From Fork to Farm - Demand Chain Management in the Agro-Food Business

With Application to the Rio Grande do Sul Beef Business

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Abstract

Demand chain management (DCM) is a business philosophy which objectives to understand customer demand and meeting this demand with possible alternatives through the deployment of chain processes. DCM is a new paradigm in the business terrain, and it was defined in this study as: the business practice aimed at understanding and managing the customer demand and at aligning all activities throughout the chain that simultaneously create both customer and enterprise values. DCM is an extension of SCM, but with a strong emphasis on demand management due to the incorporation of the market orientation perspective on its concept. It goes beyond extant SCM literature because it considers the customer as the point of origin of any business activity, and comprises both demand orientation strategy (which is the source of business effectiveness) and supply oriented strategy (which is source of business efficiency). DCM contributes for the business thinking by acknowledging that efficiency is necessary but not sufficient for bringing improvements in the enterprise's level of competitiveness. As DCM is a newly-formed concept the knowledge to bring it into reality is still scarce. The aim of this thesis is to empirical analyse the concept of DCM and propose tools for its implementation. The problem statement reads as: How can DCM be brought into reality? In the course of this study we responded four major research questions: 1) Is DCM an answer to what is happening in business? 2) How to cope with demand differentiation for making DCM explicit and actionable? 3) How can consumer demand be identified and quantified in a format that is actionable for demand chain design? And 4) What steps and trade-offs are required for the implementation of DCM?

The empirical setting of this thesis is the Rio Grande do Sul beef business. Rio Grande do Sul is located in the South of Brazil, near to the board of Uruguay and Argentina. Livestock production is one of the most important agriculture activities and the state has the highest per capita beef consumption in Brazil. Despite that most companies are still commodity oriented and price primacy has been the key feature in the competitive context, nowadays strategies such as segmentation and branding have started to play a role in the business. In the last decade new competitors have entered the local market, a new pattern of beef distribution has emerged as a result of the concentration of supermarkets, and consumers have become more selective about where they buy, what they buy and the price they pay for the products. Many small and medium-sized companies are striving to survive, while others

have been extremely successful because they have identified specific market segments and tailored the supply chain to match the requirements of these segments. Consequently, the Rio Grande do Sul beef business seems particularly suited to illustrate the applicability of DCM as conceptualized in the first chapter of this thesis.

The first chapter introduces the research and describes the key developments observed in the contemporary business and in the extant literature that made us to formulate the problem statement and the research questions. Chapter 2 starts with an overview of the business system changes that have taken place in the past few decades. In addition, this chapter deals with the concepts of supply chain management and its evolution into demand chain management. To illustrate this, a case study incorporating the two different types of business orientation based on the beef chain in Rio Grande do Sul is presented along with a description of the key differences between DCM and SCM paradigms. Chapter 3 presents a study to determine the consumer goal structure triggered by three situational variables associated with the consumption situation, namely: the hedonic focus, the utilitarian focus, and conspicuousness. First the conceptual model linking consumer values and benefits with the three situational variables is presented. After this, the hypotheses are formulated and tested. Overall, this chapter shows that (1) some values are significantly associated with the three situational dimensions, (2) some values, as well as the perceived hedonic orientation and conspicuousness of consumption situations have a direct main effect on the benefits sought, and (3) values sometimes moderate the effects of situational dimensions on benefits sought. Through making these relationships explicit the chapter contributes for understanding the demand heterogeneity, which is an essential step for turning demand chain a reality. Chapter 4 presents a sequential benefit-feature segmentation model appropriated for designing responses in the demand chain according to specific segment needs. The chapter starts with an overview of market segmentation theory, and thus advances the sequential model. The sequential model was tested against the benefit segmentation approach and feature segmentation approach in terms of statistical properties and usefulness for managers' decision-making in the beef chain. In conclusion, this chapter shows that benefit-feature importance segmentation yields more homogeneous and actionable segments, and may hold promise as a tool to improve market segmentation for strategy design in the chain arena. Chapter 5 describes a demand chain design framework. The framework was built on the basis of quality function deployment (QFD) and involves six closely interrelated steps: market demand identification; choosing segments; translation of segment demand into chain processes; breaking processes into chain tasks and assets; coordination mechanism delineation and; chain members' selection. Chapter 6 consists of the conclusions and implications of the study. Then, limitations and future avenues for research in the area of DCM are presented. Overall, the results of this thesis contribute to a better conceptualization of DCM and suggest tools that could support its implementation.

