

Chatterjee (1998) makes an interesting critique of the value activities – he suggests that the traditional value chain does not directly help organisations to identify which and how different

[6] Waste is taken from the Japanese culture 5'S.

activities contribute to the firm's margin. Certainly, the value activities of the value chain are seen by Porter as equal entities of the whole system and he does not identify which of those are valued by customers.

In operations, the traditional thinking about value is usually associated with different theories that bring competitive advantage to a particular area of the supply chain. The most common one is the creation of competitive advantage in information flow through information technology (Porter and Millar, 1985). Knowledge and intellectual property have also been considered as a dimension of value (Wood, 1978; Teece, 1998). Even some authors have written concerning the management of value through decision making, design, human resources and so on (Condra, 1995; Bodily and Allen, 1999; Schlesinger and Heskett, 1991).

In contrast to Porter's (1985) theory, Normand and Ramirez (1993) propose that the logic of value does not flow in one direction; value creation is the integration of knowledge from different relationships in a constellation[8], but not just in a chain.

The researcher questions 'Do value engineering and value analysis create value?' To begin to answer this question, it is important to bear in mind that these operational tools are focused on the elimination of waste and maximisation of process efficiency, in other words they are focused on cost reduction. Then, narrowing our previous question - Is cost reduction value?
Analysing this question under Raval and Gronroos' (1996) formula of 'total episode value'[9]

$$\text{Total episode value} = \frac{\text{Episode benefits + relationship benefits}}{\text{Episode sacrifice + relationship sacrifice}}$$

If the price decreases then the episode sacrifice decreases; logically the total episode of value will increase.
Even though these tools reduce the sacrifice, still the researcher's question is - Do these theories create value? From the researcher's perspective, these engineering theories have not added benefits to the product/service or relationships. These tools have just provided some provisional

[7] The value activities are the physical and technological activities a firm perform
[8] Normand and Ramirez (1993) refer to constellation as a network.
[9] To know more about Raval and Gronroos construct see the marketing sub-section of this chapter.

competitive advantage over their competitor, but this type of value can be copied and improved by other competitors. Is this still Sustainable Value?

Ramirez (1999) points out that value is synchronic, dynamic, interactive, co-invented and co-produced along with the customers and suppliers. In addition, Ciborra (1995) supports that value should be studied as a whole system where all the dynamic relationships are interconnected to create value (Ramirez 1999).

Consequently, the market has become a forum where customers play an active role in creating value. Customers are co-creators by helping organisations to shape their expectations - products/services (Prahalad and Ramaswamy, 2000).

The new logic of value 'constellation' and the dialogue between competencies and customers enable organisations to reconfigure their value creation system and to create competitive advantage by providing the ability to amplify customers' signals, interpret their consequences and reconfigure resources faster than competitors. It is not just running faster but thinking smarter (Normann and Ramirez 1993). Creating value is to understand how best to provide value to customers (Ohmae, 1988).

Customers

We have addressed different perspectives of value, but have not discussed - what is value for customers? What do customers value? How do customers perceive value? What criteria do customers use to select products?

Zeithaml (1988) developed four consumer definitions of value: (1). "value is low prices"(2). "value is whatever I want from a product" (3). "value is the quality I get for the price I pay" (4). "value is what I get for what I give". Zeithaml's definitions of value are very close to the transaction theory and match with the value engineering theories: value as cost minimisation; nevertheless, it has been seen that since customers are more informed, they have become more demanding. Therefore, the researcher has to explore other areas to understand what other dimensions of value the customers look for.

Woodruff (1997) provides a framework to understand the consumer behaviour based on the environment. He proposes that customers perceive and evaluate products/services based on physical attributes, performance attributes, and consequences arising from the use of the product. He proposes that the customer value hierarchy should be studied for the desired customer satisfaction. This hierarchy has three levels: at the top, it has customers' goals and purposes, the next level is desired consequences in-use situations and, finally, desired attributes - physical and performance. The application of these three levels provides an understanding of the customer's scenario and what, where and how the customers use the product/service. Unfortunately, research conducted by Woodruff shows that the majority of the firms use just the last level of his hierarchy (attributes), thus organisations lose the complete picture of the customer and cannot offer better solutions.

More and more often it has been found that brand-product firm values have more impact on customer value (Christopher, 1996). For instance, Gutman's (1982) hierarchical model links consumer values (that are the ends) to basic feature components of products/brands (representing the means). He links perceived product attributes to values.

There are five consumer values proposed by Sheth, Newmand and Gross (1991) that influence the customer choice; i.e. functional value, conditional value, social value emotional value and epistemic value. These consumer values contribute to the general understanding of the consumer decision, but differing from Woodruff's framework, these values do not show the situation where the product is consumed.

It can be inferred that customers make decisions based on certain criteria and these criteria are based on certain personal values[10] and specific situations; but how far will a firm go to understand its customers?

Butz and Goodstein (1996) state that firms that listen to their customers and understand their problems and their situations are those that find the solution, create value and develop emotional

[10] Personal values shaped based on own culture, education and geographical location

bonds with their customers and emotional bonds lead customers to buy repeatedly – customer loyalty.

The literature review on value has shown that the concept of value has its roots in many disciplines including economics, management, psychology and so on. This review confirms how many concepts overlap to some degree across different forms of value.

On one hand, the review has approached different definitions of value and where these come from. It has reviewed the meaning of value for organisations, value creation, value transaction and the diverse factors that are involved in the transaction. On the other hand, this has given rise to some other questions such as how value flows. In other words, how do organisations interpret customer value and how is it created

2.3 Value System and Value Flow

The aim of this section is not to provide a new definition of value, but to find an explanation of how value flows and to find an interpretation of value for the context of this research.

Since 1939-1945[11], authors in operations have been defining *Value (Gage,1967)*. Generally, these definitions are analysed from one perspective of the transaction: internal (i.e. business economic benefit) or external (i.e. customer's expectations). Until now, the literature review has led us to the conclusion that value presents two different meanings. One focuses on customers (external) and another focuses on organisations (internal). Although these meanings are different, their objectives converge into the same objective – value creation, because value should be co-created by two different parties and should provide rewards for both parties (Prahalad and Ramaswamy, 2000). i.e. Customers' viewpoints help organisations and themselves to shape their expectations, thus organisations develop abilities to reconfigure resources faster than competitors.

[11] Between 1939 and 1945 (near to the world war period), some initial research on value analysis and value engineering was done.

There is a need to understand the flow of value among these two different parties. It has to reflect both perspectives of the value creation process.

This research takes a system's view of "value" by addressing the conjunction of two parties and modelling how value flows through those parties in a dynamic environment. The value flow model developed by the researcher is shown in figure 2.2.

The diagram (Figure 2.2) is divided in two main parts; the left side of the diagram presents the *organisation and its environment*. The right side presents the *values* from both perspectives. The organisation side is subdivided into two: the first column shows "the *internal* organisational environment", and the second column shows "the *external* environment of the organisation".

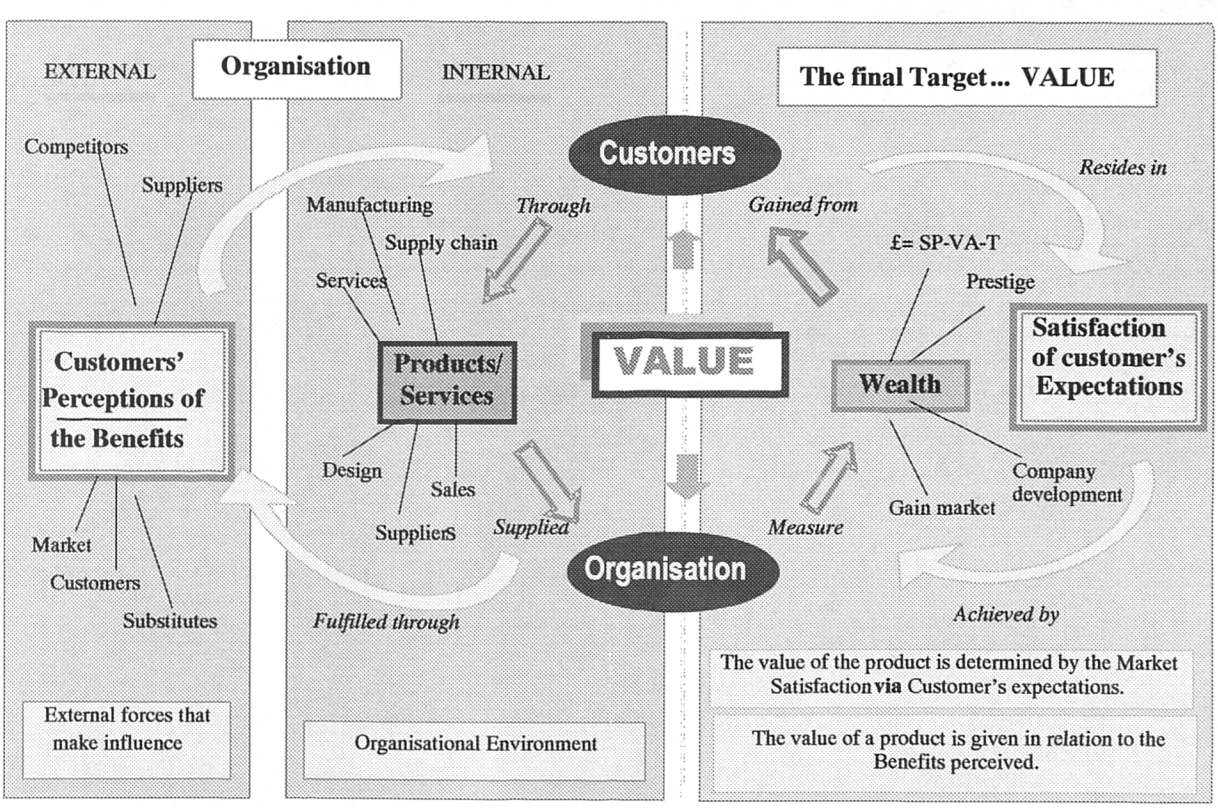


Figure 2.2 The value system and the value flow

The definition of value from the organisational perspective is highlighted by the flow of the squared arrows (the inner circle of the diagram). This value stream runs anticlockwise from the Organisation. This definition reads as "*The organisation measures value through the Wealth that it creates, which is gained from Customers through Products/Services supplied*". Products/services, manufactured *internally,* are described by Porter's (1985) value chain model. It involves all departments of the business and sometimes external institutions such as suppliers, distributors, and support bodies to deliver the final product to the customer. Consequently, these activities which create organisational (internal) value can be controlled by the organisation, but there are some other factors that the organisation cannot control, usually those generated by forces external to the organisation (e.g. competitors, substitutes, market and so on). These forces steer the whole system and make the system dynamic by acting over customers, competitors and suppliers. Logically, these forces push the organisation towards a continuous change and, at the same time, the organisation pushes the external environment and starts again in a continuous loop.

The other definition of value from an *external/customers' perspective* is illustrated by the flow of curved arrows (the outside cycle). This value stream begins from the customers and flows clockwise. This definition reads as *"Customers' value resides in the Satisfaction of their expectations, which are achieved by the organisation through fulfilment of the customers' perceptions of the benefits provided by the product/service."*

There is a strong link between the value that the customers' demand and the benefit supplied by the organisation. The satisfaction of the *customers' expectations* is linked with the *perceptions of the benefit* acquired from the organisation. Due to the dynamic nature of the market this cannot be controlled by the organisation. The customer's perception is not static and consequently the organisation has to offer a better proposition than its competitors.

Since the value of a product/service is given in relation to the benefits perceived by customers, the organisational wealth is volatile. The perception of the customer's value cannot be directly influenced by the organisation[12], although the organisation can manipulate its internal activities

[12] The researcher considered that the organisation do not make direct influence to the customers perceptions because these also depend on the external forces of Porter (1985) such as competitors.

in order to make an impact on particular market. Thus, organisations should identify those activities that the customer really values and turn them as competencies and or capabilities.
Bower and Garda (1985) and Treacy and Wiersema (1993) highlight the importance of customers' perceptions of the value delivered to the clients.

At the end of the day, Value for organisations is ***Wealth***, whereas Value for customers is ***Satisfaction of their expectations on fulfilment of their perceptions.***
We have been discussing value from the customers' perspective and value from the organisational perspective, but still the remaining question is Who gets What?

2.3.1. Who gets what?

Figure 2.3 provides a scenario with some type of values that are usually identified in both parties.
On one hand *the Organisations create value* through (left side of Figure 2.3):

- prestige over competitors
- gain market/clients
- margin and
- company development

These four values in short or long term produce "wealth" for the firm.

On the other hand, we should start with the premise that *Customers perceived value* in distinct ways (right side Figure 2.3):

- image,
- total care and total service
- quality-performance
- low prices,
- new products

Customers demand value for their money (Ruggles 1998), but at the end, they also look for "*satisfaction of their expectations*", whatever these are.

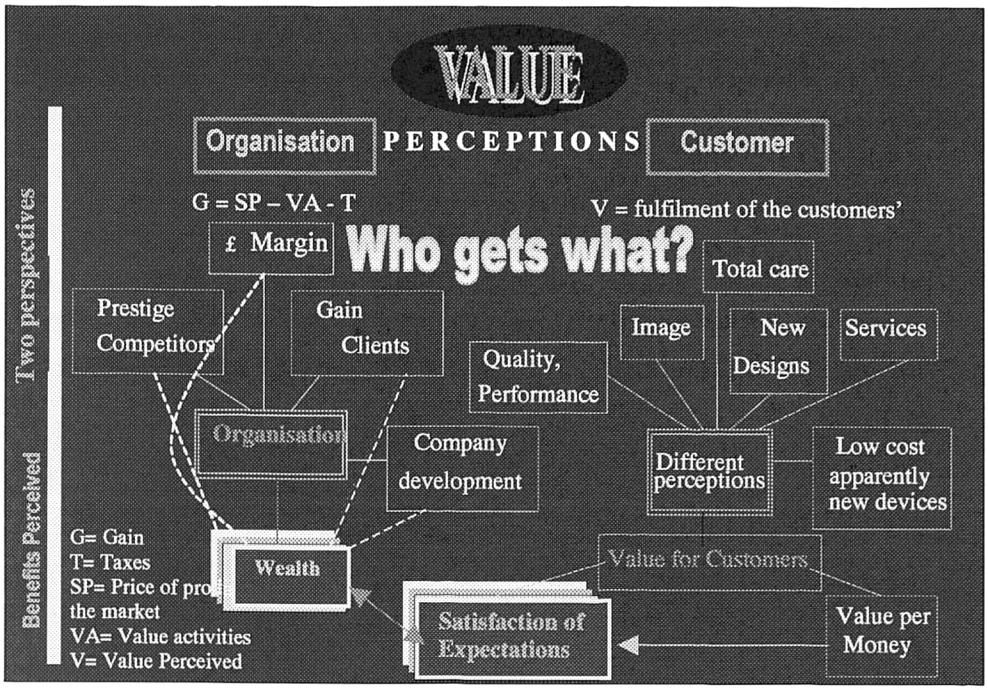


Figure 2.3 Who gets what?

In order to have a better understanding of value in the context of this research, we have to link wealth and satisfaction of the customers. Therefore, it can be inferred that

> *"Value resides in the satisfaction and fulfilment of customers' expectations, at the same time, generating wealth for organisations."*

In other words, as soon as the organisation "satisfies the customers' expectations" it should create wealth; so value is created for both parties. Hence, value creation should be a win-win situation.

From an empirical research perspective, a major limitation of previous research on value creation has been the failure of studies to address the linkages between operations and customers. Although Porter (1985) highlighted this as important, little subsequent research has been done on this issue. Therefore, this research attempts to contribute by linking operations management and customers by proposing a new framework for value creation through the use of value propositions.

2.4 The Value Propositions

In 1985, McKinsey & Co. introduced the value delivery system or value delivery sequence. This approach, often referred to as the value proposition, places emphasis on the companies need to change from the traditional functional view of activities to an externally oriented view as a form of value delivery (Bower and Garda, 1985).

The value delivery sequence differentiates from the value chain by looking at the business from a customer perspective, rather than internally oriented activities. The theory behind value propositions is the creation of mutual value. It can be achieved as a consequence of a reciprocal relationship between organisations and stakeholders in a network (constellation).

The value proposition is defined as an implicit promise a company makes to customers to deliver a particular combination of values. Each proposition searches for the unique value that can be delivered to a chosen market. Thus, the value propositions help organisations to focus on a selected market and narrow their operational focus (Treacy and Wiersema, 1993).

The application of this concept has changed the focus of operations in many businesses by redefining their competencies and capabilities (e.g. IBM, ICI, Home Depot, Federal Express and so on[13]). In doing so, these companies have also made some fundamental decisions on customer segmentation (McDonald and Wilson, 2001). The establishment of a value proposition brings, as a consequence, the re-adaptation of culture, infrastructure, technology, resources and measurements - often called the internal business enablers (O'Dell and Grayson, 1999).

Treacy and Wiersema (1996) state that the selection of a value discipline is a central act that shapes every subsequent plan and decision that a company makes. The value proposition shapes the entire organisation.

Treacy and Wiersema have identified three value propositions, often named value disciplines. Each value proposition proposes a particular offer:

[13] These are covered later in this thesis

- *Operational excellence* organisations propose standard products to their customers, at the best price with least inconvenience.
- *Product leaders* organisations propose best products to their customers (new designs and or new technology) at the right time.
- *Customer intimacy* organisations propose the best total solution to their customers.

The following subsections explain each proposition with some illustrations, their focus, operations, management style and type of growth.

2.4.1. Operational excellence

For some authors[14], Henry Ford was the pioneer of this business model. Ford drove down the retail prices of the Model T car from $850 to $ 240 dollars, consequently delivering an acceptable product at the lowest price possible.

Operational excellence companies focus on the delivery of a combination of quality, price and easy purchase. The emphasis on product reliability, durability and convenience.

Operational excellence companies are highly proceduralised and smooth running. Their main drivers of change are business re-engineering, efficiency and co-ordination, application of information technology, automation and control of processes. These drivers cut down the unnecessary production costs and improve the quality of the products. The operational basis of operational excellence organisations is described in Table 2.4.

Toyota boasts the quality of its products and shows them running on and on for 200,000 miles, 300,000 miles and more. Expanding their success, Toyota has transferred their efficient processes and methods and even their management style using identical designs and procedures from Japan to Kentucky.

Operational excellence management encourages the organisation to work in team groups, where everybody knows the plan and the rules and what each one has to do.

[14] Norman and Ramirez (1993) and Treacy and Wiersema (1996).

Another example of operational excellence is General Electric. GE abandoned the load-dealer[15] concept and reinvented its operational model. They launched the GE virtual inventory – computer-based logistics systems that allow stores to operate as if they have hundreds of ranges of refrigerators in the storeroom when, in fact, they do not have any at all.

These organisations get their growth in three forms. They work to assure a constant, steady volume of business so as to keep their assets continuously working, they find the way to use their assets and they replicate their formula in other markets.

2.4.2. Product Leaders

Thomas Alva Edison astonished the world with his 1,300 inventions and 1,100 patents, by generating invention after invention and applying them to useful, commercial products. Thus, he is considered one of the first people to have shaped this business model.

Product leaders offer leading products or useful new applications of existing products or services.

Product leaders push their products into unknown areas or highly desirable areas. To do so they must challenge themselves on creativity, fast commercialisation of their ideas, and recognition of obsolete products before their competition. They usually operate on concurrent process development to reduce time to market. Their operational basis can be described by four distinctive features (Table 2.4).

Intel squeezes the creation of clever designs onto small pieces of silicon. The initial Pentium chip had Intel stretching almost to breaking point, the limit of chip-making technology. The company spends 42% of its net income on research and development. The urge to innovate and create breakthrough products is almost uncontrollable at Intel. Intel did spend $ 2.4 billion in making the fastest chip of its time. Innovations and obsolescence are part of the daily life at Intel.

[15] Load-leader refers to the typical product supply scheme from GE to its dealers

Product leaders make decisions quickly, "it is better to make a decision even if it is wrong and then correct it rather than make a decision too late or not at all" (Johnson & Johnson's Vistakon division, Treacy and Wiersema, 1996:36). They have teams prepared to make a decision today and implement it tomorrow. Product leaders are very keen on protecting their entrepreneurial environment; they hire, recruit and train employees in their own mould. They place a lot of attention on outside input by hearing customers and taking right suggestions and details to improve the next product-generation.

Some product leaders have noticed that their customers have a much broader perception of value. They ask for a mix of experiential benefits. They expect that the breakthrough makes them shake their rational and emotional feelings. For instance, Harley-Davidson started receiving unsolicited orders since 1996 for its 100th anniversary edition motorcycle which won't be available until the middle of 2003. Their customers are buying more than performance, they are buying lifestyle. For some, experiential or emotional impact is the main measure of performance.

Nike, Reebok and Swatch transmit an emotional impact by associating their products with the sporting heroes, the rich and famous in the same way as Revlon sell hopes, but not cosmetics.

These organisations grow by the rapid translation of ideas into new designs, the solution of specific problems and the identification of the right time to make obsolete own products.

2.4.3. Customer Intimacy

In 1992, Thomas Watson (IBM CEO) woke up the big blue by offering customers brand-new user friendly services; he initiated the manufacturing-direct technical support. IBM produce and deliver more personalised levels of support.

Customer-intimate companies do not deliver what the market wants, but what a specific customer wants. They deliver a total solution and take responsibility for achieving results.

Roadway Logistics Systems has taken all the responsibility for inbound logistics at two Ford assembly plants. Hundreds of components from Ford's suppliers, 14 transportation companies

and all the warehouses are managed by Roadway Logistics to achieve just-in-time delivery to Ford.

Customer intimate companies offer the best total solution to customer problems by cultivating a strong relationship with its few customers and upgrading their offers. They personalise basic service and even customise products to meet particular customers needs. Since these organisations meet a wide range of customer's needs, they need a broad set of skills and styles to get the job done. Thus, their employees are adaptable, flexible and multi-talented. The operational basis of customer intimate organisations are described on Table 2.4.

Home Depot, a home-improvement store, traces the performance of the articles consumed through phone calls and strengthen the customer-relationship and customer support (installations, home deliveries, etc.). Thus, the company gains trust.

These organisations grow by strengthening the firm-customer relationship, tailoring the particular customer's needs and empowering the closest employees to the customer.

Table 2.4 compares the major characteristics of each value proposition. The focus of one value proposition is completely different to the others. The operations, management systems and even the culture of each proposition are aligned to the focus; and the focus is directed to one particular market segment. It can be inferred that the entire operational process behind a value proposition and the risks involved are specific for each proposition.

	Operational Excellence	Product Leader	Customer Intimacy
Focus	On process end-to-end product supply and basic service that are optimised and streamlined to minimise cost and hassle	On the core innovation process and recognition of product.	On core processes of solution development, results management and relationship management.
Operations	operations that are standardised, simplified, tight controlled and centrally planned, leaving few decisions to the discretion of employees	the entrepreneurial initiatives and re-directions that characterise working in unexplored territories	A business structure that delegates decision-making to employees who are close to the customer.
Key Management Systems	that focus on integrated, reliable, high-speed transactions and compliance to norms	that are result-driven, that measure and reward new product success, and that do not punish the experimentation need.	that are adapted towards creating results for carefully selected clients
Culture	A culture that abhors wastes and rewards efficiency	A culture that encourage individual imagination, accomplishment, out of the box thinking, and a mind set driven by the desire to create the future	A culture that embraces specific rather than general solutions and thrives on serious and lasting client relationship

Table 2.4 Comparison of the value propositions by business enables

2.5 Findings and Problem Definition

Although, Treacy and Wiersema' model presents a new approach by linking value propositions to operations, the researcher, based on empirical evidence, identified some inconsistencies on Treacy and Wiersema's value propositions (1996) (Martinez, 1999).

The analysis undertaken is based on induction of data[16] from Treacy and Wiersema's framework (Easterby-Smith et al. 1999; White 2000, Buckley, 1976:17). To support the data induction, Miles and Huberman (1984:223) suggest the decomposition technique. Thus, the analysis started with the application of the decomposition[17] technique to break down the value disciplines

[16] Induction of data is an analysis of information, usually flows from general information and arrives to particular type of information (Easterby-Smith et al.1999)

[17] Decomposition is one of the theory building techniques also named 'identification of differences' by Buckley (1976:17). For more information about the different techniques as categorisation, decomposition and interpretation see Chapter 4.

of Treacy and Wiersema into components and bring new insights to the research. Then a categorical aggregation was applied to assemble different components into a logic and understandable way, thus these formed two new categories 'hard' and 'soft'. Finally, the interpretation of each category provided a description and understanding of the new groups. For more information about this process see Chapter 4 (Section 4.3).

To build validity and credibility of the analysis, the researcher used the same examples as Treacy and Wiersema used for illustrating their value propositions[18]. These examples have been introduced previously in sections 2.4.1, 2.4.2 and 2.4.3. Finally, to build reliability[19], two main parameters are studied in each example; i.e. organisational focus and key operations[20]. These two parameters were selected because:

1) *focus* discloses issues such as company objectives, main market and company orientation.
2) *key operations* disclose issues such as operations, organisation's competencies, key development and/or technology and key resources.

It should be noted that the examples presented by Treacy and Wiersema do not go in-depth, therefore, it makes the analysis of more parameters difficult.

Treacy and Wiersema introduced Intel and Harley-Davidson as *Product Leaders*. The researcher's analysis compares the focuses and operations of both organisations. It shows that:

- On one hand, Intel is focused on the creation of new designs and technologies. On the other hand, Harley-Davidson is focused on the creation of image/style.
- Intel's key operations are focused on the creation of breakthrough/innovations, the ability to put them on the market and the performance of continuous innovations and obsolescence. In contrast, Harley-Davidson's operations reside on the management of the brand and the linkage of customer's emotions with products.

To sum up, Intel is considered a product leader because it sells new and innovative products to its customers. Harley-Davidson is also considered a product leader, because it sells a brand image to its customers. This analysis shows, through Intel and Harley-Davidson, that two

[18] The examples are taken for the book "The disciplines of the market leaders" (Treacy and Wiersema, 1996)
[19] Reliability is the extent to which a study's operations can be repeated. It is also about consistency and research, and whether another researcher could use your research design (methods) and obtain similar findings (White, 2000).
[20] Table 2.5 shows the results of a cross analysis using both parameters (focus and key operations)

completely different strategies are sharing the same value proposition – product leaders. The summary of the inconsistencies is presented in Table 2.5.

Taking this argument further, similar analyses were carried out on the other two value propositions – operational excellence and customer intimacy and the outcomes of these analyses are:

Toyota and Dell computers are also examples used by Treacy and Wiersema to illustrate the *Operational Excellence* proposition. The empirical evidence shows that:

- Toyota is focused on quality products and minimisation of production costs. Different from Toyota, Dell Computers is focused not on the product, but on the delivery system to provide product variety directly to customers.
- Toyota's operations are mainly focussed on the development of efficient processes, methodologies, mass production technologies/equipment and management techniques to strength its processes. Among some techniques used by Toyota are just in time, total preventive maintenance, quality systems (TQM, EFQM, etc), elimination of wastes and lean manufacturing techniques. On the contrary, Dell's operations are embedded in cutting dealers out of the distribution process, simplifying its production process and selling directly to customers. Dell builds to order rather than to inventory, thus it integrates Dell's logistics with its suppliers.

Summing up, Toyota is regarded as operational excellence because it sells it capabilities to offer quality products at relatively low prices. Dell is also regarded as operational excellence organisation because it sells its ability to get access to a very wide range of computers directly to its customers by cutting dealer's hassle and delivery times. The illustration of these examples is presented in Table 2.5.

As *Customer Intimate* organisations, Treacy and Wiersema introduced Roadway Logistics and Home Depot, although, the research shows:

- Roadway Logistics is focused on the management of JIT (just-in-time) delivery of every material for two Ford assembly plants. In contrast, Home Depot is focused on building thrust on the standard service.

- Roadway Logistics' operations are mainly focused on the continuous specialisation of materials management in Ford's assembly plants. In contrast, Home Depot's operations are focused on customers general support (e.g. installation, home delivery, monitoring the performance of its products supplied and so on).

Summarising, Roadway Logistics is considered by Treacy and Wiersema as a customer intimate organisation, because it sells the total service, and has expertise in JIT to Ford assembly line. Home Depot is also considered a customer intimate company, because it sells relationship based on trust; it does not sell a total solution or new devices, just a relationship (Table 2.5).

	Product Leadership		**Operational Excellence**		**Customer Intimacy**	
	Intel	Harley D.	Toyota	Dell	Roadway L.	Home Depot
Focus on	Creation of clever designs and technologies	Creation of image/style	Development of quality products and production costs	Delivery system	The management of JIT of every part for two Ford's assembly plants	Building trust
Key operation	Create breakthrough/innovations and ability to put them on the market.	Management of the brand and linkage of emotions with motorcycles.	Efficient processes and methodologies and management techniques	Cutting dealers, integrating suppliers logistics and simplifying process.	Skill/experience on materials management (transportation/ warehouses, etc.)	Customer support e.g. installation, home delivery and monitoring performance
Sum up	Sell new innovative products	Sell brand image	Sell quality products	Sell the ability to get access to computers directly 'customers to Dell'	Sell the total service of JIT to Ford's plants	Sell relationship.

Table 2.5 Comparative table of the examples used by Treacy and Wiersema on their illustration of their value propositions

The analysis undertaken on Toyota and Dell and Roadway Logistics and Home Depot drive us to similar conclusions as those obtained from Intel and Harley-Davidson. They show that completely different strategies, focuses, types of markets, technologies and operations are categorised under same value propositions – product leadership, operational excellence and customer intimacy.

As a result of the analysis of each value proposition of Treacy and Wiersema (1996) and their examples, two general patterns of value creation were identified. These were categorised into two new groups. Thus, the logic led us to think that "product leaders, operational excellence and customer intimacy" might come in two forms, "hard" and "soft".

Conclusions of the Chapter

The literature review has presented a wide panorama of the value concept on diverse contexts, bearing in mind the research focus.

It has shown how value has moved from

- transaction theories to more customer/organisation-integrated theories
- tangible factors to tangible/intangible factors
- chain relationship to constellation relationship
- providing a product to co-creating the product with the customer

This literature review has also raised some other questions on the interaction, definition and flow of value between two parties[21]. Addressing this issue, the research has introduced the value system to provide a better understanding of value in the context of this research. The value system and value flow explains the flow of value from two different actors: "customers" and "organisations" and the external factors that affect this relationship. It has been inferred that:
"Value resides in the satisfaction and fulfilment of customers' expectations, at the same time, generating wealth for organisations."
This definition stresses on the alignment of strategic focus with the customer's expectations.

Treacy and Wiersema's model introduces a new approach to value creation by linking value propositions to operations, hence the researcher focused attention on this framework.

The research has introduced three value propositions proposed by Treacy and Wiersema (1996) i.e. customer intimacy, operational excellence and product leadership. Empirical analysis done by identification of differences and logic replication has shown that completely different strategies, operations and targeted markets are categorised under same value propositions. Consequently, these three value propositions have been found to be limited in scope and flexibility to describe and/or classify different types of businesses' value creation processes.

[21] Parties are usually referred to customers and organisations.

The differences found through the empirical analysis of these value propositions (Table 2.5) makes the researcher think that "product leaders, operational excellence and customer intimacy" might exist in two forms, hard and soft. Thus, the chapter concludes with the first research question

RQ1. Does value exist in hard and soft dimensions?

The context of this research question is not just to establish whether value exists in hard and soft dimensions, but to establish hard and soft value (if exists). The hard and soft value are differentiable in several aspects, for instance, in the creation and development of technology, products and processes, approach to market, product delivery, competencies amongst others.

Chapter 5 fully addresses this issue; in addition Chapters 3 and 4 state the research methodologies for this research.

Chapter 3. Research paradigms

The most difficult task of the research is to define good research problems and questions that will direct the looking and the thinking enough and not too much.
Stake (1995, 15)

The exploratory analysis of the existing literature presented in Chapter 2 shaped the focus of the research and defined the initial research question. Hence, Chapter 3 starts discussing the scientific paradigms and research strategies appropriate for this research. It then continues with the formalisation of the research questions and concludes with the discussion and selection of research paradigm for the present research.

This chapter is one of the most important chapters of the thesis because it is here the research paradigm, which governs the entire methodology, is selected. Such selection is made based on the rationalisation of the research needs.

3.1 Scientific Paradigms

The literature review on research methodology and thesis writing showed that authors such as Thomas and Tymon (1982), Phillips and Pugh (2000), Easterby-Smith et al (1999), Kekale (2001), Murray (1994), Yin (1994) and Bolker (1998) among others, argue that there are three points that a PhD thesis must contain:

1. a contribution to existing research
2. proof of logic and mastery of research methodology and
3. enough evidence to support the thesis.

This chapter starts by discussing the research methodology. Lehaney and Vinten (1994) have identified that the term 'methodology' has six different definitions.
Methodology is:

- the way in which hypotheses becomes theories - scientific methodology

- the ways in which methods and techniques are chosen to address a particular problem.
- the ways in which problems are chosen, which addresses the question of sponsorship
- methods and techniques
- the modelling process, which includes hard and soft systems approaches, and the way in which the relevant variables are chosen for a model, and how reality is concomitantly simplified
- the chronological planning of events, i.e. the research programme

The first two definitions seem to be the most complete; furthermore, one complements the other. Therefore, to build a logical development of the research issue and credibility on the research methods, these first two definitions of methodology were adopted in this research. Hence, this chapter starts by reviewing a central debate amongst social science philosophies. Then, it continues with a description of the research paradigms. Finally, the chapter concludes with the definition of the research paradigm for this research issue.

The main philosophical choices underlying management research are positivist paradigm and phenomenological[1] paradigms. Easterby-Smith et al. (1999) defined three reasons why the understanding of the philosophical paradigms is very important. First, it helps to clarify the research design; second, it helps the researchers to recognise which designs will work and which ones will not; and third, it can help the researcher to identify and create designs that may be outside of his or her past experience.

Back in 1853, Auguste Comte, an early proponent of the positivist view, stated "that there can be no knowledge but that which is based on observed facts." The key idea of the positivist paradigm is that the social world exists externally, and that its properties should be measured through objective methods, rather than being inferred through sensations, reflections or intuition (Easterby-Smith et al, 1999).

The discovery of penicillin was one of the first researches that led the scientific revolution by following a new paradigm. Fleming (1929) did not apply the scientific method but an independent and logical thinking, which provided a new way to see the world and consider other important things to investigate. This new paradigm, "phenomenology", was born from

[1] In the latest edition of Easterby-Smith et al. book (2002), the phenomenological paradigm has been re- named as 'social constructionism', although its performance follow the same pheno. approach.

the application of the positivist paradigm to social science (Easterby-Smith et al, 1999). Husserl (1946) stated that the phenomenological paradigm argues that the world and the reality are not objective and exterior, but they are socially constructed and given meaning by people (Burrel and Morgan, 1979:240-255).

The basic beliefs and methods of each paradigm are summarised in Table 3.1.

	Positivist	**Phenomenological**
Basic Belief	- the world is external and objective - observer independent	- the world is socially constructed and subjective - observer is part of what is observed - science is driven by human interests
Researcher should	- focus on facts - look for causalities and fundamental laws - reduce phenomena to simplest elements - formulate hypothesis and then test them	- focus on meanings and interpretations - try to understand what is happening - look at the totality of each situation - develop ideas through induction of data
Preferred methods	- operationalising concepts so that they can be measured - taking large samples	- using multiple methods to establish different views of the phenomena - small samples investigated in-depth or over time

(Source: Easterby-Smith et al., 1999)

Table 3.1. The key characteristics of the positivist and phenomenological paradigms

The key characteristics of each paradigm are quite contradictory to one another, although each paradigm has its own particular strengths and weaknesses. The following subsections describe them.

3.1.1 Positivist Paradigm

The positivist paradigm proposes that the reality is external and objective and that knowledge is significant only if it is based on observations of this external reality.
Positivists argue that "knowledge must be grounded in empirical data" and should be far from subjectivism (Morgan, 1983:371-372).

The strengths and weaknesses of this paradigm give a better perspective of it (Easterby-Smith et al, 1999).

Strengths:

- can provide a wide coverage of different situations
- can be fast and economic
- can provide relevance to decision, especially when statistics of large examples are involved.

Weaknesses:

- tend to be inflexible and artificial
- not effective to understand the process or significance of people (actors)
- Not very helpful in generating theories because it is focused on what is now, by inferring that changes and actions should take place in the future, but not in their research time.

3.1.2 Phenomenological Paradigm

The phenomenological paradigm states that reality is socially constructed rather than objectively determined. Thus, the task of social scientist should not be to gather facts and measure them, but to appreciate and analyse different constructions and meanings that people place based on their experience (Easterby-Smith, 1999). Phenomenologists claim that subjective reality is all-important because the locus of the reality rests in the knowledge of the subject[2] (Morgan, 1983:372).

These are the strengths and weaknesses associated with the phenomenological paradigm (Easterby-Smith, 1999).

Strengths:

- understand the people's meanings
- adjust new issues to study, e.g. if there is a new issue into the research subject the researcher can address it.
- contribute to the evolution of new theories
- look at the change process over time

[2] E.g. researcher's understanding of the subject and the different support issues that he/she adopt to explore the subject.

Weaknesses:

- data collection is time consuming
- analysis and interpretation can be difficult
- some people might give it low credibility, because it is based on few experiments

At this point, the clear definition among paradigms is known, but this information is not enough to select a paradigm for the study of our research issue. Since the paradigm is the foundation of the research design, it becomes a strategic decision. Easterby-Simth et al (1999) suggest some key choices to take into account before selecting a paradigm. Table 3.2 shows some of the most critical choices.

Key Choices	**Positivist**	**Phenomenological**
Researcher's involvement	Independent	Great involvement
Samples	Large	Small
Theories	Testing	Generating
Methods used	Experimental design	Fieldwork methods

(Adapted and Modified from: Easterby-Smith et al, 1999)

Table 3.2. Paradigm's influence on key choices of research design influenced

The research issue-"value creation in business management", established in Chapter 1, could be tackled with a positivist or phenomenological paradigm. In choosing, the researcher considered the nature of research issues and its demands.

In the study of value creation in business management, it is important to go to the fundamental point where value is created and understand how it is created. This means that it is important to understand internal and external factors. Therefore, it demands sensitivity and in-depth understanding from different fields around business, strategy, operations and even more from customers.

Voss (2002) as well as Easteby-Smith (1999) recommend a phenomenological paradigm for this type of research, because it provides a high degree of involvement on different data sources, access to sensitive situations, tacit information and insights. It can deliver an in-depth detail and understanding of current phenomena and its environment.

Based on the rationalisation of the research needs, the phenomenological paradigm was selected to tackle the research issue.

3.2 Research Strategies

There are three research strategies, i.e. exploratory, explanatory and descriptive. Each research strategy proposes different ways to collect and analyse empirical evidence, following their own logic (Yin, 1994:3).

The application of the research strategies is not particular to specific research methods, i.e. a case study can adopt a explanatory focus or a survey can be exploratory or descriptive (Yin, 1994:3-9).

3.2.1 Exploratory

Exploratory research searches for preliminary data to display the nature of the problem, highlight issues for future investigation and often suggest possible hypothesis or new ideas (Kotter, 1988). It is generally used for the identification or definition of new problems, issues or topics (Stake, 1995:37).

Exploratory research is characterised by flexibility in order to be sensitive to the unexpected and to discover insights not previously recognised (Kinnear and Taylor, 1991:131-136). This research involves the analysis of appropriate theories and concepts to develop a new one, if it is necessary. In addition, existing methodologies can be used as a complement of the exploratory research (Phillips and Pugh, 2000:50).

Exploratory research is appropriate where the research objectives include:

- to develop precise formulation of a vague problem or opportunity
- to gain a new perspective of the variables involved in the situation
- to establish priorities on the potential problems based significance
- to gain management and research perspective concerning the character of the problem situation
- to identify and formulate an alternative course of action.

Kinnear and Taylor (1991:132-136) suggest observation, interviews and experimentation as appropriate data collection tools for exploratory research.

3.2.2 Descriptive

The descriptive research can be used to make predictions about the occurrence of a phenomenon, while data regarding the presence of an association among variables can be used for predictive purposes (Kinnear and Taylor,1991:137-140).

Descriptive research is appropriate when the research objectives include (Kotter, 1988):

- to draw the characteristics of the phenomenon and determine the frequency of occurrence
- to determine the degree of association among variables and phenomenon

Kinnear and Tylor (1991:137-140) suggest the use of secondary data and interrogation of respondents as a source of data

3.2.3 Explanatory

Explanatory research, also named experimental or causal, is typically seen as being concerned with establishing cause-effect relationship in an attempt to explain *why* things happen. This research is often equated with experimental procedures since, it is argued, only when some form of experimental control is exerted, can causality be demonstrated (Kent, 1999:5-6).

Kotter (1988) suggests that explanatory research is appropriate when the research objectives include:

- to understand cause and effect relationships, the focus being on why things happen
- to understand the functional relationships between casual factors and the effect to be predicted

Quantitative research places emphasis on explanation and understanding of cause and effect (Stake, 1995:37). Kinnear and Taylor (1991:141-146) suggest that case studies, surveys and experiments support explanatory research; Meanwhile, Kent (1999:5-6) suggests that

surveys do not have the ability to establish causes or offer explanations, since they tend to be very rigid.

Chapter 1 stated that this thesis is composed of two main parts, theory building and theory testing. In the first part of the thesis, exploratory research is extensively used for the development of theory, whereas in the last part, explanatory research is used for theory testing. The research methods and techniques selected to support each research strategy are discussed in the following chapters.

3.3 Research Questions or Hypotheses

Once the researcher found the research issue and identified a gap, she started getting a little philosophical by trying to understand the best way to express her research by research questions or hypothesis. She searched "in which cases it is better to use hypothesis and when to use research questions?"

After an exhaustive search for a convincing answer to the previous question, the researcher had the opportunity to meet Richard Thorpe[3], co-author of Easterby-Smith et al (1999) and discuss this topic with him. Summarising the discussion, research questions are generally used in a phenomenological approach because by using this approach the research tends to produce a vast quantity of information to analyse, so the research questions provide focus and specific direction to the research issues. Whereas the hypothesis are more open and very often are used on positivist approaches. Stake (1995:16-25) support this argument, by stating that research questions play an important role, especially in case studies, which tend to be complex and ambiguous, therefore, helping the researcher to narrow the scope of enquiry.

Since this research is focused on the study of value creation and it demands great understanding of the research issue, its environment, and influential factors, the phenomenological approach was selected because it is the most appropriate paradigm to address the research issue and provide vast information (Easterby-Smith et al, 1999).

[3] Meeting during the EPSRC research methodology workshop organised by the Institute for Manufacturing, Cambridge University Feb. 2002

Stake (1995:15) states that the development of the research problems is usually an evolving, changing and incremental process, although it is important to keep in mind the research issue.

The research questions presented here are the product of the last evolution. These questions followed the evolution process proposed by Stake (1995:20-25). The evolution process of the research questions has three main steps: definition of the topical question, identification of the foreshadowed problem which usually makes the topical question evolve, and re-definition of the research question or also named evolved issue pursued.

The results from empirical analysis presented in Chapter 2 facilitated the formulation of the initial research question:

RQ1. Does Value operate in hard and soft value dimensions?

If yes, the subsequent research questions are: (see below). They emerged throughout the development of this research and are addressed in Chapters 5, 6, 7 and 8.

RQ2. Are the value propositions of the value cube valid?

If yes, the next logic questions that provide additional information of the model are:

RQ3. What is the unit of analysis of the value cube[4]?[5]

RQ4. Can an organisation have more than one value proposition?

Finally, the question that emerged from practice is:

RQ5. Are there particular characteristics, "footprints", for each value proposition?

Conclusions of the chapter

This chapter has reviewed the research paradigms and decided that the phenomenological paradigm is the most appropriate paradigm to use for this research. Olkkonen (1993) states that it is the research issue that shall dictate the approach and methods to be used in the research (Kekale, 2001). Thus, the paradigm decision was based on the rationalisation of the research needs and it led us to the conclusion that the phenomenological paradigm could provide access to vast detail of the phenomena.

[4] The Value Matrix is the proposed model, more information about its design and its validation is available on chapters 5 and 6.

[5] The researcher thanks to Ken Platts from The Institute of Manufacturing of Cambridge University for his valuable input in the definition of the research question No. 3.

The exploratory, explanatory and descriptive research have been defined in this chapter. As mentioned before, there are two main parts on this thesis – theory building and theory testing. It has been identified that an exploratory research is extensively used for the development of theory building and an explanatory research is used to test the proposed model (construct). The methods and techniques that support this research are introduced on the following chapter.

Five research questions are identified, i.e:

RQ1. Does Value operate in hard and soft value dimensions?

RQ2. Are the value propositions of the value cube[6] valid?

RQ3. What is the unit of analysis of the value cube?[7]

RQ4. Can an organisation have more than one value proposition?

RQ5. Are there particular characteristics, or "footprints" for each value proposition?

Based on the theory discussed in this chapter, the initial criteria to evaluate the research are stated here. The three important points of a PhD thesis proposed by Kekale (2001) and supported by Easterby-Smith et al. (1999) and Phillips and Pugh (2000) among others, are taken as part of the evaluation process of this research (See the research criterion Table 3.3). The purpose of the establishment of these criteria is to evaluate the quality and outcomes of the full research in Chapter 10. These criteria are expanded over the next chapter when the research methods and techniques are selected.

	Criterion	**Identified in:**
1.	Rigour of the research process (Show a proof of logic research methodology, validity, reliability, etc.). It is deployed on: 1.1 Internal validity *(Yin, 1994; Easterby-Smith et al, 1999)* 1.2 Construct validity *(Thomas and Tymon, 1982; Kasanen, 1993; Yin, 1994; Easterby-Smith et al. 1999)* 1.3 External validity *(Yin, 1994)* 1.4 Reliability *(Thomas and Tymon, 1982, Kasanen, 1993; Easterby-Smith et al. 1999)*	*Chapter 3.1*
2.	Contain evidence to support the construct - validation of each value proposition (methods) # cases *(Kekale, 2001, Yin, 1994, Easterby-Smith et al, 1999)*	*Chapter 3.1*
3.	Contribution to knowledge *(Kekale, 2001, Yin, 1994, Easterby-Smith et al, 1999)*	*Chapter 3.1*

Table 3.3 Research Criterion.

[6] The value cube is the proposed contruct by this researcher, for more information see Chapter 5 and 8

[7] The researcher thanks to Ken Platts from The Institute of Manufacturing of Cambridge University for his valuable input in the definition of the research question No. 3.

Chapter 4. Research Design

No matter how small our sample, or what our interest, we have always tried to go into organisations with a well defined focus
Mintzberg (1979)[1]

The research design is the logical model of proof that allows the researcher to draw inferences concerning casual relationships among the variables under investigation (Yin, 1994:19). Arbnor and Bjerke (1997:6) add, "the research methods are the basic guidelines of knowledge creation", hence, strong emphasis is placed on the analysis and selection of the research methods that shape the current research design. The phenomenological paradigm[2], selected in Chapter 3, represents the foundation that shapes the characteristics of the research design addressed in this Chapter.

The first Chapter established that this thesis comprises two main parts 'theory building and theory testing'; therefore, this Chapter starts by discussing different types of research, then it moves to analyse some research methods for theory-building and theory-testing. It continues with the analysis and selection of methods and techniques used for building and testing theory around the research questions previously defined in Chapter 3. Finally, it concludes with the selection of additional criterion for the evaluation of this research.

4.1 Classifications of Research

There are different types of research, which are mainly distinguished by their outcomes that are assumed to emerge. Easterby-Smith et al, (1999:6) identified three: pure research, applied research and action research.

a) Pure research aims to lead towards a theoretical development that may, or may not, have any practical implication. It has three forms: 'discovery', which is a totally new idea that may revolutionise thinking on a particular topic. 'Invention' which is a new technique or

[1] Source: Voss et al. 2002
[2] In the latest version of Easterby-Smith et al. book (2002), the phenomenological paradigm has been re-named as social constructionism; however it follows the typical phenomenological approach.

method to deal with a particular problem. Finally, 'reflection'[3], which emerges from the re-examination of an existing theory, techniques or group of ideas, possibly in a different context.

b) Applied research is intended to lead to the solution of specific problems. It usually involves working with companies who identified the problem.

c) Easterby-Smith et al. (1999:8) named 'action research'[4] to the research, which does not fit in either of the above types. They state that action research should lead to change, therefore this change should be incorporated into the research process itself.

Although this classification appears to be simple, in practice, the distinction between different types is not always very clear.

Kasanen et al. (1993) identified one more type of research - 'constructive research approach', which is not addressed by Easterby-Smith et al (1999). The constructive research approach could be considered as a hybrid type of Easterby-Smith classification. It is a combination of 'pure research' and 'applied research', but definitely not an action research because it does not necessarily apply a tangible change to the research environment; it merely proposes a solution that makes contributions to theory and practice by solving an existing problem.

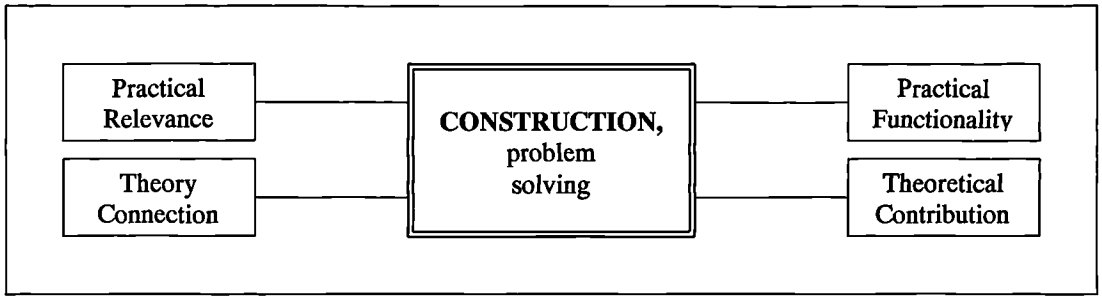
Constructive research is defined as the research procedure to produce solutions to explicit problems (Kasanen et al., 1993, Kekale, 2001). An essential part of 'constructive research' is to tie a problem to a solution by theoretical knowledge. The novelty and the learning process for arriving at the solution have to be demonstrated, because constructivists underpin the learning process from theory to practice and from practice to theory (Murphy, 1997). Thus, not all the problem-solving exercises are constructive research.

Kasanen et al (1993) identified four elements of constructive research (Figure 4.1). These highlight the importance of the practical and theoretical contributions of the construct.

[3] For example, one could examine to what extent Herzberg's theory of motivation (Herzberg et al. 1959), which was developed in the US, could be applied on UK or Germany companies. Results from comparison could lead to revision and modification of the theory. This form of research is less spectacular than discovery or invention, but very used especially for doctoral thesis. It is very popular in academic audiences.

[4] A complete explanation on Action research is shown in section 4.4.1.1. It is important to mention that 'action research' is also considered as a research technique by authors as Easterby-Smith (1999).

Constructive research stresses the development of rigorous approaches to build credibility on the research process as well as on the development of constructs with practical relevance (Thomas and Tymon, 1982).



(Source: Kasanen et al., 1993)

Figure 4.1. Elements of Constructive Research

In doing so, Kasanen et al (1993) propose six phases on the constructive research process:

1. to find a relevant research problem, research issue
2. to obtain general and comprehensive understanding of the research issue
3. to innovate i.e. build the construct (solution)
4. to demonstrate that the solution works (provide evidence to test the construct)
5. to show the theoretical connection and research contribution of the construct
6. to examine the scope of applicability of the construct

Thomas and Tymon (1982) argue that the last phase of Kasanen's research phase can only be tested if relevance and practical functionality are proved by identifying a group of practitioners as potential users of the construct.

The present research was classified as constructive research because it emphasises the research process from the problem to the solution and its application. In addition, strong emphasis has been placed on building the construct (theory building), which is reflective pure research.

4.2 Methods for Building Theory

If "theories represent the most systematic way of building, synthesising, and integrating knowledge (Strauss and Corbin, 1990:22)" how is that theory is built? In order to answer this, the aim of this section is to discuss different methods and techniques for building theory.

Certainly, there are a lot of methods, tools, techniques and even software for testing and validating theory, i.e. surveys, case studies, action research, interviews, SPSS amongst others. However, it is also certain that too little has been written on theory building.

Miles and Huberman (1984) and Meredith (1993) recognised that there was a need for formal methods for building theory. The current literature review carried out by the researcher on theory building[5] concluded that there are still very few methods, tools and techniques that support theory building.

Strauss and Corbin (1990:22) propose three generic steps for building theory: interpretation of data, conceptualisation of data and organisation (integration) of concepts in a form of theoretical interpretation of reality. Before addressing the first step - data interpretation, Miles and Huberman (1984:28) and Voss et al (2002) suggest that researchers should have a prior view of the general constructs[6], categories and concepts[7] that are intended to study and their relationship. Generally, these constructs, categories and concepts come from theory, general experience and from the general objectives of the study envisioned.

Interpreting, conceptualising and shaping these constructs, categories and concepts and getting some clarity about their relationship is what a 'conceptual method[8]' is all about (Miles and Huberman, 1984:28). Buckley (1976:21) states that building a conceptual model

[5] Apart from the literature review, during the research methodology workshop organised by the Institute of Manufacturing at Cambridge University on February 2002, the researcher rose this issue - theory building. The discussion concluded that there are insufficient methods and techniques to support theory building; moreover, operations management has been one of the fields that has least contributions by using theory building methods (this last statement is also supported by Meredith, 1993).

[6] Construct is defined by Meretdith (1993:5) as an abstract form of concept which can be observed directly or indirectly but can be inferred by observable events.

[7] Concept is a bundle of meanings or characteristics associated with certain events (Meredith, 1993)

[8] Conceptual Method is also named 'conceptual frameworks' by some authors such as Miles and Huberman (1984).

is an 'inductive[9] process by which theory is generated. Logically, the inductive process searches for truth and reality and avoids impositions of its own theories.

Conceptual methods can be explained graphically or in narrative form, they can also be rudimentary or elaborate, theory-driven or commonsensical, descriptive or casual (Miles and Huberman, 1984:33).

Conceptual methods are considered by some authors, such as Voss et al (2002) and Meredith (1993), as the best method to build theory because they represent the researcher's map of the territory being investigated and, as the researcher's knowledge improves, the map becomes more integrated. Miles and Huberman (1984:33) suggest that conceptual methods are best done graphically rather than in text.

Too much has been discussed on the use of conceptual models to generate new theory, its design and components. Now, the researcher questions 'how far from being considered as theory are the conceptual models?'

The normal cycle of research, proposed by Meredith (1993), shows the iterative process that drives the conceptual models into explanatory frameworks until these are tested against reality and become theories. It starts with the description phase of the initial model, then moves to the explanation phase and finally to the testing phase and continues again with the description phase, and so on. Figure 4.2 shows this process.

The boundaries between framework and theory are quite uncertain, therefore to clarify the boundaries between frameworks and theories, Dubin (1969) proposes five requirements for theory (Meredith, 1993), i.e:

1. Allows prediction or increases understanding
2. It is interesting (i.e non-trivial)
3. Includes attributes and variables and their interactions
4. Does not include 'composite' variables, i.e. variables that include un-defined elements, attributes or other variables, etc.
5. Includes boundary criteria

[9] Inductive mode moves from general to particular constructs (Easter-by Smith, 1996). Induction is the process by which theory is generated on the contrary, decuction is the process by which theory is

The researcher does agree with the five requirements for theory from Dubin (1969), but she does consider that a sixth requirement is missing 'the acceptability from users'. I.e. the proposed framework should be first used and accepted by suitable users before becoming theory, similar to Kasanen's sixth phase of the constructive research approach (1993).

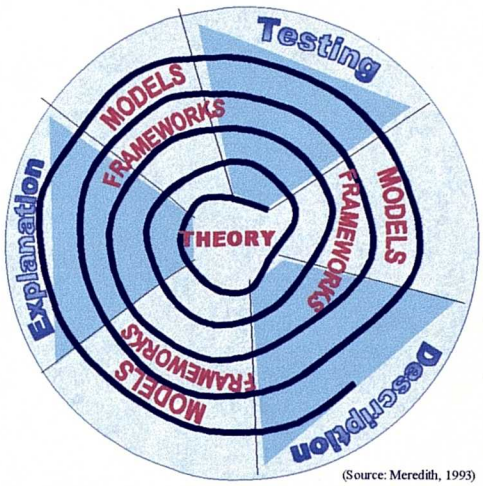


Figure 4.2. The normal cycle of research

Meredith (1993) recognised seven types of conceptual models. The first three "conceptual description, taxonomies and typologies, and philosophical conceptualisation" are *basic conceptual models* as defined previously. The second three "conceptual induction, conceptual deduction and conceptual systems" are explanatory *conceptual frameworks* i.e. explain the event, provide understanding or suggest testable hypothesis. The final type is the meta-framework or *theory* that is a coherent group of interrelated concepts and relationships used as principles of explanation and understanding. Table 4.1 presents the definition of the seven different types of conceptual models.

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tested (Buckley et al, 1976)

	Description
Conceptual Model	
Conceptual Description	It is a descriptive model of an event or phenomenon. It may be well-structured. Its description may be highly simplified or extensive. The model does not explain why things happen, just the relevant concepts, elements and their relationship, which describe the phenomenon.
Taxonomies and Typologies	Taxonomies are listing of items along a continuous scale. These items may be classified under different headings and subheadings but they all have a relative position on the continuum, which allows them to be ranked in order. Typologies are two- or higher dimensional taxonomies, where one dimension is inadequate to classify properly an item and one or more other measures are also needed. The classification does not explain the relationship but simply describe the situation more accurately than other descriptions.
Philosophical Conceptualisation	This model comes from inductive philosophical reflection. It basically integrates different works on the same topic, summarises the common elements, contrasts the differences and extends the work. At the more creative, theory building level, the research has an "ah-ha" experience, when the researcher suddenly see connections and patterns in what was heretofore just a series of inexplicable events or studies
Conceptual Frameworks	
Conceptual Induction	A number of occurrences of a phenomenon are analysed to infer the nature of the system or treatment, which produce them. In some situations, the system might simply be a human interpretation or conceptualisation for which explicit rules have never been explicated. Its objective is to explain a phenomenon through the relationship observed between the system's elements. The goal is not just to describe the phenomenon accurately but also to explain how it occurs.
Conceptual Deduction	With a conceptual deduction, a framework is postulated and its ramifications are detailed for comparison to reality, as well as to provide guidelines for managers. The question frequently asked is about the basis for the formation of the original conceptual framework- is that process not induction? Indeed, the researcher may well be integrating a number of instances (elements, concepts) in the process of forming the conceptual framework in the first place, which would be conceptual induction. However, induction stops with the conceptual framework and deduction begins with the ramification and predictions of the framework. The critical difference is that deduction leads to inescapable conclusions.
Conceptual Systems	This framework is characterised by the many interaction occurring among the elements of the conceptual framework. The conceptual system consists of multiple concepts with many relationships interrelated. The system is typically as complex as a theory, but fails to satisfy at least on of Dubin's five requirements for a theory.
Theories	
Meta-frameworks	One way of forming theories is the compilation and integration of previous framework ("meta-framework"), while avoiding composite variables and clearly defining the boundaries of the theory.

(Adapted and Modified from Meredith, 1993)

Table 4.1. The seven types of conceptual models

The categorisation of conceptual models provides a different research perspective on theory building. It enlightens researchers to classify and understand the characteristics of their models.

Until this moment, the overall picture of theory building has been covered, although the techniques that facilitate the creation of these models have not yet been discussed. Thus, the following section analyses some theory building techniques.

4.2.1 Techniques to support theory-building

The literature review done on theory building shows that there are few theory-building techniques compared with theory-testing techniques. It is interesting that the researcher did not find an article or book-chapter which contains some or most of the common theory-building techniques as the theory-testing techniques appear. Therefore, the techniques presented in this thesis are a compilation of techniques from different sources.

The categorical aggregation (Stake, 1995:74), also named aggregation by Buckley (1976:18), the identification of differences (Miles and Huberman, 1984:222), the replication logic (Yin, 1994:50), the triangulation of data (Easterby-Smith et al, 1996:134) and the induction and deduction of data (Yin, 1994) are some of the theory-building techniques discussed in the rest of this section.

The first theory building technique to be discussed is the *Categorical aggregation,* which brings instances together until something can be said about them as a group (Stake, 1995:74). Buckley (1976:18) proposes that knowledge consists of building blocks and the aggregation technique can be used to arrange and assemble different sets of blocks for solving more complex problems. e.g. categorisation of properties through intuitive aggregation. The next technique is *interpretation* or also named direct interpretation. It complements the categorical aggregation. Interpretation provides a meaning to a particular category or group, based on the observation of their instances or building blocks (Stake, 1995:74). For instance, the generalisation process is an ordinary process of interpretation (Stake, 1995:9). The qualitative researchers concentrate on the instance[10] trying to pull it apart from it's current group 'decomposition' and put it back together in a new group 'aggregation' within more meaningful analysis by direct 'interpretation[11]'. Meanwhile the quantitative researchers seek a collection of instances 'aggregation', expecting that from this aggregation a relevant meaning will emerge (Stake, 1995:75).

Buckley et al. (1976:17) suggest '*decomposition*' as a formal approach to problem-finding. Decomposition, also named 'identification of differences' consists of breaking a problem or issue down into its component parts. Miles and Huberman[12] (1984:222) support this

[10] Instance, also named building block by Buckley (1976:18), is elements and concepts.
[11] Categorical aggregation and Interpretation are techniques widely used on case studies especially on exploratory case studies to build theory.
[12] Miles and Huberman (1984:222) refer to decomposition as a process of splitting variables.

technique by stating that splitting variables can occur at many points during the research. It is specially useful on the initial conceptualisation of the model because it explores new insights. Miles and Huberman (1984:223) suggest that this technique should be used in the service of finding a different, coherent and more integrated explanation of the phenomena.

The *Replication logic* technique is one of the techniques used in the early stages of theory building to start building external validity[13] on the conceptual model (Yin, 1994:50,46,36) by:

a) predicting similar results (literal replication)

b) producing contrasting results but for predictable reasons (a theoretical replication)

It can use theoretical data; in this case it is also classified as enfolding theory.

The *triangulation of data* refers to research where data is collected over different time, frames or sources (Easterby-Smith, 1999:134). It is an analytic induction and its final purpose is the confirmation of data to lead to more reliable results. Thus, triangulation supports a finding by showing that independent measures of it agree with it or, at least, do not contradict it (Miles and Huberman, 1984:234).

Voss et al. (2002:217) suggest that, in developing new theory, it is important to review and compare it with emergent and existing literature, namely *enfolding theory*. This technique is particularly important because it addresses literature that conflicts with the findings. Thus, it forces the researcher into more creative thinking and deeper insights. Enfolding theory on the new construct increases the quality and the validity of the findings.

Induction is the process by which theory is generated (Buckley, 1976:21). Induction consists of fact-finding, which leads to the generation of theory going from general issues to particular (Buckley, 1976:21). On the contrary, *deduction* is the process by which theory is tested, running from particular issues to general ones (Easterby-Smith, 1996).

This section has highlighted different methods and techniques to support theory building. So far, the research has shown that each method and technique have different purposes and follow different approaches e.g. description, explanation, data verification, aggregation and decomposition of data among others. Yin (1994:33,106) and Buckley et al (1976) argue that

[13] External Validity establishes the domain to which a study's findings can be generalised (Yin, 1994:33). It is fully addressed on Chapter 10.

the maximisation of the validity of the research starts with the appropriate selection of theory-building techniques. Therefore, this chapter continues with the selection of appropriate methods and techniques for building theory.

4.3 Selection of the theory building methods and techniques

Chapter 2 concluded with the segregation of two different groups from Treacy and Wiersema's model (1996), i.e. hard and soft value dimensions. To arrive at hard and soft value dimensions, two theory building techniques were applied: i.e. the 'decomposition' and 'categorical aggregation' on each value discipline from Treacy and Wiersema's model. To sum up, the research showed that completely different strategies, business focus, markets among others were categorised by Treacy and Wiersema under same value proposition. Therefore, the researcher started by identifying the differences of instances[14] on each value discipline, segregated them, and then aggregated similar instances into different groups. Finally, these different groups were categorised in two major groups ' hard' and 'soft' value disciplines. This process is called by Buckley et al, (1976:21), induction of data. It was the initial approach to build a theory, which is expanded in Chapter 5.

Until this chapter, the complete development of theory has not been addressed, therefore it is difficult to describe in-depth which methods and techniques were used in practice and how they were used. Hence, the purpose of this section is to select and list the appropriate methods and techniques used in each part of this theory-building process. Chapter 5 shows how these methods and techniques were applied.

As mentioned before, this research attempts to contribute to knowledge and practice with the development of a new model. To simplify the theory building process, the model is divided into four parts, i.e.:

- the hard and soft value dimension, previously introduced
- the value matrix
- the third dimension of the value matrix- 'value cube'
- the footprints

The first three parts 'core model' are developed in Chapter 5 and the footprints are developed in Chapter 8.

[14] Instance refers to related constructs, elements and concepts, and its characteristics.

To simplify the understanding of the construction of the conceptual model, the selection of techniques is analysed part by part. Table 4.2 summarises these techniques.

a). In the *hard and soft value dimensions* the 'decomposition' technique was used to break down the value disciplines into its component parts and bring new insights to the research. Then the 'categorical aggregation' was used to assemble different sets of block into a logic and understandable way (Stake, 1995:74). These blocks formed two groups. This process is called 'induction of data'. Finally, the 'interpretation' technique was used to provide a description and understanding of the two new groups categorised. The process taken was logical and run smoothly.

b) The *value matrix* consists of six value propositions, which came from the integration of the hard and soft value dimension and the original three value disciplines from Treacy and Wiersema. It was the initial conceptual model. To start building construct validity[15] on the model, each one of the six value propositions were 'enfolded on existing theory' (Voss et al 2002). Thus, it strengthened the 'description' and 'interpretation' of each value proposition. Finally, to build external validity[16] of the conceptual model, an empirical 'replication logic' was applied; it identified companies (from literature) that were performing the value propositions of the value matrix (Voss et al, 2002, Yin 1994:6).

c) Since the value matrix required more 'explanation' to.show the functionality[17] of each value proposition, *the third dimension* was created. The construction of the third dimension started with the identification of potential indicators taken from literature, then a selection process was performed based on the functionality criteria[18]. Then a 'categorical aggregation' was applied to the selected indicators to structure the third dimension of the value cube. As a consequence of the explanation, the 'model' was upgraded to a 'framework' (Meredith, 1993).

[15] Construct validity is concerned with the idea that the research design fully addresses the research questions and the research objectives (White, 2000:25). It establishes the correct operational measure for the concepts being studied (Yin, 1994:33). This issue is fully addressed on Chapter 10

[16] External validity establishes the domain to which a study's findings can be generalised (Yin, 1994:33).

[17] Functionality of the value proposition refers to way and the characteristics that make a value proposition perform in a particular form.

d) The construction of the *footprints*[19] was a 'deductive' process by analysing the theory and the data obtained from the case studies and 'triangulating' them. The triangulation techniques was used to start creating "construct validity" on the framework and building reliability on the data (Easterby-Smith et al, 1999:34).

Parts theory Building	Hard and Soft Value Dimensions	The Value Matrix	The third dimension	The footprints
Theory Building Techniques	▪ decomposition ▪ categorical aggregation ▪ induction of data ▪ interpretation	▪ enfolding theory ▪ interpretation ▪ theoretical replication logic	▪ categorical aggregation ▪ interpretation (used as explanation)	▪ triangulation of data ▪ deduction of data ▪ interpretation

Table 4.2. Selected techniques for each part of the theory building process.

Having discussed, analysed and selected the 'theory building' techniques, the following section discusses different 'theory testing' methods and techniques. The same process followed in this section is addressed in the next section, i.e. discussion of methods and techniques and analysis and selection of those used on this research.

4.4 Methods to Test Theory

Qualitative and quantitative methods are the two main streams of data collection and data analysis.

Since the quantitative method takes an objective research approach, it is sometimes referred to as positivist. Meanwhile, the qualitative method, which takes a subjective approach, is referred as phenomenalist[20]. Although, there has been a lot of discussion on this topic, White (2000:24) states that researchers have not agreed on which method belong to which research paradigm.

[18] This criteria of selection based functionality is discussed on Chapter 5.
[19] Footprints are the general characteristics of each value proposition of the value matrix. These are discussed in-depth in Chapter 8.
[20] In the latest edition of Easterby-Smith's book (2002), the phenomenolist or phenomenological paradigm is re-named as 'social constructionism'. The phenomenological and positivist paradigms are defined and discussed on chapter 3.

Van Maanen (1993:9) defines qualitative methods as an array of interpretative techniques which seek to describe, decode and translate (no meaning by frequency) certain phenomena in the social world (Easterby-Smith, 1999:71). Meanwhile, the quantitative method, which it is also referred as the scientific method or hypothetico-deductive, describes, explains and tests relationships (White, 2000: 46,47). Table 4.3 compares the qualitative and quantitative methods, e.g. their purpose, research approach and type of data among others.

Method	**Qualitative**	**Quantitative**
Purpose of inquiry	Understanding the interrelationships of different variables	Explanation and control
Research approach	The researcher is really part of the process being researched (subjective)	Objective
Data	Mainly non-numerical data.	Mainly numerical data
Number of Variables	Look for more variables to enrich the research.	Look to minimise the number of variables from the beginning of the research
Analysis	Descriptive analysis by interpretation of data	Deductive analysis by using statistical techniques
Output	Knowledge constructed	Knowledge discovered
Generalisations	Analytical generalisations	Statistical generalisation
Research questions seeks	Patterns of unanticipated as well as expected relationship.	A relationship between a small number of variables
Approach to Uniqueness	It is treated as an important understanding	It is treated as an error

(Adopted and modified from Stake, 1995:37,40; Yin, 1994:30; White, 2000:28,29,26,47)

Table 4.3 Differences between Qualitative and Quantitative Method.

Qualitative and quantitative research propose different forms of conducting research. To search for explanations, quantitative researchers perceive the phenomenon in terms of descriptive variables, representing happenings with scales and measurements e.g. numbers. Quantitative researchers look for testing hypothesis and discover knowledge (Stake 1995:37,40). In contrast, to search for understanding, qualitative researchers perceive the

phenomenon in key episodes or testimonies, represent happenings with their own direct interpretation[21] e.g. narratives to provide to the reader an experiential understanding of the case (Stake 1995:40). Thus, qualitative research provides depth and detailed data that emerge from direct quotations, interpretations and descriptions. Qualitative researchers look for construct knowledge[22].

4.4.1 Data collection techniques

There is controversy regarding the definition of which data collection techniques belong to which qualitative method or quantitative method. Generally, surveys, interviews, experiments and questionnaires are considered data collection techniques that support quantitative methods. Meanwhile, interviews, dairy methods, observations, archival records, case studies, and action research are considered qualitative data collection techniques (Easter-by Smith, 1999: 71-134; White, 2000:28-67).

Fred Erickson highlighted that the most distinctive characteristic of qualitative techniques is its emphasis on interpretation. Therefore interviews and questionnaires can be used as qualitative and quantitative tools, the main difference underpinning the design and application for specific purpose (Stake, 1995:8). i.e. Interview as a quantitative technique looks for focus and objective answers, whereas, as a qualitative technique looks for as rich information as possible (usually by using open questions).

The distinction between qualitative and quantitative techniques is not always very clear. Strauss and Corbin (1990:18,19), Easterby-Smith et al (1999:116) and White (2000:25) suggest the use of different techniques from the same paradigm whenever possible, and also to move across paradigms occasionally, but with care. e.g. the methodological triangulation uses qualitative and quantitative techniques such as interviews, surveys, field studies, etc. to analyse the same problem from different views thus, maximising the internal validity[23] of the research (Easterby-Smith, 1999:134).

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[21] The interpretations are done on the basis of observation and other data such as testimonies, writen stories (Stake, 1995:9).

[22] Most of the qualitative researchers support that the description and interpretation of reality that lead to generalisations is knowledge constructed.

[23] Internal validity is the extend to which the researcher can establish a causal relationship; whereby certain conditions are shown to lead to other conditions as distinguished from spurious relationships (Yin 1994:33).

Some authors such as White (2000:28) and Yin (1994:1) make a distinction among the research techniques and highlight that action research and case studies are research strategies because each one employs different sources and research techniques; whereas some other authors such as Easterby-Smith et al, (1999) and Barnes (2001) do not make any distinction amongst these techniques. For the purpose of simplifying the understanding and selection of the data collection techniques on the present research, this distinction is not considered.

The following sub-sections discuss the data collection techniques previously introduced and analyse the strengths and weaknesses of each technique (Table 4.4). These are followed by the selection of the theory-testing techniques for this research.

4.4.1.1 Action Research

Rapoport (1970) defines action research as "the study of a social setting involving the participants themselves as researchers with a view to improve the quality of action within it." White (2000:43) states that in recent years, action research has attracted a lot of interest, especially from business and social science fields, because this technique is focused on the implementation of an improvement by following a formal action plan whereby, at the end of the research, the improvement will be seen in practice. Action research demands a constant reflection of issues being considered and the results form this reflection and then feedback into the research again. Thus, the whole process is cyclic, i.e. it starts identifying the problem then it moves to design the action plan, then to implement, monitor and reflect, and finally returns to action plan stage again. Action research, as well as case study, uses different data collection techniques such as observation, questionnaires, etc. Although action research provides an attractive challenge for the researcher with a lot of research opportunities e.g. availability of data, it is one, if not the most, time consuming technique. Table 4.4 shows the strengths and weaknesses of this technique.

4.4.1.2 Case Study Research

Unconstrained by the rigid limits of surveys and interviews, case study can lead to creative insights, development of new theory, testing theory or exploration of a research area. Case study has been one of the most powerful research methods in operations management, particularly in the development of new theory (Voss et al, 2002). It investigates current phenomenon in the context of real time by examining the *how* and *what* questions (Yin, 1996:6-9), logically, case study tends to be more descriptive by using a wide variety of data collection techniques, such as interviews, questionnaires, observation and diary records

among others. So, this allows the investigation to retain the holistic and meaningful characteristics of real life events (Buckley 1976:48). It also permits the identification of new variables and its relationships with the research topic, which could not be addressed by other techniques, such as surveys. The flexibility of this technique permits to make analytical generalisations from one or several case studies. Since case study uses multiple sources of evidence, the research validity can be maximised by using triangulation of data or methods (Yin, 1996:30, 90, 91). There are four types of case study; the first one is the typical case study that is used to test accepted ideas about an area. The second is the atypical case study that adds knowledge to develop new theories. The third one is the precursor study that is used to identify issues involved in the research domain before the research is planned (explanatory research). Finally, multiple case studies, which apply more than two case studies and make a comparative analysis. Typically, the case study process starts with the design of research tools, continues with data collection, data recording, analysis and clarification, determining cause-effect leading to the conclusions. Case studies emphasise the data analysis and data interpretation following a logical and systematic way (Stake 1995:8). The main advantages of case study are: it gives a rich quantity of unpublished data and it shows the reality of the work. However, it is time consuming but not as much as action research (Voss et al. 2002). Table 4.4 analyses the strengths and weaknesses of the case study.

4.4.1.3 Surveys

Survey is one of the most popular techniques in quantitative research, but it is not exclusive to this research type. A survey is a research form describing and explaining some aspects of a population (White, 2000:49). Its main purpose is to obtain information from or about a defined set of people or population. Usually, surveys are carried out by either interviews or questionnaires, or both (Easterby-Smith, 1999:122). In the case of structured interviews, the sample size is limited by the time available to the interviewers, but in the case of quantitative questionnaires, the sample size is bigger than the sample size of the structured interviews. Easterby-Smith (1999:123) argues that the random sample and quota[24] sample are cluster[25] sample are extensively used to target the population under analysis. Even though surveys have the potential to get vast quantity of data in relatively short time, Moser and Kalton (1971) have found a number of limitations, including possible ambiguity of the questions.

[24] The quota sample does not attempt to randomise. An example of quota sample is to interview the first 20 persons in white jacket that arrive to the office after 8 hrs.
[25] Cluster sample refers to all the members of a unit. E.g. Strathclyde university this refers to all members of the university of Strathclyde.

Buckley et al. (1976:48) support Moser and Kalton surveys' limitations (1971) by identifying the low ability of surveys to comprehend factors and their relationship in the whole problem. Table 4.4 analyses the strengths and weaknesses of surveys.

4.4.1.4 Interviews

Interview is one of the most common data collection techniques because it is an effective tool that collects large quantities of data (Barnes, 2001). Kvale (1983) defines the qualitative interview as a technique that collects descriptions of real experience of the interviewee and his/her interpretation of the research issue. Easterby-Smith (1999:117) defines the quantitative interview as a series of precisely worded questions and will expect to receive factual answers or a less precise answer. There are several types of interviews such as group, individual, structured, semi-structured and unstructured interviews. The difference among them relies on the preparation level on the research issue and the number of people interviewed at once (White 2000:29,30). Yin (1994:85) argues that interviews are an essential source of case study evidence because most case studies are about human affairs. Thus, the interviewees can provide important insights into a research issue. Table 4.4 provides the strengths and weaknesses of using interviews.

4.4.1.5 Questionnaire

Questionnaire is the other technique mentioned before. It is widely used to complement some data collection techniques. Open, close and likert[26] scale are some of the most common types of questions. Oppenheim (1992) points out that the questionnaire design requires many weeks of planning, reading, and undertaking exploratory pilot work. Moreover, the questionnaire measurement must be precise and logic and related to the aims of the overall research. It is considered as one of the most efficient data collection techniques for researchers and respondents. Table 4.4 addresses other strengths and also weaknesses of this technique.

4.4.1.6 Observation

Observation offers a direct form of data collection taken from real facts, avoiding data-manipulation or mis-interpretations. There are two types of observations: participant observation and non-participant observation, also named direct observation. In the first one, the researcher takes action in the situation and in the second one, the researcher is kept out of

[26] Likert scale is a type of question where the interviewee tick one answer from a category indicating the level of agreement of disagreement (Easterby-Smith, 1999: 119).

the situation, although there is a potential error, whereby things happened in a different way because they have been observed. The observation technique requires that the observer must be impartial (White, 2000:34; Easterby-Smith, 1999:96).

4.4.1.7 Archival records

Archival records are often in computerised form such as service records, organisational records, list of names, survey data, personal records. These are considered one of the most precise techniques. The role of these records can vary, for instance, in some researches, they can be object of an extensive analysis on existent or new issues (Yin, 1994:83).

4.4.1.8 Documentation

Documentary evidence is the basis for most historical research and case studies (Barnes, 2001). This type of information can take different forms such as: proposals, reports, and business plans among others.

4.4.1.9 Diary methods

Diary methods are used to keep the story line of the research. It is often used as a support technique of the observation technique. To keep a diary record the researcher should be consistent in taking the information (White, 2000:38). It can be written by one person (researcher) or different persons (Easterby-Smith, 1999:102).

Source of Evidence	Strengths	Weaknesses
Action Research	• it positions in the understanding and logic • it can help to facilitate an improvement or improvements.	• it is not appropriate to make generalisations for a wider population as a whole. • There is a danger that the researcher becomes too involved in the whole process. • It is very time consuming.
Case Study	• Provide rich quantify of unpublished data • It gives a work reality, which is often absent from surveys. • It is cheap, even one researcher can conduct it. • Does not compromise the objectives and time of the organisation under research.	• It is time consuming but not as much as action research. • The whole issue of generalisation should be handled with caution • Since the case study provides rich information, this has to be handled logically and systematically
Survey	• data gathering is less time consuming • easy data gathering	• lack of control over who answers the questionnaire • possible ambiguity of the questions • potential low response
Interviews	• targeted- focuses directly on the topic • insightful-provide perceived causal inferences • when it is face-to-face the interviewer can clarify misunderstandings. • Effective for collecting large quantities of in-depth data. • Researcher is not required to spend long periods of time on site.	• Bias due to poorly constructed questions • Response bias • Reflexivity- the interviewee give what the interviewer wants to hear • One interview equal to one example of the whole population • Interviewing is time consuming • Data analysis is time consuming • Requires the researcher to gain access to the knowledge and meaning of informants.
Questionnaire	• Very time efficient for researcher and respondents • Respondents can be quantified for ease of analysis	• Data collection depends on respondents goodwill • Quantity of data collected is limited • No opportunity for clarifications and deeper questions
Documentation	• Stable- these can be reviewed repeatedly • Data can be traced back over time • Multiple source can facilitate data triangulation	• Documents may be limited and unavailable • Bias selectivity
Direct Observation	• Reality- covers events in real time • The researcher obtains the information from first hand so he/she can give a better interpretation of the phenomena	• Time consuming • The event may proceed differently because it has been observed.
Diary Records	• Get information from the perspective of the employee. • Very appropriate during data analysis and writing up stage	• Difficulty to analyse the data
Archival Records	• Precise and quantitative	• Accessibility due to privacy reasons

(Adopted and Modified from: Barnes, 2001; Moser and Kaltan, 1971; White, 2000:29,42,43; Yin 1994:80)

Table 4.4. Strengths and weaknesses of the data collection techniques.

The data collection techniques discussed above provide a wide range of options e.g. analysis of current phenomena, historical facts, big sample, small sample, level of researcher involvement in the study, etc. Some techniques, such as surveys and case study, have established purposes to explore new insights, test a research question and generate theory. Some others just support other techniques such as observation and diary records. These techniques have strengths and weaknesses in different areas, thus, it is here that the researcher should be intuitive and logic, and have a good understanding of the research issue for selecting the most suitable techniques from this pool of options.

In chapter 2, the initial piece of theory developed has been discussed; then, Chapter 3 introduced the research questions and finally section 4.3 presents the selection of methods and techniques 'to build theory'. Until this moment, the overall picture of the research has been presented. Now, the selection of the theory testing methods and techniques is discussed.

4.5. Selection of the theory testing methods and techniques

Yin (1996) states more than one research method can be used for conducting research, especially to offer reliable and valid answers to the research questions.

This section starts with the selection of the research method. The research issue needs to find explanations to 'which and how factors in organisations contribute to the value creation process'. In addition, the literature review, presented in Chapter 2, showed that, so far, research into value has been inadequate or limited to one field because it is not close enough to the process where value is created or managed. Based on the previous panorama around the research issue, the *'qualitative research'* is the appropriate method because it has the ability to interpret and understand the complex relationships among diverse facts and variables that exist in the social world. In addition, qualitative research allows the researcher to analyse close evidence to the phenomenon from diverse perspectives (Easterby-Smith, 1999:71; Stake, 1995:37,40).

Having selected the qualitative method, this section continues with the analysis of theory testing techniques.

It starts by arguing the reasons why the following data collection techniques were rejected, and then it continues with the reasons why the selected techniques were chosen.

Having analysed each technique, its strengths and weaknesses, action research was not selected because- since value creation is a long process and requires total commitment to implement changes from strategy to operations, therefore it is difficult to start and conclude it during a PhD study. Survey was also rejected because the main constraint is that it does not allow the researcher to get in-depth data of the environment where value is created. The *'case study'* was selected because it provides a close explanation of the reality of facts,

besides it is one of the most complete techniques that provides a vast detail of current phenomenon. Since case study allows the use of other different data collection techniques, the *'questionnaire, interviews, observation and documentation'* were selected to support the case study.

Interview was selected because the researcher can gain access to a range of suitable informants. Even more, it is an interactive technique, therefore it allows the researcher to clarify mis-understandings and go in-depth on particular issues (White, 2000). The *questionnaire* was selected because it gives the direction of the issues analysed as well as generating data in a very systematic and ordered way. The *non-participant observation* and *documentation* to enrich the information with new insights, verify if the data obtained from interviews is performed is accurate and gain an extra source of evidence. The purpose of all these additional techniques is to provide more in-depth data as well as to have the facility to triangulate methods and data to maximise the construct validity and internal validity of this research.

4.6 Criteria of evaluation of the research

In this Chapter, the criteria to evaluate the research have been expanded from Chapter 3 (Table 3.3) by the addition of some criteria from the research methods used and the adoption of the constructive research. Basically, the criterion involves the rigourous evaluation of a PhD study, the validity and reliability of formal research, the contributions to theory and the link to practice.

Particularly this Chapter added the last three criteria. Voss et al (2002) suggest that 'the link of existing theory with the new construct developed' help to evaluate the source of new insights and the reliability on the construct. Kasanen et al, (1993) and Kekale (2001) suggest the assessment of the contribution to practice evaluating functionality and relevance of the new construct. Finally, Kasanen et al, (1993); Thomas and Tymon (1982) suggest the analysis of 'the application of the new construct to new environments', which provides an idea of the potential future application and growth of the new construct.

The purpose of the establishment of these criteria is to evaluate the quality and outcomes of the full research, which is discussed in Chapter 10. Table 4.5 presents the full criterion of evaluation and the source of the criterion.

	Criterion	**Identified in:**
1.	Rigour of the research process (Show a proof of logical research methodology, validity, reliability, etc.). It is broken down in: 1.1 Internal validity *(Yin, 1994; Easterby-Smith et al, 1999)* 1.2 Construct validity *(Thomas and Tymon, 1982; Kasanen, 1993; Yin, 1994; Easterby-Smith et al. 1999)* 1.3 External validity *(Yin, 1994)* 1.4 Reliability *(Thomas and Tymon, 1982, Kasanen, 1993; Easterby-Smith et al. 1999)*	*Chapter 3.1*
2.	Contain evidence to support the construct - validation of each value proposition (methods) # cases *(Kekale, 2001, Yin, 1994, Easterby-Smith et al, 1999)*	*Chapter 3.1*
3.	Contribution to knowledge *(Kekale, 2001, Yin, 1994, Easterby-Smith et al, 1999)*	*Chapter 3.1*
4.	Contribution to practice – practical usefulness (functionality) and practical relevance *(Kasanen et al, 1993, Kekale, 2001).*	*Chapter 4.1*
5.	Link existing theory with the theoretical novelty of the construct *(Kasanen et al, 1993; Voss et al, 2002).*	*Chapter 4.1; 4.2.1*
6.	Application of the construct on other environments *(Kasanen et al, 1993; Thomas and Tymon, 1982)*	*Chapter 4.1*

Table 4.5. Expanded Research Criterion.

Conclusions of the chapter

This chapter has discussed and established the difference among different types of research. It has concluded that this research is not totally 'pure research' neither totally 'applied research', it was been classified as constructive research. Because it emphasises the research process, from the problem to the solution and its application. Additionally, strong emphasis has been placed on building the construct (theory building), which is reflective pure research.

Thus, the chapter highlighted that there are less theory-building methods and techniques than theory-testing, especially in operations management. The controversy of the selection of different methods and techniques has been addressed and concluded that the research paradigm specified in Chapter 3 gives general guidelines to drive the research.

As Arbnor and Bjerke (1997:6) suggest, the selection of the methods and techniques has been made based on the research question and on the research paradigm previously outlined. Table 4.6 summarised the methods and techniques previously selected to be applied through the whole research. It is important to bear in mind that the selection of the research methods and techniques has been focused on the rationalisation of the research needs as well as on the construction of validity and reliability of tools used in this research.

Once the methods and techniques have been analysed and selected, this Chapter concludes with the expansion of the criterion to evaluate this research (see Table 4.5). Therefore, the complete research design has been achieved, the following Chapters show the application of this research design and its outcomes.

Research methods and techniques	Why it is selected?	How to ensure quality of the research?
	Theory Building	
Decomposition	To find a different and coherent explanation. Moreover, to bring new insight to the research	By ensuring a systematic process by decomposing, composing and interpreting to increase *Reliability and Internal Validity*
Categorical aggregation	To find a more meaningful analysis	By following a logical and systematic process (e.g. decomposing, composing and interpreting), *to increase Reliability and Internal Validity*

Interpretation	To find explanations	By following a logical process to increase *Reliability and Internal Validity* on the study.
Induction of data	To enable the generation of theory	-
Enfolding theory	To address literature that conflicts with the frame and generate more creative solutions	By building *Construct validity*
Theoretical replication logic	To start building validity on the initial model by comparing the model with companies performance (data taken from theory).	By building *External validity*
Triangulation of data	To confirm data and lead to reliable results	By building *Construct validity*
Theory Testing		
Qualitative research	To bring in-depth and detail data and to maintain vigorous interpretation during data gathering.	By using triangulation of data and methods. To get access to more data and even unpublished data, which brings fresh insights to the research.
Constructive research approach	To provide additional guidelines to the methodology; thus building credibility on the construct.	By bring additional controls such as contribution to practice, link existing theory with the theoretical novelty of the construct, thus increase *Construct Validity.*
Case study	To gain a better understanding of complex phenomena such as value creation. To retain the holistic and meaningful characteristics of real life events. To gain access to unpublished data.	Through the adoption of a formal research design: rigorous and accurate that offers *valid and reliable* results.
Interviews	To collect descriptions form real experiences and support the case study.	By providing additional source of evidence that supports the *Construct Validity.*
Questionnaires	To support the structured interview	By increasing the *Reliability* of the research by providing precise and logic guidelines on the research issue under investigation.
Non- participant observation	To gain better interpretation of the phenomena and to confirm the data gathered.	By checking the quality of the data gathered.
Documents	To increase the multiple source of data	By providing an additional source of evidence that support the case study. It increases the *Construct Validity* of the research by providing a potential source of data triangulation.
Research design		
Selection of multiple data collection techniques	To ensure the quality of data	By maximising *Construct validity*
Implementation of controls	To assess the quality of this research	By increasing the *Reliability* on the research
Methodological triangulation	To triangulate data especially on the development of footprints.	By increasing the *Internal Validity*

Table 4.6. Selected methods and techniques for theory building and theory testing.

Chapter 5. Building Theory: the Creation of the Value Cube

A theory is more impressive the greater the simplicity of its premises is, the more different kind of things it relates, and the more extended is its area of applicability.
Albert Einstein (1879-1955)

The second Chapter ended with the definition of the specific research problem, based on the analysis of Treacy and Wiersema's framework. As a result, the two value dimensions 'hard' and 'soft' were proposed. The methods and techniques used to build the hard and soft value dimensions as well as the value matrix and its third dimension were established on Chapter 4. At this point, the missing link is why this research took Treacy and Wiersema's model as a basis. Hence this Chapter starts addressing this issue. The Chapter continues with the development of three pieces of theory, which are plugged together to build the final model 'the value cube'; these are the new value dimensions, which are followed by the construction of the value matrix. Finally, the development of a third dimension of the value matrix is built in order to create the complete model 'the value cube'.

5.1 The Missing Link- A Comparison of Business Classifications

The objective of this section is to discuss diverse business classifications and demonstrate the reasons why Treacy and Wiersema's model caught the attention of this research.

Magretta (2002) states that business models establish the type of value a business wants to create. Since the research issue of this study is focused on the creation of value in business management, this research started by studying different business models.

Ingham (1971) introduced a business classification based on manufacturing. He proposed four different types of business, which are mainly focused on production processes, for instance continuous process, job process, make to order, etc. These business types use the market forecast and sales to build their production plans. In contrast, Miles and Snow (1978)

classified different organisations according to different management styles. Their four business types show that the development of an organisation and its operation management depend on its management style. For instance, prospectors, these types of organisations encourage the development of new changes to try new ideas to manufacture, so their operations are focused on creating production skills to cope with those changes. The definition of each business type is available in Appendix 1.

Porter (1980:35) identified two poles of organisations focused industrywide. Later, these poles became business types. The first one, called cost leadership, is focused on the development of mass production, tight cost control and efficient-scale facilities. The other, named differentiation, is focused on offering a unique value to achieve the customer's brand loyalty, such as design features, brand image, customer service, or different technology. His third business type 'focus' is in the middle of cost leadership and differentiation business types. Focused organisations are able to serve its narrow strategic market more efficiently or effectively than its competitors through differentiation or/and low cost strategies. Porter's third business type 'focus' brought new insights to other business types proposed by other authors.

Strobaugh and Telesio (1983) identified three different types of business focus on manufacturing operations; one focused on the development of high-technology products, the other focused on marketing and the last one on economies of scale (mass production). Their business types were defined based on some manufacturing and technology policies (Appendix 1).

Richardson's business types[1] (1985) cover the typical business types: a) mass production, which he named cost-minimisation, b) the development of new products, named technological frontiersmen and c) the development of special products, called customisers. He also has three others that are combinations of the typical types. Richardson's (1985) contribution resides in the customisers' definition, which was in the boundary of being a product and service[2].

In 1987, Miller and Roth (1994) finished a research in the identification of American business types. Their three business types 'caretakers, marketers and innovators' were very

[1] His research was done on the Canadian electronics industry.
[2] Previously, Ingham's type IV (1971) addressed product customisation, but very product oriendted.

similar to those identified by Strobaugh and Telesio (1983). i.e. one focused on design, another in marketing and the last one in mass production. Miller and Roth's business types were defined from operations and markets needs rather than just from manufacturing as in Strobaugh and Telesio's classification (1983). Miller and Roth's taxonomy (1994) provided empirical evidence that generally supports the taxonomy hypothesised by Strobaugh and Telesio (1983). Small differences were identified among them[3], but in general practice, these two classifications are found to be similar.

Similar research as Miler and Roth's, was applied in Europe by De Meyer (1990) and Sweeney (1991). Their result showed that the European business follow similar types as those proposed by Miller and Roth (1994). De Meyer (1990) named one business type slightly different from Miller and Roth's classification and Seweeney (1991) broke 'Miller and Roth's caretakers' in two types, i.e. re-organisers and caretakers[4]; although at the end, their classifications converge into the same patterns of value creation previously defined by Miller and Roth.

The DTI[5] (1994) introduced a new type of business 'virtual enterprise'. It is characterised by the co-ordination of the operations of different organisations, which operate from different places as a network for a common purpose. Hence, virtual enterprises can provide similar customer's value as other company's operations.

Treacy and Wiersema (1996) introduced a new classification following the same principles of Miller and Roth (1994), but brought a new business type (partly addressed by Porter (1980) and Richardson (1985)) 'customisers'. It is enriched with the personalisation of services, 'customisation of the total solutions', through building long and close relationship with the customer. The innovation in Treacy and Wiersema's model is that their business types are offers[6] to particular market segments - value propositions. The value propositions take into account the customer's expectations and link them to operations.

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[3] For instance, *technology driven* (Strobaugh and Telesio, 1983) is different from *innovators* (Miller and Roth, 1994) because it is important to define if technology drives innovators into niche markets (as Strobaugh and Telesio's type) or whether the requirements of specialised markets propels the firm toward new technology (as Innovators that cover both) (Miller and Roth, 1994).

[4] the difference among re-organisers and caretaker resides in the short-term organisation for being world-class manufacturing (re-organisers) and long term when the companies are world-class manufacturing (caretakers) (Seweeney, 1991).

[5] DTI is the Department of Trade and Industry

[6] Offer is referred as product and/or service as a whole

Fuchs et al (2000) introduced ten business' types base on strategic alignment of key elements of the organisation and the integration of different organisations. Six of them are leadership themes and four are integration themes. The six leaderships types are well established and are addressed before by other authors, i.e. innovation, cost, mass market, quality, image and custom service. The other four types classify groups of organisations working with a common end purpose. Organisations working into these four types integrate activities, businesses and even territories; i.e. SBU integration, value-chain, marketplace and geographic integration. The last one is close to 'virtual enterprise' of the DTI (1994). Although the four integrators represent a new approach by classifying businesses groups, their approach to value creation is not clear. Therefore these four integrators are considered irrelevant for this research. In addition, since the other six leadership types are covered by other authors such as Stobaugh and Telesio (1983), Richardson (1985) and DTI (1994), this research did not considere them as reference points. Consequently, they are not included in Table 5.1.

Table 5.1 compares the different business classifications and shows the three dominant models identified by the researcher that have predominated at the broadest level[7].