Contents

Part 1: INTRODUCTION AND DEMAND CHAIN MANAGEMENT FOUNDATION

Chapter 1: Introduction

1.1 General Introduction

During the last two decades of the last century we have seen the rise of supply chain management (SCM) as a powerful source of competitive advantage (Treville et al. 2004; Bingham, 2005). As a result, companies have reorganized purchasing and logistics functions into supply chain management (SCM) organizations. This has been a business model focused on cost reduction and efficiency improvements to reward customers with reduced prices. This notion brought with it the image that the ultimate goal of organizations was to be efficient at supplying the needs of customers. Customer need was seen as revolving simply around reduced prices (Sherer, 2005; Walters and Rainbird, 2004). Examples of companies that have excelled in adopting supply efficiency as their business strategy can be found elsewhere in the popular media, even in today's financial pages. In the business literature, Waller (1998) cites Marks & Spencer and Sainsbury in the UK, Walters and Rainbird (2004) cites Wollworths and Coles in Australia, and Goldsmith (1999) cites McDonald's in the US as having achieved everyday low prices based on supply chain efficiency strategies.

Despite the excellence of these companies in supplying, some of them experienced competitive problems during the 1990s and at the beginning of the 2000s. At McDonald's, Peter Bush (a senior executive), reported by Shoebridge (2003), suggests that the company was at least partially aware of its problems. "*…the real opportunity for McDonald's is to develop compelling reasons for people to visit us more often…That means having more relevant menu variety, and offering menu solutions rather than promotional products*". According to Walter and Rainbird (2004), the problems arose not because companies mismanaged the operational effectiveness, but rather because they missed the shift in customer expectations. Therefore, they suggested that supply chains are not necessarily any better today than they were when the concept of SCM evolved 20 years ago.

Supply chains are very efficient at moving products towards consumers. The historical focus of SCM has been on efficiencies and execution, but as Langabeer and Rose (2002); Walters and Rainbird (2004); Soliman and Youssef (2001) suggest, efficiency is no longer sufficient to bring significant improvements in the company's level of competitiveness, specially because competitors today will often saturate the market with lower-cost substitutes. Consequently, many markets are becoming commoditized and prices are being driven down. With these low prices, companies are forced to reduce costs and margins continuously. This reflects the notion that an effective supply chain will ensure adequate

customer satisfaction through reducing cost, and therefore price. The danger of this supply chain dominance of business thinking is mistaking efficiency for effectiveness, with cost reduction as the focal goal at the expense of customer focus.

Many authors in the second half of the 1990s suggested a return to the origins of the marketing thinking by acknowledging the need to place customer value as the ultimate means of fostering competitive advantage. This was also acknowledged in practice by the business community when, in the earlier nineties, a group of companies created the "Efficient Consumer Response Movement" or "ECR" (Barrat and Oliveira, 2001). The idea of ECR was to share information collaboratively between the supply chain members to improve coordination, become demand driven and in so doing, to deliver enhanced customer value.

But it has mostly been within the academic community that the market/demand orientation in chains has been discussed. Tompkins and Jernigan (1997) suggested that if value is to be added, the customer must want or desire the goods. Thus, the customer has to be at the front of a company's effort and must be treated as an active actor instead of a passive actor, as reflected by SCM. They emphasized that in SCM customers are typically seen as those receiving the flow of goods and services. By reflecting on the focus on flow from the customer perspective, they suggested that SCM is a misnomer and that it would be better to replaced it by the term "demand flow management". Folkerts and Koehorts (1997) preferred to use the term "chain reversal" for expressing the transformation of the product-driven supply chain into the market-driven supply chain. Similarly, Cristopher (1998) suggested that SCM should be termed "demand chain management" (DCM) to reflect that the chain should be driven by the market, not by suppliers, and Vollmann et al. (2000) proposed to replace the term "supply chain" by the term "demand chain" to emphasize the shift in emphasis from efficient supply to meeting the needs of the customer. Langabeer and Rose (2002, p. 6) took the argument a step further by looking at the demand chain as an entity in its own right. They define demand chain as: "*the complex web of business processes and activities that help firms understand, manage, and ultimately create consumer demand*".