There is consistency over time in that the majority of authors have a business type equivalent to Richardson's 'cost minimisers' (1985) following the same basis. Cost minimiser is equivalent to (even if not the same as) 'type 1', 'defenders', 'cost leadership', 'low cost strategy', 'elastic enterprise', 'caretakers', 'high performance product' and 'operational excellence'. They focus on producing high volumes at low prices.

In 1971, Ingham introduced as 'type IV' the basis of Richardson 'customisers' type (1985). These were followed by Porter (1980) and continued to be used by the DTI (1994) and Treacy and Wiersema (1996). 'Customisers' tailor products/service to fulfil particular customer's needs. The equivalent to customisers are 'total service enterprise', 'focus', 'type IV' and 'customer intimacy'.

Finally, the equivalent of 'technological frontiersmen' are 'prospectors', 'technology driven strategy', 'technological leaders', 'manufacturing innovators', 'innovators' and 'product

[7] The classifications provided on the Table 5.1 are the result of studies done in different countries such as Canada, United States, United Kingdom and some other European countries.

leaders', which look for continuous innovations in product designs. Table 5.1 shows these equivalent types of business models.

Treacy and Wiersema (1996) have followed the same basic theory of the three dominant business models shown in Table 5.1, because the dominant models provide particular and clear characteristics to define each business type and have global[8] applicability.

Treacy and Wiersema's value propositions have shown that they provide a better approach to value creation because they link operational issues with market and customers needs through their three value propositions. Therefore, this classification presents a wider scope of value creation focusing on customers' expectations as well as on business performance.

[8] They followed dominant models that came from Richardson research 1985) done in Canadian industry, Miller and Roth (1994) in America, De Meyer (1990) and Sweeney (1991) in UK and Europe. So it can be inferred that the three dominant models have global coverage.

Operational Focus ← → Market Focus

Domi-nant Model	1971 Ingham	1978 Miles& Snow	1980 Porter	1983 Stobaugh & Telesio	1985 Richardson	1987 Miller& Roth (1994)	1990 De Meyer	1991 Sweeney	1994 DTI	1996 Treacy & Wiersema
1	*Type I*	*Defenders*	*Cost Leadership*	*Low Cost Strategy*	*Cost-Minimisers*	*Caretakers*	*High Perfor-mance Product*	*Caretakers (Re-organisers)*	*Elastic Enterprise*	*Operational Excellence*
2	*Type IV*		*Focus*		*Customisers*				*Total Service Enterprise*	*Customer Intimacy*
	Type II				*Cost- Minimising Customisers*					
3		*Prospectors*		*Technology Driven Strat*	*Technological Frontiersmen*	*Innovators*	*Manufacturing Innovators*	*Innovators*	*Technological Leader*	*Product Leaders*
					Technology Exploiters				*Flexible Enterprise*	
					Technological Servicemen					
	Type III									
	Type III a									
	Type III b									
	Type III c									
		Analysers								
		Reactors								
			Differentiation	*Marketing Intensive Strategy*		*Marketers*	*Marketing oriented group*	*Marketeers*		
									Virtual Enterprise	

Table 5.1. Comparative table of the diverse types of business classifications.

5.2 Development of the New Value Dimensions

Chapter 2 introduced some of the inconsistencies of Treacy and Wiersema's value propositions (1996). This research showed that completely different strategies, focuses, types of markets, operations and technologies were categorised under the same value proposition; this point was illustrated with some examples in Table 2.5. As a result of the analysis[9] carried out on Treacy and Wiersema's model, explained in section 2.5, two general patterns of value creation were identified. These were categorised in two new groups, named 'hard' and 'soft' value dimensions. As a result, the first research question emerged:

RQ1. Does value exist in hard and soft value dimensions?

Hence, the aim of this section is to provide a deeper explanation of each value dimensions.

5.2.1 Hard value dimension

The difference between hard and soft value underpins the use and development of technology, approach to market and operational focus, in order to serve current and future market needs (Martinez, 1999).

The hard value dimension is focused on continuous creation of technology, innovations, and new designs of product and/or process (Mikkola, 2001). Its product design is very versatile, from the creation of completely new products of its own firm design to product customisation (Lampel and Mintzberg, 1996; Kim and Mauborgne, 1999, Tegarden et al 1999). Hard value design is embedded on a logical, rational, analytic and precise approach.

In operations, hard value organisations emphasise the development of process engineering skills; i.e. to design and modify the production process according to the market needs as well as to adapt the production process to new product design (Pavitt et al, 1989). These involve the implementation of quality systems, automation of operations and increase the efficiency of processes among others (Hill, 2000, Joseph, 1999, Hammer, 1990, Hammer

[9] The analysis carried on the development of 'hard' and 'soft' value dimensions started with the application of the decomposition technique to break down the value disciplines of Treacy and Wiersema into components and bring new insights to the research. Then a categorical aggregation was done to assemble different components into a logic and understandable way, thus these formed two new categories 'hard' and 'soft'. Finally, the interpretation of each category provided a description and understanding of the new groups. For more information about this process see Chapter 4 (section 4.3).

and Stanton, 1999). For instance, when the customer of Babcock's naval defence, the Ministry of Defence, place an order, the company has to plan the ship or submarine refurbishment operations to meet the customer's specifications (product design); often, it involves the creation and adaptation of new operations to assemble and test new weapons (and features), and the implementation of new quality control systems and quality tests to assure the performance of the end product. It is important to bear in mind that each product has different specifications, so, the production process varies to a certain extent from product to product.

The approach of hard value organisations is focused on offering: innovative product designs, excellent product performance, customised solutions, tailored products and quality products. For each particular type of offer, there is a particular approach to market. For instance, Stobaugh and Telesio (1983) state that new high-technology products are often launched in high wage countries until the product is accepted by that market and then eventually the product is moved to other countries.

One thing that is inferred from hard value organisations is that their key offers towards their customers are based on attributes that can be perceived by touch. For instance, product performance, new technology of the product, less money per product/service, product made to customer's design, etc. Table 5.2 shows some examples of hard attributes of value.

Hard value organisations demand a high level of investigation, research and development and continuous generation of new designs; therefore, their key human resources mainly have technological or engineering backgrounds (Hippel, Thomke and Sonnack, 1999, Drejer 2001, Fuchs et al, 2000). Their core competencies reside on the alignment of their resources and capabilities towards one direction (Prahalad and Hamel, 1990, Eisenhardt and Martin, 2000); i.e. they are the specialists in one area or even sometimes in one thing. They have the ability to create new technology, since they are the fresh developers of technological knowledge. They push the technology limits to the next product/process generation.

The hard value dimension is the typical scenario described by different manufacturing strategies by Ingham (1971). Since the market is in continuous change, new business models emerge and other are adapted to new environments (Frohlich and Dixon, 2001). Hence, the classical view of business has changed and now more business models are adopting, changing and implementing different types of services/customers' relationships.

As Hoover, Eloranta, Holmstrom and Huttunen (2001:1-35) support that organisations are re-defining their value offering point such as, implementing solutions (services and operations) closer to customers to maximise the customers value. Thus, organisations are competing in different ways; for instance, IBM Greenock plant is closing some of its manufacturing operations and is mainly focused on providing different types of service. Recently, it launched its new ERP service, where IBM provides the latest version of ERP and support service to organisations by renting the service. So, their customers avoid the investment in expensive technology that later they have to update and maintain. IBM is moving to soft types of value.

5.2.2 Soft value dimension

The main competitive advantage of soft value organisations does not reside in the development of the latest technology applied to products, but in their market approach. Their product design sometimes could be considered simple in comparison with some designs from hard value organisations; however, they demand a strong understanding of existent technology of the market to create products or managing processes to provide better services or different products. Soft value organisations encourage a creative and open-ended design approach.

The market approach is the main competitive advantage of soft value organisations; thus organisations segment the marketplace and examine every interaction with customers for its potential to deliver ideal customer-defined value. (Thompson, 1998; Day, 1999; Cravens, Piercy and Prentice, 2000).

Soft organisations sell more than a product. The service is part of the customer acquisition or even sometimes it is the main product (Schneider and Bowen, 1999; Lapierre, 2000). Soft value emphasises product delivery including customer attention, after sales services and other supplementary services such as company/product reputation (Anderson and Narus, 1995). For instance Amazon has co-ordintated all the transaction processes, from when the order is placed until the product is delivered, in order to offer a simple and efficient service to the customer's door. So, it permits to its customers receiving their goods at their doors within few days after the orders have been placed.

Soft value organisations emphasise the psychological perceptions that, in most cases, are intangibles, e.g., people's feelings, simplicity to deal with, brand image, etc.

Teece (1998), Andriessen and Tissen (2000) and Marr et al (2002) recognise that in today's economy, intangibles are the real value drivers of many organisations. Hence, the key offers of soft value organisations to their customers are based on attributes that have not physical existence. Table 5.2 illustrates this point with some examples.

HARD	SOFT
✓ Product performance	✓ Brand image
✓ New product design	✓ Trust
✓ New piece of technology	✓ People's feelings
✓ Less money product/service	✓ Simplicity to deal
✓ New features (aesthetic, style)	✓ Customer attention
✓ Customised product	✓ Hassle free
✓ Efficient processes	✓ Easy to buy/deal

Table 5.2. Illustrations of hard and soft attributes of value creation

The mix of different talents and development of creative flair are pillars on the soft value creation, because the soft value dimension demands creative people from different backgrounds to innovate new ways of selling, managing or operating (Porter, 1980). Soft value organisations are not mainly focused on manufacturing or research and development of a product, but strong emphasis is placed on marketing, sales, service, and operations management to create new and different ways to offer the product/service (Amit and Zott, 2001; Collins, 1989; Stabell and Fjeldstad, 1998).

The difference between hard and soft value is illustrated in Table 5.3 through five parameters, these are: human resources, R&D, core competencies, technology, and knowledge generation. In order to build construct validity on the hard and soft value dimensions, each statement of the comparison between dimensions is enfolded in theory (Voss et al, 2002).

Parameters	Hard Value	Soft Value
Human Resources	It requires a technological background. It underpins in design, engineering, operations and technological improvements. [Hippel, Thomke and Snnack, 1999; Drejer, 2001; Fuchs et al, 2000; Prahalad and Hamel, 1990]	Soft value demands creative people in marketing, sales and management. [Day, 1999; Porter, 1980; Willigan, 1990]
Research and Development	It demands high levels of investigation; research and development, continuous generation of technology, innovations, and new designs. [Mikkola,2001; Pavitt et al, 1989; Kim and Mauborgne, 1999]	It demands research and development on new concepts to sell products/services, image creation, etc. [Cravens et al. 2000; Collins, 1989; Thompson, 1998]
Core competence	It focuses its resources and competencies toward one direction, i.e. they are the specialists in one area or even sometimes in one thing. [Prahalad and Hamel, 1990; Hammer, 1990; Lampel and Mintzberg, 1996; Eisenhardt and Martin, 2000]	Their core competence resides in a mix of talents and capabilities. [Schneider and Bowen, 1999; Lapierre, 2000; Anderson and Narus, 1995; Day, 1999; Stabell and Fjeldstad, 1998]
Technology	They have the capacity to create new technology in products and processes. [Tegarden et al., 1999; Joseph, 1999; Hill, 2000; Hammer and Stanton, 1999; Pavit, et al, 1989]	Generally, they do not create new technology, they only make use of the existent technology. [Stabell and Fjeldstad, 1998; Amit and Zott, 2001]
Knowledge generation	"Fresh developers of technological knowledge with high quality and applicability." [Kasra-Ferdows, 1999]	Their technological knowledge is limited to people management and tacit knowledge, including knowledge learned from customers and market. [DTI, 1997; Teece, 1998; Kasra-Ferdows, 1999]

Table 5.3. Differences among Hard and Soft Value Dimensions.

Some authors, such as Day (1999), Schneider and Bowen (1999) and Lapierre (2000) among others, argue that value comes as a result of new marketing approaches, i.e. new ways to offer products, distinctive products/services and/or innovative product/service delivery. Whereas Kim and Mauborgne (1999) and Mikkola (2001) among others, sustain that value comes through the creation of new designs and technology that supports the creation of technology which could be innovative or customised. One way or another, Day (1999), Schneider and Bowen (1999) and Lapierre (2000) support the soft value creation and Kim and Mauborgne (1999) and Mikkola (2001) support the hard value creation. As a result of

the description of hard and soft value previously presented and the theoretical evidence that supports each value dimension, the first research question can be partially answered.

RQ-1. Does value have Hard and Soft dimensions?

From theory, yes it does, although Chapter 6 provides empirical evidence to answer this question.

5.2.3 Theoretical validation of the hard and soft value dimensions

To build external validity[10] of the hard and soft value dimensions as well as to provide a better understanding of the construct a theoretical replication logic was applied (Yin, 1994:50,46,36).

Hungry for more evidence to support these findings, the researcher decided to find more examples that illustrate her point. Voss, Tsikriktsis and Frohlich (2002) suggest the use of replication logic for selecting new examples in a theory building approach. Miles and Huberman (1994) support the replication logic by stating that "if you can find a typical or representative example, so you can find another one" i.e. the identification of other examples that illustrates the point (findings) opens the possibilities to the development of a new theory.

Thus, the theoretical replication logic analysis studied different organisations currently operating in the market; the data was taken from theory, e.g. company reports, business plans, books, journals, web sites, company leaflets, etc. Then, the data analysis determined if the company was operating in the hard or soft value dimension or was out of the scope of both value dimensions. The parameters analysed on each company were: company strategy, approach to its market segment, product/service provided, core operations and competitive capabilities. It is important to mention that:

a). For some organisations not all the parameters were available.

b). For the big corporations, the most representative or widely known business unit was analysed.

Table 5.4 condenses the companies' analysis and shows organisations operating in the hard and soft value dimension.

[10] External validity is applied to test if the construct can be generalised (Yin, 1994:33)

Value Dimensions	
Hard	*Soft*
Sony	Highland Spring
Microsoft	Nike
3 M	Revlon
Intel	Harley-Davidson
Honda	Amazon
Casio	Easy Jet
Toyota	Dell
Babcock	Home Depot
Airborne Express	Reebok
ICI	General Electric-appliances
Roadway logistics	

Table 5.4. Illustration of organisations operating in hard and soft value dimensions

The results showed that most of the organisations were categorised into hard or soft value dimension, but a few of them could not been categorised because there was not enough company data to carry out the analysis or because these were non-commercial organisations, such as the NHS[11].

5.3 The Value Matrix

The Value Matrix is structured[12] taking the two value dimensions 'Hard and Soft', along with the addition of the value propositions from Treacy & Wiersema (1996) (Martinez, 1999). The result of this combination is a two by three matrix with six value propositions: Innovators, Brand Managers, Price Minimisers, Simplifiers, Technological Integrators and Socialisors (Martinez and Bititci 2000). Figure 5.1 illustrates the value matrix.

The six value propositions of the value matrix align the key operational elements that the company has to build to offer a particular type of value with the customers' expectations of a specific market segment.

[11] NHS is National health service
[12] The theory building techniques used in this process are detailed on Chapter 4, section 4.3.

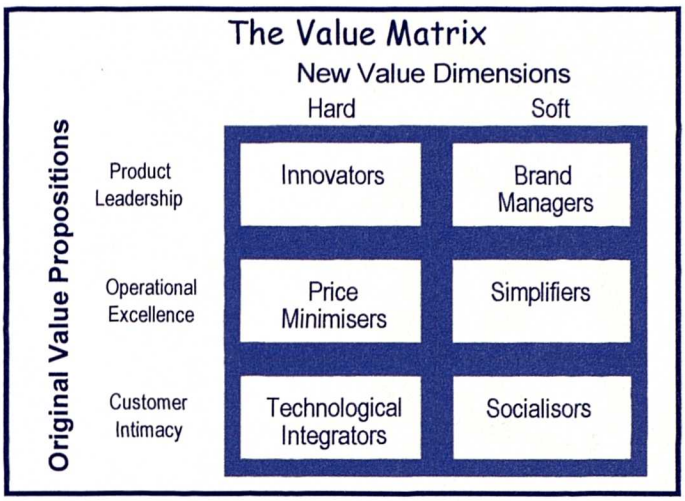

Figure 5.1. The Value Matrix

The following section describes and interprets each value proposition. To build construct validity of the model, each value propositions is enfolded on existing theory (Voss, 2002).

5.3.1 The six value propositions of the value matrix

To provide a better explanation of the six value propositions of the Value Matrix, these are analysed from two different perspectives - customer perspective "What customers get" and company perspective as "What the company needs to do" (Martinez and Bititci, 2001).

5.3.1.1 Innovators

The strategic objective of 'innovators' is to provide breakthrough through new product generations (e.g. continuous designs and new features) within technological basis. Their core competence resides on the research and development of new product designs and the ability to make technical changes in the production processes; hence, their analytical and precise approach to design is grounded on scientific and technological principles (Kim and Mauborgne, 1999, Ghoshal et al, 1999). The dominant design choice is a predictor of success (Tegarden et al, 1999).

Innovators can follow one of the two types of designs; the first one is used by those organisations that have a clear concept of what the customer's needs are and the future trends on their fields - an example is Intel. The second type is free-design, as 3M follows, that

looks for future needs or applications (Rooney-Cespedes and Stojkvich, 1999; Mikkola, 2001). Thomke and Hippel (2002) suggest that innovators should involve their customer from the initial design stages by allowing them to play with tool kits[13] to help in the product design, thus needs satisfaction, product acceptance and design speed are enhanced.

The continuous innovations and obsolesces of products, which are also known as short product lifecycles, sustain innovators in their competitive position. The reduction of time-to-market in their new product is an aim for these organisations, therefore, the integration of cross-functional teams (Hippel, Thomke and Sonnack, 1999) concurrent engineering and development of flexible manufacturing capabilities to change process from product to product are essential (Hammer and Stanton, 1999; Prahalad and Hamel, 1990 and Knot et al. 2000). Cordero (1991) highlights the importance of organising product development and product manufacturing speed, both complemented with time saving techniques (Mikkola, 2001). To save time, very often innovators use rapid prototypes in early design stages to develop new concepts (Thomke, 2001).

There are three factors that Pavitt et al. (1991) highlight in successful innovations: effective horizontal links (both internally and externally to the firm), the characteristics of business innovator (e.g. continuous innovations) and flexibility speed in decision making (Mikkola, 2001).

Since these products are new in the market, their prices are generally high; then, the prices start declining at the same time that the product lifecycle descends. Hence, their initial market is usually focussed on high wage countries, then eventually moves to other countries (Stobaugh and Telesio, 1983). For this reason, innovators research and development team has to develop facilities to aid the technology transfer to some other branches to cope with the market expansion.

From the customers' perspective, their customers buy innovative designs, products never seen before. Some others pay for the most advanced technology applied in new devices and newest product's generation.

[13] The customers tool kits are computer based tools such as CAD and CAM programs with libraries of tested and debugged modules that customers can just plug into a new design. Some of the most specialised tool kits also enable rapid testing through simulation and even to build prototypes (Thomke and Hippel, 2002).

5.3.1.2 Brand Managers

The strategic objective of 'brand managers' is to expand the market reinforcing the solid brand image of the product and/or company. The company's offer[14] is a mix of physical attributes of the product, brand, service and even price; because, sometimes the price is considered as an attribute to the product especially for brand mangers. Price represents a label of certain social status.

Their core competencies reside in the development of creative flair to invent new concepts (e.g. stylish products, exploit the brand recognition of the company's name, build emotional links with a social status, link feeling with images, such as artist, players), hence these organisations require a mixture of talents.

Brand managers' operations involve activities from the product creation (although their research and development of new products is usually basic) to the development of advertisement and promotion campaigns until the design of the distributions channels of their products (Collin, 1989, Vishwanath and Mark, 1997 and Cravens et al, 2000).

Typically, these organisations are very market oriented. Consequently strong investment is placed on high publicity on superior media, market research and market development (Day, 1999; Herrmann, Huber and Braunstein, 2000). Building the brand image of a product demands complete analysis of content, context and infrastructure (Rayport and Sviokla, 1994). Hatch and Schultz (2001) highlight the alignment of three elements 'vision, culture and image' in the creation of corporate brands.

Brand managers' customers pay premium prices to get status by the product acquisition to feed some feelings, such as superiority, ego, social acceptance, etc; in other words their customers buy a lifestyle.

5.3.1.3 Price Minimisers

The strategic objective of 'price minimisers' is focused on making their production process efficient and driving down operational costs (Joseph, 1999).

They focus on producing high quality products in the most cost-effective way by encouraging a culture that condemns waste. Their operations processes are highly optimised,

[14] The offer is referred to the product/service as a whole.

standardised and the product variations are tightly controlled, therefore, their operational facilities are very specialised to produce a particular type of products (Hill, 2000, Porter, 1980 and Cox, 1999). The type of products manufacture by price minimisers are often mature products (Richardson, 1985); logically, the research and development of new products is minimum or is focused on modifications or improvements of current products.

One of the main challenges of price minimisers is to cope with production fluctuations; therefore strong investment is directed to build capabilities to produce different volumes with the same quality (Prahalad and Hamel, 1990 and Hammer and Stanton, 1999).

Their production cost are kept low by using lean operations and stressing on low distribution costs among others techniques mentioned before (Hammer, 1990; Martinez and Perez, 2001). However, for the market, the product prices are established based on the product demand, order size, delivery time and production costs among others.

Their customers pay for ordinary and reliable products at reasonable prices because they buy security in the product performance.

5.3.1.4 Simplifiers

Their strategic objective is focused on building a streamlined process to make life simple and uncomplicated for customers in a creative, novel and profitable way. One of the main characteristics of 'simplifiers' is the direct deal between the company and its customers; e.g. simple, standardised and straightforward communication.

Simplifiers facilitate and accelerate the process from the time the customer is placing the order until the product is delivered to the customer's place (e.g. home, office, etc) (Rogers, 1998). In other words, simplifiers make the transactions process simple and straightforward.

Simplifiers pay strong attention to the processes of getting order by building capabilities to provide fast, easy, transactions available to most people i.e. using well recognised media, such as internet, catalogues, TV marketing, etc (Burkitt, 1998, Amit and Zott, 2001, Stabell and Fjeldstad, 1998 and DTI, 1997). Their main capability resides in the order fulfilment process; i.e. in the ability to co-ordinate and integrate different operations (e.g. manufacturing, delivery) even if some of the non- key capabilities are outsourced (Quinn and Hilmer, 1994).

Typically, these types of organisations are not mainly focused on the manufacturing process of the products, or in the research and development of innovations. If they have to assemble some parts of the complete product; they look for simple product designs and/or standard parts to reduce the lead-times.

Simplifiers' customers buy convenience and availability of the products. They appreciate hazard free experiences as well as ease to deal with the companies (Rogers, 1998).

5.3.1.5 Technological Integrators

The strategic objective of 'technological integrators' is to tailor specific and continuous solutions for carefully selected customers on the basis of long term relationships.

Technological integrators compete by offering customised products and personalised services (Davidow and Uttal, 1989). These types of organisations support their customers' processes, helping them to identify and provide new solutions; hence, personalised attention such as product delivery, pre and post- purchasing service, product up-grade, installation and maintenance of equipment, is one of the attributes of their product/service. In the product development, they collaborate together with the customers to bring the optimum solution (product and/or service) for that particular customer's problem (Ciccantelli and Magidson, 1995; Prahalad and Ramaswamy, 2000; Goffin and New, 2001).

The capabilities of technological integrators are focussed on multi-skilled workforce and building flexible facilities to craft different products for different customers. i.e. employees that can craft any type of solution, support the service provided and bring new ideas to improve their customers processes (Lampel and Minzbergh, 1996, Gilmore and Pine II, 1997 and Spring and Dalrymple, 2000).

Generally, they do not spend too much on publicity and promotions, there are few promotions but are focused on the relationships with the clients. They are getting known by internal networking (i.e. customers' recommendations to other companies).

Their customers pay for customised product and services - they buy total solutions (Sheth et al, 1991).

5.3.1.6 Socialisors

Their strategic objective is to build confidence and trust in the business. Perhaps their products are not innovative, low price, tailored products, but the type of product and its delivery to their customers build a feeling of confidence of dealing with them (Davidow and Uttal, 1989). For instance, socialisors build confidence by continuos interaction with the customer's business or supporting anytime their customers require them.

Lapierre (2000) highlights three important value drivers; these are: trust, solidarity and image, in a relationship with customers besides the product or service. Schneider and Bowen, 1999 support Lapierre (2000) by stating that business, especially service business, can retain customers by building reciprocal relationships founded on safeguarding and affirming customers security, fairness and self-esteem.

Socialisor's capabilities reside in the company culture and employees to deliver a sensitive and careful interpersonal service. Thus, the main product is the service rather than in the artefact by itself. They are mainly getting known by word-of-mouth and local advertisement.

Socialisor's customers pay for flexible products/services and interpersonal relationships. They are buying trust from the company (Scheider and Bowen, 1999).

Table 5.5 presents a summary of the definition of each value proposition. It discusses the strategic objective and operational objectives from the organisation's perspective and analysis of what the customers buy from the customer's perspective.

Value Proposition	Customers get	Company needs to do	
		Strategic Objectives	Operational Objectives
Innovators	New innovative designs, products never seen before. [Rooney-C. and Stojkvich, 1999; Sheth J.N et al. 1991]	Provide breakthrough through generations of continuous new designs, new features within technological basis. [Mikola, 2000; 1999; Kim and Mbg. 1997-9 ;Ghoshal et al, 1999]	Long-term vision, robust R&D and product development, capacity to innovate within short product lifecycles. [Hammer and Stanton, 1999; Thomke, 2001; Prahalad & Hamel; 1990; Thomke & Hippel 2002]
Brand Managers	Status from the product, they get lifestyle, a feeling of superiority. [Collins, 1989]	Expand the market reinforcing the solid brand image of the product and the company. [Day, 1999; Cravens et al. 2000; Rayport and S. 1994]	Superb brand recognition. Focus market sector. Superior control over the product styles, quality and promotion. [Vishwanath and Mark, 1997]
Price Minimisers	Ordinary, reliable products and services at lowest price possible. They get security on the product. [Treacy and Wiersema 1996]	Production growth reaching high quality levels in the most cost-effective way and waste free. [Porter 1980, Hill 2000, Cox, 1999]	Strong order fulfilment sustained by efficient and effective production processes within tight quality processes controls. [Joseph 1999, Hammer and Stanton, 1999; Prahalad and Hamel; 1990]
Simplifiers	Convenience and availability of the products. Hazard free experience. [Rogers 1998]	Building streamlined processes to make life simple and uncomplicated for customers in a novel and profitable way. [DTI 1997, Stabell and Fjeldtad, 1998]	Strong availability. Superb order fulfilment–distribution by conventional and un-conventional resources (networking, IT, etc.). [Burkitt 1998, Amit and Zott 2001; Quinn and Hilmer, 1999]
Technological Integrators	Tailored products and services. They buy total solutions. [Sheth J.N et al. 1991]	Tailor specific and continuous solutions for carefully selected customers on the basis of permanent relationships. [Davidow and Uttal 1989, Lampel and Mintzberg, 1996; Gilmore and Pine II, 1997]	Strong relationship with customer. Knowledge of customers' businesses, products and operations. Capacity to configure any specific need. Able to adopt the customer's strategy. [Spring and Dalrymple, 2000]
Socialisors	flexible services and inter-personal relationship because they trust in the company. [Schneider and Bowen 1999]	Build confidence and trustiness on the customers. [Davidow and Uttal 1989]	Sensitive fulfilment of customers' needs supported by careful deliver, reliability, and honesty. Excellent personal service. [Lapierre, 2000]

Table 5.5 Comparative table- What the customers get? and What the companies need to do?

Appendix 2 presents What marketing needs to do? It is an analysis of the marketing mix elements of each value proposition. It is important to mention that the analysis of 'what marketing needs to do?' does not intend to be a contribution to knowledge in this research, it is just an informative area of how the value propositions work.

The research on the value propositions identified that from theory, the operational part of 'simplifiers' and 'socialisors' such as operational techniques were available from different

literature sources (e.g. Rogers (1998), Lapierre (2000) and Uttal (1998) among others) but the strategic part of both value propositions 'simplifiers' and 'socialisors' such as strategic objectives, strategic position and competencies and capabilities were not found in literature as formal business models. Meanwhile, the rest of the value propositions of the value matrix were not difficult to support operationally and strategically with theory. Therefore, it can be inferred that 'socialisors' and 'simplifiers' are two new potential value propositions.

To build reliability in these two new value propositions and in the complete value matrix, each value proposition was supported with theoretical illustrations; moreover they were discussed with industrial collaborators, consultants[15] and academics in different fields[16].

5.3.2 Illustration of the value propositions.

To build external validity[17] on the model, a 'theory logical replication'[18] was applied; it identified companies from literature that were performing on the value propositions of the value matrix.

To strengthen the reliability of this study, a set of selection criteria was applied to compile the following illustrations of the value propositions. The criteria of selection of example companies are:

1) The example should be (or be very near to) an extreme or representative example of a value proposition of the value matrix, in accordance with Table 5.5 requirements. I.e. strategic objectives, operational objectives and customer's needs of proposed examples should match to those proposed by the value propositions of the value matrix presented in Table 5.5. Miles and Huberman (1994) recommend this technique to confirm the proposed construct.

2) In addition, examples should show:
- Business Focus
- Core competencies and/or key operations
- Approach to market segment

[15] The management consultancy 'Serious Concept', which discussed and gave me feedback received in the value proposition of the value matrix.

[16] Prof. Michael Saren from Strathclyde- international marketing department, who is specialised in value relationship. Mr. Trevor Turner, who has a wide strategic and operational background; Jillian MacBryde also specialised in marketing and people management and Prof. David Langford, from civil engineering, who help me to find new applications of the value matrix in construction engineering. Prof. Jean-Claude Larreche, from the INSEAD, who discussed and gave me feedback in some topics of value and the capabilities of each value proposition.

[17] External validity establishes the domain to which a study's findings can be generalised (Yin, 1994:33)

- Product of services provided

It is important to mention that: a). For big corporations, the most representative or widely known business unit was analysed. b). For some organisations not all the parameters were available.

5.3.2.1 Innovators

Johnson & Johnson Vistakon, Inc. is considered as an innovator. When they were launching their first contact lenses, they knew that they had the new technology to produce the new product. Their competition was just behind them. Although they had some problems with the end product, they decided to take the risk and launch the contact lenses to the market and meanwhile solve those problems. Since their product was a complete new concept in the market, the company has to provide extra education for the use of the product. Since then, Johnson & Johnson Vistakon has been continuously introducing new contact lenses with new features. For being an Innovator is not enough to bring new design, and solve new problems, but also to take risks and succeed.

Other companies known as innovators are: Intel, Sony, 3M and Babcock naval defence among others. Let's concentrate on Sony's story. Sony knew the market trends and their customers' needs, so they knew that a lighter, handier and more user-friendly concept will be the next technological step in mini-camcorders, but they did not want to see this concept under the Canon or Panasonic label. Since they had other mini-camcorders available in the market, they decided to make obsolete one of them and position the new one in the market. As a result, Sony made the first mini-camcorder obsolete before squeezing the last penny out of that product. So, Sony gained in two ways: by boosting its market reputation as a leader in electronics and improving its ability to innovate.

Samsung and Apple Computers are considered as innovators. The Industrial Designers Society of America rewarded the best innovative designs with gold IDEA[19] for 2002 to Samsung's 'the family doctor', which is a tiny home diagnosis instrument based on swallowing a 'smart' pill and relaying data to the doctor. Apple Computer was also rewarded with gold IDEA by its 'iPod MP3 Music Player', which is the first MP3 player that holds 1,000 songs, having 5 gigabytes of data and weighing 184 grams[20].

[18] This theory building method is defined in Chapter 4
[19] IDEA is the Industrial Design Excellence Awards
[20] Source: The Business Week; July 8, 2002; pp. 72 -78.

The common threads of Johnson & Johnson Vistakon, Sony, Samsung and Apple Computer are shown on Table 5.6.

5.3.2.2 Brand Managers

Morgan Motor Company (MMC) is a tiny factory in Malven, Worcestershire, UK founded in 1910. There is no more quintessentially British product than the Morgan sports car, with is racing pedigree since 1930. When Morgan's managing director visited Ford factory at Dagenham, he was horrified by the mass production, so, the Morgan's Board of Directors decided that the firm Morgan Co. should restrict itself to serving a small, specialist niche market. In the 60's, the orders dropped to five a week. It was only their good name in America, along with the loyalty of the owners around the world, which kept it going. Currently, the firm produces 600 cars a year, half of which are exported. Morgan Motor Co. has an international presence, especially in America. Everybody wants to have the feeling of owning a real British sports car, it was said by one of its customers. Morgan Motor Co. supplies more than a collectable automobile.

Different from Morgan Motor Co., Nike has taken a different approach. It links their sportswear with successful players to commercialise its products. Nike places strong emphasis on the promotion of its name, advertisement and distribution of its products. Harley-Davidson, Nike, Highland Spring Ltd., Levi's, Rolls Royce cars, Porsche are some other examples of organisations working as brand managers. Table 5.6 summarises the common threads of these organisations.

In November 2001, the average sales of Coca-Cola, Walkers and Nescafe was 26 million pounds per day (each brand). The questions is: how different are Pepsi-cola, Pringles and Kenco which are out of the top 20 most selling brands. The trade magazine Checkout stated that these top three brands spend a fortune on adverting, which obviously pay back (Atherton, 2001).

5.3.2.3 Price Minimisers

A good example of a price minimiser is Toyota. Toyota has transferred its efficient production systems and methods and even its management style using virtually identical

designs and procedures from Japan to Kentucky. This standardisation has reduced wastes on time, resources and costs. Toyota boasts of its lowest total cost. They may, however, be emphasising product reliability and durability, which lower customers' future costs of ownership. Similar to Toyota, Honda and Casio are also operating as price minimisers.

The common threads of Toyota, Casio and Honda, which perform as Price Minimisers are summarised on Table 5.6.

5.3.2.4 Simplifiers

Easy Jet has been a relatively new air-flight company, which has simplified its operational processes. For instance, the booking process has been automated and it is done online; thus the customer does not receive a fight ticket, but instead an immediate confirmation number of his/her flight via e-mail. It means that the customer can buy directly his/her in less than 15 minutes[21]. Easy Jet has focused on cutting out the bureaucratic processes of the normal airlines. In doing this they also save time and resources, which all cost money. Easy Jet established a standard and easy system of boarding pass; Easy Jet's registration desks provide a pass 'orange printed matter' that specify the flight number, but does not contain any other specification as seat number, flight time, etc. Thus, the customers save time and money. Although its system is smart and easy to use, since 09/11/01, for security purposes, its system has been stopped until new advice.

Screw Fix Direct is another example of simplifiers. The company sells a range of DIY tools and some furniture via catalogue. The customer can ask for the catalogues via mail or e-mail; then, Screw Fix Direct sends them. The customers can order the items from home and then the following day they receive their products directly to their doors. Some others simplifiers include Amazon.com, DHL, Dell and Federal Express. The common threads of these organisations are summarised on Table 5.6.

5.3.2.5 Technological Integrators

ICI is a good example of simplifiers. ICI had for a long time been working in the UK explosive industry. Typically, they used to manufacture the explosives in ICI following the most strict safety rules and placing strong investment in transportation and insurance, but

[21] Just if the customer's computer does not crash!

several years ago, when ICI introduced a new approach called 'rock in the ground', a complete operation system was introduced. They implemented mobile manufacturing-laboratory units, operated by specialists, where they go and assess the place that has to be blown up (e.g. type of ground, dimension, depth of the fracture, etc.) and in-situ prepare and administer the explosive particular for that ground and dimensions. So they reduced risk, cost and manufacturing facilities to provide tailored solutions.

Global Service (GS) is one of the IBM business units. The company offers total solutions to their customers from a specific software system until the last piece of paper the customer needs to carry on with its operations. IBM-GS offers an incomparable service because every piece of technology needed, such as server, computer, software can be crafted for a specific customer's need, through the support of other IBM business units. IBM-GS's plans, along with the customer the solution, the installation and monitoring as part of the service provided by IBM, but it does not stop there; IBM-GS looks after the customer by anticipating the customer's expectations and identifying current and future problems.

Roadway Logistics (RL) is another simplifier. Roadway Logistics is responsible for managing and delivering all General Motors (GM) automotive parts, on a just-in-time basis to two of its assembly plants. This implies that RL has to build and optimise the distribution networks of automotive parts along with GM's suppliers to suit with the production schedule of GE. Table 5.6 summarises the common threads of these organisations.

5.3.2.6 Socialisors

An example of a socialisor is Home Depot, the home improvement retailer. Its customers prefer Home Depot not because it manages the newest technology or because it's any cheaper than its competitors – but because of its delivery service, pre and post sales service etc. Its customers trust in it and they know that, even if they have a small problem with a dimmer switch, an employee of Home Depot will help them.

Another socialiser is GPC International who, as public affairs consultants, construct value through close client contact, advice and information and through networking with key public decision makers.

The common threads of these organisations are summarised on Table 5.6.

Value Propositions	Companies	Common Threads 'Drivers'
Innovators	Johnson & Johnson Vistakon, Sony, Samsung, Apple Computers Intel, Microsoft, 3M	✓ Risk takers ✓ Strong design skills ✓ Pioneers on new products/designs ✓ High emphasis on making obsolete their products and bringing new ones. ✓ Innovative designs and user friendly ✓ Introduction of new applications of existing technology
Brand Managers	Morgan Motor Company, Nike, Harley Davidson	✓ Strong emphasis on reputation building and brand positioning ✓ Strong investment on advertisement ✓ Link of their products with successful people
Price Minimisers	Toyota, Casio Honda	✓ Strong emphasis on waste, production time and cost reductions ✓ Development of efficient process, systems and methods
Simplifiers	Easy Jet, Screw Fix Direct, Amazon Federal Express	✓ Automation of the communications between their operations ✓ Simplification of their operational processes ✓ Transactions made via e-mail and mail
Technological Innovators	ICI, IBM Global Services, Roadway Logistics	✓ Provide particular solutions and/or optimised solutions ✓ Specialist on a niche market ✓ Offer strong support from specialist on the area
Socialisors	Home Depot GPC International	✓ Strong emphasis on service delivery ✓ Close contact with their customers

Table 5.6 Common threads of organisations that illustrate value propositions.

Figure 5.2 illustrates the value matrix with some companies that perform in the different value propositions.

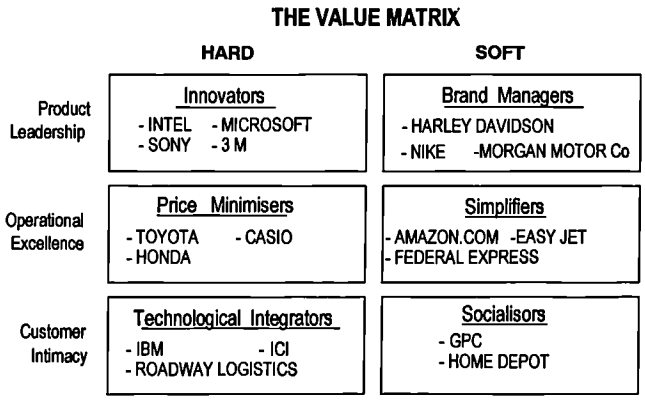

Figure 5.2 Illustrations of the value propositions of the Value Matrix

5.3.3 Comparison of the value matrix against other business classifications

Once the value propositions of the value matrix have been defined and explained through some examples, the objective of this section is to compare the value propositions of the value matrix against other business classifications. This analysis is focused on the identification of similarities and contrasts and on finding a disconfirming instance with other established approaches (if it is the case). Miles and Huberman (1984) and Voss et al, (2002) suggested this process to build construct validity[22]. This process is applied to the value propositions of the value matrix.

Table 5.7 shows a comparison of some business classifications against the value propositions of the value matrix. It is important to mention that Table 5.7 did not include business classifications such as Stobaugh and Telesio (1983), De Meyer (1990) and Sweeney (1991), because they are very close to the Miller and Roth (1994) classification and other classifications included.

The first column of the Table 5.7 presents the six value propositions of the value matrix. Against this column, the other business types are mapped, such as Richardson (1985), Miller and Roth (1994), etc. This mapping does not necessarily mean that there is a complete equivalence between the business types themselves. Rather, this table implies similarities between the fundamental definitions from each classification and the value propositions of the value matrix.

This comparison has found '*Innovators*' sharing certain similarities with prospectors, technological frontiersmen, technology exploiters, technological leaders and product leaders from Miles and Snow (1978), Richardson (1985), DTI (1994), Miller and Roth (1994) and Treacy and Wiersema (1996) respectively. These classifications share principles from their fundamental definitions with 'innovators' from the value matrix, such as the focus on continuous innovations, production of high-technology products, new designs and their focus on flexible capabilities to produce these new designs. Appendix 1 defines the business types of each classification.

[22] Construct validity is concerned with the idea that the research design fully addresses the research questions and the research objectives (White, 2000:25). It establishes the correct operational measure for the concepts being studied (Yin, 1994:33).

Brand managers from the value matrix, differentiation from Porter (1980) and Marketeers from Miller and Roth (1994) converge in the strong emphasis that they place in marketing programs that support the product to highlight or create the brand image of the product.

The focus on the production systems to offer reliable products at low prices, which emphasises the development process capabilities to support application of tight quality control systems and the reduction of operational cost, are some common characteristics of: price minimisers, Ingham's types, defenders, analysers, cost leadership, cost-minimisers, elastic enterprise, caretakers and operational excellence. Reactors type from Miles and Snow (1978) has some elements to fit with price minimisers, but it does not fit totally. This type of business 'price minimisers' is, if not the oldest, one of the oldest business types that businesses have used to compete on the marketplace.

It has also been found that technological integrators share strong operational characteristics with customisers, focus enterprises, technological servicemen, total service enterprise and customer intimacy, especially in offering customised products/solutions in the basis of long relationships. Cost-minimising customisers and flexible enterprise share some operational characteristics with 'technological integrators' in offering a large diversity of product and solution, but, differ from technological integrators in offering low cost on the solution provided[23], such as, cost-minimising customisers, or in the weak emphasis in the customer's relationship, as flexible enterprise that works for volatile markets and do not emphasis on the relationship, etc.

[23] This means that low prices in the solutions provided is not at aim for Technological Integrators, it could be, but low prices is not a representative characteristic of technological integrators.

1999-2000 The Value Matrix	1971 Ingham	1978 Miles & Snow	1980 Porter	1985 Richardson	1994 DTI	1994 Miller & Roth	1996 Treacy &W.
Innovators		***Prospectors***		*Technological frontiersmen. Technology exploiters.*	*Technolo-gical leader*	*Innovators*	*Product leaders*
Brand Mangers			*Differen-tiation.*			*Marketers*	
Price Minimisers	*Type I Type III Type IIIa Type IIIb Type IIIc*	*Defenders Analysers Reactors**	*Cost leadership.*	*Cost-minimisers.*	*Elastic enterprise*	*Caretakers*	*Operat. excellence*
Simplifiers	There is no equivalent						
Technolo-gical Integrators	*Type IV Type II*		*Focus*	*Customisers. Technological servicemen. Cost-minimising customisers*	*Total service enterprise. Flexible enterprise. Virtual* enterprise.*		*Customer intimacy.*
Socialisors	There is no equivalent						

*It has some elements to fit in, but it does not fit totally

Note: Appendix 1 prsents the definition of the business types of each classification.

Table 5.7 Comparative table of the diverse types of business classifications against the Value Matrix

This analysis showed that the existing classifications do not contradict the value propositions of the value matrix. On the contrary, they support 'innovators', 'brand managers', 'price minimisers', and 'technological integrators', however, business types equivalent to 'simplifiers' and 'socialisors' were not identified.

The value matrix has proposed, defined and shown the application of its six value propositions. The examples have provided evidence that there are companies operating under these value propositions. The comparison of the value matrix with other business classifications has strengthened four value propositions and also highlighted that "Simplifiers" and "Socialisors" business types have not been addressed before by other authors. Therefore, they have the potential of be two new contributions to knowledge discovered by this research.

Although the researcher has demonstrated the validity of the value matrix with examples taken from the literature, there is still the need to validate it with empirical evidence. Consequently, the next research question comes:

RQ2. Are the value propositions of the value matrix valid?

It is important to bear in mind that theory cannot be generated without previously testing the model (Meredith, 1993); so, Chapter 6 addresses the Research Question 2 by introducing the research done in the validation of the value matrix.

5.4 The Third Dimension of the Value Matrix

The value matrix provides a good overview of different propositions of value, although there is still a need to create a more complete and integrated framework to describe the functionality of each value proposition in greater depth.

To respond to this need, the third dimension of the value matrix was structured. The development process of the third dimension started with the identification and selection of parameters to build the third dimension of the value matrix. Then, it was followed by the categorical aggregation of these parameters into different groups, and finally, the addition of the third dimension to the value matrix to get the full model 'the value cube'[24]. Logically, the value cube became an evolution of the value matrix.

The third dimension of the value cube attempted to cover most of the strategic aspects of any commercial organisation including organisations dedicated to services, e-business, etc., e.g. technology aspects, research and development aspects, systems, services, etc.

5.4.1 Identification of different indicators of business strategies

This process started with the identification of models in the area of manufacturing and business management. Among the identified models are Ingham (1971), Skinner (1978), Porter (1980), Wheelwright and Hayes (1985), Puttick (1987), Platts and Gregory (1990), DTI (1991), Miller (1991), Hill (1993), Voss (1995) and Larrache (2000).

The parameters identified from Ingham's model (1971) are mainly oriented to production, sales and marketing, such as marketing implications, forecasting, promotions, production types and process choice. Skinner (1969, 1978) through his "five characteristics of the

[24] The methodological techniques used in building the third dimension of the value cube are discussed in Chapter 4.

focused factory" and "key choice areas of manufacturing strategy" mainly stays within manufacturing processes, e.g. process technology, product volumes, lead times, volume flexibility and product design, etc. Appendix 3 shows the parameters and their correspondent author.

The wheel of competitive strategy from Porter (1980) did bring new ideas and insights on logistics, distribution, purchasing and research and development.

The Wheelwright and Hayes' model 'competing through manufacturing' (1985) introduced new issues in human resources, such as selection and training of employees and, in manufacturing, some as scheduling and materials planning, capacity, facilities, etc. Puttick (1987) also contributed with aspects on logistics and scheduling.

Platts and Gregory (1990) suggested some aspects of the business strategy such as market share, market growth, operational/manufacturing costs and prices among other operational parameters such as process span, product design flexibility, etc.

The DTI (1991) has also contributed with financial parameters such as profit margin, but also on service, such as service delivery, tailored product. The functional missions, from Miller (1991), extended the strategic aspects of business with culture, service reliability, marketing mission, manufacturing mission, etc.

Hill (1993) suggested the corporate objectives, infrastructure, investments and costs besides some manufacturing issues. Meanwhile, Voss (1995) introduced aspects such as corporate mission and vision.

Larrache (2000) proposed new aspects on planning and intelligence, marketing operations, international strategy, customer orientation and market strategy as capabilities.

The parameters proposed by each model were analysed and captured in a database. Appendix 3 shows the comparative table of the potential parameters of the value cube. As a result of this analysis the table of parameters ended up with 73 parameters. These 73 parameters covered a wide range of manufacturing and strategic management issues. This table compared and highlighted the more used parameters by different authors. It also shows

new parameters and the contributor author. The following logical step is the selection of the appropriate parameters for the third dimension of the value cube.

5.4.2 Selection of parameters for the third dimension

Since the main purpose of the third dimension is to provide a complete architecture to present, in a simple, standard and organised way the parameters that show the functionality of the value propositions of the value matrix, it is important to make a selection of parameters that support this purpose. Hence, the criteria for the selection of parameters has to be established.

5.4.2.1 Criterion for the selection of parameters

The main criteria of selection of parameters were focussed on:

1). The ability of the parameter to describe the functionality of each value proposition.

2). The quantity of parameters needed to describe each value proposition. In this case, if there are too many parameters to describe only one value proposition, it is important to select based on the importance of the parameter (i.e. the parameter that shows the functionality of the value proposition in a better way stays).

As a result of the application of the criteria to the 73 parameters, 43 were retained. These selected parameters covered the most important strategic aspects of a business model and show the functionality of the value propositions.

5.4.3 The third dimension –the corporate competencies and capabilities

Based on the 43 parameters, a categorisation[25] of parameters was performed bringing together parameters that share similar fields or issues; these groups were named *field groups*. Some examples of field groups are technology, marketing implications, general policy, human resources, product development, production implications, etc.

The table in Appendix 3 has a VC (value cube) column. This column indicates, with a letter, the selected parameters to be part of the third dimension of the Value Cube. The letters also indicates the field groups where parameters belong.

Subsequently, these field groups were categorised into four *major competitive groups.* These four groups are strategy, operations, finance and competitive parameters. Table 5.8 shows the four major 'corporate capabilities' groups and their field groups.

	Corporate Capabilities			
	Strategy	**Operations**	**Financial**	**Competitive Parameters**
Field Groups	General policy	Product development	Margin	Customisation of products and services
	Technology	Production implications	Market share	Continuous product generation
	Human resources		Operating cost	Response to customers problems
	Marketing Implications		Fixed assets	Etc.

Table 5.8 The four competitive groups and their field groups

These major groups of parameters are called corporate capabilities because they map the competencies and capabilities that each value proposition has. The capabilities and competencies are those which make a significant contribution to the things that customers really value (Stalk, 1992 and Prahalad and Hamel, 1990). Moreover, Thompson (1998) and Fuchs et al (2000) state that the most successful organisations are those that align the right mix of competencies and capabilities to corporate-value propositions.

5.4.4 The value cube

The complete model 'the value cube' is created by the addition of the corporate capabilities (third dimension) to the value matrix. Figure 5.3 presents the value cube.

[25] Categorisation is one of the techniques suggested by Stake (1995:74), to build theory. As Chapter 4 establish in the development of the third dimension the categorisation technique is used to support building theory process.

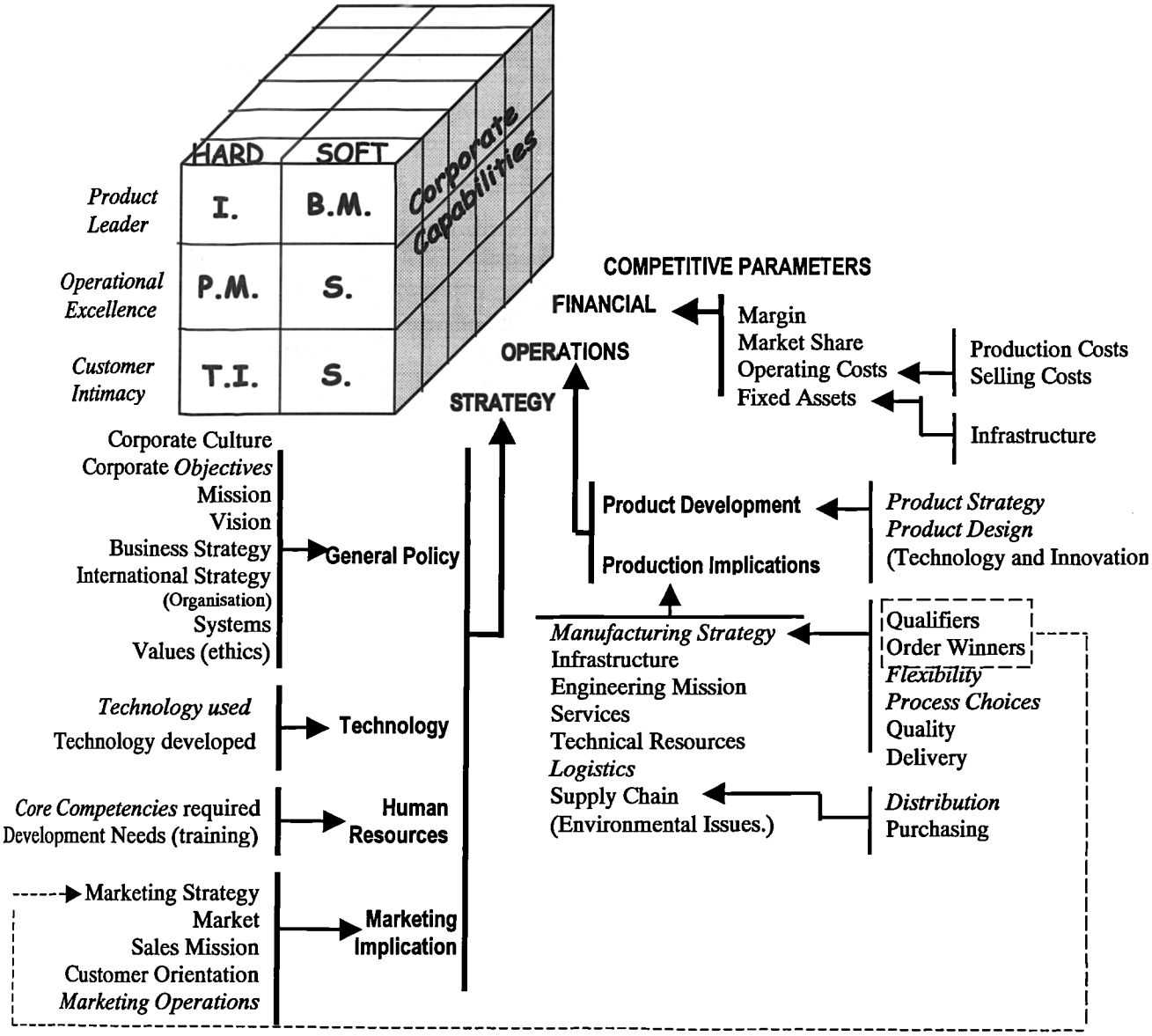

Figure 5.3 The value cube

Chapter 8 presents a deep analysis of the elements of the third dimension of the value cube 'corporate capabilities' of each value proposition.

Conclusions of the chapter

This chapter has discussed different business classifications and demonstrated that Treacy and Wiersema's model provides a better approach to value creation, because their three value propositions are focused on customers expectations, as well as on business results. Moreover, its comparison with other business classifications has shown that Treacy and Wiersema's model has covered the three dominant business models that most business classifications have used. Therefore, these two reasons make Treacy and Wiersema's model a strong point of departure.

This Chapter has addressed the development of three pieces of theory: hard and soft value dimensions, the value matrix and the third dimension of the value cube.

To provide a better structure to answer the first research question 'RQ1. Does value exist on hard and soft dimensions?', this chapter provided a deeper analysis on the definition of the hard and soft value dimensions. Moreover, each value dimension has been supported theoretically with references and examples.

The hard value dimension is focused on the continuous creation of technology, innovations and new designs of products/processes. Its product design is very versatile, from the creation of completely new products to the product customisation. In operations, these organisations focus on the development of process engineering skills. Generally, hard value organisations focus on providing tangible aspects of product/service, i.e. attributes that can be perceived by touch such as product performance, new product design.

Meanwhile, the soft value dimension is focused on the market approach, i.e. the product delivery including customer attention, post sales service, etc. They sell more than a product, because the service is a part of the customer acquisition or sometime it is even the main product. The soft value organisations emphasise in psychological perceptions that in most of the cases they are intangible, i.e. attributes that have no physical existence such as people's feelings, simplicity to buy, confidence, etc. Their approach to product design is more sophisticated and creative and is not necessarily to develop new technologies. Soft organisations stress the development of new ways of selling, managing and operating their processes.

It has been observed that the classical view of business has changed and now more businesses are adopting different types of services, to respond to the external environment. Fronlich and Dixon (2001) support this observation by stating that new business models are emerging as a consequence of the continuous market changes. Hence, the business classifications have to evolve; thus, this research proposes a new model - the value matrix.

The value matrix is built from the hard and soft value dimensions and the three value disciplines from Treacy and Wiersema. It proposes six value propositions: innovators, brand managers, price minimisers, simplifiers, technological integrators and socialisors.

The comparison of the value matrix against other business models showed that there is no theory from business classifications that contradict any value proposition of the value matrix. On the contrary, they support 'innovators', 'brand managers', 'price minimisers', and 'technological integrators', however, no evidence has been found that other business classifications have a business type that operates similarly as 'simplifiers' and 'socialisors'. Some authors support operational issues of these two new value propositions 'simplifiers' and 'socialisors' such as Rogers (1998), Lapierre (2000) and Davidow and Uttal (1989), but no evidence has been found that supports the strategic position of 'simplifiers' and 'socialisors'.

To sum up, the value matrix/cube:

- aligns the key operational elements that companies have to build, with the customers expectations of specific market segment – i.e. a particular value offer.
- provides two new value propositions, 'simplifiers' and 'socialisors' that cover new business models, never identified by other authors.

The theoretical validation of the value propositions of the value matrix showed that the limitation of matrix is that it should only be applied to commercial organisations.

To create a more complete framework that describes the functionality of the value propositions, the third dimension of the value cube was developed. This third dimension covered most of the strategic aspects of any commercial organisation. Different models in the area of manufacturing and business strategy were studied. As result of the criteria of selection from 73 identified parameters, just 43 parameters were selected to constitute the third dimension. These 43 parameters were categorised in four major groups called

'corporate capabilities' and these major groups have some subgroups. Figure 5.3 shows the complete model.

As a result of theory developed, a new research question emerged:

RQ2. Are the value propositions of the value matrix/cube valid?

Chapter 6 addresses this research question.

Chapter 6. Theory Testing: Validation of the Value Cube

It is a capital mistake to theorise before one has data
Sir Arthur Conan Doyle (1859-1930)

Chapter 2 introduced some insights into hard and soft value and formulated the first research question. Chapter 5 supported those insights by providing a deeper interpretation of hard and soft value dimensions. The hard and soft dimensions were the basis for the construction of the conceptual model 'the value cube' introduced in Chapter 5. Thus, the second research question emerged by questioning the validity of the conceptual model. The objective of this Chapter is to provide evidence to answer both research questions.

The research methods and techniques used to validate the new model were selected in Chapter 4. In addition, the parameters of third dimension of the value cube, which attempt to cover most of the strategic aspects of any commercial organisation, supported the design of the validation tools for the value propositions of the value cube.

This chapter starts with the definition of the general policies for the application of the case studies, then the development of the research tools is established. The chapter continues discussing the application of the pilot case study and its implications. Four testing methods were used to validate the proposed model and all of them arrived at the same conclusions. Based on the evidence from the four testing methods, the research questions are addressed. Thus, the results validated the hard and soft value dimensions and the value propositions of the value cube. Finally, the chapter closes with some conclusions.

6.1 General policies of the case studies

In Chapter 4, 'case study' was selected as a main data collection method to validate the value cube. The questionnaire, interview, observation and documentation techniques[1] were also selected to support the case study approach.

[1] The multiple source of evidence was used to increase the construct validity on the research

It may be argued that Yin's data collection approach (1994) does not help to define the data that should be collected in a case study, however, Miles and Huberman (1984:37) highlight that the conceptual framework proposed and research questions determine the type of data to be collected.

This researcher used the value cube and the research questions one and two as guides to gather data. Moreover, the researcher realised that it is not just the collection of data that provides evidence to answer the research questions, but it is also the context and the process[2]. So, matching the content, context and process of data collected, the research questions were answered. The content of the data was covered by the questionnaires and semi-structured interviews from phase one and phase two, as well as the collection of documented evidence. The context of the data was provided by the non-participant observation and some general questions from questionnaires (phase one and two). Finally, the data collection process is guided by the case study protocol. So it can be concluded that the data gathered from case studies shows the context of how it is used, the content and the process.

6.1.1 The case study protocol

To increase the reliability of the validation of the new model, a case study protocol was applied (Yin, 1994:63). It provided the general rules and procedures that guided this investigation. The protocol's objective, which is discussed in this section, is to provide standard research policies for getting data to answer the research questions one and two:

RQ1. Does value exist in hard and soft value dimension?

RQ2. Are the value propositions of the value cube valid?

Since the value creation process does not reside in one particular area of the business, as established in Chapter 2, different strategic, operational and customer aspects of any commercial organisation were identified as topics under investigation for the case study. Some of these topics were adopted from the structure of the third dimension of the value cube. Among some of the main topics used in the case studies are strategy, operations, technology, marketing and sales, human resources and finance.

It can be observed that many aspects of value creation in business strategy have to be considered. To facilitate the analysis of the aspects under study, these were broken into field and related areas, levels of expertise, and some aspects were used twice in different levels of expertise to check the internal validity[3] of the data and the alignment towards value creation.

a) Structure of the Case Study

To achieve a rigorous case study design, the questionnaires and interviews were designed in two phases:

Phase 1. covers the major strategic aspects of the organisation e.g. organisational strategy, marketing, finances, human resources, etc. and some competitive parameters e.g. customer value drivers, order winners, etc. This phase was directed to senior management levels who know the direction and strategy of the company.

Phase 2. covers operational aspects such as production implications, product development, marketing operations, distribution, etc. This was directed to middle management and team leaders from different departments that know the operational side of the business. This phase checks the alignment of the resources with the company value proposition and its objectives studied in phase 1.

b) Case Studies Approach

Most of the case studies were performed in organisations that have previously worked in conjunction with the Centre for Strategic Manufacturing at the University of Strathclyde. The organisations were contacted by telephone and/or e-mail and a explanation of the project's objectives, potential organisation benefits, aspects to be studied and application time[4] were described. There were few others organisations which the researcher had to approach for the first time. The researcher prepared a presentation letter and a power point

[2] The context, content and process of strategy making interact were adopted from Pettigrew et al (1989), this meta-framework process provided a more complete structure of data collection (Bourne, 2000).

[3] Yin (1994:33) recommends the use of different respondents to increase the internal validity of the research

presentation about the research issue, project objectives, potential organisational benefits, research aspects to be covered by each phase of the case study and time required for questionnaires and interviews. This approach was done via mail, e-mail and/or personal attendance. Appendix 4 shows an example of the presentation letter used to invite an organisation to participate in the study of the validation of the research model.

Since the value matrix has six different elements or value propositions, six different types of organisations were targeted. It allowed a potential validation of each value proposition to answer the research question two. The main criteria of selection of the case studies were:

a) the organisation should be a commercial organisation
b) the availability or access of the company's data and people.

Yin (1994:75) argues that the convenience, access and geographic proximity are strong issues to select a case study. In a case study, it is very valuable to get access to the information required and gain contact to interact within the environment under study, since it allows the researcher to gain a better understanding of the phenomena.

Although initially six case studies were targeted, at the end of the research, the researcher finished with more than six companies. This was due to the fact that once the company's cases were analysed, an overlap was found; therefore, it was decided to apply more case studies until the validation of the six value propositions was achieved. For the purpose of this research, in this chapter the results of six companies are presented, leaving the extra cases to illustrate the unit of analysis of the value cube, which is discussed in Chapter 7.

The collaborative companies covered a wide range of industrial sectors where the case studies were applied, i.e. electronics, chemical, service, food and drink, materials, etc.

The main data collection was performed during visits to the companies. These were made over a period of ten months in 2001. During each visit, for both phases structured questionnaires were held using semi-structured interviews with a range of personnel from various departments. This was supported by non-participant observations undertaken during the visits. Where possible, a range of company documentation was inspected during the visits including company's annual reports, marketing graphs, documentation, customer

[4] Application time is referred to the necessary time to carry on the research case in the organisation. The application time was explained to the collaborative organisations by phases to be studied and their

evaluations, etc. After each visit a detailed case file was prepared containing the interview notes, copies of documents, transcripts from observations, etc.

6.1.2 Development of the data collection tools

Case study is defined as study of events within the real-life context. Hence this case study characteristic has important implications for the data collection. For instance, the application of the structured questionnaires and interviews depended on the availability of personnel as well as the documentation's availability. Under these conditions the data collection tools were used in a different order and answered by different people, but still following the policies previously described for each phase (Yin, 1994:68).

To keep a simple and clear record of the general information about the collaborative companies, an information sheet was designed (Appendix 5). This sheet kept general data such as the interviewees names, interviewee business position, contact details of the interviewee, organisation's name, core business, market covered and business scope. Thus, each interviewee completed the information sheet[5].

a). Structure of Questionnaires

The structured questionnaires designed for each phase provided diverse research issues that cover the research questions. Since each phase covers different aspects, special questions were prepared for each phase. The aspects covered by each phase are shown in the Table 6.1.

time need for each one.

[5] This means that one case study can have more than one cover letter because there were various interviewees.

Questionnaire Phase 1		Questionnaire Phase 2	
Section A- General overview of the firm		**Section A- General policy**	
▪ Main activity ▪ Mission ▪ Culture	▪ Vision ▪ Business objectives	▪ Support activities of the business mission and vision	
Section B- Competitors' analysis		**Section B- Human Resources**	
▪ Competitors ▪ Benchmark	▪ Competitor's winner criteria	▪ Development needs ▪ Core skills	▪ Current training's programs
Section C- Study of the firm		**Section C- Marketing**	
Marketing ▪ Mktg stategy ▪ Strategic mktg options ▪ Company image Human Resources Technolgy ▪ Core technology ▪ Approach to tech. ▪ Development of tech. Business strategy ▪ Key decisions past and future	Operations ▪ Production process as process choice ▪ Product life cycle Product development ▪ Frequency of new PD ▪ Type of design Service ▪ Type of service ▪ Why customers prefer your service Systems	Sales ▪ Relationship with customers ▪ Major customers and approach ▪ Distributions channels to end customers Customer orientation ▪ Info. Customers demand	Marketing operations ▪ Promotions ▪ Marketing forecast ▪ Decision on customers orientation Marketing participation in product development
Section D- Customers' analysis		**Section D- Production**	
▪ Improvement in product design ▪ Radical changes in product design ▪ Quality of products/ service ▪ Delivery speed ▪ Services provided ▪ Availability of the product	▪ Price sensitivity ▪ Volume flexibility ▪ Product variety ▪ Design flexibility ▪ On time delivery ▪ Product performance ▪ Effective assistance ▪ Attention to the client ▪ Accessibility to the product	Qualifiers/winners ▪ Decision on winners Flexibility ▪ Volume flexibility ▪ Design flexibility Manufacturing ▪ Co-ordination of manufacturing with other operations ▪ Quality programs	Service ▪ Type of services ▪ Service strategy ▪ Special service's promotions Supply Chain ▪ Purchasing ▪ Distribution Product development ▪ Scheme of design
Section E- Financial analysis			
▪ Margin ▪ Operating costs ▪ Selling expenses	▪ Revenue ▪ Working capital ▪ Investment priorities		

Note: these are the most relevant aspects; the complete aspects are in the questionnaires.

Table 6.1 Research aspects covered by questionnaire phases 1 and 2.

The questionnaires phase 1 and phase 2 are presented in Appendix 6. The front page of each questionnaire introduces the aim of the questionnaire and the sections, which are deployed in the questionnaire. In order to get as much information about the research issue, the questionnaires were designed with open, closed, likert scale[6] questions and filling charts.

To keep a direct link between the research questions under investigation and the data, each question in the questionnaires (phase 1 and phase 2) were coded[7]. Miles and Huberman

[6] Likert scale questions are those types of questions that offer a list of options, so the level of agreement or disagreement has to be selected.

[7] The use of codes increase the construct validity of the research by keeping a link among the research issue and research tools (questionnaires)- focused research.

(1984:64) argue that codes are efficient data-labelling and data-retrieval devices, which empower and speed up the data analysis.

The code covered issues of research question 1, 2 and some other research aspects, but it did not necessarily cover both of them in the same question. Table 6.2 shows the codes used on the questionnaires, the first column refers to the hard and soft value dimensions, the second column refers to the value proposition and the last column to a specific research aspect. For instance, there are some codes that are only composed by one or two characters from the third column of Table 6.2. So, these codes help as general information which are not key elements of the research question 1 and 2, but provide support information to understand the context of the situation (case study).

It is important to highlight that since the questions addressed in the questionnaires are open and likert scale, some questions have a double code from the same column (specially from column one and two). These questions have the potential to address more than one research issue, i.e. the answer can be used to validate one issue or other since all depends on the answer. The codes used in those cases are separated by '/'.

Appendix 6 presents questionnaires phase 1 and phase 2, the correspondent code of each question is located on the right side of each question.

QUESTIONNAIRE CODES		
RQ1	RQ2	Research Aspects
H hard	I innovators	GP general policy
S soft	BM brand managers	T technology
	PM price minimisers	PD product development
	Si simplifiers	P production
	TI technological integrators	S service
	So socialisors	HR human resources
		M marketing
		F finances
		CP competitive parameters
		Sy systems
		D distribution
		C competition
		WC winner criteria

Note: the questionnaire codes shows the capacity of the question to link the answer with the research issue.

Table 6.2 Codes used in the questionnaires

b). The Semi-structured Interviews

The semi-structured interviews were used at the same time as the structured questionnaires. Some specific questions from the questionnaires also served as prompts in asking deeper questions on company issues, especially on those issues that are very particular to the specific company performance, the industrial sector and/or other key company issues. This is the kind of data richness that a case study can have access to while surveys can not.

c). Observations and Documentation

The data gathered from the non-participant observations and documentation relevant to each case were summarised, coded and included on the case study display tables. These types of information supported the questionnaires and semi-structured interviews by confirming data and providing examples of issues that are concerned with the company's operations.

The data context, content and process provided a structure (that may be closer than just the content to reality) to understand the environment in which value is created in each case.

6.1.3 Data analysis process

The data analysis of the case studies was conducted in three main stages, which follow Miles and Huberman's recommendations (1984:21).

1. Data reduction is the first stage of the case analysis. Data reduction refers to the process of selecting, focusing, simplifying and abstracting the raw data gathered from questionnaires, interviews and documents among others data collection tools that support the case study. It is important to mention that standard case study data bases were used to increase the reliability of the data analysis. The codification of the questions of questionnaires phase 1 and phase 2[8] is a data reduction technique that simplifies the data. The codification technique was used to focus the data into clusters[9], which are directly linked to the research questions. The data chunks and clusters to be coded are named 'analytic choices' by Miles and Huberman (1984).

[8] The codification of the questionnaires phase 1 and phase 2 are shown in appendix 6.
[9] Cluster, also named 'category' by Yin (1994), is referred to a group of issues under the same topic's name.

2. The second stage of the case analysis is data display. The data display[10] is defined as an organised assembly of information that allows conclusions to be drawn. Since the information from the case provided vast data, standard tables and graphs were prepared to display the data in a simple and compacted form. It allowed the researcher to understand what is happening and the relations among the research issues and data. Standard data reduction tables and graphs were used for every case study to increase the construct validity of the analysis.
3. The conclusion stage: The conclusion's aim was to identify meaning, patterns, explanations and causal flows. The interpretation of data, from the display charts, used some techniques such as categorisation, explanation, pattern-matching logic (Yin, 1994). This analysis was done for each case study. In addition, a cross-case analysis was performed across the six case studies, which is presented in this Chapter, to compare their approaches to value creation. Finally, the results of each case study were compared against the theory developed on the value matrix and the hard and soft value dimension.

6.2 Application of the pilot case study

A pilot case study was used to refine the content of the data collection tools, the protocol and procedures followed (Yin, 1994:74). The pilot case is a formative source that assisted this researcher in the development of relevant lines of questioning. Moreover, the application of the pilot case study enhances the reliability of the tools and procedures.

Once the questionnaire phase 1 and phase 2 were ready, the questions in both of them were reviewed by some researchers in the department to check the reliability[11] of the content of the questions. The pilot case was applied in a collaborative company that designs, manufactures and sells ladies and gentlemen's garments. This company was selected because of the easy access to the people and information within the organisation. The protocol, data collection tools and procedure previously explained was applied in the pilot case. Certainly those tools above explained are the final products after their refinement and re-configuration that came as a result of this pilot case. As a result of the pilot case there were some lessons were learned. These lessons are divided into:

[10] Data display allows the researcher to understand what is happening, relations of variables and data (Miles and Huberman, 1984:21).
[11] Reliability demonstrates that the operations of a study such as the data collection can be repeated, with the same results (Yin, 1994:33)

a). Research design

After the application of the pilot case the questionnaire phase 1 had to be re-configured. The following modifications were performed:

- It had few closed questions without strong theoretical support, so they were replaced by other relevant questions.
- Some questions on services and systems were included in Section C.
- The questions in section C 'study of the firm' were arranged by subjects to simplify the analysis and the interview flow.
- The question on human resources was simplified in a table by providing tick boxes.
- In Section A, the question that addressed company culture was re-configured from an open question to a likert-scale question.
- Also in Section A, a question addressing the vision of the company was introduced.
- In the finance section, initially the second question asked about the percentage of investments in several activities. It was found that it was a sensitive question to be answered. Thus it was changed and it now asks for ranking the importance of the investment over some activities.

To simplify the data analysis, each question that came from theory was linked to literature by the small reference at the bottom of it.

The questionnaire phase 2 also had a few modifications. These are:

- It introduced some questions to analyse the integration of the core competencies and functions towards the value creation process (Fuch et al, 2000).
- Few questions that had similar objectives were removed.

b). Field procedures

Apart from the data collection tools, the field procedures including the case study protocol, remained un-changed because they did not presented any problem during the pilot case.

In summary, the data context, content and process provided a structure (that may be closer to reality) to understand the environment in which value is created in each case. Figure 6.1 illustrates the use of the research methods in a simple process flow.

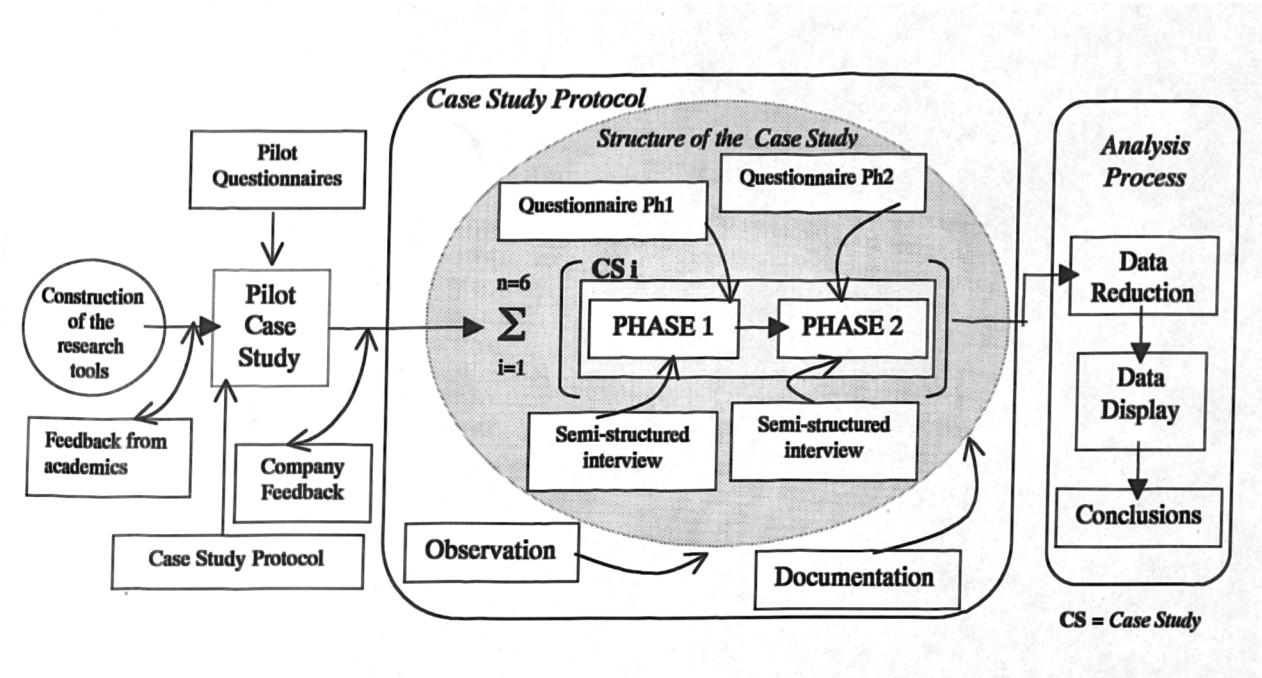

Figure 6.1 Use of the Research Instruments

6.3 Theory Testing Methods

Four testing methods are used to validate the proposed model and their results converge on the same confirming instances that 'validate the hard and soft value dimensions and the value propositions of the value cube'. Figure 6.2 summarises the testing methods, data used, figures and tables of results and the common conclusion addressed in this Chapter. The following sections of this Chapter expand on each testing method; starting with the cross-case analysis, then continues with counting method, objectives, performance and financial priorities analysis and finally workshop analysis. The research questions one and two are answered with the results gathered from these analyses.

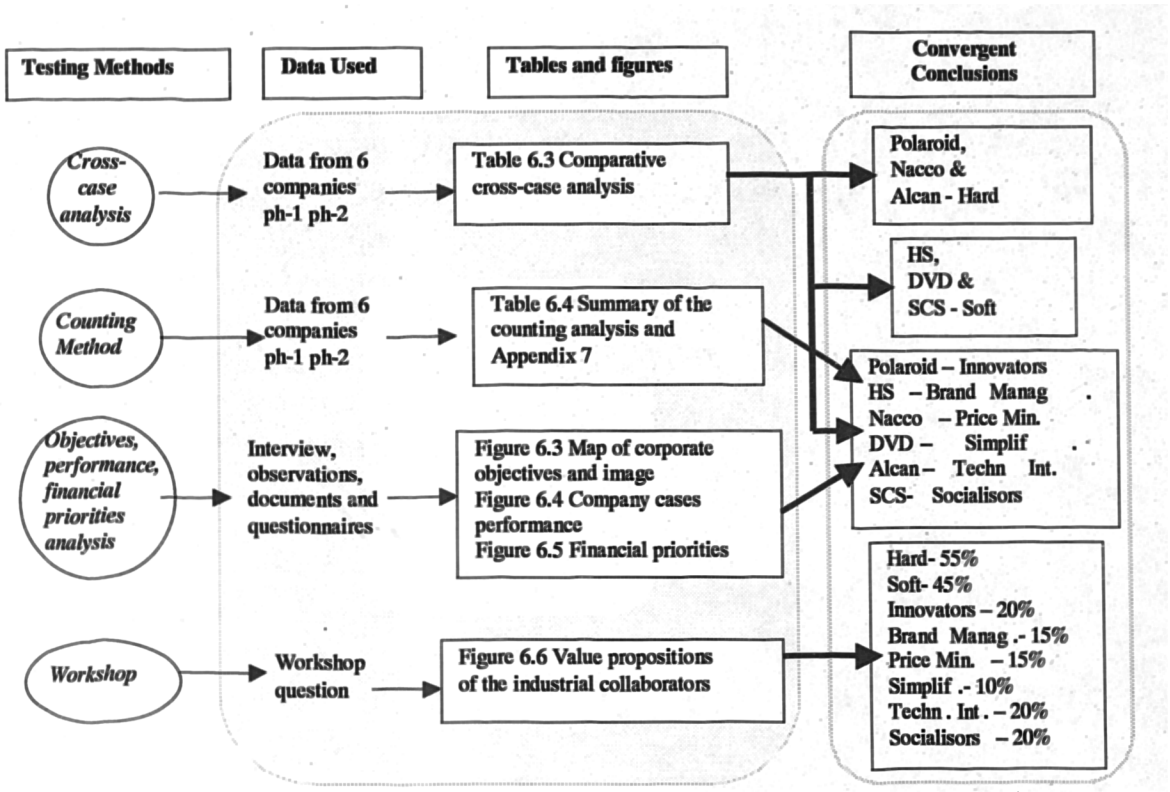

Figure 6.2 Summary of the testing methods used to answer RQ1 and RQ2

6.4 Case studies

As part of the case study protocol, the selection of the company case was established, so this section analyses six case studies. It starts with a brief introduction to the company cases and then it moves to a cross-case analysis. Finally, a discussion is done to test the framework. The cross case analysis tries to maintain a chain of evidence to increase the construct validity of this analysis by the use of an explanation building[12] technique.

6.4.1 Introduction to the case companies.

6.4.1.1 Polaroid (UK) Ltd. – 'Polaroid'

Polaroid is part of a bigger corporation, which started in the early 30's in Boston, US with the research and manufacture of synthetic polarisers. In the UK, Polaroid is located in Dumbarton, Scotland. It designs and manufactures instant and digital cameras. It has gained significant digital camera market share in the food, drug and mass merchandise channel with

easy to use, affordable, solution-based imaging hardware and products. It covers the European, North American, Far East and Asia market.

6.4.1.2 Higland Spring – 'HS'

HS is a privately owned company, founded in 1979 in Perthshire, Scotland, UK. HS manufactures and sells natural mineral water. It has an extensive still and sparkling portfolio; its range includes still PET, sports bottle, sparkling glass, sparkling PET, Looney Tunes children's presentation. The company exports mineral water to over 50 countries worldwide. The water derived from its natural spring[13] has been recognised for its outstanding quality for centuries.

6.4.1.3 Nacco Materials Handling Ltd. – 'Nacco'

In 1957, Nacco was founded in Irvine, Scotland, UK. The Irvine plant has grown as the European centre for the development and manufacture of Hyster and Yale forklift trucks. The company has presence in 108 countries. In Europe, Middle East and Africa more than 70 professional and experienced distributors provide local service.

6.4.1.4 Global DVD Ltd. – 'DVD'

DVD is a private owned company, located in Glasgow, Scotland, UK. It is one of the world's most successful on-line DVD-retail stores, specialising in code-free DVD-players with no region lock. DVD is a relatively new organisation, operating mainly via the Internet. It exports to 40 countries worldwide. It has been recognised for its high customer service standards.

6.4.1.5 Alcan Chemical Europe – 'Alcan'

Alcan is one business unit of a big corporation specialising in alumina. The Burntisland refinery, located in Scotland, UK, was established in 1917 to produce smelter grade alumina for electrolytic reduction to aluminium. The plant is devoted to production of special aluminas such as alumina, activated alumina, flamtard and particularly superfine hydrate. Its main market is Europe, North America and few Asia countries.

[12] The explanation building is used to increase the internal validity of the analysis

6.4.1.6 Scottish Consultancy Service – 'SCS'

SCS is a privately owned company, founded in 1989. It is located in Glasgow, Scotland, UK. It is a business development consultancy specialising in the implementation of professional methodologies and techniques for the promotion of products, services and skills to the public and other businesses. Its major areas of expertise are planning, sales, marketing and business development. SCS has customers in: electronics, chemical, technology, innovation, business strategy, ministry of defence, public sector, gas industry, healthcare and the DTI[14].

The six case studies represent a range of different industries and manufacturing and service processes and so provide a reasonably diverse group for the study. Thus, the following section presents a deeper discussion following a cross-case analysis.

6.4.2 Cross-case analysis

In this section the analysis is taken to the next stage through the cross case analysis. The cross case analysis is a technique widely suggested by Voss (2002:214,215) to increase the internal validity of the construct. Here the intention is to pull together different issues, which occur in the individual cases, to look for comparisons and patterns of value creation.

Table 6.3 summarises the companies' synopses under the following headings: strategic objectives, main product and major customers. The synopsis compares and reflects upon the diverse business roles of the six company cases. The cross case analysis was standardised via common codes and formats by selecting diverse issues and comparing them across the six company cases (Miles and Huberman, 1984:152). Thus, the cross-case analysis continues with the adoption of the business process model to discuss, compare and contrast the companies' operations.

[13] The rainwater from Drink's catchment area takes up to 15 years before it becomes natural mineral water.

[14] The DTI is the Department of Trade and Industry

Companies' Synopses

Company	Polaroid	Nacco	Alcan	HS	DVD	SCS
Strategic Objective of... is focused on the wealth creation by:	The development of the group as a global company through the **design, development** and manufacture of cameras	***Manufacturing of high performance*** **forklift trucks** ***(mature products)***	**The production of special (non conventional) aluminas**	The manufacturing and sale of Scottish mineral water	Enhancing existing electronics products and retail them **through the Internet.** (third part manufacturer)	Providing training solutions within the UK
Main Product	**Innovative/conventional instant imaging.** Products are focused on health, security, photo retailing, and general purposes.	Hyster and Yale forklift trucks	Normal and reactive alumina, superfine and low viscosity Aluminium Trihydroxide Products, sulphates and fluoride Al2SO, AlF3, etc.	Still and sparkling water on different presentations: pet bottles (500ml, 1.5L and 2L), glass bottles (300ml, 200 ml, and 750ml) and multi-packs (6x500ml, 6x1.5L and 2x2L).	Unconventional electronics (including adaptations to newest Japanese products).	Training solutions
Major Customers	Adults, kids (new market), professional-technical (health/ security) and photo retailer. Europe and Africa	Europe, Middle East and Africa construction organisations	Electronics, polymer, ceramic and health, industries..	**HS focus on** ***market expansion so constantly look for new markets segments*** such as sportsman, adults, kids, pubs, restaurants, airlines and chain markets. Its current market is UK, Europe, and Far East.	World wide e-consumers.	Medium-sized industries. UK, especially Scotland
New Product Design Cycle (NPDC)	***4 times a year launch new cameras for general purposes and specific ones.***	**Every 9 years a complete new product is launched.** Every1 or 2 years small improvements to the product design are	Average 2 years. But it **is** ***according to specific customer's needs.***	***Every 2 years strong innovation in package and 4 times a year small improvements in package to move the company's image***	***6 months just improvements***	*Re-designing 3 months, in average new material every 2 years*

	Company	Polaroid	Nacco	Alcan	HS	DVD	SCS
			done		and/or fulfil with new market's requirements.		
Product design	Market	**Large & fast moving**	**Large & mature market**	**Small &mature & stable (highly specialised)**	**Large & very competitive & un-stable (fashionable)**	Medium &**New & very un-stable (volatile)**	Small & competitive
	Product Range per NPDC*	8 Core products and its variations	2 core products and few variations	15 core products with large list of product range	2 core products with 3 main presentations and different variations.	12 core products plus personalised products	Three knowledge areas
	Product Development	***Exploit existing platforms (digital technology in cameras) through the invention of different applications for new areas. Strong product design.***	**The product design is done by the parental company, but small *modifications/adaptation to its products are done in Nacco by its engineering department.***	***Aluminas' properties for particular applications.* The Product development depends on the customers' products/process**	Is focused on ***developing different product presentations (bottles) for new market segments on current markets and adapt current designs to new markets***	***The product development and the physical product are acquired from Japan***	***It depends on the global management, marketing and sales trends.* It has continuous up-dates of its materials (presentations)**
Order Fulfilment	Key Design	***On cameras applied on different areas*** e.g., *healthcare, passport, etc. Its designs are **mainly evolutionary or adaptive design.*** Exiting and standard parts are use on new product design to simplify and reduce the time to market.	Mainly **in *the production process and support and control* systems to *help manufacturing.***	***On alumina properties (size of grain, mixtures etc.) for the specifications of customers' processes.***	***On bottle, package, size, materials (PET/glass) and package.***	***On process development, to build robust systems and strong co-ordination of operations to provide easy accessibility to customers.***	***On the adaptation of core material and its delivery, but all depends on the customers' needs; 'service development'.***
	Core Technology	***Advance technology to design new products* and innovations.**	***Manufacturing process and its support systems*, i.e.** PRMS (encompasses the MRPII), NOMS (order management system), SAP (new management system), TDS	***laboratory and Process***	Bottling process	***IT systems*, software, *applications, programs*, web-sites** *to enable the interaction with its*	*General tools and equipment* for the creation training material.

Order Fulfilment

Company	Polaroid	Nacco	Alcan	HS	DVD	SCS
		(management of dealers' informantion) and WebIT (accountability software)			*customers*	
Key Manufac-turing and Strategic Issues	Line – cameras Batch – Photo retailer, health and security. In near future, move manufacturing to third parties (*and leave the **high skill in UK.***)	Line process. ***The quality (ISO 9002) and standardisation initiatives are focused on cost reduction and waste minimisation.***	Continuous – current contracts Batch –particular applications. **Make 2 order on aluminas for particular needs,** and make 2 stock when customers' orders are secured	Line process	Jobbing process, operating with small stock. **Outsource different manufacturing operations to modify some products**	Jobbing process. It makes small **re-design to order by keeping a stock of general solutions,** which are adaptable to different customers.
Distribution	Security and general prod.- through retailers **Health - end users** and some retailers	Directly to retailers	**Directly to specific custom. It has uncondi-tional support. Distribution is seen as a marketing media**	***Outsource specialised distribution in drinks; right place, time with right product presentation.***	Outsource UPS service to get the ***deliveries in 24 hrs Europe* and 2-5 days world wide**	***Personal distribution.***
Goods Delivery	through retailers and some personal distribution	Through dealers	**Personal delivery to end customer**	*Through retailers*	Through UPS to end customer	***Personal***
Core Competence	***Simple and continuous designs using standard parts to reduce the launching time,*** i.e. product design	***High specialisation of the production of forklift trucks as process standardisation***	***Alumina expertise and solution provided***	***Expertise on marketing brand positioning (dynamic product image) and distribution planning***	***In house systems development to support the availability of products e.g.*** to enhance order tracking processes, security systems etc	***Trust, expertise, confidence on the service***
Outsource	Manufacturing (in near future)	-	-	***Distribution***	***Manufacturing and distribution***	-

Company	Polaroid	Nacco	Alcan	HS	DVD	SCS
Generating Demand	The product advertisement in Europe is strongly co-ordinated with the corporation's marketing strategy. And in the dissemination of health and security products are directly done by Polaroid	**Via dealership networks which cover wholesales and retail, low prices and few** ***specific and technical advertisement***	***Focused on selected customers,*** *but currently is trying to find more applications on different industrial sectors.* ***The demand generation is done through permanent communication with its*** *customers' processes*	***Around 10% of total turnover on marketing (including market research) advertisement, sponsorships, etc. It exploits the image as a Scottish healthy product.***	***Internet search engines, few TV advertisements and few mail..***	***Personal networking advertising media (word-of-mounth)***
Product Support	For cameras for general purposes by the 'corporate marketing sales representative', which deal with replacements and warranties. *For cameras for specific purposes by* ***Polaroid, which deals with instructions, technical problems, demonstrations and*** *installation support.*	**Offer a complete after sales support such as** ***maintenance, training,*** *etc.*	***Continuous advice improvements' suggestions, technical support to enhance the customers' products/processes***	Through sales representative and a line service for feedback and complains.	***Customer support from the point of sale to installation*** *e.g. line service, e-mail for purchasing advice, warranties, installation support. Staff trained on customer care*	***The customers business knowledge allows to SCS to provide an deep service , i.e.*** *customers know that in any emergency or delicate situation this company can help them*
Relationship with customers	Mainly through distributors and complains coming from help lines	Through dealers	***Deep and continuous specially in customers'***	Mainly through distributors, and help lines and some from workshops	***Direct to end customers in the selection and/or installation stages***	***Deep and continuous with the end customer***

Company	Polaroid	Nacco	Alcan	HS	DVD	SCS
			strategic decisions			
Major Investments	***Product development***	***Manufacturing systems***	***In developing new techniques*** **for super-fine and reactive aluminas.**	***Public relations, promotions, sponsorships, marketing research such as workshops, consumer groups and surveys, etc. it is a market driven Co.***	**Support systems e.g. hardware and software**	***Delivery*** expenses
	← Hard Value Dimension GROUP I →			← Soft Value Dimension GROUP II →		
	Innovator ↔	Price Minimiser ↔	Technological Integrator ↔	Brand Manager ↔	Simplifier ↔	Socialisor ↔

Note: words highlighted in italics support 'hard and soft dimensions' and in bold support its value proposition.

Table 6.3 Summary table of the results from the Six Case Studies

6.4.2.1 Product development

The analysis of product[15] development involves four issues: new product design cycle, product range, and product design/development. These issues are analysed on each company case and the results are summarised on Table 6.3.

a) New product design cycle

Polaroid is the company that most frequently launches new products (technology and designs) i.e. 4 times a year is its NPDC[16]. It is followed by DVD, which brings improvements in product design every 6 months. On average every 2 years, Alcan, HS and SCS introduce new products designs, but differently from HS and SCS, Alcan introduces fundamental changes in the new products. Finally at the other end of the spectrum, Nacco launches its new products every 9 years it operates with mature products.

b) Product Development

The product development done by Polaroid, Nacco and Alcan requires deeper research and stronger changes on product features, technologies and properties (in Alcan case) than HS, DVD and SCS's product development, which is outsourced, adapted from global trends or modified on the package.

6.4.2.2 Order fulfilment

Table 6.3 summarises order fulfilment by addressing seven issues; these are key design, core technology, strategic and manufacturing issues, distribution, goods delivery, core competence and outsourcing.

a) Key design

The key design issue does not necessarily reside on the product. For instance, Nacco and DVD's key design resides on the process; Nacco resides on the manufacturing process and DVD on the co-ordination of order fulfilment process (i.e. co-ordination of operations and systems from when the order is placed until the product is delivered). The key design of Alcan and SCS depend to a certain extent on the customers' needs (requirements), but the design supplied from Alcan provides deeper solutions to the customer's core business rather than SCS that provides support services to its customers operations. The key design of HS differs from Polaroid in the difficulty level of their product designs. Meanwhile HS launches new designs in its packages, Polaroid in new cameras for diverse applications.

[15] When researcher refers to Product, it means product and/or service.
[16] NPDC- New Product Design Cycle

b) Manufacturing issues

Meanwhile Nacco emphasises on the quality and standardisation initiatives to reduce costs and minimise wastes, Polaroid emphasises on the standardisation of assembly parts of the cameras and existing components[17] to cut inventories, assembly errors and lead times to reduce the time to market new cameras. Similar to HS, when Alcan secures big orders it operates in a make to stock scheme.

c) Core competencies

Polaroid's core competence resides on the development of simple camera designs with flexible parts and for different applications. HS resides on positioning and keeping moving the brand image of its products as well as its distribution planning. In contrast, Nacco's core competence is the high specialisation on the production of forklift trucks. The core competence of DVD relies on the in-house systems development to support the availability to the products. Different from other organisations, Alcan's core competence resides on the alumina expertise and the solution provided for the customers. Finally, SCS's core competency resides on the delivery of trust, expertise, and confidence within the service.

d) Outsourcing

HS, similar to DVD, outsources its distribution system. DVD also outsources some manufacturing operations to its products brought from Japan to enhance their performance. In the near future, Polaroid is going to move its manufacturing to third parties.

e) Goods delivery

SCS and Alcan operate within personal delivery to their customers, which can be considered as part of the product. Meanwhile, Nacco and Polaroid deliver their products through dealers, with the exception of some cameras for special purposes which are delivered by Polaroid to its end customer. As mentioned before, HS and EectronicD outsource their distribution systems.

6.4.2.3 Generating Demand

Generating demand is summarised in Table 6.3. The personal distribution is seen by Alcan and SCS as a marketing media to generate more demand. SCS uses personal networking, because the continuous relationship with its customers revitalises the customer's

[17] Existing components refer to components available on the market that have not to be manufactured specially for only one (new) product.

trust/confidence and makes SCS more aware of the customers' environments to enrich its solutions provided. Whereas, Alcan mainly focuses on its selected customers to suggest/provide more suitable and continuous solutions to its customers. Differently, HS and DVD organise their own marketing and advertising, but they differ in that: DVD has limited marketing and advertisement mainly done through internet search engines and HS's puts on average, ten percent of its total turnover on marketing, advertising and sponsorships. For instance, HS sponsorship portfolio includes the world snooker association, Stewart-Ford formula one prix team and Scottish Whisky Association amongst others. In contrast, Polaroid's advertisement mainly depends on the parental marketing strategy. Nacco's advertising is different from the other companies in that it is specific and technical and is done via exhibitions. The Nacco's dealers supply the product to end customers and sell it on the basis of sensitive price forklift trucks.

6.4.2.4 Product Support

The generating demand is summarised in Table 6.3 under the following issues: product support and relationship with the customers.

HS as well as DVD has a service line. HS uses it for complaints and feedback, meanwhile, DVD uses it to support the product with installation instructions, warranties and some purchasing advice. Polaroid for photo retailer and Nacco offer warranties, maintenance and training schemes but mainly through dealers. On the contrary, Alcan and SCS support their customers' businesses with the continuous communication, advice and technical support.