They emphasized the perspective that DCM attempts to analyze and understand overall demand for markets within the firms' current and potential product range and subsequent supply chain alignment. In other words, they suggest that an effective approach to DCM first requires the understanding of current and potential markets, and then the identification of essential processes and capabilities to satisfy the market. Additionally, Langabeer and Rose (2002) offer a useful comparison of the SCM and DCM approaches (Table 1.1).

Table 1.1 - Comparing SCM to DCM.

SCM	DCM
• Efficiency focus	• Effectiveness focus; product-market fit
• Processes are focused on execution	• Processes are focused more on planning
• Cost is key driver	• Revenue is the key driver
• Short-term oriented	• Long-term oriented
• Typically the domain of tactical manufacturing and logistics personnel	• Typically the domain of marketing, sales and strategic supply-chain managers
• Focus on immediate resource and capacity constraints	• Focused on long-term capabilities, not short-term constraints
• Historical focus on manufacturing planning and controls.	• Historical focus on marketing and supply chain alignment.

Therefore, even though DCM can be seen at first glance as an extension of the SCM concept, it has become increasingly clear that DCM should be seen as a broader concept than SCM (see for example Treville et al., 2004; Frohlich and Westbrook, 2002; Williams et al., 2002; Walters and Rainbird, 2004). The idea of DCM is therefore to fully integrate all customer-facing activities by better aligning all company activities around customer value-adding activities. As companies are no longer capable of operating in isolation (Verhallen et al., 2004; Cristopher, 1992) in the face of customer demand that is highly complex, flexible and diverse, DCM presupposes a chain perspective. Cristopher (1998) adds a further argument, namely that the term chain should be replaced by network since, normally, there are multiple suppliers, and indeed, suppliers to suppliers as well as multiple customers and customers' customers to be included in the total system.
Based on the above rationale, we proposed a workable definition of DCM as being:

The business practice aimed at understanding and managing the customer demand and at aligning all activities throughout the chain that simultaneously create both customer and company values.

Strategically, the DCM as presented in Figure 1.1 has two key elements: the demand side and the supply side. The link between the demand and the supply sides occurs through the exchange of products and services and through formal and informal interactions between customers and suppliers in the marketplace. To solve problems, customers (or consumers) act and look for products and services that yield the desired outcomes. Likewise, companys and chains have potential resources (e.g. capital, labour force, technology, relationship,

skills and knowledge) that, when combined, may result in the competencies (i.e. the ability to do something well) needed to produce and deliver the products to consumers. Products and services on the demand side are the concrete manifestation of what marketing scientists have called benefits, preferences, values, emotions, etc, while on the supply side they are the results of processes engendered within chains and companies.

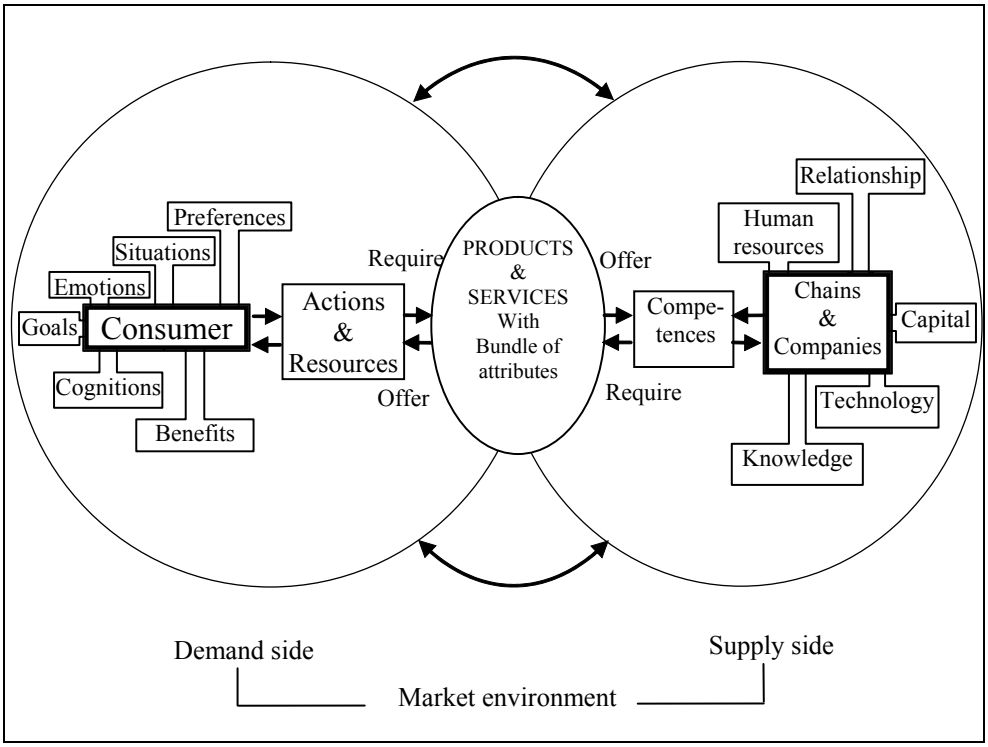


Figure 1.1 – The scope of demand chain management

By combining demand and supply sides, chain and companies can focus on how to coordinate all activities and processes in order to facilitate the development of core competitive advantage based on the final customer perspective. DCM is therefore a strategic option for achieving chain effectiveness.

The traditional SCM theory emphasizes the relative resources, skills and cost position as the key elements in business success (Hugos, 2003; Lambert and Cooper, 2000). The DCM perspective advances the supply chain theory by acknowledging that resources, skills and costs are sources of success if they are essential for the delivery of value both to the customer and to the firms involved in the chain. The determination of the outcomes as

required by the customer is therefore the key point of departure for obtaining advantages in a demand management perspective.
We can conclude, therefore, that when practising business with a DCM perspective, it becomes increasingly important for companies to understand their current and future customer expectations, market characteristics, and the response alternatives available to meet customer requirements through the deployment of competencies.

1.2 Problem statement and research questions

The central idea of any business is to match the needs and wants of customers with its competencies, at a profit. DCM is being promoted as the dominant strategy to adopt to achieve that goal. However, the transition to DCM is not an easy one. At a conceptual level, authors are trying to establish the principles and premises of DCM. For example, scholars have described the challenges of the business scenario of the future, and indicated the necessity of adapting to an ever powerful customer economy (see for example, Holbrook and Hulbert, 2002; Gummesson, 2002; Urban, 2005; Achrol and Kotler, 1999). Others have contributed for the understanding of customer value, satisfaction and utility (Oliver, 1996; Bagozzi, 1995; Parasuraman et al., 1985; Sheth and Parvatiyar, 1995; Zeithaml and Parasuraman, 1996), and for the understanding of market orientation (Narver and Slater, 1990; Kumar et al., 2000; Kohli and Jaworski, 1990; Jaworski et al., 2000). Langabeer and Rose (2002), contributed in distinguishing DCM from SCM, and in establishing the DCM objectives. Additionally, Jüttner et al. (2006) demonstrated how DCM can leverage the strengths of marketing and SCM for meeting the challenges of customer value creation in today's marketplace.
However, at a more practical level the tools for DCM implementation are still underdeveloped. With the exclusion of operational tools developed within the logistics community with the ECR and its derived techniques (Alvarado and Kotzab, 2001), studies aiming to improve demand visibility and supply alignment are scarce. Therefore, one of the major gaps in knowledge for DCM development is the relative lack of clear guidelines on how to conceptualise and implement its various phases to really start with consumers, and end up with demand chain implementation. We, therefore, formulate our problem statement as follows:

How can DCM be brought into reality?

The following research questions will be addressed in this thesis.

1. Is DCM an answer to what is happening in business?
2. How to cope with demand differentiation for making DCM explicit and actionable?

3. How can consumer demand be identified and quantified in a format that is actionable for demand chain design?
4. What steps and trade-offs are required for the implementation of DCM?

The empirical setting of this thesis is the Rio Grande do Sul beef business (see chapter 2 for more details). In the beef business, the DCM perspective is still in its nascent stage. A lot of companies are still commodity oriented and price primacy has been the key feature in the competitive context. Strategies such as segmentation and branding have only recently started playing a role in the business, but at the farm and industry levels these instruments are still not very significant in terms of accentuating differentiation and reducing price primacy.