The cross-case analysis has shown through a generic business process model the company cases performance. Table 6.3 summarised the results from both phases in a standard format to allow a comparison of the companies' cases.

6.5 Is the model 'the value cube' valid? (Testing the framework)

6.5.1 Validation of the hard and soft value dimensions

Across the sample of companies studied, different operations, processes, markets and strategies can be identified, and a certain degree of similarity can be perceived in some cases.

Looking for patterns, shared characteristics and operational similarities, it was found that Polaroid, Nacco, and Alcan share some characteristics; for simplicity purposes these are named Group I. The following bullet points summarise them.

- High specialisation level in the development of a particular technology. i.e. Polaroid and Alcan strongly specialise on the design of cameras and aluminas for different applications, meanwhile Nacco strongly specialises in the creation of forklift trucks (9 years before a completely new model is launched).
- High degree of engineering of the products that makes them difficult to imitate.
- Product/process technology can be applicable or adaptable to different uses, fields and markets. For instance, Polaroid is moving towards health and security fields, Alcan is looking for new applications of the alumina on different industrial sectors and Nacco has the resources to produce other types of material's trucks.
- Design, engineering and/or technology of the products are the major commonalties (identification points) between companies and customers.
- They require to have and develop high technical skills. i.e. Polaroid in product design and manufacturing (multi-skilled employees). Nacco in manufacturing and Alcan in development of new aluminas and support (specifications and mixtures in materials).

The characteristics of the 'Group I' are very close to the characteristics of 'hard value dimension' presented in Chapter 5. The hard value dimension is characterised by its emphasis on research and development of technology in the product and process. Its approach to the creation of innovative product designs, excellent quality and product performance and its emphasis on the development of engineering/technological skills.

Different from group I, the shared characteristics of HS, DVD and SCS 'Group II' are:

- Their product developments are classified as innovative improvements rather than breakthrough. These companies hardly bring disruptive product designs. i.e. HS just innovate its package, DVD is highly dependant on the Japanese technology (to buy the products) and the material of SCS depends on the global trends.
- Strong focus on the product delivery. The product distribution is carefully designed to be easy for customers to reach the products. HS and DVD keep in-house the distribution management, meanwhile they outsource specialised distribution services (operations) to perform the distribution of their products to provide a professional service to their customers.

- Strong focus on the product advertisement and brand diffusion. HS, DVD and SCS place emphasis on different advertising methods. For example, HS uses mainly sponsorships and magazines, DVD internet search engines, few TV advertisements and mail, and SCS principally personal networking.
- Operate in less stable markets, consequently these organisations have developed strong specialisation on market knowledge. HS, DVD and SCS continuously monitor the market trends e.g. new products, new applications, technologies, knowledge and competitors' performance among others.
- Generally, their manufacturing technology is not improved/developed in-house, i.e. HS buys the bottling process, installation, repairs as well as updates. DVD buys the (physical) product and has some facilities in-house to modify products. For SCS, it is not applicable.
- Their capabilities tend to be easier to imitate in comparison to capabilities from group I. This makes that HS, DVD and SCS 'group II' have low entry barriers and, consequently, higher competition.
- Differently from the first group, the skills of the second group do not reside on one specific area. On the contrary, the companies encourage a multi-skills culture where their employees develop different types of operations. For instance, the employees of DVD, who are involved in the modification 'low customisation' of some part of the products, are also involved in the support service of the product.
- Service focus. HS, DVD and SCS place strong emphasis on providing special kinds of services (to end customers), i.e. the distribution channels of HS put the right product, which has strong market recognition, in the right place with the right product presentation for the right customer. DVD provides an easy, accessible and hassle-free service to the customer's door. SCS provides a personalised training.

In comparison with the Group I, the Group II has less expertise in a unique technological field. The emphasis on the service provided by HS, DVD and SCS is a key characteristic of the Group II as well as its strong market orientation. The characteristics shown by Group II are very close to those of 'soft value dimension'. The soft value dimension as stated in Chapter 5, has a strong approach to the market, the organisations operating in soft value dimension sells more than a product, the service is a part of the customer acquisition or even sometimes the main product.

Table 6.3 presents the similarities of each group highlighted in italics that supports those companies in Group I and Group II.

It can be concluded that the Group I 'Polaroid, Nacco and Alcan' operate in the 'hard value dimension' and the GroupII 'HS, DVD and SCS' operate in the 'soft value dimension'.

In addition to the cross-case analysis, the result from the data gathered from a workshop[18] organised to test the footprints[19] shows that 55% of the companies were performing in the 'hard value dimension', whereas 45% of the companies were performing on the 'soft value dimension'. The data came from the application of a structured questionnaire (survey type) applied during the workshop to 23 companies from different industrial sectors that participated in this study. More explicit information about the workshop and the questionnaire is presented in Chapter 8. The results from the triangulation of the cross- case analysis and workshop results showed that the workshop results support, with more samples, the results obtained from the cross-case analysis.

Answering the first research question:

RQ-1. Does value operate in hard and soft value dimensions?

The answer is yes. Based on the empirical evidence provided by the triangulation of data[20] from the case studies and the workshop study, it can be concluded that value resides in hard and soft value dimensions; therefore, the theory on 'hard and soft value dimensions' presented in Chapter 5 is valid.

6.5.2 Validation of the value cube

Having answered the first research question and classified the organisations into two groups, it is time to discuss each value proposition of the proposed model separately.

The framework developed in Chapter 5 introduced six value propositions. If the data collected through the case studies broadly supports the value propositions (proposed theory) then the weight of evidence will give validity to the framework.

[18] This workshop was organised by Competitive Scotland by Mr. Trevor Turner (active researcher and member of Competitive Scotland), this researcher and her supervisor to test the footprints.
[19] Footprints are theory developed as part of this research, which are introduced in Chapter 8.

Table 6.3 summarises the evidence from the cross-case analysis and highlights, in bold, the most relevant issues of each company-case that support a value proposition of the value cube.

Polaroid is competing in a fast moving market, to keep its position as a leader in instant and digital image; it focuses on continuous research and development of new products with different applications for different market segments. Since the sophistication levels of its products 'cameras for general and specific purposes' are different, the company has prepared/developed/built different experts in different design areas specialised on a market segment such as health, security. So, the production processes are pushed to scalable manufacturing to reduce the time to market and cope with the continuous introductions of different products. After a comparison of Polaroid's performance with the definitions of the value propositions of the value cube discussed in Chapter5, the performance of Polaroid is close to the innovator's value proposition. The strategic and operational objectives of Polaroid are aligned to the objectives of 'innovators'-focused on the generation of continuous designs with technological basis. Therefore, it could be concluded that the value proposition of Polaroid is *innovator*.

Differently from Polaroid, the product design of HS resides in the package. Although HS implements small improvements to the package very often, this tactic is applied to keep moving the product image. HS is a market driven organisation running in a very competitive market and with low entry barriers. The organisation has assignated around 10% of the total turnover to market research, advertising, promotions and sponsorships. The analysis of HS's performance and objectives within the value cube's profile, operational and strategic objectives, shows that the creation of value of HS is aligned to Brand Managers (Chapter 5). So, it can be deduced that the value proposition of HS is *brand manager*.

Nacco is focused on the production of mature products. The product innovations of the forklift truck are not the main competitive advantage of Nacco, however, the company's expertise resides in the manufacturing processes of these trucks - its core competence. Nacco has strongly invested in control (quality and process) and support systems for manufacturing. The strong order fulfilment's objectives of Nacco are aligned to those from Price Minimisers. Its objectives are close to the objectives of the value proposition price

[20] The triangulation of data among cross case studies and data from workshop increase the construct validity of the data analysis

minimisers proposed by the value cube. These confirming instances and those highlighted in bold on Table 6.3 support the value proposition of Nacco as being *price minimiser.*

DVD emphasises the development and creation of robust systems to co-ordinate the diverse business processes of the company and provide better interaction between customers and organisation. Since its market is very volatile, the company does not compete on product design or manufacturing, but it is highly competitive in providing an easy and reliable service via internet to its customers. Thus, DVD outsources the distribution systems to offer a professional service to the company within 24 hrs in the Europe area and 2-5 days worldwide. DVD's performance is aligned to the strategic objectives of simplifiers by building streamlined processes to make life simple and uncomplicated for customers (Chapter 5). The result from the comparison of DVD and simplifiers concluded that the value proposition of simplifiers describes very closely the operations and general objectives of DVD. Therefore, it can be concluded that strong confirming instances makes DVD behaves as *simplifiers.*

Alcan performs on a highly specialised market with very few and close customers from different industries as ceramic, polymers and health. The development of new products strongly depends on the customers' processes/products. The company not only provides the alumina but a specialised technical solution or service. It makes Alcan more focussed on products' customisation than on building capabilities to innovate or to mass produce. Analysing Alcan within the value cube, Alcan's performance, objectives and market type are familiar with those of the technological integrator; so, it could be concluded that strong confirming instances makes that Alcan behaves as *technological innovator.*

SCS's focus is on the service it delivers, in particular, in the way it is delivered to customers. It bridges a special trust through personal treatment and develops a relationship whereby it can familiarise itself with customers' businesses. The key capability of SCS is its knowledge expertise and personal delivery. The comparison of SCS's performance and objectives with the value propositions of the value cube shown that its objectives and capabilities are confirming instances with the objectives of the *Socialisors,* therefore the value proposition of SCS is *socialisors.*

'People are meaning-finders; they can make sense of the most chaotic events very quickly'. Hence, the researcher's equilibrium depends on such skills. The critical question here is whether the meanings found in qualitative data are consistent, repeatable and un-biased. Therefore, to strengthen the cross-case analysis and provide more visible results on each company-case a 'counting analysis' was performed. Thus, the appreciation of the value propositions from the cross-case analysis becomes clearer.

Miles and Huberman (1984:215) state three good reasons why qualitative analysis should resort to numbers:

- to see rapidly what you have in a large slide of data
- to verify a hunch or hypothesis
- to keep the researcher analytically honest, protecting against bias.

The use of multiple sources of evidence for analysing same value creation issues converges in finding, conclusions and facts (Yin, 1994:92). Triangulation of different source of evidences on each case study increases the construct validity of the research.

6.6 Application of the Counting Method

The counting method (Miles and Huberman, 1984:215) was applied by summing the number of occasions a company-case supports a value proposition. Established policies and formats were designed by the researcher to follow reliable and standard methods to avoid un-bias during the counting analysis.

This analysis works in the following form:

a) each question from the questionnaires has a predetermined code from the design of questionnaire (phase 1). The question code shows the capacity of the question to link the answer given by the company-case with the research issues. Appendix 6 provides the questionnaire with the question codes.
b) It is important to state that questions have the potential to analyse different research issues, some as are likert scale questions and each option is related to a particular issue. So, the answer from the company-case indicates and supports a research issue.
c) Consequently, the answer shows the company performance and relates it to the research issues. Then, these issues are analysed by quantifying the frequency of occasion that a

company supports an issue/instance/objective of a value proposition from the value cube. The frequency from each company-case is compared against the total numbers[21] of each value proposition, which are situated on the last row of each column of the table shown in Appendix 7.

Appendix 7 shows the summary table of the counting analysis of each company-case. The second column presents the issues covered in this counting analysis and they are related to the question code (the first column), which allows the traceability of the answer/question. Then the following columns present the answers from the company-cases. The columns indicate the answers related to the value propositions. Table 6.4 summarises the results from counting method from Appendix 7.

Value Proposition	Polaroid	HS	Nacco	DVD	Alcan	SCS
Innovators	12/18	1/18	-	1/18	-	-
Brand Managers	-	11/16	-	1/16	-	-
Price Minimisers	2/18	2/18	15/18	1/18	3/18	-
Simplifiers	-	1/16	-	13/16	-	2/16
Technological Integrators	-	1/19	-	-	13/19	1/19
Socialisors	-	-	-	-	-	11/15

Table 6.4 Summary of the counting analysis

The results of the counting analysis, presented on Appendix 7 (Table 6.4), indicate that:

- There were 18 occasions when the 'the value proposition of innovators[22]' could be tested. From these tests, 12 occurrences from Polaroid support '*innovators*', and just 2 occasions from 18 support price minimisers. Therefore, it can be concluded that Polaroid validates '*innovators*'.
- There were 16 occasions when 'brand managers' could be tested from the data. From this test, 11 occurrences were performed by HS validating 'brand managers', and the other four occurrences from HS support the other three value propositions. i.e one

[21] The total numbers are the ideal case or pure case where all the answer are for innovators, it will be the total number of innovators. Thus there is other total number of brand managers, etc.
[22] The value propositions tested in this analysis are introduced on Chapter 5.

occurrence from 18 of simplifiers, 1 from 18 of innovators and 2 from 18 of price minimisers. Since the highest occurrences are supporting brand managers, it is concluded that HS validates *'brand managers'*.

- There were 18 occasions when 'price minimiser' could be tested. From this test, the total answers –15 (because for 3 questions there was no available data) 'all the results - 15 occurrences' from Nacco supports 'price minimisers'. As a result, it is concluded that Nacco validates *'price minimisers'*.
- There were 16 occasions when 'simplifiers' could be tested from data. From this test, the highest frequency was shown by DVD with 13 occurrences supporting 'simplifiers'. DVD had 1 occurrence from 18 supporting price minimisers, 1 occurrence from 18 supporting innovators and 1 occurrence from 16 supporting brand managers. The majority[23] of confirming instances shows that DVD validates *'simplifiers'*.
- There were 19 occasions when 'technological integrators' could be tested from data. From this test, the highest occurrences were shown by Alcan with 13 occurrences validating 'technological integrators'. Alcan had 3 occurrences from 18 supporting price minimisers. Consequently, it can be concluded that Alcan validates *'technological integrators'*.
- There were 15 occasions when 'socialisors' could be tested from the data. From this test, 11 occurrences were performed by SCS validating 'socialisors'; one occurrence of SCS from 19 supporting technological integrators and 2 from 16 supporting simplifiers. It can be inferred that SCS validates *'socialisors'*.

The results from the methodological triangulation[24] can be summarised in that the counting analysis arrived at the same conclusions as the cross case analysis. The same company-cases that validated the value propositions of the value cube via cross-case analysis have been verified, corroborated and strengthened by the counting analysis.

[23] Majority is considered for more than 60%

6.7 Objectives, performance and financial priorities analysis

6.7.1 Comparison between Corporate Objective and Company Image

Figure 6.3 compares the company's internal and external perceptions by using data from Table 5.5 (Chapter 5). Thus the six company cases are mapped in Figure 6.3. This comparison between the company objectives and company image shows the alignment of 'What the companies are tying to be' (corporate objectives) and 'How the companies are perceived' (company image). Ideally, the companies' objectives should be aligned with their image, it is shown with a thick diagonal line in Figure 6.3. The companies, which are out of the diagonal, are named by the researcher as hybrid systems. They indicate a mis-alignment between the internal and external perception of the company's value proposition.

It is important to highlight that both scales are nominal and their attributes does not represent a quantitative scale (i.e. the distance from the diagonal does not represent higher or lesser mis-alignment, the fact that the company is not position in the diagonal simply suggest a mis-alignment).

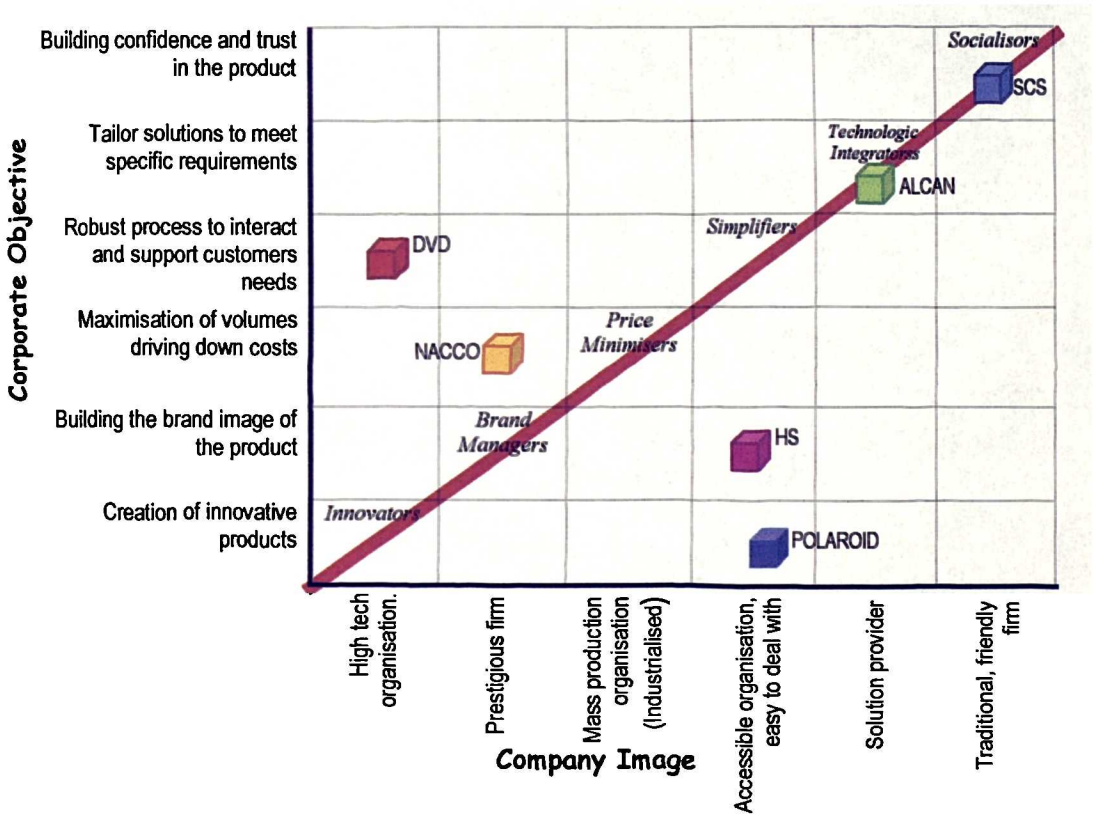

Figure 6.3 Map of the corporate objective vs. the company image

[24] the methodological triangulation is used to increase the internal validity of the construct (Easterby-Smith et al, 1999:134)

This alignment analysis was applied to the company cases. The results show that just two companies, 'Alcan and SCS', had their objectives aligned with the image they reflect as a company. Meanwhile, Polaroid, HS, Nacco and DVD do not show the alignment among their objectives and image; but the question is - What is the implication of the misalignment of objectives and image or, in other words, What are the implications of hybrid systems. In hybrid systems:

- The company pursues a value proposition, but its customers value other types of values. So, it is important to question: Is the company aligned with the type of values that the customers want? or Has the company targeted the right types of customers?
- The hybrid systems in one way or another lose something: miss-aligned resources (which can be optimised to the customers' expectations) or miss-targeted market (which can be correctly targeted and aligned with the company's objective).

6.7.2 Performance and financial analysis

A graphical analysis was done to assess the performance of the company-cases in different activities that support their value proposition. The activities analysed are design flexibility, product development, manufacturing, systems, distribution, marketing and advertising and services. Each activity is supported by a series of other activities to minimise the potential bias from just one answer per activity. Thus, the assessment of one activity does not depends on one answer from one unique question, instead it depend on several answers, i.e. the answers given from several questions from phase 1 and 2. Table 6.5 shows the issues addressed to assess each activity. The results of the analysis are shown on Figure 6.4.

Figure 6.4 highlights the company performance of each company-case. If can be noted that each company places different levels of importance on some activities over others. The graph shows that Polaroid places strong emphasis on product development activities. Meanwhile, marketing and advertising is the main focus of HS. The highest importance of Nacco is manufacturing; whereas, for DVD, it is distribution and systems. Alcan emphasis design flexibility, product development and service. SCS focuses on distribution/delivery and service. These issues were also highlighted in the cross-case analysis as important factors of behaviour within a value proposition. The activities with the highest importance have a strong relationship with the company's value creation. It could be implied that the

value drivers that maintain a company's value proposition reside in those highly important activities.

Design Flexibility	Product Development	Manufacturing
New product design cycle (NPDC)	Key design	Lead time
Product range per NPDC	Product development	Core technology
Customisation level for customers	Approach to market's expectations	support production systems
Key design (operations)	Planning Horizon for new product	Approach to manuf. technology
Systems	**Distribution (delivery)**	**Marketing/Advertisment**
Type of support systems	Distribution channels	Promotions
Development of support systems	How good are your distributions channels	Marketing Research/ Generating demand
Services		Sponsorships
Product support		Advertisement
Type of service		

Table 6.5 Issues evaluated for the study of the companies' cases performance.

Figure 6.4 shows activities of highest importance, 'Polaroid, Nacco and Alcan' are mainly at the beginning of the X axis and underpins the product development. The highest importance activities of 'HS, DVD and SCS' are mainly at the end of the X axis underpins the delivery/service (distribution).

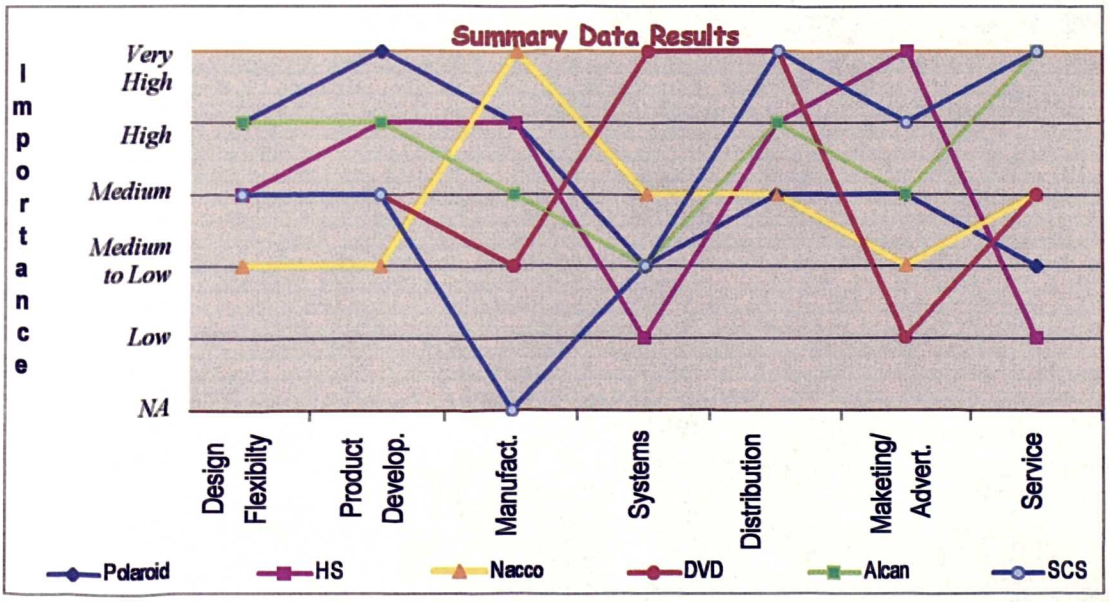

Figure 6.4 Company-cases' performances

This raises an interesting point about the financial priorities - Is there any relationship amongst the importance of some activities given by the company-cases and their financial priorities?

The financial priorities of each company-case are illustrated in Figure 6.5. It shows that the strongest investments of Polaroid are product development and technical development, which are aligned with the importance placed by the company on those issues; this is confirmed with the results from Figure 6.4. The strongest investment of HS is marketing and advertising, which is also ranked as important activities of the organisation. Nacco places the strongest investment on support systems, technology development and training, the high importance activities are support systems and technology development, but not training. Because training is seen by Nacco as a part of support systems (the other highly important activity of Nacco). The strongest investment of DVD resides on support systems. Currently, the strongest investment of Alcan resides in marketing, it is the exception to the rule followed by the previous cases, because currently Alcan is looking to open new market segments and expand its networking. So it can be implied that a value driver is not always related to the investment priorities. Finally, SCS is economically concentrated on service and distribution, which are indeed high importance activities as value drivers to maintain and develop the value proposition of the company. In conclusion, the financial investments are not always intimately related to the value drivers of the organisation, but generally they are.

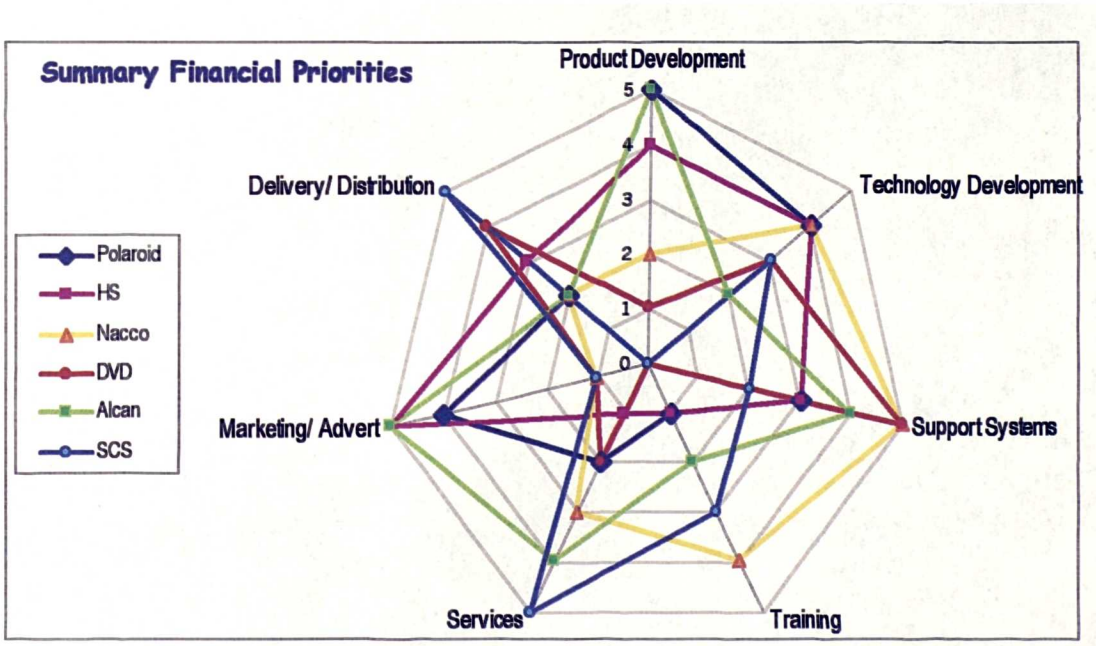

Figure 6.5 Financial priorities of the company-cases

6.8 Workshop data results

Once the value propositions of the value cube have been tested in six case studies, now the model is tested in a bigger sample ' a workshop', where **23** companies participate from different industrial sectors. The results are summarised in Figure 6.6.

Figure 6.6 shows that 20% of the collaborative organisations were innovators, 15% brand managers, 15% price minimisers, 10% simplifiers, 20% technological integrators and 20% socialisors. Figure 6.6 also illustrates the companies' value proposition by industrial sectors. These results strengthen the validity of the value propositions.

Based on the empirical evidence provided in this section via the cross case discussion, the counting analysis and the workshop result, also called methodological triangulation (Easterby-Smith, et al. 1999:134), a pattern matching[25] logic was used to answer the second research question.

RQ-2. Are the value propositions of the value matrix/cube valid?

The answer to this question is 'yes'. Logically, this makes the value propositions of the model 'the value cube' presented in Chapter 5 valid.

[25] The pattern matching logic among different data from different sources and even methods is applied to increase the internal validity in answering the research question two.

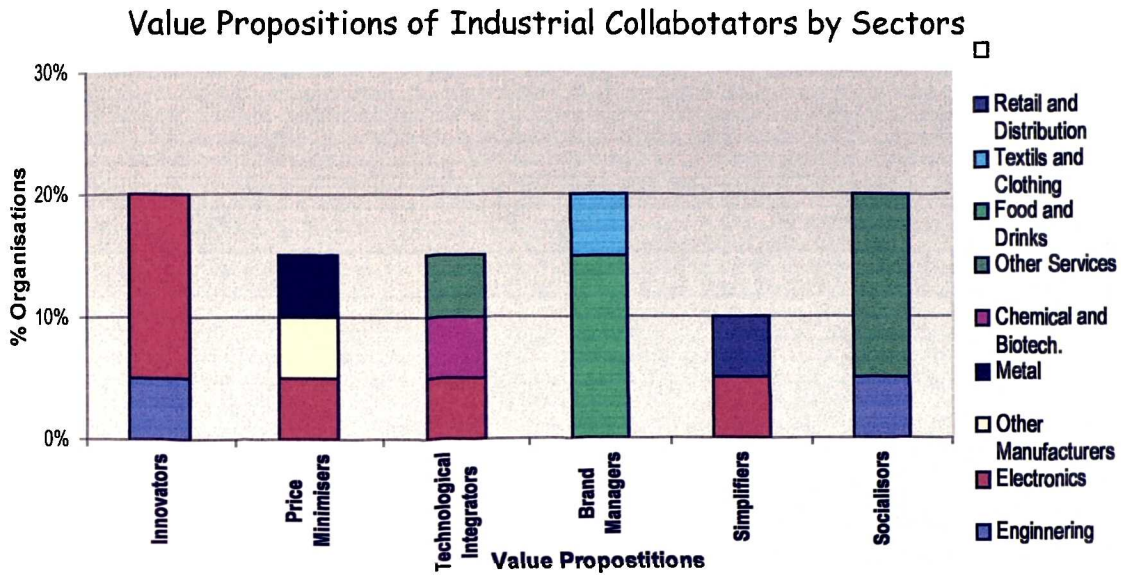

Figure 6.6 Value propositions of industrial collaborators- Results from the workshop

Conclusions of the chapter

In this chapter the proposed model 'the value cube' was validated. The validation was performed through different research methods, such as cross-case analysis, counting method and a workshop. The triangulation of those methods increased the validity of the value cube.

To increase the reliability of the research, a case study protocol and a pilot case study were used. The pilot case study was a formative source that assisted in the developed of relevant lines of enquiry (questions). Table 6.6 summarises the methods applied to increase the reliability, internal, construct and external validity[26] in the validation of the new model (See end of this Chapter).

The cross-case analysis demonstrated, through a generic business process model, that Polaroid, Nacco and Alcan presented confirming instances that validate the hard value dimension of the value cube; whereas, HS, DVD and SCS presented confirming instances that validated the soft value dimension.

[26] Chapter 10 expands in more detail in the assessment of the quality of the research.

A larger example from a workshop supported the results obtained from the cross-case analysis. The results from the workshop show that 55% of the companies were working in the hard value dimension, whereas the remaining 45% were working in the soft value dimension.

Therefore, results from the cross-case analysis and the workshop results provided evidence to answer the first research question.

RQ-1. Does value operate on hard and soft value dimensions?

Each method presented confirming instances that validate the hard and soft dimension. Moreover, the triangulation of both methods provided evidence that 'there are different types of organisations operating in the hard and soft value dimensions'. Therefore, the answer to the first research question is 'yes'; and these results validate the 'hard and soft value dimension' theory stated in Chapter 5.

Moving to the second research question, four testing methods were used to validate the six value propositions of the value cube and all of them arrived at the same conclusions.

Cross-case analysis tested the alignment of the objectives, performance and capabilities of the six company's cases and compared them with the value propositions of the proposed model. The results showed that Polaroid validated the value proposition 'innovators' of the value cube. Similarly, HS validated 'brand managers', Nacco validated 'price minimisers', DVD validated 'simplifiers', Alcan validated 'technological integrators' and SCS validated 'socialisors'.

To increase the reliability of the cross-case analysis, a counting analysis was performed (Miles and Huberman, 1984:215). The results of the counting analysis showed that Polaroid had 12 occurrences from 18 validating 'innovators'; HS had 11 from 16 validating 'brand managers'; Nacco had 15 from 18 validating 'price minimisers'; DVD had 13 from 18 validating 'simplifiers'; Alcan had 13 from 19 validating 'technological integrators' and SCS had 11 from 15 validating 'Socialisors' (Table 6.4).

From the triangulation counting and cross-case methods, it can be concluded that both methods arrived at the same conclusion. Thus, they validated the six value propositions of the value cube.

Once the value propositions were tested using the case study method, a wider sample 'workshop' was taken. The workshop's results showed that 20% of the companies were innovators, 15% brand managers, 15% price minimisers, 10% simplifiers, 20% technological integrators and 20% socialisors (Figure 6.6). It can be concluded that the results from the workshop strengthen the value propositions and findings from the cross-case analysis and counting methods.

Based on the empirical evidence provided by the cross case analysis, counting method and the workshop, the second research question was answered.

RQ-2. Are the value propositions of the value matrix/cube valid?

Based on the results from the three analyses and the triangulation of them, the answer to this question is yes; the six value propositions of the value cube are valid. Therefore, the model 'the value cube' presented in Chapter 5 is valid.

It was proved that, in the value creation process, operations/activities, which rank as important value drivers, *are not always* those with the highest financial investment. Alcan showed it in Figures6.4 and 6.5 with 'marketing' although marketing is not one of the highest operational priorities of the company – as main value driver, there has been strong investment in it, because the company is looking to expand its networking by finding new alumina's applications on other industrial sectors.

During the application of the value matrix on the collaborative companies, interesting issues came out and one of the most important is the unit of analysis. So the third and fourth research questions emerged:

RQ-3. What is the unit of analysis of the value cube? i.e. business unit, functional units. Therefore, the logic led us to think of the next research question:

RQ-4. Can an organisation have more than one value proposition?

Chapter 7 addresses these two research questions.

Data collection & analysis methods	Why it is selected?	How to ensure quality of the research?
Data Collection		
Use of case study protocol	To provide the general rules and procedures that guide the investigation.	By increasing the *Reliability* on the validation of the new model
Use of different respondents from different organisational levels	To verify data from answers among performance and strategy	By increasing the *Internal Validity* of the data
Multiple source of evidence	To ensure the quality of data and find new insights	By increasing the *Construct Validity* of the case
Use of codes	To keep a focused investigation by keeping a link among the research issue and research tools (questionnaires)	By increasing the *Construct Validity* of the research
Standard data reduction as tables and graphs	To make simple, unbias and easy the data management	By increasing the *Construct Validity*
Pilot case study	Because it is a formative source that assisted this researcher in the development of relevant lines of questions.	By enhancing the *Reliability* of the research tools
Review the questions of questionnaires by other person	To check if what the researcher wants to asked was expressed on the question properly and without different meaning	By increasing the *Reliability* of the content of the questions
Use of multiple case studies	To ensure the results of hard and soft value dimentions	By increasing the *External Validity* of the construct
Data Analysis		
Cross case analysis	To discuss in an standard form the same parameters among the company-case.	By increasing the *Internal Validity* of the results
Triangulation of data	To compare the different results from cross case studies and workshop data	By increasing the *Construct Validity* of the research specifically on the data anlysis
Methodological Triangulation	To verify, corroborate and strengthen the cross-case analysis with the counting analysis.	By increasing the *Internal Validity*
Pattern matching logic	To build a logic story from facts to help in answering the research question 2	By increasing the *Internal Validity* of the data analysis
Explanation Building	To help in the construction of the cross-case analysis	By increasing the *Internal Validity*
Maintain a chain of evidence	To build a logic story of evidence to support the cross case analysis	By increasing the *Construct Validity*
Standard data base	To build a standard tool to help in the construction of the cross-case analysis and counting analysis	By increasing the *Reliability* of the data analysis

Table 6.6 Selected data collection and analysis methods for the validation of the value cube.

Chapter 7. The Unit of Analysis of the Value Cube

We study theory in order to apply it, not for its own sake
Ho-chi-minh (1892-1964)

The proposed model 'the value cube', developed in Chapter 5, was validated through six case studies and a workshop, as described in Chapter 6, by the application of different methods of data analysis and their triangulation. As a result, the research questions 1 and 2 were answered. During the application of the case studies in the collaborative organisations, a new research issue was identified; this is the application of the unit of analysis for the value cube. Consequently, the third and fourth research questions emerged:

RQ-3. What is the unit of analysis of the value cube? i.e. entire organisation, business unit and functional units.
Therefore, the logic led us to the next research question:
RQ-4. Can an organisation have more than one value proposition?

Hence, the objective of this chapter is to answer both research questions. This chapter starts by raising a controversy on the unit of analysis from theory and facts based on practice. It continues analysing the unit of analysis of two case studies. Finally, it concludes by answering the research questions three and four.

7.1 Controversy on the unit of analysis

There is a controversy on the unit of analysis. Some authors argue that the whole organisation should focus on a value proposition. However, this research suggests that an organisation could have more than one value proposition. The following paragraphs present the diverse perspectives on the unit of analysis.

On one hand, Treacy and Wiersema (1996:24-26) argue that organisations have to focus on one particular kind of value proposition. To create a breakthrough and reach new heights of performance, the company's efforts have to be aligned in one direction. Consequently, the particular value proposition a company decides to pursue defines and shapes the company's strategy, operations, etc.; In others words the value proposition governs the entire business model. Treacy and Wiersema (1996:42) state that two or more value propositions within an organisation cause confusion, tension and loss of energy and resources.

Porter's unit of analysis (1980:35) agrees to a certain extent with Treacy and Wiersema's view. Porter highlights that '*ideally*' the effective implementation of the generic strategies requires total organisational commitment, as more than one generic strategy leads to poor strategic situations, such as blurred corporate culture, conflicting set of organisational arrangements and motivation system (Porter, 1980:41,42).

Although Treacy and Wiersema (1996) and Porter (1980) state that more than one value proposition within an organisation leads to a weak strategic position, the researcher's empirical research suggests that it may be possible to apply more than one value proposition to one company. Therefore there could be additional units of analysis.

Typically, business strategy has to be deployed at three levels; whole organisation (corporate), business units and functional unit levels (Hill, 2000:26). Taking these levels as a potential unit of analysis for the value cube, we have:

1. the whole organisation as a complete unit as Treacy and Wiersema(1996) propose in their model.
2. the business unit level as Hill (2000:26-29) highlights, business units have a particular strategy in terms of their markets; therefore this means that each business unit has operational differences.
3. the functional unit level.

The following section analyses these units of analysis within two case studies.

7.2 Case studies

This section introduces two case studies to illustrate the proposed unit of analysis of the value cube. Each case starts with an introduction to the company background. It continues with the company-case analysis over the potential unit of analysis previously mentioned. Finally, it concludes with a discussion on each unit of analysis.

7.2.1 Daks Group' Case Study

Daks designs, manufactures and sells ladies and gentlemen apparels. It specialises in suits, jackets and trousers, which are linked to a classic and elegant British heritage. Daks' product development and marketing facilities are based on London and its manufacturing facilities are based in Scotland. Daks has two business units (BU) 'Daks BU' and 'Contract BU'. Both business units share the same manufacturing equipment, product development facilities, management structures and employees, amongst others. A deeper description of Daks' business units and functional units (FU) is addressed in the following paragraphs.

Daks' business units:

- *Daks BU* focused on the Daks' label, which specialises in exclusive apparels. It designs its own cloths (patented), buttons and apparels' styles for each collection[1]. Its apparels are produced to high specifications in limited quantities. Daks' products compete with prestigious designer houses such as Chanel, Georgio Armani and Burberry, amongst others.
- *Contract BU* is focused on the contacts' labels. It produces ladies and gentlemen apparels either under customers own labels such as St Michaels for Marks and Spencer or corporate labels, such as Bank of Scotland. Compared to Daks BU's apparels, the contract BU's items are simpler, cheaper and sold in larger volumes.

Daks' functional units

- *Product development unit* is focused on the design of new apparels and development of new fabrics (patents) supported by its suppliers, few customers and fashion trends from famous catwalks.
- *Marketing unit* is focused on the new collection's advertisement. In addition, it fixes contracts for future collections with middle customers (e.g. Harrods, Frasers, Slaters,

[1] Daks label launches two collections a year.

Mark and Spencer, Bank of Scotland amongst others) and suppliers (e.g. cloth and buttons suppliers).

- *Manufacturing unit* is focused on the translation of the conceptual designs to operations and the production of apparels with tight quality controls.

Value proposition's analysis

Having discussed, Daks' operational environment (BU and FU), now the company's value proposition is analysed over the proposed units of analysis 'complete organisation, business units and functional units.'

a). *Organisation as a complete unit*: the application of a single value proposition was found to be difficult for reasons that are discussed later in this section.

b). *Two business units* are Daks business unit and Contract business unit. Table 7.1 compares the operations of both business units.

The high degree of uncertainty and complexity of the Daks BU leads to frequent changes in its production schedules. In contrast, the low complexity of the Contract BU allows operating on stable manufacturing schedules.

DAKS	Business Units	
Operations	**Daks Business Unit**	**Contract Business Unit**
Apparels designs	Exclusive product styles	Simple designs
Product variety	High	Low
Production volumes	Small	Large
New product introductions	Every six months launch a complete new collection	Fairly rare (mostly minor modifications to existing designs)
Operating Strategies	Make to stock and Engineering to order[2]	Make to stock
Manufacturing costs	High	Low
Outsourcing	Manufacturing of accessories	-
Product prices	High prices	Sensible prices
Major Customers	Frasers, Harrods, Nordstrom, Slaters and Daks flagship shops	Mark & Spencers and Bank of Scotland

- No data

Table 7.1 Comparison of Daks' BU and Contract BU

[2] Daks BU operates on 'make to stock' and 'engineering to order' strategies. Before launching the new collection to the market, Daks BU prepares small stock (make to stock strategy) of new apparels. Then based on the apparels' sales, the rest of apparels of that collection are programmed (engineering to order strategy).

Typically, the specifications of Daks BU's apparels demand more difficult operations and more operations than the contract label, which increases their manufacturing costs; hence, Daks BU produces expensive apparels for special markets where the brand image is more important than the price. On the contrary, the contract BU produces high volumes at low price for a market where the price is more important.

Daks BU has a wider variety of products, detailed operations and the production efficiencies, although important, are low priority. In contrast, the Contract BU focuses on mass production and optimisation of manufacturing operations processes.

The same procedure used in Chapter 6 to identify the value propositions of companies-cases was used in this analysis to increase the construct validity and reliability of this study.

The results from the analysis of the value proposition[3] of both business units showed that Daks BU behaves as brand managers and the Contract BU behaves as price minimisers. Figure 7.1 illustrates both value propositions of the value cube. In this way each business unit manages its own products and processes without any operational conflicts or without conflicting with the business units' objectives.

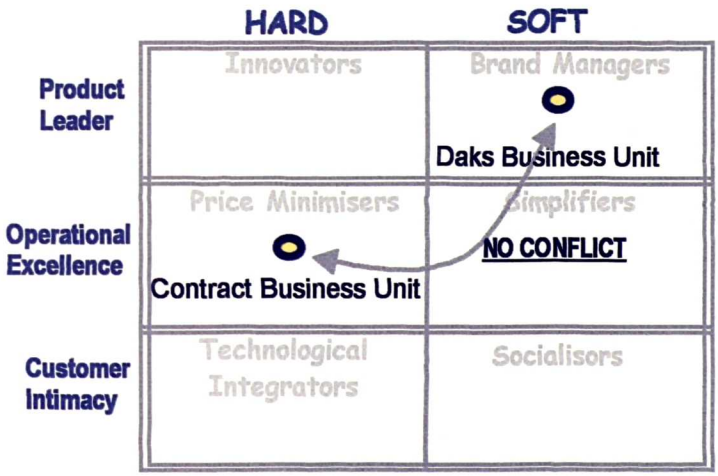

Figure 7.1 Daks Group working by business units on the value matrix

[3] The value cube was used to identify the value propositions of both business units.

c). *Functional units*. As previously defined, the three main Daks' functional units are product development department, marketing department and the manufacturing department.

To identify the value propositions of Daks' functional units the same procedure established in Chapter 6 was used. Thus, the application of the value propositions of the value cube to Daks' functional units showed that the manufacturing department behaves as price minimiser, the product development department as innovator and the marketing department as brand manager. Figure 7.2 mapped Daks' functional units on the value matrix.

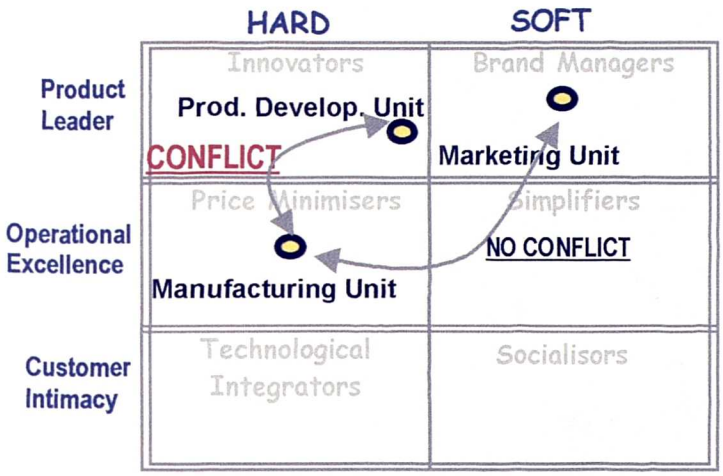

Figure 7.2 Daks Group working by functional units on the value matrix

The conflict of Daks operating by functional units starts when new products are continuously introduced by the product development unit, affecting the manufacturing efficiencies and undermining the price competitiveness of the products for the contract market (Figure 7.2). The difference between both Daks and Contract apparels on product variety, manufacturing costs and production volumes are some factors that affect the company operating by functional units (especially on product development and manufacturing units). In contrast, there is no conflict between the manufacturing and the marketing units, nor marketing and product development units. Therefore, in Daks case it is difficult to apply the value propositions by functional units.

These are the conclusions from Daks Group's case:

- Differences on products' requirements (e.g. styles, delivery times, new products' introductions, product variety, production volumes, etc.) raise functional conflicts that stop the Daks Group operating its value propositions by functional units.
- Using the business units as units of analysis, Daks Group avoids internal conflicts between functional units 'product development and manufacturing units'. Thus, each Daks' business unit manages its own objectives and responsibilities without any conflict.
- Logically for the reasons discussed above, it is difficult to have a single value proposition for the whole organisation.

Finally, it can be inferred that the optimum unit of analysis of Daks Group's value propositions is by business units, i.e. Daks BU's value proposition is brand managers and Contract BU is price minimisers.

7.2.2 IBM -Greenock' Case Study

IBM Greenock has three well-established business units (BU). These are the hardware and technology business, the global service business and the e-sourcing business. Differently from Daks Group, each IBM's business has its own experts, facilities, equipment, own management team and even buildings. Moreover, each of IBM's businesses pursues its own individual objectives.

IBM business units:

- Hardware and technology BU specialises in the design and development of storage systems (servers)[4]. In the last decade, IBM hardware and technology has patented more technology than any other company[5].
- The global service BU[6] is a service provider specialising in strategic outsourcing services and integrated technology. It supplies:
  - help desk facilities[7]
  - software applications
  - systems integrators (implementation and maintenance of hardware and software).

[4] For instance, one of its latest developments is the IBM enterprise storage server code name 'shark', which has more than 11,000 terabytes than the standard servers. Among other invented technologies are the silicon-on-insulator and copper-based microprocessors.

[5] IBM hardware and technology has received the US national medal of technology in leaders in storage.

[6] With its newest acquisition 'Price Water House Consulting' IBM will offer a wider service in business and management consulting (IBM news letter, October, 2002).

It allows its customers to focus on their core businesses.

- E-sourcing BU is an e-business initiative, which provides 'software facilities via Internet[8]'. It specialises in delivering e-sourcing remotely. 'ERP systems, CRM systems and other general applications' are supplied to its customers through the Internet. Moreover, e-sourcing provides on-line assistance, e-learning and remote capabilities[9]. The systems operate based on shared and standardised applications. E-sourcing relieves its customers from the technology ownership, technology maintenance, processing systems and storage management. Thus, its customers rent the e-sourcing and pay as they use it.

IBM's functional units

Due to the individuality, independence and nature of each IBM's business units, the functional units of each business unit are completely different from the others. The functional units of a business unit do not interfere with others functional units from others business units. For instance, the main functional units of the 'hardware and technology business' are product development, manufacturing and marketing. The 'global service businesses' are service, marketing and enterprise's solutions development. The e-sourcing's functional units are service, solutions development and marketing. Although the functional units are similarly named, they carry different duties and have different objectives; because they are independent in respect of resources and management. Thus, IBM's functional units are individual to each business unit.