However, in the last decade new competitors have entered the local market (beef imported from other states), a new pattern of beef distribution has emerged as a result of the concentration of supermarkets, and consumers have become more selective about where they buy, what they buy and the price they pay for the products. These trends have revolutionized the beef market and, as a result, some companies have closed down, others have merged and, generally, consumers are benefiting from better products and services.

In this context, many small- and medium-sized companies are striving to survive, although some of them have been extremely successful, having identified specific market segments and tailored the supply chain to match the requirements of these segments. Based on the success of these companies, other beef stakeholders (farmers, abattoirs and retailers) are now trying to find ways to improve their business performance. These stakeholders are aware that to compete in the beef market they have to offer an appealing value proposition in terms of product and services to particular market segments, and a unique chain organization tailored to respond to the opportunities on the demand side.

Consequently, the Rio Grande do Sul beef business seems particularly suited to illustrate the applicability of DCM as conceptualized in this thesis.

1.3 Outline of the thesis

This thesis is divided into four parts (figure 1.2). Part 1 (chapters 1 and 2) introduces the research and describes the key developments observed in the contemporary business system. Chapter 2 starts with an overview of the business system changes that have taken place in the past few decades. In addition, this chapter deals with the concepts of supply chain management and its evolution into demand chain management. To illustrate this, a case study incorporating the two different types of business orientation based on the beef chain in Rio Grande do Sul is presented along with a description of the key differences between DCM and SCM practices. This preliminary assessment should be an early and

practical appraisal of the potential opportunities for the development of demand-oriented chains.

Part 2 (chapters 3 and 4) presents the first requirement for DCM implementation: the end-customer understanding. Chapter 3 presents a study to determine the consumer goal structure triggered by three situational variables associated with the consumption situation, namely: the hedonic focus, the utilitarian focus, and conspicuousness. First the conceptual model linking consumer values and benefits with the three situational variables is presented. After this, the hypotheses are formulated and tested. The chapter provides a comprehensive understanding of consumer demand that might be useful for companies and chains to become more demand-oriented. Chapter 4 presents a sequential benefit-feature segmentation model appropriated for designing responses in the demand chain according to specific segment needs. The chapter starts with an overview of market segmentation theory, and thus advances the sequential model. The sequential model was tested against the benefit segmentation approach and feature segmentation approach in terms of statistical properties and usefulness for managers' decision-making in the beef chain. The chapter addresses an important gap in market segmentation and strategy implementation towards demand-orientation in chains.