Value propositions analysis

The value proposition of IBM Greenock is analysed over the three proposed unit of analysis.

a). *Organisation as a complete unit*: the application of a single value proposition was found to be difficult, such as in Daks Group's case, for reasons that are discussed later.

b). *The three business units* are the 'Hardware and technology BU', 'Global service BU' and 'E-sourcing BU'. Table 7.2 compares the operations, products and customers of IBM's three business units.

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[7] From paper to hardware and software customised for particular customers' tasks.
[8] As a part if its service it provides the required technology to run the software
[9] An example of remote capabilities is: when the customer is in a loop e-sourcing detect it and take him/her out from the loop.

IBM Greenock	Business Units		
	Hardware and Technology	Global Service	E-sourcing
Product Service	Innovative Servers	Help desk facilities, software applications, systems integrators and e-business service	Remote delivery of ERP systems, CRM systems and other general applications
Process Choice	-	Project	-
Production volumes	Large	Small	Small but looking to expand them
New product introductions	More than 30 pieces of new technology per year	Depends on the customer's needs	Since this is a new project, it has improvements to the current software and facilities.
Operating Strategies	Designs base new trends and forecast. In manufacturing make to stock.	Make to order	Configure to order
Key resources	Storage's developers	IT and business management consultants	Software developers and IT technicians
Operational costs	High (due to patents, new products launches and tests)	Medium to High depends on the solution	Currently high because this the start of the project, but it will change in future
Product prices	High	Medium to High prices	At the moment conscious price[10] (customers pay as they use and they are released of technology ownership)
Major Customers	Retailers and some consumers	Unitech Johnson Matthey	-

- No Data

Table 7.2 Comparison of IBM Greenock's BUs

The operational differences among the three IBM Greenock's business units are discussed in the following paragraphs.

The high innovation level of the 'hardware and technology BU' is clearly observed through its continuous breakthrough and patented technologies. Although the continuous service design of the 'global service BU' is high, its innovation level is not a priority. This is because the global service BU's solutions do not always require innovations. In contrast, the innovation level of the 'e-sourcing BU' mainly resides in the continuous updating of infrastructure such as software and hardware.

The global service BU operates on the basis of make to order, whereas the e-sourcing BU operates on the basis of configure to order (Table 7.2). On the contrary, the technology and hardware BU follows its own trends to design new products.

The employees of each business unit are highly specialised in their own area. For instance, the key capabilities of the hardware and technology BU comes from the storage's developers, in the global service BU from the IT and business management consultants and finally in the e-sourcing BU from the software developers to maintain the net and the IT[11] technicians to support the customers' installations and maintenance.

To increase the construct validity and reliability of this study, the same procedure used in Chapter 6 to identify the value propositions of companies-cases was used in this analysis.

Based on their business objectives, operations and customers previously discussed (Table 7.2), the results of the analysis of the IBM Greenock's value proposition showed that the hardware and technology BU operates as innovator, the global service BU operates as technological integrator and the e-sourcing BU operates as simplifier. Figure 7.3 illustrates the value propositions of IBM's business units in the value matrix. As a result, each business unit follows its own objectives with its own capabilities within the same organisation 'IBM Greenock' without any strategic or operational conflicts. Their business focus is well delimited, although from time to time one business unit provides expert support to the others, but without losing their individual focus.

[10] At the moment the price of e-sourcing services is conscious, because the company is promoting this new initiative, but in the future this price might be increase.

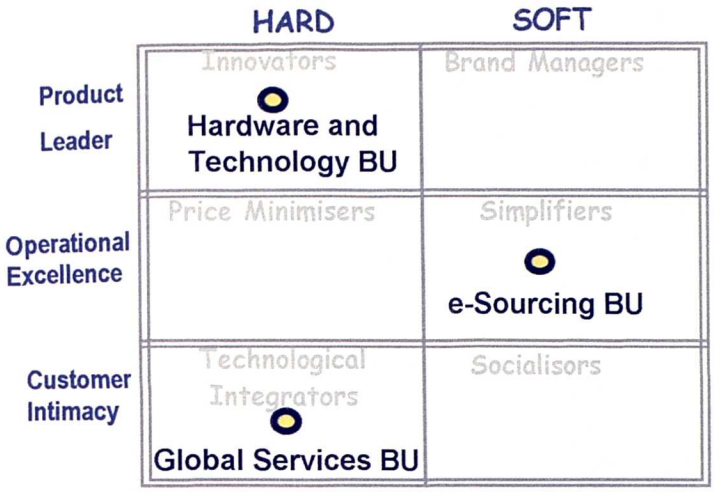

Figure 7.3 IBM Greenock's business units mapped on the value matrix

c). *Functional units*

Since *each IBM business unit* has its own individual operations, the functional units do not have conflict because they do not interact. Figure 7.4 shows the independence of the different functional units on each IBM's business unit. For instance, each business unit has its own marketing department, but each marketing department has different market segments, objectives, advertising' operations and management[12].

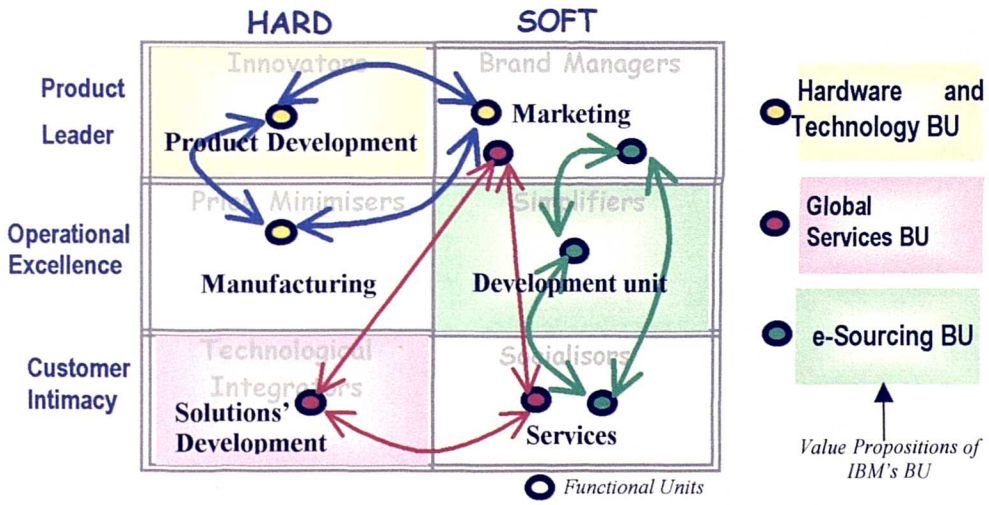

Figure 7.4 IBM Greenock's business units working by Functional Units

[11] IT is referred to information technology

[12] It is important to bear in mind that IBM also has a global marketing for the whole corporation to position IBM brand globally. But the marketing unit of each BU has its own freedom to manage its marketing strategies.

As a result, when each *IBM's business unit* operates with its own functional units there is no conflict.

Hypothetically, if IBM operates just by functional units, each functional unit would try to pursue its own value proposition; i.e. IBM Greenock would pursue the six value propositions (See Figure 7.5), because it has operations on each value proposition of the value cube.
On one hand, IBM would lose its value creation focus and the company would try to survive without a specific direction. In other words it loses its strategic position. On the other hand, some contradiction and operational problems would rise among the functional units. Because the nature of each IBM's product/service demands different requirements such as different market approaches, technological requirements, etc. that would be contradicting between different operations and functions. In conclusion, IBM cannot operate its value propositions just by functional units.

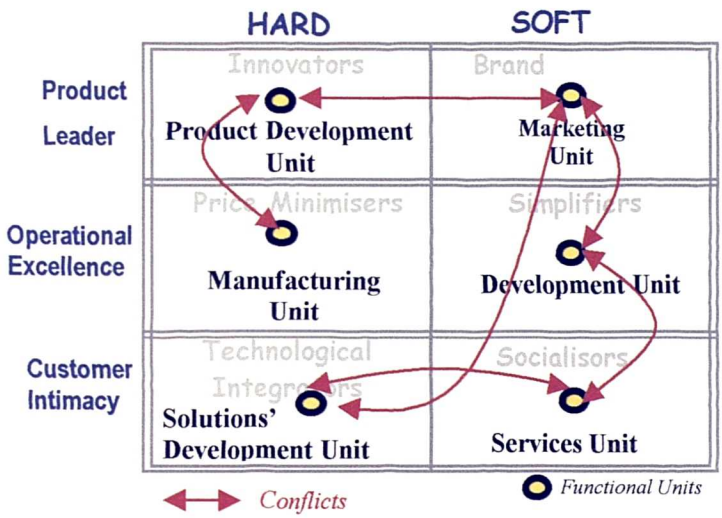

Figure 7.5 IBM Greenock operating purely by functional units

The following are the conclusions from IBM Greenock's case:

- This case study demonstrated that an organisation can have more than one value proposition.
- The differences on products, markets, operations, etc. make 'the business unit' the optimum unit of analysis for IBM Greenock. I.e. the hardware and technology BU's value propositions is innovator, the global service BU is technological integrator and the E-sourcing BU is simplifier.

- On the contrary, if IBM operates just by functional units, the company would try to be all at the same time, i.e. innovators, simplifier and technological integrator, etc. (Figure 7.5). Therefore it would lose its focus on value creation and some operational conflicts would arise. Logically, in IBM Greenock's case it is difficult to apply the value propositions by functional units.
- For the reasons previously discussed, such as different businesses, products, markets and resources among others, it is difficult to have a single value proposition for the whole organisation 'IBM Greenock'.

7.3 Conclusion from the case studies

The value cube can be applied to the whole organisation when the entire company shares the same strategic position, same or very similar markets and offers the same kinds of values to its customers.

Strong confirming instance from Daks and IBM's cases support that the value cube can be also applied to business units when the entire organisation has two or more different business units that might be contradicting within a single value proposition. The application of the value propositions by business units is necessary when the business units:

- have different strategic positions
- are serving different market segments[13] with different competitive requirements
- offer different types of values
- have different product strategies
- have significant operational differences
- images are perceived differently by their markets

The success of the business units' value propositions within an enterprise depends on the independence of its value propositions (business unit). These must be treated as completely different businesses.

It may be argued that the functional units could be another alternative unit of analysis for the value cube. Certainly not, evidence from Daks Group and IBM's Greenock cases support that the application of the value propositions by functional units raise operational and/or

[13] and for each market the value (offer) proposed is different

strategic conflicts and lead to weak business' focus. Moreover, it contradicts the value creation principles. Chapters 1 and 2 state that value does not reside in one particular area of an organisation. Having a value proposition per functional unit means that each functional unit will focus on their own operations and objectives rather than on the proposition of value to the customer.

Logically, the researcher questions, when resources[14] are shared among different business units, How do the functional units' objectives impact upon the BU's value propositions?
There is not doubt that a business unit has several operations or functional units. When the organisation has individual facilities, operations and resources from its other business units there is no conflict at all, because each business unit operates as different businesses such as IBM Greenock. But when an organisation has several business units and the facilities, operations and resources are shared among its business units, such as Daks, some conflicts arise. Let's concentrate on the last issue with Daks example. Even if Daks has two different business units 'Contact BU' and 'Daks BU', their facilities and resources are still shared, in addition to its operations (FU).

Shared resources impact the operations because each operation has to contribute with the BU's goals and its own functional goals. For example, Daks BU is a brand manager, its priorities being marketing and apparels design. Daks BU's goals are focused on delivering high quality, stylish products to its customers, creating a product brand image through promotion and advertising, etc. Daks BU has different operations, among others its manufacturing operations, which are shared with the contract BU.
Daks manufacturing unit's goals are cost reduction, increased efficiencies, producing quality products, on time delivery, etc. It is obvious that the manufacturing unit's priorities do not fit completely into Daks BU's priorities and vice versa.

As established on Section 6.7.2 'not every operation within a value proposition has the same priority'. Each business' value proposition prioritise on different operations, and these prioritised operations of a value proposition differ from others value propositions. So, the non-prioritised operations act as support activities to the business' value proposition. Figure 6.4 shows some examples of prioritisation of operations on different companies' value propositions.

[14] Resources refer to management structures, equipment, production facilities, etc.

Although, manufacturing unit and Daks BU do not have the same goals, the manufacturing unit acts as a support unit to Daks BU's goals with the quality and on time delivery of the products. So these two become the common or shared objectives. Figure7.6 illustrates in the value matrix the pursued value proposition of Daks BU and manufacturing unit with their shared objectives. It shows how the support unit 'manufacturing' does not change (modify) the focus of Daks BU, but it strengthens Daks BU.

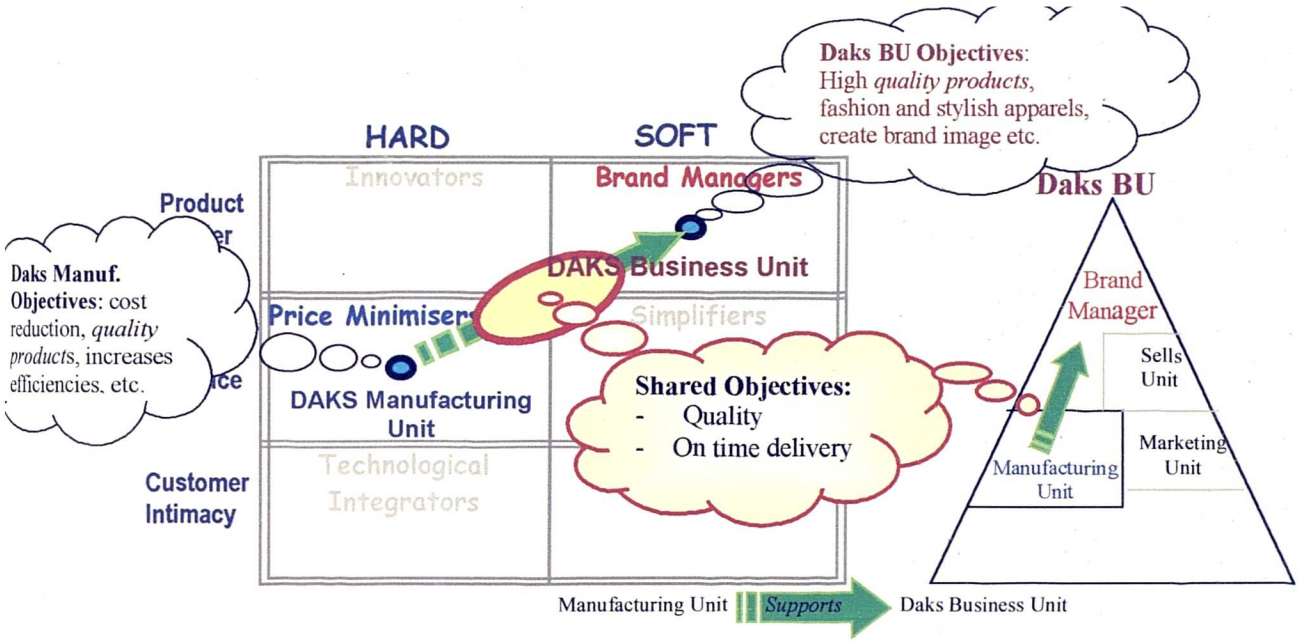

Figure 7.6 Interaction of manufacturing unit (FU) and Daks BU's value propositions

In conclusion, when several business units share the same resources, the functional objectives of each department have to be integrated within the objectives of the value propositions of the BU to support and strengthen the BU's value proposition.

Conclusions of the chapter

Based on the empirical evidence provided from Daks Group and IBM Greenock case studies, the research questions three and four can be answered.

RQ-3. What is the unit of analysis of the value cube?

Initially there were three potential unit of analysis for the value cube: the whole organisation, as Treacy and Wiersema (1996) proposed, and the business unit proposed and validated in this research and the functional unit, which was also proposed, but failed its validation.

The Daks case study demonstrated, with empirical evidence, that its two business units operate without conflict in two different value propositions 'brand manager' and 'price minimiser'. This case study showed the differences between both business units (Figure 7.1). However, when Daks operates by functional units some operational conflicts were identified between manufacturing and product development units (Figure 7.2). Logically, due to those BU differences and operational conflicts, Daks cannot operate with a single value proposition.

The evidence provided by IBM case study showed that IBM do not have any conflict operating in business units; because it has three business units operating in three different value propositions (Figure 7.3). In contrast, the application of functional units to IBM has shown that

- There is no conflict when the value propositions are applied to the functional units of *each IBM business unit* (without mixing functional units of each business unit) (See Figure 7.4).
- However, if IBM operates just by functional units, the company would try to be all at the same time[15], i.e. innovators, simplifier and technological integrator, etc. (See Figure 7.5). Therefore it would lose its focus on value creation and some operational conflicts would arise, due to the wide diversity of markets and products requirements would be contradicting and causing operational problems that lead to weak strategic position. Logically, in IBM Greenock's case it is difficult to apply the value propositions by functional units.

[15] Because IBM Greenock has operations in the six value propositions of the value cube

In conclusion, Daks and IBM cases validated the use of the value cube by business units and invalidated the use of functional units. Thus, the application of the value cube at business unit level seems to be more sensible; but any one business unit should not have more than one value proposition, if they have those lead them to weak strategic positions.

A lesson learnt from the case studies is that the success of the business units' value propositions within an enterprise depends on the degree of independence of its value propositions (business unit). Therefore, these must be treated as completely different businesses.

It was found that sometimes the use of a single value proposition for the whole organisation creates internal conflicts such as functional conflicts, product/market segment conflicts, business focus conflicts, etc. So, the value propositions of the value cube can be applied to the whole organisation when: the entire company shares the same strategic position, same or very similar markets and offer the same kinds of values to its customers.

When several business units share the same resources, the functional objectives of each department have to be integrated within the objectives of the value propositions of the BU to support and strengthen the BU's value proposition (Figure 7.6).

Therefore, the answer to the third research question:

RQ-3. What is the unit of analysis of the value cube?
Based on the analysis of the IBM's and Daks' case studies, the answer to the third research question is that the unit of analysis of the value cube are two units: 'whole organisation' and 'business units', however the application of the value cube at business unit level seems to be more sensible; but any one business unit should not have more than one value proposition, if they have those lead them to weak strategic positions. There is no right or wrong use of unit of analysis, this depends on the nature of the business and its organisation. It is important to highlight that this research opened the possibility of the application of another unit of analysis 'business unit' not suggested before by other authors within the value proposition's field.

Continuing the fourth research question:

RQ-4. Can an organisation have more than one value proposition?

The IBM case study demonstrated that IBM Greenock plant operates with just three different value propositions, i.e. as innovators in the hardware and technology business, as technological integrators in the global service business and as simplifiers in the e-sourcing business. Moreover, the Daks Group operates with two value propositions for each one of its business units, i.e. as brand managers in the Daks BU and price minimisers in the contract BU. The results from both case studies (sections 7.2.1 and 7.2.2) demonstrated that an organisation can have more than one value proposition. Thus, the answer to the fourth research question is yes, an organisation can have more than one value proposition.

This chapter has answered the research questions 3 and 4. It has validated the used of the 'business unit' as another unit of analysis of the value cube. Finally, it has presented confirming evidence on the application of more than one value proposition to a single organisation.

The application of the case studies discussed in Chapter 6 and in this Chapter identified that different organisations operating in the same value proposition share similar characteristics. Therefore, this led to the next research question:

RQ-5 Are there general patterns or 'footprints' for each value proposition of the value cube?

Chapter 8 attempts to answer this question.

Chapter 8. Footprints

Our theory is not a dogma, but a guide to action
Karl Marx (1818-1883)

The application of the case studies discussed on Chapter 6 and 7 identified that different organisations operating within the same value proposition share similar characteristics. Therefore, this raised the question

RQ-5 Are there general patterns or 'footprints' for each value proposition of the value cube?

The identification of the footprints was based on the data analysis from the case studies carried out in this research, as well as some patterns identified from companies' reports and literature on manufacturing and management among others. To build validity on the footprints, several theory-building research methods were applied. Chapter 4 established the research tools used for identifying and validating the footprints. This chapter starts by discussing the identification and development of the footprints, then it introduces the footprints. To test the footprints, a gap assessment tool was created. The chapter continues with the lessons learnt from the application of the footprints in a workshop where companies from diverse industrial sectors participated. Finally, the chapter concludes by answering the fifth research question.

8.1 Definition and purpose of the footprints

The footprints are defined by this research as the common or shared characteristics of diverse organisations operating within the same value proposition of the value cube. In other words, the footprints are the genetic configuration of the value propositions.

The footprints have two applications. They provide general guidelines:

- on how organisations should align and manage their resources within their value proposition to create value.
- to compare the value proposition of an organisation and assess the organisation performance against its own value proposition.

Someone might question where the footprints come from. Are they built from practice, theory or theory-and-practice? The following section expands on the development of the footprints.

8.2 Development of the footprints

The development of the footprints was a deductive process, going from particular issues to general ones (Easterby-Smith et al, 1996). The deductive process was used to arrive at analytical generalisations[1], which provided the platform to build the footprints.

The footprints' development process consists of:

In order to minimise the uncertainty and increase the construct validity[2] of the footprints, the researcher applied the triangulation of data[3] and methods[4] techniques.

1. Analysis of data obtained from the case studies and identifying typical patterns of behaviour.
2. Then, these data have to be analysed against theory (ideally); if theory can not support those issues, the issues had to be supported by another source[5] of practical data.
3. The footprints were developed following the triangulation of data, methods or both. It is important to bear in mind that issues which did not fulfil with the triangulation criterion did not become footprints.

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[1] Analytical generalisations, generalised from theory and case studies, in contrast to statistical generalisations (Yin,1994:30-36)

[2] Construct validity is concerned with the idea that the research design fully addresses the research questions and the research objectives (White, 2000:25). It establishes the correct operational measure for the concepts being studied (Yin, 1994:33). This issue is fully addressed on Chapter 10.

[3] Triangulation of data when the data is from different sources and converge on the same point (White, 2000:67).

[4] Triangulation of methods or methodological triangulation- data from different research methods and arrive to the same conclusions (Easterby-Smth et al, 1999:134).

[5] Other source of practical data, refers to results from other case study or other source of evidence from the same case study (for instance, if the importance of an operational issue is being analysed so the importance from financial data can verify the operational issue)

4. Finally, the record of each footprint was kept in a database (See Table 8.1). The record has an interpretation such as support data etc. on each footprint.

The theory building techniques used on the construction of the footprints are described and discussed in greater detail in Chapter 4.

8.3 Proposed footprints

Based on the footprints development process described in the previous section, some patterns were identified. Table 8.1 presents some patterns identified as a result of the research on footprints.

To identify and ensure the validity of the footprints, several constant[6]-steps were followed (see the footprints development process). These are illustrated on Table 8.1.

The first column of Table 8.1 lists the issues under-study. Each issue was investigated on two sources- theory and/or practice. As previously mentioned, the issues under study were identified from case studies and literature.

The second and third columns of Table 8.1 summarise the findings from theory and practice (from case studies[7] applied in collaborative organisation). Based on findings from theory and/or practice (columns two and three) the triangulation varies. The triangulation can be of data and/or methods and the type of triangulation is defined in the fourth column.

If the fourth column states at least one type of triangulation, the result of the fifth column 'footprint' is yes. Once the footprint is confirmed, the value proposition of the footprint is indicated in the last column of the table. The identification of value proposition's footprints is undertaken using two methods:

- when the pattern or issue is identified from company cases operating within the same value proposition, the footprint naturally has the same value proposition as its source.
- when the footprint comes purely from theory, it is compared with the value propositions' theory of the value cube and then its value proposition(s) is assigned (given).

[6] Constant steps are those invariable, steady and consistent steps described on the footprints development process to build reliability on the research.

On the contrary, if an issue does not fulfil with the triangulation control it remains as an issue and not as a footprint-criteria.

[7] The case studies are discussed on Chapter 6 and Chapter 7

Issue (main characteristic)	*Theory*	*Practice (Case Studies)*	*Triangulation*	*Footprints (y/n)*	*Value proposition*
R&D expertise and capabilities to build innovative products	Thomke and Hippel (2002:77) highlight the importance on the development of tools to enhance the capabilities to innovate the creation of innovative products rests on the firm's R&D capabilities (Mikkola, 2001:425)	The highest financial priority of Polaroid resides in product development	△ of methods and data	yes	Innovators
Product Development	High research and development of new products (Miller and Roth, 1994)	4 times a year Polaroid launches new cameras Product development is the highest financial priority of Polaroid	△ of methods and data (from two sources on the same case study)	yes	Innovators
High investment uncertainty-	-	Daks BU* , which performs as brand manager in the fashion industry, claims to have high risk investment level each season, due to the strong investments on cloths and garments stocks, and designers' expenses etc. before launching the products. Polarid case also highlights its high-risk level involved in each product launch. Although, both case studies argue to have high-risk investment. The problem is that the risk investment level cannot be measure / compare within the same scale due to the risk level is attached to the type of industries and products.	No The problem in this issue is that high-risk investment levels depend on different factors such as, the type of industry and products. So, it is difficult to compare the risk levels among different industries.	No	Innovators
Free design	Roney-Cespedes and Stojkovich (1999) argue the importance of free design (as 3M) in the development of breakthrough in innovative industries	Polaroid case agrees to certain extent that the free product design is quite risky. It has to be directed, specially when the resources are limited and the competition is close.	No Free design is not always the best strategy to follow it depends on the company's resources	No	Innovators

Table 8.1 Table of analysis of footprints

Issue (main characteristic)	*Theory*	*Practice (Case Studies)*	*Triangulation*	*Footprints (y/n)*	*Value proposition*
			and culture		
Development of brand name and images as a hallmark	The development of the brand names and product image have such power to create success for organisations (Rayport and Sviokla, 1994; Aaker and Joachimsthaler, 1999)	HS and Daks label BU* case studies demonstrate in Chapter 6 and 7 the emphasis placed in building their brand names.	△ of data	yes	Brand Managers
Product style	Aaker and Joachimsthaler (1999) highlight the product style of branded products	The creative director of Daks label BU's* products is a Hollywood stars' designer. It shows Daks' interest in the development of its products.	△ of methods	yes	Brand Managers
Market research, advertising and promotions	Development of market driven product strategies (Cravens et al, 2000)	-HS is a market driven organisation. -HS places around 10% of its total turnover in marketing. It represents its highest investment priority Daks business unit (BU) focuses on its brand image. 2% of Daks BU is placed in marketing and advertising	△ of data and methods	yes	Brand Managers
High prices of brandes products	Nia and Zaichkowsky (2000:487) highlight that high quality product, fancy packing, advertising campaigns and brand names contribute to higher prices of branded products	The prices of Daks label suit in Harrods or Daks flagship are symbol of exclusivity.	△ of methods	yes	Brand Mangers
Product canabalisation in branded products	Cravens et al, (2000) highlight the importance of the product cannibalisation or also called the creative destruction.	Daks label, which has conservative styles/tartans in gentleman suits, opposes to a certain extent to Cravens et al (2000) argument; because the brand name of Daks label is built on the classical British suits styles.	No	No	Brand Managers
Mass production	Scale economies (Stobaugh and Telesio, 1983)	Nacco case study and Daks contract BU*.	△ of methods	yes	Price Minimisers

Table 8.1 Table of analysis of footprints (Continuation)

Issue (main characteristic)	*Theory*	*Practice (Case Studies)*	*Triangulation*	*Footprints (y/n)*	*Value proposition*
Line process choice	Mass production organisations operates in line or continuos process (Inham, 1971, Hill, 2000)	Daks contract BU*, which follows a mass production approach operates in manufacturing cells.	No	No	Price Minimiser
Production and quality control systems		Nacco focuses on the quality control systems of the forklift trucks. One of the major investments of Nacco is the development and update of control systems to ensure the quality of the product	△ of data	yes	Price Minimiser
Reduction of lead times and waste	Joseph (1999) supports that efficient production processes lead to operational costs' reduction. Reduction of waste impact on the production performance and costs(Martinez and Perez, 2001; Hammer, 1990)	-	△ of data	yes	Price Minimisers
Efficient production process and reduction of operational costs	Cost minimisers are focused on low-cost production of mature products (Richardson, 1985).	Nacco focuses on making its production processes efficient and effective	△ of data	yes	Prince Minimisers
Process standardisation	Process standardisation offers diverse benefits, such as reduction of overhead costs, high employees' skills specialisation and reduction of transaction costs among others (Hammer and Stanton, 1999) Toyota has demonstrated the benefits of standardisation and its interconnection with its suppliers (Spear and Bowen, 1999).	-	△ of data	yes	Price Minimisers
Co-ordination of the order fulfilment	The standardisation and synchronisation of activities enables an efficient order fulfilment	-	△ of data	yes	Simplifiers

Table 8.1 Table of analysis of footprints (Continuation)

Issue (main characteristic)	*Theory*	*Practice (Case Studies)*	*Triangulation*	*Footprints (y/n)*	*Value proposition*
	process, which is appreciated by the customers (Stabell and Fjeldstad, 1998; Porter and Millar, 1985). Strong supply chain integration and the co-ordination of operational activities simplify and speed up the order fulfilment process (Amit and Zott, 2001).				
Automation of the order generation	Stabell and Fjeldstad (1998) highlight the importance of creating and maintaining efficient customer transactions to generate and support orders by a sequential set of activities via telephone, internet, e-mail, etc. Cisco and Strong (1999) and Amit and Zott (2001) highlight the importance of enhancing the transaction process by enabling faster and reliable responses through IT technologies.	DVD create in-house and sometimes outsource services to create software to enhance the order generation process, since its generation process is mainly through internet, DVD places strong emphasis on getting the order, security (encryption technologies), banking transactions and order tracking systems	△ of data and methods	yes	Simplifiers
Online business offer cheap offers and interconectivity on virtual markets	Amit and Zott (2001:503) discuss the transaction cost theory in online businesses; it suggests that when the transaction efficiency increases, the cost of transaction decreases, thus the goods price. On the contrary, Baker, Marn and Zawada (2001) state that only few online business are taking the advantage of the right price, which it is not always the lowest.	The DVD case study, supports Baker, Marn and Zawada (2001) view by showing from its experience that low price is not always the case. Some of the DVD products have similar prices as those offered by offline businesses.	No Because there are 'contradicting' findings from theory and practice	No	Simplifiers

Table 8.1 Table of analysis of footprints (Continuation)

Issue (main characteristic)	*Theory*	*Practice (Case Studies)*	*Triangulation*	*Footprints (y/n)*	*Value proposition*
Personalised offers and features	On one hand, Amit and Zott (2001:509-515) highlighted the importance of personalised offers (products) as a source of competitive advantage in online business. On the other hand, Stabell and Fjeldstad (1998:428) highlight the importance of the standardisation of offers in online businesses.	The degree of product personalisation among the DVD and IBM e-sourcing case studies are very different; because the personalisation degree depends in grand extent in the type of product offered.	No Disagreement on theoretical and practical findings	No	Simplifiers
The agility (speed) and flexibility of the product delivery (transaction efficiency)	Van Hoft and Stegwee (2001) support that the acceleration of product delivery, through the utilisation of IT systems, as value creation activities for the customer	DVD deliver the products within a few days after the order is placed through an outsource media	△ of methods	yes	Simplifiers
Enabling technologies such as IT systems to provide accessibility to the product	Porter and Millar (1985) state that IT systems provide competitive advantage by bringing customers and organisation closer in an easy and comfortable way	IBM e-sourcing BU* uses the internet as a media to provide its services. Meanwhile, DVD uses the internet as a communication media to gain access to its customers.	△ of data and methods	yes	Simplifiers
Ability to outsource	Quinn and Hilmer (1994) highlight the advantages of outsourcing non-key capabilities to provide fast product/service from experts.	DVD outsource some manufacturing capabilities to enhance the product performance of its items. DVD also outsource a delivery media to deliver the products within few days after the order is placed.	△...of data and methods	yes	Simplifiers
Ability to customise	Spring and Dalrymple (2000) highlight some capabilities of the customisation processes such as design engineering capacity, process technology flexibility and	IBM global service as well as Alcan has the capabilities to tailor products for specific needs.	△ of data and methods	yes	Technological Integrators

Table 8.1 Table of analysis of footprints (Continuation)

Issue (main characteristic)	*Theory*	*Practice (Case Studies)*	*Triangulation*	*Footprints (y/n)*	*Value proposition*
	materials arrangements among other. Gilmore and Pine II highlight the importance of the customisation level offered to the customers because the customisation level gives the guidelines to build the processes and capabilities to fulfil the customers demands.				
High design flexibility for solutions	Davidow and Uttal (1989:135) highlight the importance of the service by design, by providing flexible service capacity	Alcan and IBM global service BU can design different solutions to different problems because both of them have built the capabilities to configure any product or solution	△ of data from different case studies	yes	Technological Integrators
Building long and close relationship with customers	Lampel and Mintzberg (1996) state that close and long relationships are drivers of continuous order generations in tailoring industries. Treacy and Wiersema highlight the importance of a long relationship in a customer intimate relationship. Schneider and Bowen (1999) highlight the importance of the reciprocal relationships to affirm customers' security and fairness	Alcan builds strong and long-term relationships by crafting specific solutions for the customer process and products. For instance Alcan enhance the properties of the insulator of the wire by modifying the alumina use in the process.	△ of data and methods	yes	Technological Integrators
Pure customisation	On one hand, Lampel and Minzberg (1996) highlight the different aspects of total flexibility on organisations that perform pure customisation such as design, assembly and distribution. On the other hand, Spring and Dalrymple (2000) highlight the importance for	Alcan and IBM show different customisation degree. IBM Global Service case shows that pure customisation is very expensive and in practice only few companies can afford it. Alcan affords its high flexibility due to it shares facilities with others business units from the same corporation.	No Pure customisation is not a synonymous of technological integrators. Technological integrators follow different levels of	No	Technological Integrators

Table 8.1 Table of analysis of footprints (Continuation)

Issue (main characteristic)	*Theory*	*Practice (Case Studies)*	*Triangulation*	*Footprints (y/n)*	*Value proposition*
	organisations to establish their degree of customisation		customisation, although they show their clients broad flexibility.		
Project (process choice)	Hill (2000) states that a project process is recommended for a processes when a product/service is customised for a customer	However, IBM Global Service BU*, SCS and Alcan have show that their process type is certainly no a project. They operate in a jobbing or batch process due to their degree of product/ service personalisation, which are not pure customisation. although, IBM Global Service BU*, SCS and Alcan shows their customers as if the customer project is highly customised, the reality is that it is not. The customer project is a part of the generic solutions created by these organisations.	No	No	Technological Integrators and Socialisors
Getting customers confidence	An important driver for getting customer confidence is through the continuous communication (Treacy and Wiersema, 1994).	Alcan gains its customers' confidence by involving itself with its customers processes. SCS gains its customers' confidence by its continuous communication and involvement in the customers' environment	△ of methods	yes	Technological integrators and Socialisors
Gaining customer trust, solidarity, credibility (empathy) and loyalty	Lapierre (2000) highlights trust, solidarity and credibility as important drivers in a loyal (constant) customer-organisation relationship.	SCS gains its customer loyalty through - trust: information accuracy and fulfilment of promises. - solidarity: help provided when the customer run into problems, willingness to meet the customers' needs beyond the contract terms	△..... of methods	yes	Socialisors
Customer service as a product	Mathieu (2001) highlights the importance of the customer service as a product and its cultural, strategy and tactical impact within the organisation.	SCS provides more than a product (because the products provided by SCS could be acquired from other firms); SCS provides an intimate service by its close relationship with its customers and its customers problems and needs.	△..... of methods	yes	Socialisors

Table 8.1 Table of analysis of footprints (Continuation)

Issue (main characteristic)	*Theory*	*Practice (Case Studies)*	*Triangulation*	*Footprints (y/n)*	*Value proposition*
Flexible services	Anderson and Narus (1995) highlight the importance and advantage of offer flexible services (e.g. increase customer trust)	SCS shows as if it has high service flexibility, but in reality it operates with stocks of general solutions.	No	No	Socialisors
High design flexibility of new products	Continuous product design (Mikkola, 2001:425; Thomke and Hippel, 2002:77)	Polaroid continuous designs of cameras for different purposes	△of methods	yes	Innovators and Technological integrators (no innovation)
Systems development for the simplification for operations	-	DVD develop its order fulfilment systems Tthe highest financial priority of DVD is systems development	△ of data	yes	Simplifiers
Service delivery	Goffin and New (2001) suggest 7 key elements of customer support in the product delivery, i.e., installation, user training, documentation, maintenance and repair, on-line support, warranty and upgrades.	SCS highest financial priority is the delivery of its service as well as its operations	△ of data	yes	Socialisors
Continuous upgrade manufacturing technologies to match the introduction of new products and breakthrough	-New product development strategies have to be aligned with the manufacturing technologies (Mikkola, 2001 and Hippel et al, 1999). In addition, Hippel et al (1999) highlight the importance of up-grade manuf technologies to cope with breakthrough.	-	△ of data	yes	Innovators
Short life cycles of technology base products	McGrath (1998) and Hippel, Thomke and Snnack (1999) support the reduction of time to market and the new product generations are an aim for companies that compete	Polaroid operates in short product lifecycles, by intoducing new products or improvement to current products	△ of methods	yes	Innovators

Table 8.1 Table of analysis of footprints (Continuation)

Issue (main characteristic)	*Theory*	*Practice (Case Studies)*	*Triangulation*	*Footprints (y/n)*	*Value proposition*
	with innovative products				
Creation and selection of dominant design	The dominant design is a predictor of success (Tegarden et al, 1999)	Polaroid has a dominant design 'the instant technology in cameras'. Its 8 product platforms depend on its dominant design.	△ of methods	yes	Innovators

CSC, DVD and HS are case studies for more information see Chapter 6 (Section 6.4)
* BU: business unit
- No data

Table 8.1 Table of analysis of footprints (Continuation)

Table 8.2 summarises the footprints from Table 8.1 by their value propositions. It also shows few footprints, which belongs to two value propositions such as high design flexibility of new products. Based on the footprints' analysis, there is no problem with the fact that footprints belong to two value propositions, because their performance and their support to specific value creation depend on its environment (value proposition) where they are used.

Footprints	I	BM	PM	Si	TI	So
R&D expertise and capabilities to build innovative products	Yes	-	-	-	-	-
Product Development	Yes	-	-	-	-	-
Development of brand name and images a hallmark	-	Yes	-	-	-	-
Product style	-	Yes	-	-	-	-
Market research, advertisement and promotions	-	Yes	-	-	-	-
Mass production	-	-	Yes	-	-	-
Line process choice	-	-	Yes	-	-	-
Production and quality control systems	-	-	Yes	-	-	-
Reduction of lead times and waste	-	-	Yes	-	-	-
Efficient production process and reduction of operational costs	-	-	Yes	-	-	-
Process standardisation	-	-	Yes	-	-	-
Co-ordination of the order fulfilment	-	-	-	Yes	-	-
Automation of the order generation	-	-	-	Yes	-	-
The agility (speed) and flexibility of the product delivery	-	-	-	Yes	-	-
Use of IT systems to provide accessibility to the product	-	-	-	Yes	-	-
Ability to outsource	-	-	-	Yes	-	-
Ability to customise	-	-	-	-	Yes	-
High design flexibility for solutions	-	-	-	-	Yes	-
Building long and close relationship with customers	-	-	-	-	Yes	-
Getting customers confidence	-	-	-	-	Yes	Yes
Gaining customer trust, solidarity, credibility (empathy) and loyalty	-	-	-	-	-	Yes
Customer service as a product	-	-	-	-	Yes	Yes
High design flexibility of new products	Yes	-	-	-	Yes	-
Systems development for the simplification for operations	-	-	-	Yes	-	-
Service delivery	-	-	-	Yes	-	-
Continuous upgrade manufacturing technologies to match the introduction of new products and breakthrough	Yes	-	-	-	-	-
Short life cycles of technology base products	Yes	-	-	-	-	-

Creation and selection of dominant design	Yes	-	-	-	-	-

Innovators; BM- Brand Managers; PM- Price Minimisers; Si- Simplifiers;TI- Technological Integrators; So- Socialisors; - No footprint.

Table 8.2 Footprints' value propositions

8.3.1 Operational Footprints

Figure 8.1 illustrates graphically some of the footprints for each value proposition. The higher the value of an issue, the higher the importance is for its value proposition. The graph highlights the distinctive behaviour of each value proposition of the value cube with the importance rating.

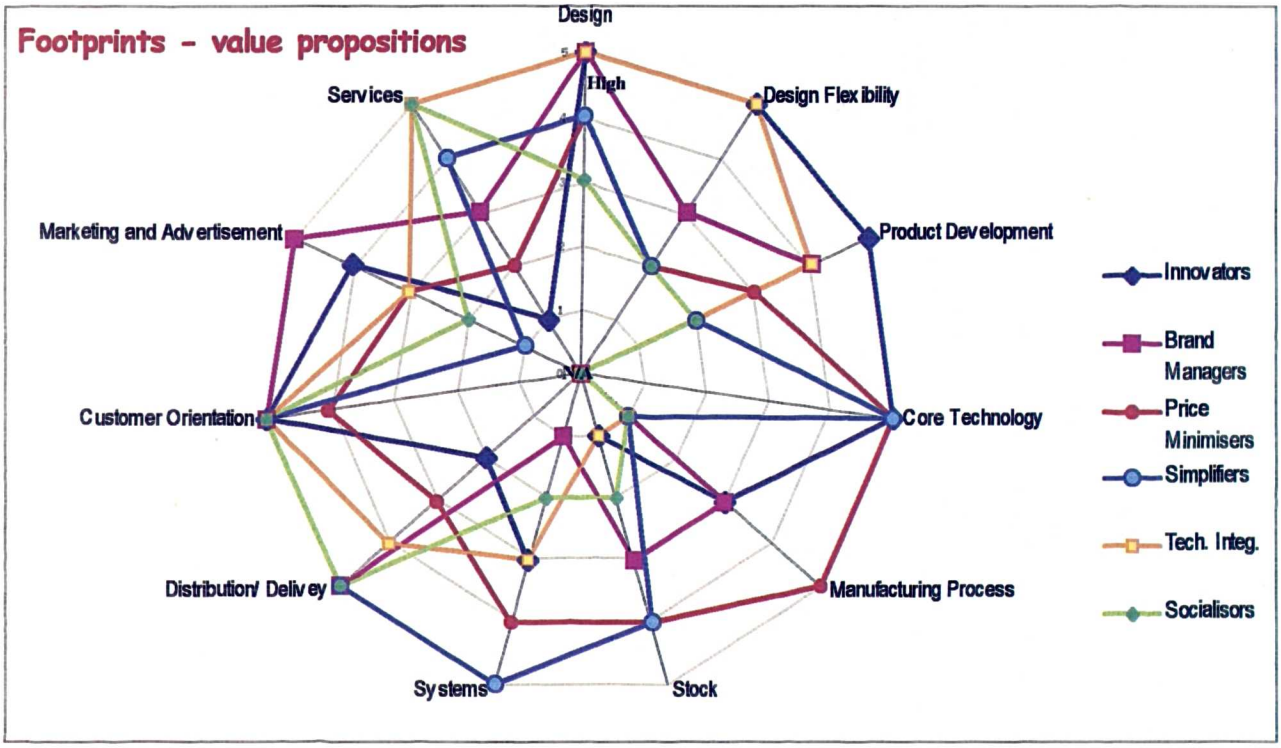

Figure 8.1 Footprints of the value propositions of the value cube

Each issue illustrated in Figure 8.1 is the result of an assessment of different parameters related to that issue. This was possible by using coded questions from the case-study questionnaire (Appendix 6). Those coded-parameters were assessed in the case studies and triangulated with theory. It is important to bear in mind that some parameters were also taken from Table 8.1. Finally, the results of each issue were mapped in Figure 8.1.

Figure 8.1 shows that Innovators' footprints are oriented to activities that support innovative designs, design flexibility and product development. Meanwhile, Brand Managers' footprints are oriented to activities to support the product styles, marketing and advertisement, product delivery and brand building. Price Minimisers' footprints are highly characterised by their focus on the development of their production processes and their optimisation. Simplifiers' footprints are oriented to activities that support the development of systems, distribution and co-ordination of operations. Simplifier' systems and distribution media allow a direct communication with the customers. Technological Integrators are characterised by their focus on design flexibility, customisation of different solutions and total service provided. Although, in Technological Integrators the importance of product design is high, the development of innovative products is not always their main objective. Finally, Socialisors' footprints are highly characterised by their activities focused on service and delivery to gain the customers trust, credibility and loyalty.

Figure 8.1 shows that similar importance is placed by the six value propositions on the customer orientation's footprints, even though their approaches are different. For instance, the customer orientation from innovators is different from the customer orientation of technological integrators. Since the footprints' differences of each value propositions are not obvious (clearly perceived) in Figure 8.1, a discussion on customer orientation is required to highlight the difference among value propositions' footprints. The following paragraphs address this discussion on the customer orientation's footprints as well as on core technology's footprints.

The footprints of Innovators' customer orientation are highly focused on offering breakthrough, innovative designs and dominant product platforms to customers that demand new technology. Brand Managers' customer orientation is focused on the brand image products through stylish designs. Price Minimisers' customer orientation is focused on mature products with limited product variety per year. Differently from the others value propositions, the customer orientation's footprints of Simplifiers are focused on providing straightforward, simple, efficient deals with the least inconvenience for its customers. The customer orientation's footprints of Technological Integrators are oriented to provide total solutions, continuous support to customers' problems from experts. The customer orientation of Socialisors is focused on building customer's trust through services.

The core technology's footprints of Innovators resides in technology to create new designs such as rapid prototyping, software, tool-kits, etc. In contrast, the core technology's footprints of Price Minimisers reside in the manufacturing process and control, planning, and scheduling systems. Simplifiers' footprints are characterised by their systems of logistics, transaction, information and planning. On the contrary, the core technology's footprints of Brand Managers, Technological Integrators and Socialisors did not show enough evidence to become footprints[8] in the core technology track. Therefore, there are no core technology's footprints for Brand Managers, Technological Integrators and Socialisors, Figure 8.1 presented them as 'not applicable'.

There are some others footprints not illustrated in Figure 8.1, because they are particular to a specific value proposition. These are (Table 8.1):

- Price Minimisers are characterised by their emphasis on developing and using quality control systems and making efficient their production processes through several techniques such as standardisation and optimisation of their operations, which impact the reduction of lead time, waste and operational costs.
- Simplifiers' footprints resides in the automation of order generation and fulfilment, agility of product delivery, use of systems to make accessible their products.
- Technological Integrators are characterised by building long and close relationships with their customers.
- Short product lifecycles and creation of dominant designs for future are Innovators' footprints.

So far some operational footprints, their identification and approach have been discussed. The following section presents other type of footprints: 'competitive footprints' of each value proposition.

[8] This means that the core technology of organisations operating as technological integrators, Brand Managers or Socialisors depends on the industry sector where they operate and / or the type of service

8.3.2 Competitive Footprints

The competitive footprints are the minimum requirements that organisations competing within a particular value proposition have to deliver to their customers in diverse and distinguished forms.

Figure 8.2 presents the competitive footprints. The importance of these issues was assessed from 'not important' to 'essential'. These footprints were developed following the same process described on Section 8.2.

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that they offer.

Competitive Footprints:

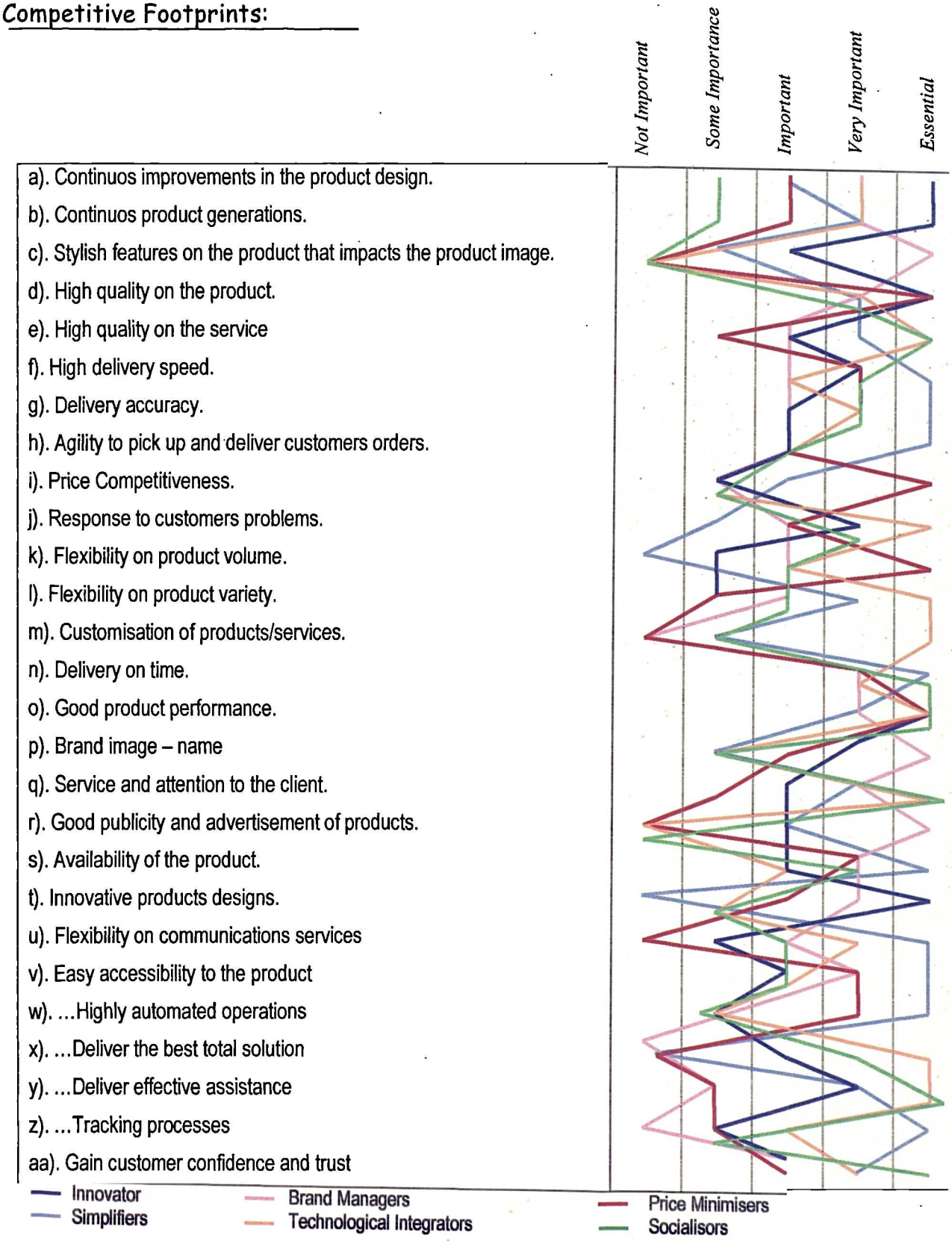

Figure 8.2 Competitive footprints

The gap assessment tool was created to identify the gaps between a company's policies, practice and priorities, and the footprints of the company's value proposition, by applying the footprints in a practical context (Figure 8.3).

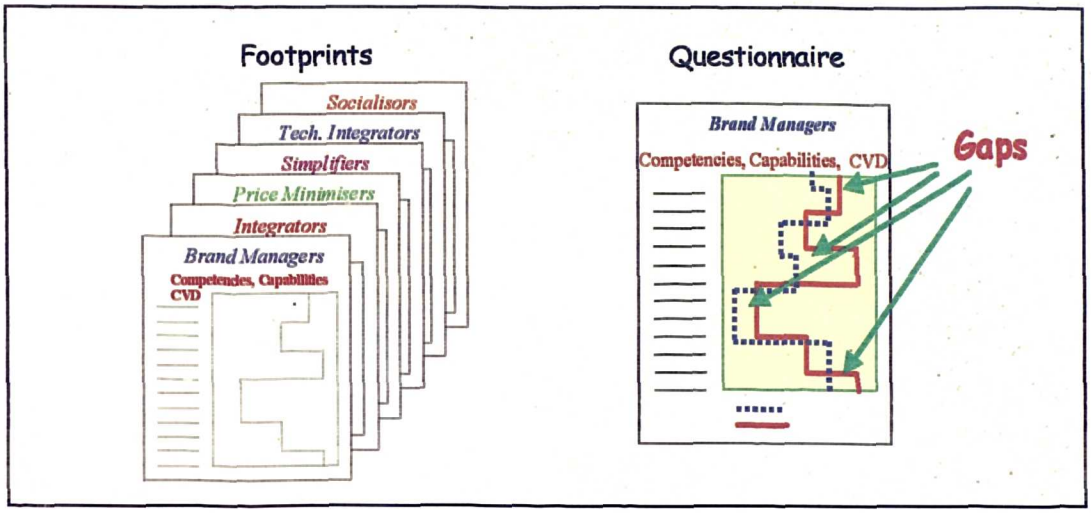

Figure 8.3 Principle of the gap assessment tool

The gap assessment questionnaire is shown in Appendix 8, which is completed by organisations and the condensed footprints of each value proposition are shown in Appendix 9.

The application of the gap assessment tool starts with the questionnaire (see Appendix 8). This questionnaire is completed by the organisation[9]. The first two questions of the questionnaire are quick finders of the company's value proposition. Based on the company's value proposition, the remainder of the questions in the questionnaire are compared with the value proposition's footprints.

The comparison of the questionnaire results and the footprints starts by analysing the highest importance of the issues and then the issues of lowest importance. The comparison of the questionnaire against the footprints highlights the operational gaps/alignments of the organisation against its value proposition. It also shows issues where the organisation is

[9] The questionnaire of the gap assessment can be filled by business unit or whole organisation, this depends on each business. For more information on the unit of analysis see Chapter 7.

burning resources and the issues that are well aligned with the proposition pursued by the business with respect to its customers.

8.4.1 Application of the gap assessment tool.

The gap assessment tool was applied in a workshop, in which 23 collaborative organisations participated.

In order to get a fresh approach to companies' operations, without any influence from this workshop's concepts, the workshop started by applying the gap assessment questionnaire. For the purpose of avoiding duplication of companies' analysis, each attendant answered the questionnaire and then members from the same organisations had time to discuss and agree on the answers. The workshop continued with an introduction to the value propositions and the value cube. The workshop proceeded with the comparison and analysis of the questionnaires previously answered by the organisations against the footprints.

The organisations were invited to share their results with the rest of the group[10]. First of all, they were asked if the pursued value proposition that the answers from the questionnaire matched with their current value proposition. It was found that 16 from 23 companies matched their pursued value proposition with the questionnaire's answers. Then, the footprints of the pursued value proposition were mapped against the company's questionnaire. As the gaps were identified, the members of the companies expanded more detail in their alignments and gaps from the gap assessment. The gaps were analysed in terms of resources and objectives. Based on the feedback[11] obtained from participants, the gap assessment was considered as good practice and an easy tool to use, because the organisations had the opportunity to share opinions, get feedback from other organisations, and graphically see their gaps.

[10] Sharing the company's results was a voluntary action, although at the end of the workshop 22 organisations had shared their results.

8.4.2 Lessons learnt from the workshop

There are several lessons, issues and best practices emerging from the application of the footprints.

a) Use of the footprints (Business result).

- *Diverting focus (wasting resources).* It was found that some organisations were placing strong emphasis and resources in fashionable operations, such as e-commerce (business–to-customers) which, at the end of the day, were not aligned with their value propositions, objectives or customers expectations.
- *Mixture of the value propositions.* Some organisations try to pursue several value propositions within the same business unit, by mixing several value creation issues with different strategic objectives, therefore, this exercise was particularly useful for those organisations by highlighting their lack of a focused value proposition.
- *Deeper discussion.* Those organisations, in which the senior management team was answering the questionnaire, obtained deeper discussions on the business resources, objectives of the organisation and their value proposition. Therefore it is important that the people who have a clear vision of the company's strategy complete the questionnaires to find the company's value proposition, assess the current value proposition and analyse potential changes to others' value propositions.

b) Lessons from the application

It was also found that when a company did not make the correct (right) selection of its unit of analysis, some confusion occurred, such as: against which value proposition's footprints are the results compared? For instance, when the organisation has different business units and the questionnaire is filled in globally (whole organisation) rather than by business units; it leads to confusing results on the value proposition. In this situation, it is difficult to find the correct footprints' value proposition to compare with; therefore the element of uncertainty is present, unless the questionnaire is completed again.

[11] The feedback was obtained from a formal discussion which took place at the end of the workshop

Conclusions of the chapter

Based on the empirical evidence provided in this chapter and the results from the workshop, the fifth research question can be answered.

RQ-5 Are there general patterns or 'footprints' for each value proposition of the value cube?

The answer is yes, there are some footprints for each value proposition of the value cube, Tables 8.1 and 8.2 present the footprints and how these were created, Figures 8.1 and 8.2 present them graphically. To increase the construct validity and reliability of the footprints, the triangulation of data and methods were used. It is important to highlight that not every issue can be generalised to become footprints, such as process choice; i.e. there are some issues, which are specific to an industrial sector, management or type of product.

For this researcher, it was not enough to 'find the footprints', but putting them in practice was also important. So, to test some of the footprints, the gap assessment tool was created (Appendices 8 and 9).

The gap assessment tool compares the operational issues with the value proposition's footprints. Then, the gaps are analysed in terms of resources and objectives. The gap assessment tool was applied to 23 organisations in a workshop. From the application of the gap assessment tool several lessons and feedback were obtained. For instance, it was found that some organisations were investing in activities which were not aligned with their value propositions and strategic objectives. Other organisations were pursuing different value propositions within the same business unit, which can be summarised as lack of focus.

Based on the feedback from the workshop participants, the gap assessment was considered as a good and easy tool 'concept' to use for checking business objectives and direction.

Although the gap assessment is considered as a useful tool, it is limited to assess some operational issues. So, more future work can be done in the expansion of the footprints for each value proposition of the value cube as well as on gap assessment tool.

Chapter 9. Discussions and Conclusions

A man is but the product of his thoughts; what he thinks, he becomes.
M. K. Gandhi (1869-1948)

As stated in Chapter 1, this research was undertaken to better understand 'value creation in business management'. The exploratory research showed that a major limitation in the value creation literature has been the failure of studies to address the links between operations and customers[1]. The three value propositions from Treacy and Wiersema (1996) addressed this problem to a certain extent, however, an empirical analysis undertaken by identification of differences and replication logic showed that completely different business strategies, operations and markets are categorised under the same value propositions of Treacy and Wiersema's model. Those differences found through the empirical research made the researcher think that the three value propositions might exist in two value dimensions 'hard and soft'. Hence this research started by building a new model 'the value cube'. Consequently, the present research is divided in two main parts 'theory building' and 'theory testing'.

During this research, evidence has been gathered from eight case studies and a workshop. The research questions evolved during the development of the model and application of the case studies. At each stage of the research, different methodological techniques were applied to build validity and reliability.

This chapter starts summarising the main findings of the research briefly introduced. Then, it continues by answering the research questions, discussing the contributions to theory and practice and showing the different ways in which the value cube is used. Finally, the chapter concludes with a summary of the key points of this research and a discussion on the limitations of the model and research.

9.1 Summary of the constructs and main findings

9.1.1 Constructs

In this thesis three pieces of theory were built,

- the hard and soft value dimensions,
- the value matrix and
- the third dimension of the value matrix.

Each piece was assembled to build the proposed model 'the value cube'. This section briefly cites the constructs developed in this research.

Based on the gaps found in Treacy and Wiersema's value propositions, the hard and soft value dimensions were constructed (Table 5.3). Fronlich and Dixon (2001) state that as a consequence of continuous market changes, new business models are created or evolved. So, the proposed construct 'value cube' is not an exception, but a reflection of the current environment.

Taking the hard and soft value dimensions and adding the original propositions of Treacy and Wiersema, the value matrix was created. The value matrix proposed six value propositions: innovators, brand managers, price minimisers, simplifiers, technological integrators and socialisors (Table 5.5). To start building validity of the constructs at each development stage at least an element of theoretical validation was presented.

Although the value matrix proposed a more pragmatic[2] framework of value creation than Treacy and Wiersema's model, there was still a need to create a more complete and integrated framework to describe the functionality of each value proposition. As a result, the third dimension of the value cube was developed (Figure 5.3).

The proposed model was validated through eight case studies and a workshop. Different methods and techniques were used such as, cross-case analysis, counting method, workshop study and an analysis of performance and financial priorities. The results of the validations are addressed later on, in this Chapter (Section 9.2).

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[1] Porter (1985) highlighted as important, but a little subsequent research has been conducted on this issue.

9.1.2 Findings of the comparison of the value cube against current frameworks

In the literature, the comparison of the value matrix against other business models showed that there is no theory from business classifications that contradict any value proposition of the value matrix. On the contrary, different business models support 'innovators', 'brand managers', 'price minimisers', and 'technological integrators', however, no evidence has been found that other business classifications have a business type that operate similarly as 'simplifiers' and 'socialisors'. Some authors support operational issues of these two new value propositions 'simplifiers' and 'socialisors' such as Rogers (1998), Lapierre (2000) and Davidow and Uttal (1989), but no evidence has been found which positions the strategic position of 'simplifiers' and 'socialisors' within a strategic framework for value propositions. Consequently, the researcher claims innovation in these two new value propositions 'simplifiers' and 'socialisors'.

9.1.3 Practical findings

The following findings were identified during the application of the value cube.

a) Related to the value cube, footprints including the gap assessment method.

- The application of the value propositions by business units is necessary when the business units: have different strategic positions, have different market segments[3], offer different types of values, have different product strategies, have significant operational differences, images are perceived differently by their markets (Section 7.3).
- There is no right or wrong use of unit of analysis; this depends on the nature of the business and its organisation. Contrary to other literature on value propositions, this research demonstrated that when using functional units there might be dangers and conflicts. Whereas, using business units seem to offer the most robust level of application. Thus, this research has provided the 'business units' as additional unit of analysis (Section 7.2).
- During the application of the gap assessment tool, it was identified that deeper and more constructive discussions on value creation were generated when senior managers, who write and perform the business strategy, were involved in the discussion (Chapter 7).

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[2] For the context of this research pragmatic is defined as practical, logic and reasonable

[3] and for each market the value (offer) proposed is different

b) Related to the organisations under study

- A lesson learnt from case studies is that the success of the business units' value propositions within an enterprise depends on their independence. So, these must be treated as completely different businesses (Section 7.3).
- Some organisations placed strong emphasis and resources in fashionable trends and operations, such as e-commerce (business–to-customers), which at the end of the day were not aligned with their value propositions, objectives or customers expectations. The researcher calls this mis-alignment of resources.
- When several business units (BU) share the same resources, the functional objectives of each department have to be integrated within the objectives of the BU's value propositions to support and strengthen the BU's value proposition (Figure 7.6).

9.2 Answers to research questions

Initially the first research question was born in Chapter 2 during the gap identification. Since this research experienced a rational and logic evolution, the remaining research questions emerged during the course of the constructs' development.

RQ-1. Does value operate in hard and soft value dimension?

The cross-case analysis demonstrated that Polaroid, Nacco and Alcan presented confirming instances that validated the hard value dimension, whereas, HS, DVD and SCS presented confirming instances that validated the soft value dimension (Chapter 6, Section 6.5.1).

A larger example from a workshop supported the results obtained from the cross-case analysis. Thus, 55% of the companies that participate in the workshop were operating in the hard value dimension, whereas the remaining 45% were operating in the soft value dimension (Chapter 6, Section 6.8).

Results from the cross-case analysis and the workshop results, previously discussed in Chapter 6, Sections 6.5.1 and 6.8, provide confirming instances that validate the hard and soft dimension. Moreover, the triangulation of both methods strongly supported that there are different types of organisations operating in the hard and soft value dimensions. Consequently, the answer to the first research question is yes; therefore, the results validate the 'hard and soft value dimension' theory stated in Chapter 5.

Based on the empirical evidence provided by the cross case analysis, counting method and the workshop, the second research question was answered.

RQ-2. Are the value propositions of the value matrix/cube valid?

The cross-case results showed that Polaroid validated the value proposition 'innovators' of the value cube. HS validated 'brand managers', Nacco validated 'price minimisers', DVD validated 'simplifiers', Alcan validated 'technological integrators' and SCS validated 'socialisors' (Table 6.3).

To increase the reliability of the cross-case analysis, a counting analysis was performed (Miles and Huberman, 1984:215). The results of the counting analysis showed that Polaroid had 12 occurrences out of 18 validating 'innovators'; HS had 11 out of 16 validating 'brand managers'; Nacco had 15 out of 18 validating 'price minimisers'; DVD had 13 out of 18 validating 'simplifiers'; Alcan had 13 out of 19 validating 'technological integrators' and SCS had 11 out of 15 validating 'Socialisors' (Section 6.6; Table 6.4 and Appendix 7).

The triangulation of counting and cross-case methods shows that both methods arrived at the same conclusion.

Once the value propositions were tested using the case study method, a wider sample in the form of a workshop was taken. The workshop's results showed that 20% of the companies were innovators, 15% brand managers, 15% price minimisers, 10% simplifiers, 20% technological integrators and 20% socialisors (Figure 6.6). In conclusion, the results from the workshop strengthen the value propositions and findings from the cross-case analysis and counting methods (Chapter 6, Section 6.8).

Based on the results from the three analyses and the triangulation of them, the answer to the second research question is yes; the six value propositions of the value cube are valid. Therefore, the model 'the value cube' presented in Chapter 5 is valid (See Chapter 6).

Based on the empirical evidence provided from Daks Group and IBM Greenock case studies the research questions three and four can be answered (Chapter 7).

RQ-3. What is the unit of analysis of the value cube?

Initially there were three potential units of analysis for the value cube: the whole organisation as Treacy and Wiersema (1996) propose and the business unit proposed and validated on this research and the functional unit, which was proposed, but fail its validation (Chapter 7).

The Daks case study demonstrated with empirical evidence that its two business units operate without conflict in two different value propositions 'brand manager' and 'price minimiser'. This case study showed the differences between both business units (Figure 7.1). However, when Daks operates by functional units some operational conflicts were identified between manufacturing and product development units (Figure 7.2). Logically, it is difficult to apply the value propositions to Daks' functional units (Section 7.2.1).

The evidence provided by IBM Greenock's case study shows that IBM does not have any conflict operating in business units, because it has three business units operating in three different value propositions (Chapter7; Figure 7.3). In contrast, the application of functional units to IBM has shown that there are some conflicts when just the functional units are applied to the whole organisation (Figure 7.5), as the wide diversity of markets and products requirements contradict and cause operational problems that lead to weak business focus and strategic position. Hence, it is difficult to apply the value propositions to IBM's functional units (Section 7.2.2).

Based on the analysis of the IBM's and Daks' case studies, the answer to the third research question is that the unit of analysis of the value cube are two unit of analysis 'whole organisation' or 'business units', however the application of the value cube at business unit level seems to be more sensible; but any one business unit should not have more than one value proposition, if they have those lead them to weak strategic positions (Chapter 7).

Therefore, the logic of the research made us think of the next research question.

RQ-4. Can an organisation have more than one value proposition?

The IBM case study demonstrated that only the IBM Greenock plant operates with three different value propositions, i.e. as innovators in the hardware and technology business, as

technological integrators in the global service business and as simplifiers in the e-sourcing business. Moreover, the Daks Group operates with two value propositions for each one of its business units, i.e. as brand managers in the Daks BU and price minimisers in the contract BU.

Confirming instance from IBM Greenock and Daks Group case studies showed that a single organisation can have more than one value proposition (sections 7.2.1 and 7.2.2). Thus, the answer to the fourth research question is yes, an organisation can have more than one value proposition.

As a result of the application of the case studies the last question was born.

RQ-5 Are there general patterns or 'footprints' for each value proposition of the value cube?

The answer to the fifth research question is yes, there are some footprints for each value proposition of the value cube.

The footprints are the genetic configuration of the value propositions. In other words, the footprints are defined by this research as the common or shared characteristics of diverse organisations operating within the same value proposition of the value cube. Based on theory and practice the footprints were built. Table 8.1 presents some footprints and how these were created, Figure 8.1 and 8.2 presents them graphically. It is important to highlight that not every issue can be generalised to become footprints because there are some issues specific to an industrial sector, organisation management or type of product.

To provide a more complete answer to the fifth research question the footprints were put in practice. In doing, so the gap assessment tool was created (Appendices 8 and 9). The gap assessment tool compared some operational issues with the value proposition's footprints. Then, the gaps were analysed in terms of resources and objectives. This tool was applied to 23 organisations in a workshop. Based on the feedback from the workshop participants, the gap assessment was considered as a good and easy tool 'concept' to use for checking business objectives and direction, although it is limited when used to assess some operational issues (Chapter 8).

Until now, the research has answered the research questions, however in order to achieve high quality research, the answers previously discussed are not enough. Therefore, there is still a need to discuss the contributions of this research to theory and practice.

9.3 Contributions to theory and practice

As established in Chapter 4, this research is classified as constructive research with strong emphasis on reflective pure research, due to its emphasis on the research process from the problem definition to the solution.

On one hand, an essential part of 'constructive research' is to tie a problem to a solution and to relate and compare the research results with existing knowledge to prove the novelty and practical use of the construct (Kasanen et al, 1993; Thomas and Tymon, 1982; Murphy, 1997; Kekale, 2001).

On the other hand, 'the most important criterion of a PhD research' is its contribution to knowledge (Phillips and Pugh, 2000; Easterby-Smith et. al, 1999; Yin, 1994; Murray, 1994; Bolker, 1998).

Hence, two important criterion of this research are the contribution to knowledge and the contribution to practice. This section outlines the contributions to knowledge and practice of the construct by highlighting 9 important issues, which are known now and which were not known before this research.

9.3.1 Contributions to Theory

To simplify the contributions, these are divided into two groups. The first group is named 'the value matrix', and includes the two new value dimensions, and the six value propositions 'innovators, brand managers, price minimisers, simplifiers, technological integrators and socialisors'. The second group, 'the value cube', includes the footprints and the third dimension of the value cube.

a) Contributions from the Value Matrix

- Value can be deployed on 'hard' and 'soft value dimensions'. The answer to the first research question validated the use of hard and soft value dimensions (Chapter 6).
- This research provides two novel value propositions 'simplifiers' and 'socialisors' not addressed before by any author and position these in a strategic framework (the value cube). The comparison of the six value propositions of the value cube with others frameworks highlighted that there is no other business type (classification) equivalent to simplifiers and socialisors (Chapter 5.3.3). Therefore, the researcher claims innovation on these two new value propositions.

b) Contributions from the Value Cube

- The value cube is a new business model oriented to value creation provided by this research (Chapter 5 and 6).
- The six value propositions of the value cube offer a wider scope and flexibility than current frameworks, to describe and/or classify business performance (Chapter 6).
- The value cube provides general guidelines 'footprints' of value creation (Chapter 8).
- An additional unit of analysis 'business unit' for the value propositions/value creation has been proposed and validated by this research (Chapter 7). Thus, the value cube can be applied to the whole organisation or to business units; therefore an organisation might have more than one value proposition.

9.3.2 Contributions to Practice

The research also has practical contributions, particularly focused on managers, which contribute to the development and direction of the business's value creation, and in particular for those who can exercise the greatest influence.

Contributions from Value Cube

- The value cube helps to focus business strategies, to select customers and to narrow operational focus to create value (See workshop analisis Chapter 8).

- The value cube provides a set of guidelines on how organisations should align and manage their operations, resources, capabilities and competencies with their value propositions to create value (Chapter 8; Figure 8.1, 8.2; Appendix 9).
- The value cube is a tool to identify the value propositions of organisations.

9.4 How is the Value Cube used?

Much has been said about the construction, validation and contributions of the value cube, but little has been discussed on the uses of the value cube. So, this section briefly addresses some of the identified uses of the value cube.

The value cube is used:

- To identify the value proposition of existing organisations.
- To compare the strategic priorities of the company against their value propositions - footprints.
- To guide, align and manage the business resources, capabilities and competencies with their value propositions to create value.
- To identify the changes in resources, competencies and capabilities when the company is moving to a new value proposition.
- To assess the competition by comparing the competition's performance, objectives and market segments among other available data against the basic principles of the value propositions of the value cube.

9.5 Limitations

Realistically, there is a limit to what can be achieved. This research considered two types of limitations, the limitations of the model and the limitations of the research.

9.5.1 Limitations of the model

Until this moment previous chapters have discussed the construction, application and use of the model; now this section discusses the identified limitations of the model.

As discussed in Chapter 5, it was identified that the value cube is not applicable to non-commercial organisations. The research found that it is difficult to apply the value cube to organisations such as the National Health Service (NHS)[4], because the proposed value is not designed to provide a particular competitive advantage for a selected market segment.

The value cube and the footprints provide general guidelines of value creation, however, organisations have to find and create their particular core competencies for their pursued value propositions. In doing so, organisations should create authentic[5] value for their customers and themselves.

The gap assessment tool is a tool that assesses the value creation of organisations against the value propositions, but as mentioned before, it does not intend to measure the value created or provide a dynamic measurement system.

9.5.2 Limitations of the research

Naturally, there are limitations to the scope of research, especially as it had to be completed in the period required for a doctoral submission. This research has built the value cube and the footprints of the value cube and has drawn on these to demonstrate the validity of them. However, in the time available, it has not been possible to monitor the future value propositions pursued by the collaborative-organisations where the case studies were applied. This will require longitudinal research conducted over at least 5 years.

Someone might argue that the application of more case studies could increase the identified footprints. As Yin (1994) states, the amount of the case studies should be just enough to validate the proposed framework. In other words, it is important to find the right balance between evidence provided and available-time. The footprints identified in this research did provide enough evidence to answer the fifth research question, although it is important to recognise that future work can be done on this particular area.

From the research design, the application of action research as a data collection method, was an attractive option in terms of greater involvement in the value creation process within an

[4] This analysis was done based on on written information, such as articles and reports, from the NHS, however it is important to highlight that there was not case study applied in the NHS (Chapter 5).
[5] Authentic value of an organisation refers to the creation of particular competencies that support in a *unique* form the company's value proposition.

organisation; e.g. access to more data. However, when this option was assessed against the researcher's resources, it was rejected by the available time. It was identified that too much time could be taken to see changes on value creation in the organisations under study. Therefore the case studies were the optimum option in terms of time and accessibility to data. Thus, case studies provided reliable and in-depth information to test/ validate the construct.

9.6 Key Points of this research

Table 9.1 summarises the key points and the essence of this research

Key points of this research

"Value resides in the satisfaction and fulfilment of customers' expectations, at the same time, generating wealth for the organisations."

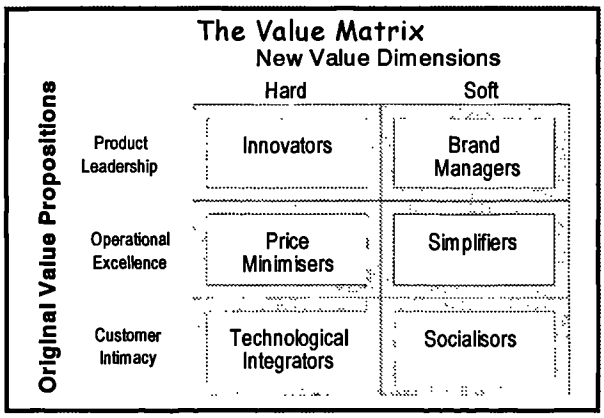
Value propositions enhance the creation and sustainability of enterprises' competitive advantage, by delivering a unique value to customers, at the same time generating wealth to organisations.

The *value proposition* is defined as an implicit promise a company makes to customers to deliver a particular combination of values. Hence, each proposition search for the unique value that can be delivered to a chosen market (Chapter 2).

Value propositions exist in hard and soft dimensions (Chapter 2 and 5, Table 5.3).

- *Hard value* is focused on continuous creation of technology, innovations, and new designs of product and/or process.
- *Soft value* is focused on product delivery including distribution, customer attention, publicity and services.

There are six generic value propositions as depicted by the value matrix. Simplifiers and socialisors are novel contributions of this research. (Chapter 5, Table 5.5, 5.7).



The *value cube* is a new business model oriented to value creation. The value cube adds the third dimension to the value matrix, which provide greater understanding of the competencies and capabilities required for each value proposition by covering more of the strategic aspects of any commercial organisation (Chapter 5, Figure 5.3).

The value cube can be used to:

- identify the value proposition of existing organisations
- compare the strategic priorities of the company against its value propositions- footprints
- guide, align and manage the business resources, capabilities and competencies with their value propositions to create value
- identify the changes in resources, competencies and capabilities when the company is moving to a new value proposition
- assess the competition by comparing the competition's performance, objectives and market segments among other available data against the basic principles of the value propositions of the value cube

The value propositions of the value cube can be applied to *whole organisations or business units*, however, their application at business unit level seems to be more sensible. Therefore, an organisation might have more than one value proposition. But any business unit should not have more than one value proposition; if they have, they lead them to weak strategic positions.

A general business' need is to align their strategies, operations, competencies and resources with a selected value proposition. But the problem is how can they do it?
The *footprints* are the genetic configuration of the value propositions, which correspond to the third dimension of the value cube (Chapter 8, Figure 8.1, 8.2,). They provide general guidelines:

- on how organisations should align and manage their resources and operations within their value proposition to create value

- to compare the value proposition of an organisation and assess the organisation performance against its own value proposition

The *gap assessment tool* was created based on the footprints to identify the gaps between a company's policies, practice and priorities, and the footprints of the intended company's value proposition (Chapter 8, Figure 8.3, Appendix 9).

Table 9.1 Key points of this research

9.7 Suggestions for future research

This thesis has established the development and validation of the value cube and the footprints. Users have found these constructs useful and easy tools of value creation, however there are more applications and future work to do in the value cube and the footprints; so this section addresses some of them.

As mentioned before one issue where future research could be done is in the development of additional footprints of the value cube. By developing further footprints, the gap assessment tool can be improved. This can be done by the application of more case studies within organisations performing in different industrial sectors.

Another piece of future research is 'the development path going from a value proposition of the value cube to another'. It could address diverse issues such as resources, competencies, assessment of market opportunities, competitors' strategic position, etc. It could show organisations the implications, opportunities and risks involved in moving to other value propositions by enhancing the organisational strategic thinking.

There is still more research to do in the area of 'sustainable value':

- *Uniqueness.* Once the value proposition(s) of an organisation has been identified, a deeper analysis could identify the company's 'sustainable value drivers'. Thus, the 'uniqueness', which makes the organisation succeed thought time, can be strengthened.
- *Dynamic value.* Studying the lifetime of the value propositions and the breaking points when organisations have to give up a value proposition and adopt a new one, by following the creative destruction theory.
- *Combined / new value propositions.* Currently, the value cube provides one of the best options to classify and describe businesses' value pretty accurately; however it is

important to bear in mind that the business models continuously change and become more elaborated. Thus, it is interesting to study the effects of combined value propositions within future business models and/or the development of new ones.

The application of the value cube in extended enterprises is another area for future research. This research could look at implications of the overall value proposition of the extended enterprise on the value proposition of each actor[6]. To a certain degree, this has been addressed in a European project in which this researcher participated. Unfortunately this was not the focal point of that project, therefore in-depth research was not expected on this issue; so there is still more work to do in this topic.

The application of the value cube in a particular industrial sector. Nowadays that more countries as United Kingdom are specialising in service, telecommunications and electronics, it could be interesting to apply the value cube only to one of these industrial sectors and draw from them footprints for that particular industrial sector.

Initial research has been carried out by this researcher and colleagues at Strathclyde University on the application of the value cube in other environments, such as in the construction industry. It could be very interesting to apply case studies on construction to study the behaviour of the value cube in that environment and the implication of those organisations in the value creation process.

[6] Actors of the extended enterprise are referred to the participant organisations within the extended enterprise.

Chapter 10. Assessment of the quality of this research

Quality is never an accident; it is always the result of intelligent effort.
John Ruskin (1819 - 1900)

This thesis has taken us from the exploratory analysis of value creation and the construction of the model to the model's validation (Chapter 1 to 9). Although the construct was validated and the research questions answered, this research is not fully completed. To reach high quality research standards, it is important to critically assess several aspects of this research against the criteria of evaluation.

This final chapter discusses the quality of the research against the research criteria initially developed in Chapter 3 and expanded in Chapter 4. Particularly, this chapter raises issues on the rigour of the process, including the validity and reliability of the research, evidence to support the constructs, contributions to practice and knowledge, links of the construct with existing theory and the application of the construct in others environments. Finally, the thesis is concluded with a retrospective analysis from the researcher's perspective.

10.1 Evaluation of this research against the research criteria

Generally, the quality of research is reflected in the maximisation of reliability, internal validity, construct validity and external validity (Easterby-Smith et al, Voss, 2002, Yin, 1994). However, this research implemented additional criteria for evaluation of 'a PhD research study' for the purpose of strengthening the quality assessment of this research (Phillips and Pugh, 2000; Easterby-Smith et al, 1999; Kekale, 2001; Murray, 1994; Yin, 1994; Bolker, 1998).

As previously mentioned, the criteria of evaluation was initially built in Chapter 3 (Table 3.3), It comprised the first three criteria, which evaluate the rigour of the research process, the evidence to support the construct and the contribution to knowledge. Then, the criteria was expanded in Chapter 4 (Table 4.5) with the addition of three more issues; i.e., the contribution to practice, the link of existing theory with theoretical novelty of the construct and the application of the construct in other environments.

The table of criteria of evaluation created in Chapter 4 (Table 4.5) is expanded in this Chapter to assess each criterion (Table 9.1). Consequently, the table has three additional columns. These are: whether the research coped with the criteria or not, if yes, how it was fulfilled and, finally, the overall result of the assessment of each criterion. The following sections discuss individually each criterion and Table 9.1 summarises the results of the evaluation.

	Criterion	Criterion Identified in:	Did the research cope with criterion?	Fulfilment of the criterion how?	Result of the criteria's evaluation
1.	Rigour of the research process - to show proof of a logical research methodology. It is broken down into:	*Chapter 3.1*	Yes	Different theory building, theory testing, research design, data collection and data analysis methods, tools and techniques were applied from the beginning to the end of this research to achieve internal validity, construct validity, external validity and reliability. Table 10.2 presents a summary of the methods and tools applied. Tables 4.6 and 6.6 present deeper analysis of where and how these methods enhance and ensure the quality of this research	*Satisfactory*
	1.1 Internal validity *(Yin, 1994; Easterby-Smith et al, 1999)*		Yes		
	1.2 Construct validity *(Thomas and Tymon, 1982; Kasanen, 1993; Yin, 1994; Easterby-Smith et al. 1999)*		Yes		
	1.3 External validity *(Yin, 1994)*		Yes		
	1.4 Reliability *(Thomas and Tymon, 1982, Kasanen, 1993; Easterby-Smith et al. 1999)*		Yes		
2.	Contains evidence to support the construct -validation of each value proposition (methods) No. of cases *(Kekale, 2001, Yin, 1994, Easterby-Smith et al, 1999)*	*Chapter 3.1*	Yes	8 case studies and a workshop with 23 participating organisations.	*Satisfactory*
3.	Contribution to knowledge *(Kekale, 2001, Yin, 1994, Easterby-Smith et al, 1999).*	*Chapter 3.1*	Yes	Certainly, this research has contributed to knowledge. These contributions are widely discussed in Chapter 9, Section 9.3.	*Satisfactory*
4.	Contribution to practice – practical use and practical relevance *(Kasanen et al, 1993, Kekale, 2001).*	*Chapter 4.1*	Yes	This research has contributed to practice, the contributions are discussed in Section 9.3.	*Satisfactory*
5.	Link existing theory with the theoretical novelty of the construct *(Kasanen et al, 1993; Voss et al, 2002).*	*Chapter 4.1; 4.2.1*	Yes	The link of the value cube with theory revealed the relevance and novelty of two novel value propositions 'simplifiers and socialisors', which are contributions to knowledge by this research (Chapter 5, Table 5.7). In addition, other authors support the other four value propositions. The existence of the two value dimensions 'hard and soft' were supported by different authors (Section 5.2, Table 5.3). The footprints are grounded in theory; i.e. existing theory supports the development the footprints and/or the maximisation of its	*Satisfactory*

				construct validity (Chapter 8, Table 8.1).	
6.	Application of the construct on other environments *(Thomas and Tymon, 1982; Kasanen et al, 1993).*	*Chapter 4.1*	Yes	The value cube was applied to different organisations from different industrial sectors. Moreover, initial research has been carried on the application of the value cube to extended enterprises and in the construction field.	*Satisfactory*

Table 10.1. Table of evaluation of the quality of this research.

10.2 **Criteria 1.-** Rigour of the research process

Thomas and Tymon (1982), Phillips and Pugh (2000), Easterby-Smith et al (1999), Kekale (2001), Murray (1994), Yin (1994) and Bolker (1998) highlight that the rigour of a research process is reflected in the proof of a logic and rational research methodology.

To assess the logic and consistency of research methodology, four parameters are used; these are construct validity, reliability, internal validity and external validity. Each one of those is addressed separately.

10.2.1 Internal validity

Internal validity is the extent to which the researcher can establish a causal relationship; whereby certain conditions are shown to lead to other conditions as distinguished from spurious relationships (Yin, 1994:33,35; Easterby-Smith et al, 1999).

The aim of this research is not just to find a causal relationship but increase the understanding of the cases in order to make reliable inferences based on the understanding. In doing so, methodological triangulation, categorical aggregation, decomposition, use of different respondents, pattern matching logic and explanation building (See Table 10.2) were used to maximise the internal validity, which are recommended by Yin (1994:33).

Table 10.2 summarises the methods and techniques used to build internal validity, construct validity, external validity and reliability at each stage of this research and particularly for each research question. There are five research stages: research design, theory building, theory testing, data collection and data analysis. The data collection and data analysis are two extensions of theory testing.

Stages	Link to Research Questions	Internal Validity	Construct Validity	External Validity	Reliability
Research Design	RQ 1, 2, 3, 4 and 5. (See Chapter 3, 4; Fig. 6.1)	▪ Methodological triangulation	▪ Selection of multiple data collection techniques	▪ N/A	▪ Implementation of controls
Theory Building	RQ 1, 2 and 5 (See Table 4.2, Chapter 5 and 8).	▪ Decomposition ▪ Categorical Aggregation ▪ Interpretation	▪ Enfolding theory ▪ Triangulation of data	▪ Theoretical replication logic	▪ Decomposition ▪ Categorical Aggregation ▪ Interpretation
Theory Testing*	RQ 1 & 2 (See Chapter 6; Fig 6.2; Section 4.5) RQ 3 and 4 (Chapter 7) RQ 5 (Chapter 8)	▪ Covered in Data collection and data analysis	▪ Documentation ▪ Constructive research-controls ▪ Case study as framework to follow	▪ See data collection and data analysis stage	▪ Follow a Case Study design ▪ Questionnaires
Data Collection	RQ 1- Ch6 RQ2 - Ch6 RQ3 – Ch7 RQ4 – Ch7 RQ5 – Ch8	▪ Use of different respondents from different organisational levels	▪ Multiple evidence ▪ Use of codes ▪ Standard data reduction as tables and graphs	▪ Use of multiple case studies	▪ Use of case study protocol ▪ Pilot case study ▪ Review the questions of questionnaires by other persons
Data Analysis	RQ 1- Ch6 RQ2 - Ch6 RQ3 – Ch7 RQ4 – Ch7 RQ5 – Ch8	▪ Cross-case analysis ▪ Methodological triangulation ▪ Pattern matching logic ▪ Explanation building	▪ Triangulation of data ▪ Explanation building	▪ Analytical generalisations	▪ Standard data base

** Theory testing includes data collection and data analysis.*
N/A = Not Applicable
RQ = Research Question

Table 10.2 Methods, tools and techniques used to build validity and reliability throughout this research.

Tables 4.6 and 6.6, introduced in Chapters 4 and 6, explain why each method was selected and how they ensure the quality of this research and the research questions; e.g. internal validity, construct validity, external validity and reliability. Table 10.2 summarises the methods and techniques from Table 4.6 and 6.6.

As shown in Table 10.2, ten different methods and techniques were used to achieve the internal validity of the five research questions at each stage of this research. Based on the scope of the method used, it can be concluded that the internal validity of this research was achieved.

10.2.2 Construct validity

Construct validity is concerned with the idea that the research design fully addresses the research questions and the research objectives (White, 2000:25, Yin, 1994:33,34; Easterby-Smith et al, 1991:41; Thomas and Tymon, 1982).

To increase the construct validity, Yin (1994:33), Voss et al. (2002), Kekale (2001) and White (2000:25) suggest the use of multiple sources of evidence, triangulation of data, use of standard data collection tools and enfolding theory among others.

To fully address the research objectives, research questions and maximise the construct validity of this research and its five research questions, eleven different methods and techniques were used in each research stage (Table 10.2). i.e. selection of multiple data collection techniques, enfolding theory, use of codes in the questionnaires, triangulation of data, use of standard data collection and reduction tables and enfolding theory among others. Therefore, strong confirming instances support the achievement of the construct validity in this research.

10.2.3 External validity

External validity establishes the domain to which a study's findings can be generalised (Yin, 1994:33). Although the positivistic science opposes[1] this view, Yin (1994:30) highlights that analytical generalisation[2] can be drawn from case studies. Voss et al. (2002) and Yin (1994:30-36) also suggest the use of replication logic and multiple case studies to maximise the external validity of research. It is important to bear in mind that the methods and techniques of external validity are limited.

The external validity of this research and its five research questions was achieved by the use of theoretical replication, analytical generalisations and multiple case studies (Table 10.2).

[1] The roots of this conflict come from the conflict of both science, phenomenological and positivist, Chapter 3 fully discusses the points of view of both sciences.
[2] The analytical generalisations, generalised from theory and case studies, in contrast to statistical generalisations (Yin,1994:30-36).

By creating the 'value proposition's footprints' some competencies and capabilities of the third dimension of the value cube were generalised. The external validity played an important role in this research, not just for the footprints but also for the value propositions of the value cube. Hence, methods and techniques of external validity were particularly applied on theory building and theory testing stages. However, in the research design stage there was no technique to maximise its external validity, because there was no need to generalise the research design used in this research.

10.2.4 Reliability

Reliability is the extent to which a study's operations can be repeated. It is also about consistency of research, and whether another researcher could use the same research design and obtain similar findings (White, 2000:25; Yin, 1994:33-37; Easterby-Smith et al. 1999:41; Thomas and Tymon, 1982). To maximise the reliability Yin (1994:33), Voss (2002) and Kekale (2001) suggest the use of a case study protocol, develop a case study database and use a pilot case studies.

Ten different methods and techniques were applied throughout this research to maximise its reliability and these are summarised in Table 10.2. From the research design, several controls[3] were established to ensure the consistency of this research for facilitating the repetition of same results. The application of structured and well-defined decomposition, categorical aggregation and interpretation techniques ensured a systematic process in building theory. During theory testing, including data collection and data analysis stages, several techniques were used to increase the reliability of the research, such as implementation of controls, case study design, case study protocol, pilot case study and standard database. Table 10.2 lists the methods and techniques used to maximise the reliability[4] in this research and its research questions. Based on the scope of the methods and technique used, it can be concluded that the reliability of this research was achieved.

[3] The controls are called to those assessment elements to evaluate the quality of the research

10.3 **Criteria 2.-** Contain evidence to support the construct

Another common criterion of a PhD thesis is that the thesis must contain evidence to support the construct (Kekale, 2001, Easterby-Smith et al, 1999). This research paid particular attention to the evidence to support the construct 'the value cube' at each particular stage from theory building to theory testing

- by highlighting different company cases from literature (Chapters 2, and 5, Table 5.3, 5.4, 5.5, 5.6, 5.7; Figure 5.2),
- the application of eight case studies (Chapters 6, Table 6.3, 6.4, Figure 6.4, 6.6 and Chapter 7, Table 7.1, 7.2, Figure 7.1, 7.2, 7.3, 7.5, 7.6) and
- a workshop (Chapter 8, Table 8.1, 8.2, Figure 8.1, 8.2)

The results from these methods validated the value cube including its six value propositions and the footprints (Chapter 9 summarises the answers to the five research questions). The evidence showed that confirming instances support the validation of the model 'the value cube'.

10.4 **Criteria 3.-** Contribution to knowledge

Kasanen et al, (1993), Thomas and Tymon (1982), Easterby-Smith et al. (1999) and Kekale (2001) highlight the importance of the contribution to knowledge from PhD research as well as from a constructive research approach. The contributions to knowledge provided by this research are discussed in Section 9.3. Certainly, this research has contributed to knowledge with six new issues that are known now and were not known before this research.

10.5 **Criteria 4.-** Contribution to practice

Kasanen et al, (1993) and Kekale (2001) highlight the importance of the application of the construct to real-world problems. Thomas and Tymon (1982:347) define the contribution to practice as the relevance of the construct to enhance decisions with different alternatives to reaching the objectives.

[4] For more specific information about the selection of methods and how they ensure the quality of this research on each research stage see Table 4.6 and 6.6.

Indeed, the value cube provides guidelines for value creation through its six value propositions to enhance decision-makers achieving their business goals. The value cube provides four different contributions to practice (Chapter 9.3). As a result, it can be concluded that the value cube provides contributions to practice to improve business analysis and/or performance.

10.6 **Criteria 5.-** Link existing theory with the theoretical novelty of the construct

Kasanen et al, (1993) and Voss et al, (2002) highlight the importance of linking the construct with existing theory to identify the novelty and relevance of the proposed construct.

The value cube was compared against other models. As a result, it was found that four of the six value propositions provided by the value cube were supported by existing theory and the last two value propositions of the value cube 'simplifiers' and 'socialisors' were novel contributions of this research. A deeper discussion on the comparison and results of the construct against the value cube is addressed in sections 5.3.3 and 9.1.2. The relevance of the two new value propositions is that they provide a better way of classifying contemporary business such as e-business and service.

In addition, the footprints are grounded in theory; i.e. existing theory supports the development of the footprints and/or the maximisation of its construct validity (Chapter 8, Table 8.1).

Therefore, confirming instances support the conclusion that the value cube is linked to theory and the novel contributions of the construct are relevant to current businesses.

10.7 **Criteria 6.-** Application of the construct in other environments

Albert Einstein (1879-1955) without being a constructivist, states that a theory is more impressive the greater the simplicity of its premises is and the more extended is its area of applicability. Nowadays, constructivists such as Kasanen et al, (1993), Kekale (2001) and Thomas and Tymon (1982) argue that an important criteria of constructive research is the application of the construct in other environments.

Through the eight case studies and the twenty-three participating organisations in the workshop, the value cube has demonstrated that it is applicable to different industrial sectors, such as chemical, electronic, manufacturing, service, clothing, metal, distribution, engineering, food and drinks.

Moreover, the value cube started to be applied to the construction sector. The initial studies are promising in these particular fields, but more future work has to be done (Chapter 9.7).

Also addressed in Chapter 9, the application of 'the value cube' in a different unit of analysis 'the extended enterprise' has been explored. It seems a promising area of research and practical use, but more work has to be done in this area (Chapter 9.7).

Consequently, it can be concluded that strong confirming instances support the applicability of the value cube in different environments.

10.8 Did the research fulfil with the criterion of evaluation?

The quality of this research was evaluated though six different criteria. The individual results demonstrated that this research has successfully fulfilled with each criterion. Table 10.1 provides a summary of the results of this evaluation. Therefore, it can be concluded that this research did reach the quality standards of a PhD and constructive/pure research.

Finally, to close this thesis the researcher decided to share some experiences and potential improvements for future research with a retrospective analysis.

10.9 Retrospective analysis

The researcher really enjoyed the development of this research, but if she has to start it again, she might make some changes or implement new issues to improve this research.

Finding collaborative organisations to apply this research certainly was not easy, due to the time required from senior managers and employees. So if she has to do this research again, she would conduct an initial workshop before the application of the case studies to gather more case-organisations into this research from the beginning. In this way, she might gain some research time and more variety of cases.