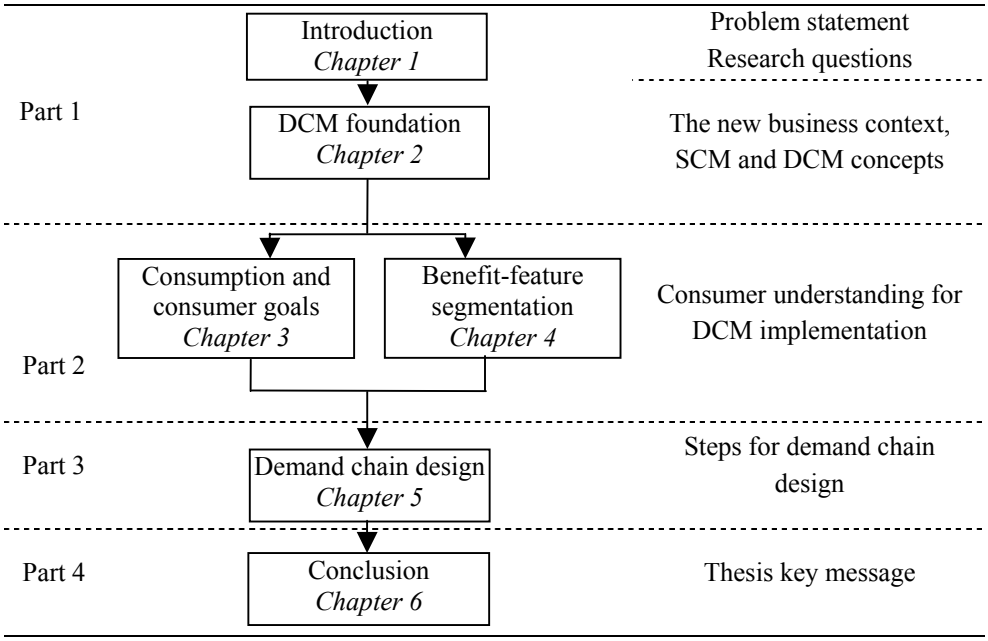


Figure 1.2 – Outline of the thesis

Part 3 (chapter 5) describes a demand chain design model. The demand chain design consists of six steps, which are illustrated using examples from the beef chain. The chapter contributes to the establishment of the steps and key trade-offs necessary to address a DCM implementation based on the quality function deployment approach.
Finally, part 4 (chapter 6) consists of the conclusions and implications of the study. Then, limitations and future avenues for research in the area of DCM are presented.

Chapter 2: The emergent demand chain management: its evolution and key features, illustrated using an example from a small business chain

2.1 Introduction

In recent years, demand chain management (DCM) has emerged as a new concept in the management literature (Selen and Soliman, 2002; Langabeer and Rose, 2002). DCM has gained increasing attention due to the rapid uptake of technology and the shift in power away from suppliers towards the customers (Soliman and Youssef, 2001). The concept of DCM focuses on strategy across the whole value chain (Williams et al., 2002). In an earlier study, the following primitive fundamental beliefs of the concept was established, "…*the whole manufacturing and distribution process may be seen as a sequence of events with but one end in view: it exists to serve the ultimate consumer"* (Brace, 1989; quoted by Childerhouse, et al., 2002).

DCM has developed from the supply chain management (SCM) literature that preceded it, and it has been argued that it is a broader concept than SCM because it emphasizes understanding the customer demand and the transformation of that understanding into actionable strategies and plans for the whole group of firms involved in the chain (Langabeer and Rose, 2002). Additionally, DCM is concerned with the integration of more processes and activities than is the case with the SCM concept, such as sales, marketing and product management (Hugos, 2003).

Since DCM is a newly-formed concept, the focus of previous works has been on conceptualization rather than on an empirical examination of the concept. This study will examine the concept of DCM in a small business industry, namely the beef chain in the state of Rio Grande do Sul, Brazil. The Rio Grande do Sul's beef business is interesting with respect to DCM due to its highly diversified *modus operandi* in terms of marketing strategies and its structure since several more or less independent organizations are involved in the business.

For the accomplishment of the overall objective, firstly we will provide an overview of the business system and the evolution and changes it has undergone during the last few decades. We will divide the business evolution into four distinct phases: the nascent industrialization phase, the economic phase, the technological phase, and the marketing

phase. Secondly, we will present the SCM concept and its evolution into the DCM concept along with the theoretical underpinning associated with their development. We will then present the beef case, and finally the conclusion together with management implications and suggestions for further research.

2.2 The business evolution

Many authors have pointed out that the business system has progressed through different stages during the last century (Achrol and Kotler, 1999; Tofler, 1980; Kumar et al., 2000; Berthon et al., 2000; Verhallen et al., 2004). Despite the remarkable variety in terminology and time duration of each stage, these authors are in agreement that most business sectors are shifting way from supply orientation and towards demand orientation. The stages are generally described on the basis of different business philosophies predominant in each period as proposed by Verhallen et al. (2004). We synthesized the stages into two main periods: the stages developed under the influence of the industrial revolution, and those manifested within the so-called information revolution that has emerged in the last two to three decades (Table 2.1).

The demarcation of the different stages is somewhat arbitrary, but the key feature characterizing them is well-defined in the literature. Under the influence of the industrial revolution, the nascent industrialization stage consisted of the first real experience of manufacturing large quantities of products based on low costs for targeting mass marketing (Kotler, 1997). This experience, however, was limited to a few industries and to a few European and North American countries. A large proportion of the population lived in rural areas, the economy was agriculture-based, and all activities were limited through the absence of good transport systems, and mechanical and electrical technologies. As innovations started appearing - such as new road systems, electric equipments, tractors - mass production and mass marketing was slowly being developed.

The economic stage consisted of a period in which consumers simply wanted products that were available and affordable. The main focus of the organization was on manufacturing, and the aim was to use large-scale operations and mass production at the lowest possible costs, as price was the basis for competition. During the economic stage, the companies' orientation towards the market place was sales-driven. The market for these firms was seen as a tool to sell whatever their factories produced (Kotler, 1997). The chain was short and directly targeted.