A final meeting with collaborative organisations, at the end of the data analysis, might get global feedback and bring new insights to the research.

If the researcher had the opportunity to select the type of organisations to work with, she would select those organisations that appear operating within pure value propositions, thus more patterns and footprints could be brought into the research easier. Or if just she had the opportunity to select the company-cases amongst a big sea of organisations, she would select companies operating within the same industrial sector.

Based on experience from this research and non-scientific evidence to support the researcher think that the success of value propositions within commercial organisations depends to grand extent on the commitment and willingness of the top organisational level to deploy the value creation principles through the complete organisation and its stakeholders.

During the last three years, the researcher has noted that more practitioners and academics are paying strong attention to the value creation. From the researcher's experience, this subject is becoming a relevant topic for industry and still there is a lot of work to develop in this interesting field (See Section 9.7 – future research).

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APPENDICES

Appendix 1 Definition of Business Classifications Types

Business Classification	How does it Compete?	Manufacturing/Operations Approach	Market Approach	Research and Development Approach
Ingham (1971)				
Type I	Through small range of standard products	Focus on a make to stock strategy for few standard products	They focus on the market forecast. There is a need of intensive pro-duct promotion	--
Type II	Through manufacturing a specific type of product form customer's design and in large quantities	Focus on production planning since getting the customer order	Create an image of make specific pro-ducts to cus-tomer's design and establish a close relation-ship with large customers	--
Type III	Through offering wide range of products from firm's design, specifi-fications are done after order.	Focus on building skills for frequent set-ups.	Offer wide range of product choice	--
Type IIIa	Through offering a wide range of products: standard and customer's design	Focus on deal with the changes from standard orders and cust. design	Offer standard and design product on time	--
Type IIIb	Also offer standard products and customer design products, but use a lot standard parts	Focus on makes to order since the customer order's arrived.	Since products are easier to manufacturing they offer better delivery	--
Type IIIc	Offer standard products make to order and the combination from III to IIIb	Focus on develop skills to manage standard and special parts		--
Type IV	Through offering a production service to make products as customer wants	Focus on the integration of new orders in the existing factory	Offer an image of a general manuf. Co. available to the customer	--
Miles and Snow (1978)				
Prospectors	Through bringing innovations	They are not very keen on manufacturing so, they focus on creating production skill	Continuously offer new products.	Focus on creating new products and bringing new changes to products.
Defenders	Through offering good quality products at sensitive price	Focus on the improvement of efficiency of their operations	Offer on time and reliable products.	Do not change very often their designs
Analysers	Through bringing (substitute) products	Focus on formalised processes.	--	Focus on new competitors' trends, so they copy their product desing
Reactors	They do not have the capacity to react to new changes in the external environment	It is not follow a specific pattern	--	--

Porter (1980)				
Focus	Through serving a small, particular market segment by better meeting the needs and / or low-cost.	Focus on process engineering skills, quality systems	Offer special sometimes customised service to their customers	Focus on strong capabilities of basic research
Cost Leadership	Through low cost products	Focus on developing efficient-scale facilities and low-cost distribution systems	Offer price sensitive products	Focus on products designed for easy manufacture, but they do not expend too much in R&D.
Differentiation	Through products with excellent brand image or stylish designs or better features or technology etc.	Focus on strong marketing abilities. Underpin combination of skills	Offer fashion, stylish products different from competitors.	Focus on developing creative flair and basic research.
Stobaugh and Telesio (1983)				
Technology-driven strategy	Through manufacturing high-technology products.	Focus on flexible facilities to change product and process quickly	The initial target on high wage countries then eventually moves to others ones.	Focus on establishing facilities to aid technology transfer to local markets
Marketing-intensive strategy	Through marketing programs supported by good quality products and prompt delivery.	It varies from contract manu-facturing to fully integrated production	Relies on heavy advertisement	Focus on the adaptation of products to local market's tastes, local raw materials
Low-cost strategy	Through scale economies, low-cost labour or low-cost inputs	Focus on mass production, tight control on operations, and low production costs.	Offer quality products at low price	Generally, little use of local research and development
Richardson (1985)				
Technological Frontiersmen	Through the continuous innovations and product performance	Focus on the ability to produce new products continuously.	They stay in the market and then leave it as soon as the price becomes competitive	Focus on product research and product development
Cost-Minimisers	Through high volume productions	Focus on low-cost production of mature products.	Offer low prices and rapid delivery	--
Customizers	Through customisation of products	Focus on the flexibility to handle changes in specification and volumes.	--	Focus on design that the customer requires even if these are not innovations
Cost-Minimising Customisers	Through manufacturing low-volume mature products to individual customers designs	Focus on job-shop skills and cost minimisation.	Offer low prices and on time delivery	Focus on the development of design and process engineering
Technology Exploiters	Through the innovation and cost minimisation.	Focus on the ability to introduce new	Offer high quality products	Need substantial skills in product

	They introduce a new product and take it though all the stages of its lifecycle.	products and when these become price competitive then reduce costs.		development and design
Technological Servicemen	Through product design and custom service on complex systems	Focus on build flexible skills. They usually operate with low volumes.	Offer excellent product design and support. More over they offer flexibility to customer specification changes	Focus on design flexibility.
DTI (1994)				
Technological Leader	Through innovative solutions, new products and reducing lead times between concept and full production	Focus on the fast familiarisation of the produc-tion of the new product pr	Offer innovative products	Encourage an innovative environment to create new products
Elastic Enterprise	Through production efficiency and low costs	Focus on the development of capabilities to cope with the volume fluctuation, high quality and low costs	Offer good quality products at sensitive price	--
Total Service Enterprise	Through long term relationships with their customers	Focus on developing capabilities to support the customer through the life cycle of the product or service i.e up-grade, maintain.	Offer more than a product, they offer a service managing the product through the whole lifecycle	New product development is done in collaboration with their customers
Flexible Enterprise	Through producing large diversity of products in a volatile market	Focus on rapid production changeover. Underpin production flexibility	Offer different types of products	Focus on develop new design that reduce the time to market
Virtual Enterprise	Though offering products to new niches	Focus on identify the right network to set operations	Offer total adaptation to emerging markets	--
Miller and Roth, 1987 (1994) [3]				
Innovators	Through research and development (also engineering) of new products	Focus on flexible manufacturing	Offer new products to new & current markets.	Focus on the design flexibility and introduce new products quickly.
Caretakers	Mainly through price. Also by delivery speed and product standardisation	Strong emphasis on mass production.	Offers low price products with high dependability[1] and conformance[2]	Just when it is necessary.
Marketeers	Through broad distribution systems and after sales service	Focus on high performance products and vol. flexibility	Offer quality products to broad market.	Mainly focus on small adaptation of products for new markets.
De Mayer (1990)				
Manufacturing innovators	Through new product development Similar to Miller and Roth.	Focus on the production of quality products and broad product line. Low emphasis on manufacturing	Offers high quality in new products	Focus on new product

High-performance products group	Through product performance and high quality products with some emphasis on low prices.	Focus on production speed	Competes on speed of delivery and high product performance	Focus on the adaptation to customers' requests. Low emphasis on new designs.
Marketing oriented group	Though delivery and quality. It follows a marketing oriented strategy	Focus on delivery speed and quality products.	Emphasis on dependability and serving the market.	It is not a priority for this group.
Treacy and Wiersema (1996)				
Product Leader	Through providing leading-edge products or useful new application of existing products	Focus on building support process to minimise the time to market new products	Their products are offered to selected market, where price is not a constraint and innovation and fashion are main priority	Focus on core process of invention or application
Operational Excellence	Through quality, price and easy purchase	Focus on standardisation, simplification and control of operations	Offer low price and hassle-free service	Low priority
Customer Intimacy	Through the delivery of specific solutions to small number of customers	Focus on flexible skills and their facilities should have the capacity to craft any solution.	Offer a total and customised solution, even more they offer a continuous relationship.	It depends of the customers' needs. It focuses on strong product /service design flexibility.

NOTE: the definition of Seweeny (1991) business types ' caretakers, re-organisaers, marketeers and innovators' were not included in the above table because they are similar to the definitions provided by Miller and Rothe (1994). The only difference Miller and Roth (1994) and Seweeny (1991) between resides on re-organisers and caretaker. Organisation that pursue to be world-class manufacturing are Re-organisers first for short-term meanwhile implement the plan for world-class performance and in long term when the companies are world-class manufacturing these are called caretakers (Seweeney, 1991).

1 Dependability is defined by Miler and Roth (1994) as delivery on time.

2. Conformance is defined as consistent quality (Miller and Roth, 1994).

3. Although the reference paper of Miler and Roth correspond to 1994, their study was finished on 1987. In this research, 1987 is considered to make comparisons and contrasts, but 1994 is still the source of information. Because, in 1987, De Meyer carried out the same research as Miller and Roth but for European industries.

Appendix 2 What the Customers Want? *What does the Marketing Need to Do?* What the Companies Need to Do?

Value Proposition	Customers get	Marketing Mix Elements				Company need to do	
		Communications	**Price**	**Product**	**Distribution**	**Strategic Objectives**	**Operative Objectives**
Innovators	new designs, new products never seen before.	Generally, these go for international publicity. But, some times the first launch is made on specific countries. Frequently, advertisement is looked individually for each country.	Usually their prices are high. These are deter-mined by cost (high) and competition	It is the technology or design by itself and sometimes the training is provided.	By chain of agencies some times owned by the company and some external agencies. However, the transportation, handling and storage depend on the type of product.	Provide breakthrough through generations of continuous new designs, new features within technological basis	Long-term vision, robust R&D and product development, capacity to innovate within short product lifecycles.
Brand Managers	to pay a premium price for getting status from the product. They are buying a lifestyle.	High publicity on superior media (magazines, business journals, etc.) Sponsoring royal activities, sports, etc. Organisation of workshops to study the acceptance of the product by sub-segments of the market.	Determined by competition, costs and services. Price is con-sided as attribute of the product.	It a mix of physical attributes of the product, brand, service and *price*.	By special distribution channels that usually are specialised on a type of products. Depending on the product, the own personnel is properly trained to its delivery.	Expand the market reinforcing the solid brand image of the product and the company.	Excellent brand recognition. Clear market direction. Distinguished control over the product design and product promotion.
Price Minimisers	ordinary products at low prices. They buy security on the product.	The publicity depends on: - middle user: publicity is more specific and direct. - end user: try to	Stabilised by the demand, sells volume, delivery times and costs. Usually ends on low prices.	Is basically the physical product. Company brand as a good (e.g. quality, low	Usually the company that manufactures the product distributes the product. But, sometimes where big volumes are involved, the distribution is	Production growth reaching high quality levels in the most cost-effective way.	Strong order fulfilment sustained by efficient and effective production processes within tight quality controls

		reach general public It is not very sophisticated		price)	subcontracted.		
Simplifiers	convenience and availability of the products.	Can be by internet, mail, TV ads, etc. Simplifiers do not expend a lot in publicity and advertisement; although, they can reach local and international audience.	Is a mix of the product's costs, delivery, and information systems' costs.	Involves the product, and the service as the co-ordination of activities for delivering products on short periods of time	Most companies work under direct delivery, short delivery times e.g. 24 hr. When the company operates worldwide, a delivery service is outsourced.	Building streamlined processes to make life simple and un-complicated for customers in a novel and profitable way.	Strong availability. Superb order fulfilment– distribution by conventional and un-conventional resources (networking, IT, etc.)
Technological Integrator	tailored products/ services. They buy total solutions.	The publicity and promotions are very focused to particular clients. In quantities, these promotions are not many, but financially are strong. Promotions are relationships not ads.	Is establish-ed by attention to the clients (pre and post-purchasing service) and production costs.	Involves personalised service and customised products.	The delivery service transportation, installation, training, in-house service, etc. are done by producers.	Craft specific and continuous solutions for carefully selected customers on the basis of permanent relationships.	Strong relationship customer-organisation. Capacity to configure any specific need. Able to adopt the customer's strategy.
Socialisors	flexible services plus inter-personal relationship because they trust in the company.	Manly local advertisement, radio, leaflets, newspapers, telephone, local network etc. " un-expensive advertisement- word of mouth".	Determined by the service and the price of the product	Mainly the services i.e. personal touch, trust, etc.	Frequently, the delivery is simple and frequently to end-users.	Build confidence and trust on the business service.	Sensitive on demand generation supported by careful deliver. Excellent interpersonal service.

Appendix 3. Comparative Table of Potential Parameters of the Value Cube

'Selection of parameters for the construction of the value cube'

PARAMETERS	SFV C	INGHAM 1971	SKINNER 1978	PORTER 1980	WHEELWRI RTH 1985	PUTTICK 1987	PLATTS 1990	DTI 1991	MILLER ST 1991	HILL T. 1993	VOSS 1995	LARRACH E 2000
General policy		*										
Market implications	M	*		*		*			*	*		*
Forecasting		*										
Promotions	P	*										
Production Implications	P	*		*								
Process technology			*	*	*	*	*			*	*	
Markets demands			*									
Product Volumes			*									
Quality	MS		*		*		*	*		*		
Manufacturing tasks			*	*								
Lead time			*									
Price (accessible)			*			*				*		
Reliable delivery			*							*		
Product design flexibility	PP		*				*					
Volume flexibility	MS		*				*			*		
Product design	PP		*		*	*		*			*	
Engineering	PP		*						*		*	
Management			*								*	
Technology	T		*						*			
Company strategy	GP		*				*					
Target Markets				*								
Sales	M			*					*			
Distribution	L			*								
Purchasing	L			*								
Research and Development				*								
Finances	F			*								
Capacity					*		*					
Facilities					*		*					
Equipment					*						*	
Process technology					*		*				*	
Human resources	HR				*		*					*
Systems	GP				*							*
Organisation	GP				*		*				*	*
Schedule					*	*						
Uncertainty of the market						*						
Complexity of the market						*						
Logistics	P					*	*					
Product family							*			*		
Delivery – lead time	P						*	*				
Reliability							*					
Market share	F						*					
Turn over							*					
Control policies							*					
Manufacturing strategy	MS						*			*		
Price –manufacturing cost	OC							*		*		

Profit Margin	*F							*				
Availability- new product lead time								*				
Service reliability	*P							*		*		
Marketing mission/strategy	M								*	*		
Manufacturing mission/str									*	*		
Culture	GP								*			*
Corporate objectives	GP									*		
Order winners	MS									*	*	
Order qualifiers	MS									*		
Delivery speed										*		
Delivery accuracy										*		
Demand increase										*		
Conformance										*		
Durability										*		
Aesthetics – design										*		
Key manufacturing tasks										*		
Investments and costs	F									*		
Infrastructure										*	*	
Key success factors											*	
Vision	*GP										*	*
Best practices											*	
Corporate mission	GP										*	*
Planning and intelligence												*
Technical resources (infrastr.												*
Marketing operations	M											*
International strategy	*GP											*
Market strategy	M											*
Innovations												*
Customer orientation	M											*
Value (ethics)	GP											
Environmental issues	P			*								
Purchasing	L			*							*	
Distribution	L			*							*	

***VC column** indicates with a letter the chosen parameter to be part of the third dimension of the Value Cube. The Parameters not selected do not have any letter in this column.* The letters of the VC column indicates the field group where the parameters belong to, for instance *M:* is from marketing; *P*: production; *GP*: general policy; *PP*: product development; *HR*: human resources; *MS*: manufacturing strategy.

Appendix 4. Presentation letter for potential collaborative organisations to validate the value cube (example).

28 March 2001

Mr. R. Scott.
ElectronicsA

Dear Mr. Scott

I am a PhD student at the University of Strathclyde. I have been working in Value Management for about two years. I have developed a model "The Value Cube". This model offers a set of guidelines on how an organisation should align, direct, and manage its resources within a value proposition that the organisation wants to achieve to create value. I am in the validation stage, I think *ElectronicsA* fits very well in one of the six value propositions of the model.

I will be very pleased if you can give me the opportunity to apply a case study in your company. This case study is integrated by two questionnaires.

- The first questionnaire touches some topics about strategy, marketing, and a little bite of finances (in a qualitative way). For this reason, this has to be answered by a person who has a wide overview of the company strategy. The application of this takes around one hour.
- The second questionnaire covers more operative topics such as technology, process, distribution, design, services etc. This questionnaire can be answer from different people of different departments. This last part takes around 20 minutes per department.

The model will deliver to *ElectronicsA* a complete study of the alignment of the resources and capabilities to the main business objective. Please, let me know if you need more information about the research and its purpose, either I can go and present to you in power point or I can send you the publication of my last article.

Please do not hesitate to contact me if you have any answer. I believe that the outcome of this study will be valuable for *ElectronicsA* and for the development of this model. Do not worry about the confidentiality of the data, we have a policy to keep confidentiality of the company data, unless the company gives permission to use them.

Your co-operation is most essential for the fulfilment of the generation of innovative knowledge.

On behalf of the University of Strathclyde, I wish to express our gratitude for your assistance.

Yours sincerely

Veronica Martinez
v.martinez@strath.ac.uk
Direct line: (44) 0141 548 2588

Appendix 5 Case Study Information Sheet

Date:
Time:

CASE STUDY

Interviewee's Details

Name:	e-mail:

Company's Details

Name:					
Address: Phone Fax:					
Core Business:					
Product – Services:					
Markets: (please tick):	☐ U.K.	☐ Europe	☐ North America	☐ Far East	☐ Asia
Business Scope:	☐ Product Design	☐ Sales & Mktg.	☐ Manufacturing	☐ Distribution	☐ Services ☐ Others

Appendix 6. Questionnaires Phase 1 and Phase 2

Questionnaire

Phase 1

Questionnaire Phase 1 version 4 issue 8

The aim of the questionnaire is to detect the value drivers and core capabilities that make strong the organisation to compete in the market. More over, this allocates the current value proposition of the company into the value matrix.

The questionnaire phase one is deployed in five sections.

Section A- General over view of the firm.
Section B- Competitor analysis
Section C- Study of the firm
Section D- Customer analysis
Section E- Financial analysis

SECTION A

General Over view of the Firm.

General Policy.

1. What is the *main activity* of your Company?

_____

2. Please write the *mission* statement of the organisation. (H/S;I/BM/PM/SI/TI/SO;GP)

_____

3. Make a statement of the corporate *culture*. (GP; Context)

_____

Could you allocate the representative corporate culture of the organisation into this framework?
Please, If you select more than one box indicate the importance of it. (1=highest importance)

Autocratic	☐
Paternalistic	☐
Bureaucratic	☐
Autonomy	☐
Informal	☐
Disorganised	☐

Flexible and adaptable culture to any change	☐
Strong centralisation of power on critical functions	☐
Decentralisation of power on critical functions	☐
Independent power on business subdivisions	☐
Powerful normative controls	☐

(Source: Minsberg's organisation's type 1989)

4. Could you mention the *corporate objectives* of the organisation?

_____

How do you define the company objectives in the following table, only if these can fit in it?
The **corporate objective** is focussed on the wealth creation through...

a). ...the creation of innovative products... ☐
b). ... building the brand image of the product... ☐
c). ...the maximisation of volumes driving down the costs... ☐
d). ...the development of robust processes to interact and support the customers' needs... ☐
e). ...tailor solutions to meet the requirements of particular customers... ☐
f). ...building confidence and trust in the product and/or service... ☐

5. What is the company vision statement? (GP)

_____

6. How does your company deploy and perform the vision? (GP)

_____

_____

SECTION B

Competitors' Analysis.

1. Who are your competitors and which one of them is your benchmark? (Context)

   _____

2. Indicate the percentage of the market occupied by (Context)

   Your Company _____ Direct Benchmark _____

3. Enlist three order-winning criteria that your competitors use in order to compete in the market?

   I. _____ (WC)
   II. _____
   III. _____

4. Write three reasons of why your customer buys your products and/or service, and not your competitors' products? (WC)

   I. _____
   II. _____
   III. _____

5. What does your benchmark do to add value to its product and/or service that you do not do? (gap between you and your benchmark) (C;WC)

   _____

6. What do you do better than your benchmark? (WC)

   _____

SECTION C

Company Study

Marketing.

1. Does the company follow a marketing strategy? (H/S;I/BM/PM/SI/TI/SO;M)

Yes No

What is it?

_____

2. Where do you situate your company in the following framework? (H/S;M)

PRODUCT	MARKET: Present	MARKET: New
New	Market penetration ☐	Product Development ☐ / Diversification ☐ / Market Development ☐

Strategic Marketing options

(Source: Freeman, G. & Balkwill, J. "Management in engineering, principles & practice", 1996, second edition, Prentice Hall Publisher, London. Pg 25.)

3. Company image. (H/S;I/BM/PM/SI/TI/SO;M)

The company wants to reflect...	*Not Important*	*Some Importance*	*Important*	*Very Important*	*Essential*
a). ...High tech organisation through innovative products.	☐	☐	☐	☐	☐
b). ...Prestigious firm through branded products.	☐	☐	☐	☐	☐
c). ...Industrialised organisation through conscious price products.	☐	☐	☐	☐	☐
d). ...Accessible organisation through reliable products easy to get them.	☐	☐	☐	☐	☐
e). ...Solutions provider through tailored services.	☐	☐	☐	☐	☐
f). ...Conventional firm through conventional products.	☐	☐	☐	☐	☐

(Source: F.R. root (1998) "Ebtrey strategies for international markets"; Jossey-Bass publisher)

Human Resources.

(H/S;I/BM/PM/SI/TI/SO;HR)

4. From the following four human resources categories, could you please categorise the magnitude of your employees into each type by big, medium, small, very small.

a). Competitive and creative people who love change, self-starters. *"Dominance Category"*	☐
b). Leader, self confident, persuasive excellent in public relations *"Influence Category"*	☐
c). People who love work as a member of a team, controlled, passive behaviour, methodical. *"Steadiness Category*	☐
d). Systematic thinkers, who check all information before making decisions *"Compliance Category"*	☐

(Source: Thomas International DISC system, applied by Litton Ltd)

Technology.

(H/S;I/PM/SI/TI;T/P/Sy)

5. From the following options, please tick the box that correspond with the nearest reality to the organisation.

Note: if you have to tick more than one box, please put it in the importance order, No. 1 represents the highest importance

The core technology of the organisation relays on...

a. ...Advance technology to design new products, new designs, new styles, innovations... ☐
b. ...technology capable enough to reach economic scales... ... ... ☐
c. ...standard equipment flexible enough to support the creation of any product. ☐
d. ...technology to handle information and logistics' systems... ... ... ☐
e. ...technology to market the products... ... ... ☐
f. ...technology of the product as itself... ... ... ☐

6. What is your approach in technology? (H;PM/I;T)

a. New technology and processes are resisted (avoid)... ... ... ☐
b. Gradual improvement in technology and in new manufacturing techniques.... ☐
c. Significant effort put into increasing competitiveness by better design, technology and processes... ... ... ☐
d. Well know as a leader in new technology. Customers are continually getting benefits from process design or process improvements... ... ... ☐

(Source: DTI Successful Product Development- Self Assessment Guide 1995)

7. Does the company create/ invent new technology? What type? (H/S;I/PM/SI/TI;PD/T)

_____

Operations.

8. What type of process choice the organisation uses in its production process?

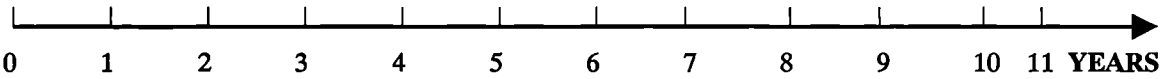
(H/S;I/BM/PM/SI/TI/SO;P/T)

a. Continuos ☐
b. Line... .... ☐
c. Batch..... ☐
d. Jobbing... ☐
e. Project.... ☐

(source: Hill T. 1999; Production/Operations Management: Text and cases; Prentice Hall international; second edition, chapter 4)

9. Product Life Cycle. How do you rank (draw) the product life cycle of the product? Please indicate into the curve the design stage, implementation and development stage, mature stage.

(H/S;C)



Product Lifecycle

10. How does the company produce. (H/S;C/T/OP)

Make to order...	☐
Make to stock...	☐
Assemble to order...	☐
Design to order...	☐

(Source: Hill T., 1993, "manufacturing Strategy", 2nd. Ed.)

Product Development.

11. Does the company design new products? (H;I/BM/PM/TI;PD)

Yes No

12. How often does the company bring a completely new product design (not product improvements)?

_____ (H;I/TI;PD)

13. Please thick the Product Design types that the Company practice and how often? (H;I;PD)

Innovative Design...	☐
Conceptual Design...	☐
Configuration Design...	☐
Parametric Design...	☐
Detail Design...	☐
Redesign or adaptive design...	☐
	☐

(Source: Types of design. Pugh S. Total; Design: Integrated Methods for succesful product Engineering; Addison Wesley Publishers, Ltd)

Services.

(H/S;I/BM/PM/SI/TI/SO;S)

14. By what communication's channels can your customers reach your service?

☐ Phone ☐ e-mail ☐ Internet
☐ Information line Perso☐l attendance Mail ☐
Others_____

15. Why your customers prefer your service? (C/S)

Note: if you have to tick more than one box, please put it in the importance order, No. 1 represents the highest importance

- ☐ Effectiveness on the solution
- ☐ Fast response
- ☐ Reliability
- ☐ Competitive knowledge
- ☐ Customers' businesses knowledge
- ☐ Sympathetic treatment
- ☐ Infrastructure and support techniques
- ☐ Personal treatment
- ☐ High quality
- ☐ Honesty
- ☐ Reputation
- ☐ Price sensitive
- ☐ Pleasant atmosphere
- ☐ Other _____

16. Does your company... (H;IT/PM;PD/S)

- ☐ *Craft* a *specific solution* for each single customer.
- ☐ Have a stock of *general solutions* that can *adapt* to particular problems.
- ☐ Have a *solution set to apply* to customers' needs.

17. Does your company provide special promotions of its services? (H/S;I/BM/PM/SI/TI/SO;S)

_____

18. What do you do to keep and attract customers? (H/S;I/BM/PM/SI/TI/SO;M)

_____

19. Why your company has decided to provide this service? (H/S;I/BM/PM/SI/TI/SO;M)

_____

Systems.

20. What kind of support systems (hardware-software) do you company use to provide efficient and reliable communication services? (H/S;I/PM/SI;G)

_____

21. Do your company develop or get systems (software) to increase the efficiency and effectiveness of its operations? If yes, then for what kind of operations? (H/S;I/SI/PM;G)

_____

Distribution

22. How do you distribute your products? and why? (H/S;I/BM/PM/SI/TI/SO;D)

_____

General Operations

23. Could you rank the importance of the following activities for the organisation from 1 to 5 (1 is highest importance; you can repeat numbers) (H/S;I/BM/PM/SI/TI/SO;PD/S/T/M)

- ☐ Product Development
- ☐ Design Flexibility
- ☐ Manufacturing
- ☐ Service
- ☐ Systems
- ☐ Distribution/Delivery
- ☐ Marketing/ advertisement

SECTION C

Strategy Chart

(H/S;I/BM/PM/SI/TI/SO;S/T/PD/S)

Strategic Decision / Choice (What)	1998	1999	2000	2001	2002	2003	2004	2005	Outcome / Comment (decision's impact)

Please do not forget indicate the Design activities, product, market, operations, sales, and other implementations that the company had or will have.

SECTION D

(H/S;I/BM/PM/SI/TI/SO;CP)

Customers' Analysis.

1. Customer Satisfaction Index.

1. THE CUSTOMER SATISFACTION INDEX. ORGANISATION ORDERS WINNERS (5) AND ORDER QUALIFIERS (3-4)	*Not Important* 1	*Some Importance* 2	*Important* 3	*Very Important*	*Essential*
a). ...Continuos improvements in the product design.	☐	☐	☐	☐	☐
b). ...Continuos product generations.	☐	☐	☐	☐	☐
c). ...Glamorous features on the product that impacts the product image.	☐	☐	☐	☐	☐
d). ...High quality on the product.	☐	☐	☐	☐	☐
e). ...High quality on the service	☐	☐	☐	☐	☐
f). ...High delivery speed.	☐	☐	☐	☐	☐
g). ...Delivery accuracy.	☐	☐	☐	☐	☐
h). ...Agility to pick up and deliver customers orders.	☐	☐	☐	☐	☐
i). ...Competitiveness (Price conscious).	☐	☐	☐	☐	☐
j). ...Response to customers problems.	☐	☐	☐	☐	☐
k). ...Flexibility on product volume.	☐	☐	☐	☐	☐
l). ...Flexibility on product variety.	☐	☐	☐	☐	☐
m). ...Customisation of products/services.	☐	☐	☐	☐	☐
n). ...Delivery on time.	☐	☐	☐	☐	☐
o). ...Good product performance.	☐	☐	☐	☐	☐
p). ...Brand image.	☐	☐	☐	☐	☐
q). ...Service and attention to the client.	☐	☐	☐	☐	☐
r). ...Good publicity on products.	☐	☐	☐	☐	☐
s). ...Availability of the product.	☐	☐	☐	☐	☐
t). ...Styling designs of the products.	☐	☐	☐	☐	☐
u). ...Flexibility on communications services.	☐	☐	☐	☐	☐
v). ...Easy accessibility to the product.	☐	☐	☐	☐	☐
w). ...Highly automated processes.	☐	☐	☐	☐	☐
x). ...Deliver the best total solution.	☐	☐	☐	☐	☐
y). ...Deliver effective assistance.	☐	☐	☐	☐	☐
z). ...Tracking processes.	☐	☐	☐	☐	☐
aa). .Gain customer confidence and trust	☐	☐	☐	☐	☐

SECTION E

Financial Analysis

1. Could you please tick the importance of the following issues.

Financial Implications of the organisation (F)	Low 1	Low to Medium 2	Medium 3	Medium to High	High
a). ...Margin	☐	☐	☐	☐	☐
b). ...Operating Costs (production costs).	☐	☐	☐	☐	☐
c). ...Selling expenses	☐	☐	☐	☐	☐
d). ...Revenue	☐	☐	☐	☐	☐
e). ...Working Capital.	☐	☐	☐	☐	☐
f). ROI	☐	☐	☐	☐	☐

2. Please, rank the Budget focus of the company for the following indicators.
Indicate the importance of it. (1=highest importance)

(H/S;I/BM/PM/SI/TI/SO)

	Budget
a). Product development	
b). Technology development	
c). Support systems	
d). Training	
e). Services	
f).Marketing	
g). Others.	

3. If we analyse the company's ROI/ ROI/RONA for the last two years, *what are* the activities that make significant contribution towards the ROI?
(Indicate the *percentage* of ROI that *each department contributes* to the total ROI.)

_____ _____ (F)

_____ _____

4. What has been the focus of the major investment that the organisation has had in the last three years?

(F)

_____

5. What are the external activities that the company sponsors? (i.e. grand prix, tennis player, etc)

I. _____ (M)
II. _____
III. _____
IV. _____

Questionnaire

Phase 2

Questionnaire Phase 2 version2 issue 7

The aim of the questionnaire is to identify the support capabilities that make strong the company's value proposition.

The questionnaire phase one is deployed in four sections.

Section A- General Policy.
Section B- Human Resources.
Section C- Marketing.
Section D- Production Implications.

SECTION A

General Policy.

1. How does your company perform (implement in its activities) the company's vision?

2. What is the perception of the company (vision) from the stakeholders' point of view?

SECTION B

Human Resources.

Development needs.

1. Does your company generally try to train people or to employ the required people from the labour market?

2. What kind of workers (occupation) were employed predominately the last time and why?

3. What kind of workers (occupation) will be employed predominately in the future and why?

4. What are the current training programs and why (purpose)?

5. What kind of workers (occupation) will be further educated and why?

SECTION C

Marketing.

Sales.

1. What are your general sales mission? (Low prices, offer innovations, long guarantees, easy handling, easy buying...)

2. How does your company realises (make to happen) the sales mission?

3. For what reasons do you think a customer would buy your products/services?

4. What kind of people would normally buy your product/service?

5. Does your company build up a relationship with the customer?
If yes, then how and why?

6. Is it possible to buy your product/service on the internet?

7. Where can or should a customer notice a product/service from your company?
(e.g. advertisement)

8. Who are your major customers?

9. How customer satisfaction surveys affects marketing strategies?

10. Who perform the customers satisfaction surveys? (sales, marketing, etc.)

11. How the customer satisfaction surveys affects the manufacturing of the product?

12. How the customer satisfaction surveys affects sales?

13. When sales rise an order, how this affects manufacturing?

14. Who are your distribution channels?

15. What is the relationship between sales, distribution and manufacturing?

16. How sales affects product design?

Customer Orientation.

1. How does the company get market information concerning customer demands?

2. What are the customer's expectations and how does the company try to fulfil these expectations?

3. Does your company have any principles on how a customer should be treated?

4. Are there other areas where the customer orientation can be found?
(e.g. different ways how a customer can pay the product/service)

5. Is there a follow-up to your customer? (e.g. when you ask them if they are satisfied with your product/service or if they demand changes in the future)

Marketing operations.

1. How does the company promote/advise its products/services?

2. What parameters does the company use to write the marketing strategy? (e.g. forecasting..)

3. What are the current most important goals of the marketing strategy?

4. Who draws the marketing strategy? (top levels or the marketing department)

5. How does your company perform the marketing operations?

6. How the company forecast its products and How often?

7. How the marketing forecast affects the next product design?

8. What is the customer orientation (type of market- customers)?

9. Does the market forecast affect purchasing department?

10. How the company decides the customer orientation?

11. Who are your major customers? (Is Sales department reporting major sales from the orientation that the company had decided for the product)

12. Is the product design aligned to the customer orientation?

13. Does marketing dept. promote the company's services?

14. Is the marketing strategy prepared to attract new customers or only to keep the actual customers?

SECTION D

Production implications.

Qualifiers/ winners

1. Which qualifiers are satisfied by your company to make which winners important? (e.g. qualifier: ISO 9000, winner: quality)

2. What are the qualifiers of your product/service and what are the winners?

3. For what reason do you choose these qualifiers and winners?

Flexibility.

1. Is flexibility an important factor theme for your company and why?

2. How does your company try to reach a high flexibility?

3. In which are has the company the highest flexibility and why?

4. Can your company react to a changing demand (moving targets) and If yes how?

5. How long does it take to implement a new innovation?

6. How long is the planing-horizont for a product/service?

Process choice.

1. How many products does your company produce per year?

2. What is the process choice and why? (project, jobbing, batch, line, continuous)

3. Have you ever changed your process choice? If yes, then why?

4. Does your company pursue a special material-stream system (FiFo..)?
   If yes, then Which one and why/

5. How long is the lead-time for a product?

Manufacturing.

1. How does customers satisfaction surveys affect manufacturing operations?

2. When sales rise an order, how this affects manufacturing?

3. How involved is manufacturing on the design of a new product?

4. How involved is manufacturing on marketing of the products?

5. How involved is manufacturing on sales of the product?

6. How is the relationship between manufacturing with its suppliers?

Quality.

1. How does the company manage to achieve high quality on products/services?

2. Are there any internal quality programs running?

3. Have there been any quality certifications?

4. How long is the expected life-time of a product?

5. Have you had any quality problems that go out of the company?
   If yes, How has the company reacted?

6. How important is the quality in comparison to price?

Services.

1. What type of services does your company provides and why?

2. With which framework do you hand out your services (e.g. guarantees)?

3. Does your company get a special service-card, when he buys a product from your company?

4. Does the company have a information line?
   If yes, what kind of problems do they solve?

5. Is it possible to visit your company to see the production?

6. Is there a possibility that a team of experts visit a customer in a guarantee-case to solve his problems?

7. Does your customer get his money back when he is not satisfied with the product and he can argue why?

8. Does the customer get his money back when he see the same product much cheaper in a different store?

9. Can your customer track his/her product? If yes, then how?

Supply chain:

a)Purchasing

1. Who are your suppliers and which are the close ones?

2. What is the relation to your suppliers and your company?

3. How do you manage your network? (supply chain)

4. Does your company pursue a special supplier strategy (single sourcing)?
   If yes, then which one and why?

5. How purchasing is affected by market forecasting?

6. How is the relationship between sales and purchasing, when sales raises an order does it affects purchasing?

b). Distribution.

1. How do you distribute the product?

2. Do your customers order the products/services directly to your company or is there a middle man?

3. How long does it take to deliver a product when a customer orders a special one?

4. How good is the company to deliver reliability in comparison to other companies?

5. Does your company outsource the distribution service?

Product development. (Design)

1. How product design is affected by market forecast?

2. Does Marketing promote product improvements in the product design?

3. How do you measure the customers' expectations of your market? And How do you fulfil with them?

4. How Sales affect the product design?

5. How designs react about the customers' perceptions found by sales and marketing?

6. How regular does product design meet with sales, marketing, manufacturing?

7. How the introduction of new products affects the technology and operations?

8. How often the technology should be changed by new product introduction?

9. How does product design support manufacturing on the launches of new products?

Appendix 7 Table occasions that a company support a value proposition

Codes:

I	innovators	Si	simplifiers	C-	context data
BM	brand managers	So	socialisors	NA	not applicable
PM	price minimisers	H	hard	-	not available data
TI	technological integrators	S	soft		

Question Code	Issues	CameraA		DrinkB		MaterialC		ElectronicD		ChemicalE		ServiceF	
(c)	Culture	C	C	C	C	C	C	-	-	C	C	C	C
(h/s,i/bm/pm/si/ti/so)	Company mission	I	H	C	C	Pm	H	C	S	-	-	C	C
(h/s,i/bm/pm/si/ti/so)	Company objective	I	H	Bm	S	Pm	H	Si	S	Ti	H	So	S
(h/s,i/bm/pm/si/ti/so)	Marketing strategy	-	-	Bm	S	Pm	H	Si	S	Ti	H	Si	S
(h/s,i/bm/pm/si/ti/so)	Company image	I	H	Si/ Bm	S	Pm	H	Bm	S	Ti	H	So/Si	S
(h/s,i/bm/pm/si/ti/so)	Key employees' skills needed	I	H	-	-	Pm	H	Si	S	-	-	-	-
(h/s,i/bm/pm/si/it/so)	Core technology	I	H	Ti	S	Pm	H	Si	S	Ti	H	So	S
(h,i/pm)	Approach to technology	Pm	H	Pm	H	Pm	H	I	H	Pm	H	-	-
(h,i/pm/ ti,/ si)	Creation of new technology	I	H	NA	NA	NA	NA	Si	S	Ti	H	NA	NA
(h/s,i/bm/pm/si/it/so)	Process type on key operation	I	H	Bm	S	Pm	H	Si	S	Pm	H	So	S
(h/s, c)	Product life cycle	C	H	C	H	C	C	C	C	C	H	-	-
(h/s,c)	Production type (M2S, M2O, etc)	C	H	C	H	C	H	C	S	C	H	C	S
(h/s,i/bm/ti /pm)	Design of new products	I	H	Bm	S	NA	NA	NA	NA	Ti	H	Ti	S

(h/s, i/ti)	Frequency of new product design	I	H	I	H	Pm	H	NA	NA	Ti	H	So	S
(h/s,i/bm/pm/si/ti/so)	Type of designs utilised	I	H	Bm	S	C	C	Si	S	Ti	H	So	S
(s,bm/it/so/si)	Service Approach	-	-	Bm	S	-	-	Si	S	Ti	H	So	S
(h/s;i/bm/pm/it/si/so)	Type of Service	C	C	Bm	S	Pm	H	Si	S	Ti	H	So	S
(h,ti/pm)	Customisation level	NA	Na	NA	NA	Pm	H	Pm	S	Ti	H		
(h/s;i/bm/pm/it/si/so)	Promotions	NA	NA	Bm	S	NA	NA	NA	NA	NA	NA	NA	NA
(h/s,i/bm/pm/si/ti/so)	Advertisement	I	H	Bm	S	Pm	-	Si	S	Ti		So	S
(h/s,i/bm/pm/si/ti/so)	Core systems used within the Company	Pm	H	Pm	H	Pm	H	Si	S	Pm	H	So	S
(h/s,i/bm/pm/si/ti/so)	Systems design	NA	NA	NA	NA	Pm	H	Si	S	NA	NA	NA	NA
(h/s,i/bm/pm/ti/si/so)	Distribution's systems	I	H	Bm	S	Pm	H	Si	S	Ti		So	S
				Si:1/18									
				Ti:1/19				Pm:1/18					
				I:1/18				I:1/18				Ti:1/19	
		Pm:2/18		Pm:2/18	H:5/21			Bm:1/16	H:1/21	Pm: 3/18		Si:2/16	
	Highest total of occasions (total issues:24)	**I:12/18**	**H:15/21**	**Bm:11/16**	**S:12/18**	**Pm:15/18**	**H:15/21**	**Si:13/16**	**S:17/18**	**Ti: 13/19**	**H: 16/21**	**So:11/15**	**S:14/18/**

Note: from phase1 financial data, customer satisfaction and some other general data or big data are not included in this table because are covered on other tables such as investment priorities and in the cross-case analysis.

Maximum scores:
H:21, S:18
I:18, BM:16, PM:18, Si:16, Ti: 19, So:15

Supply-chain Partnership Empowering Economic Development

Value Management Workshop

Questionnaire

University of Strathclyde

Company Name:	*Company's Value Proposition:*
Core Business:	Participant Name:
Business Scope: ☐ Product Design ☐ Manufacturing ☐ Distribution ☐ Sales & Mktg. ☐ Service ☐ Others	

Please rank the following aspects of your business according to its organisational performance.	*Not Applicable*	*Low*	*Low to Medium*	*Medium*	*High*	*Very High*
1. The Key Competence lies in the development of…						
…completely new breakthrough products with short life cycles	☐	☐	☐	☐	☐	☐
…stylish and quality products	☐	☐	☐	☐	☐	☐
…standard and functional products	☐	☐	☐	☐	☐	☐
…manufacturing processes, control processes and support systems	☐	☐	☐	☐	☐	☐
…Information Technology Systems to streamline business processes to make customers transactions as convenient as possible	☐	☐	☐	☐	☐	☐
…tailored specific and continuous solutions (products and/or services)	☐	☐	☐	☐	☐	☐
…interpersonal relationships with customers built on trust and loyalty.	☐	☐	☐	☐	☐	☐
2. Is your company competing on…						
…product innovation (new products not just improvements)?	☐	☐	☐	☐	☐	☐
…brand recognition?	☐	☐	☐	☐	☐	☐
…price?	☐	☐	☐	☐	☐	☐
…accessibility and availability of the products?	☐	☐	☐	☐	☐	☐
…total solutions?	☐	☐	☐	☐	☐	☐
…interpersonal service?	☐	☐	☐	☐	☐	☐
3. Orientation to research and development of new products is…	☐	☐	☐	☐	☐	☐
4. Importance of long-term vision is…	☐	☐	☐	☐	☐	☐
5. Importance to built leading technological expertise on product creation is…	☐	☐	☐	☐	☐	☐
6. Monitoring of the performance of the product/ firm in the market (e.g. product performance, advertisement performance, and competitor performance) is…	☐	☐	☐	☐	☐	☐
7. The importance of product style and name as a hallmark is…	☐	☐	☐	☐	☐	☐
8. The investment in product advertisements and promotions is…	☐	☐	☐	☐	☐	☐
9. The investment on production processes and control systems is…	☐	☐	☐	☐	☐	☐
10. The use of systems such as JIT, CAM, MRP, automation systems, etc. is…	☐	☐	☐	☐	☐	☐
11. The importance of the lead-times' reduction is…	☐	☐	☐	☐	☐	☐
12. The importance of continuous reduction of production costs is…	☐	☐	☐	☐	☐	☐
13. The importance of integration and communication with the suppliers is…	☐	☐	☐	☐	☐	☐
14. The automation (streamlining) of order fulfilment processes and the order-generation processes is…	☐	☐	☐	☐	☐	☐
15. The agility (speed) and flexibility of the product delivery is…	☐	☐	☐	☐	☐	☐
16. The use of the internet and IT systems to provide easy accessibility to the products is…	☐	☐	☐	☐	☐	☐
17. The design capability to customise any type of product/ service is…	☐	☐	☐	☐	☐	☐
18. The investment on establishing flexibility in product designs and volumes is…	☐	☐	☐	☐	☐	☐
19. The importance of achieving a strong relationship with the consumer is…	☐	☐	☐	☐	☐	☐
20. The importance of getting the customers' confidence (trust and intimacy) is…	☐	☐	☐	☐	☐	☐
21. The importance of gaining the customers' empathy and loyalty is…	☐	☐	☐	☐	☐	☐
22. The importance of customer service is…	☐	☐	☐	☐	☐	☐

Supply-chain Partnership Empowering Economic Development

Value Management Workshop

Footprints

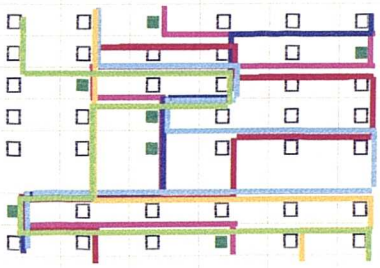
University of Strathclyde

Footprints Gap Assessment

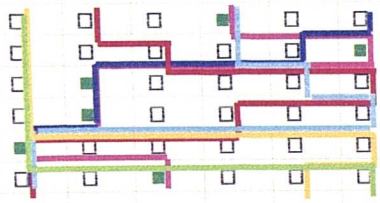
Please rank the following aspects of your business according to its organisational performance.

Not Applicable *Low* *Low to Medium* *Medium* *High* *Very High*

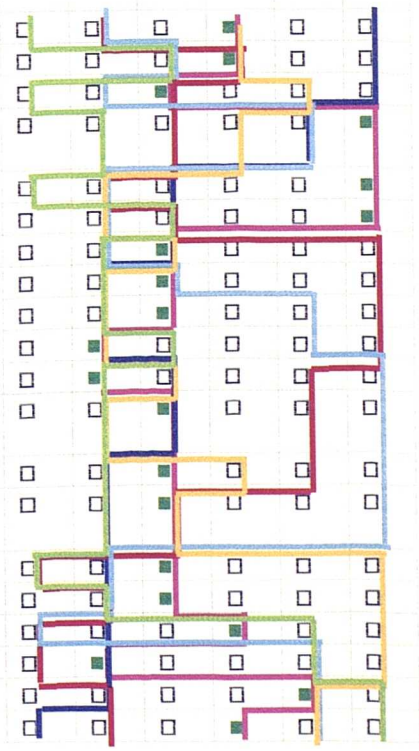
1. The Key Competence lies in the development of…
   …completely new breakthrough products with short life cycles
   …stylish and quality products
   …standard and functional products
   …manufacturing processes, control processes and support systems
   …Information Technology Systems to streamline business processes to make customers transactions as convenient as possible
   …tailored specific and continuous solutions (products and/or services)
   …interpersonal relationships with customers built on trust and loyalty.



2. Is your company competing on…
   …product innovation (new products not just improvements)?
   …brand recognition?
   …price?
   …accessibility and availability of the products?
   …total solutions?
   …interpersonal service?



3. Orientation to research and development of new products is…
4. Importance of long-term vision is…
5. Importance to built leading technological expertise on product creation is…
6. Monitoring of the performance of the product/ firm in the market (e.g. product performance, advertisement performance, and competitor performance) is…
7. The importance of product style and name as a hallmark is…
8. The investment in product advertisements and promotions is…
9. The investment on production processes and control systems is…
10. The use of systems such as JIT, CAM, MRP, automation systems, etc. is…
11. The importance of the lead-times' reduction is…
12. The importance of continuous reduction of production costs is…
13. The importance of integration and communication with the suppliers is…
14. The automation (streamlining) of order fulfilment processes and the order-generation processes is…
15. The agility (speed) and flexibility of the product delivery is…
16. The use of the internet and IT systems to provide easy accessibility to the products is…
17. The design capability to customise any type of product/ service is…
18. The investment on establishing flexibility in product designs and volumes is…
19. The importance of achieving a strong relationship with the consumer is…
20. The importance of getting the customers' confidence (trust and intimacy) is…
21. The importance of gaining the customers' empathy and loyalty is…
22. The importance of customer service is…



Innovators
Price Minimisers
Technological Integrators
Brand Managers
Simplifiers
Socialisors