The technological stage consisted of a period in which the consumers favoured products of the best quality. In this product-oriented period, innovation was essential for delivering the best technology. The focus of the organization was on the product itself and many companies suffered from myopic problems, as reported by Levitt (1960). The emphasis on

technology and the lack of efforts on customer understanding were the main limitations of this period (Naisbitt et al., 1990)

The marketing stage started with the emphasis on selling and promotion efforts. Companies were still short-term oriented and conceived that products were sold, and not bought. Later, in the mid-1980s, the business system changed the focus for developing products/services for specific market segments. Now, companies were striving to achieve a balanced marketing mix for maintaining the relations and transactions with the target segments. The consumer was slowly being recognized as the engine that drives the business, instead of being pushed by technology innovation alone. At the beginning of the marketing stage, the companies' success was based on performing market research to investigate the customer's needs, and then developing differentiated products or services for well-defined segments. This is what has been called the market-driven approach, and various companies such as Nestlé, Unilever, and Procter & Gamble have effectively employed this approach (Kumar, et al., 2000).

The final step in marketing development (the one that we are in now) consists of a period in which the business system is oriented to the party on which it is ultimately dependent: the customer, both the intermediary and the end consumer (Verhallen et al., 2004). Many important characteristics of the business system started in the 1980s. As pointed out by Tofler (1980) the economic and business systems were moving towards individualization, innovation, and diversity. Tofler observed that the consumer choice was reaching the level of overabundance, knowledge was supplanting manufacturing materials and manpower in many industries, the marketing power was moving from the suppliers to the consumers, and companies were no longer capable of operating in isolation. He concluded that the increased complexity, diversity and dynamics in consumer demand was forcing the whole business system to be more complex, more flexible, and more dynamic than ever before.

Later, in the 1990s, other forces influenced the shape of the business system, such as internationalization of the market, the development of information and communication technology, and the consumer needs for differentiation. All these new key features are now influencing the future. Many pioneering companies like Amazon.com and Ikea have revolutionized existing patterns through radical business innovation. These companies are now characterized as market driving because they did not use traditional market research to devise their strategies. The goal of market-driving companies is said to be the creation of new markets (Kumar, et al., 2000), while the companies that use the market-driven approach generally focus on obtaining market share in existing markets. In this new business context, the typical words used are value proposition (i.e. the combination of benefits, acquisition efforts/costs, and price offered to customers), and business system (i.e. the configuration of the various activities required to create, produce, and deliver the value proposition to the customer).

Table 2.1 – Different phases of the business system evolution

Key features	Business system under influence of the industrial revolution		Business system under influence of the information revolution	
	The nascent industrialization phase	The economic phase	The technology phase	The marketing phase
Resources	Vapour	Electricity	Petro-chemicals	Digital networks
Industries	Locomotive/steel	Chemistry/ Internal combustion engine	Electronics/ Aviation	Software/ new media
Focus	All functions in one hand	Mass production	Specialization	Diversification
Types of chains	Short chains	Competing chains	Integrated chains	Networks
Period	±1890	±1950	±1980	±2005

In this new context, the achievement of opportunities on the demand side is normally associated with substantial modifications on the supply side (Fisher, 1997). No single company is able to serve all buyers in the market because companies are limited in terms of skills and resources to execute all activities needed to produce and deliver the demanded products/services. Thus, companies need to share their competences with other companies, forming a system of upstream and downstream linkages, which constitute a chain (Cristopher, 1992). All of these factors have contributed to the rise of the supply chain in modern business. In the next section, we will introduce SCM and describe how it evolved to become DCM.

2.3 The management evolution practice

2.3.1 Supply chain management concept

The term 'supply chain management' arose in the early 1980s originally to replace logistics (Hugos, 2003; Cooper et al., 1997), and has gained tremendous attention and re-conceptualization since then. Some examples of the traditional definitions of SCM are:

"The management of the entire chain of raw material supply, manufacture, assemble and distribution to the end customer." (Jones, 1989, p. 23).

"An integrative philosophy to manage the total flow of a distribution channel from the supplier to the ultimate user." (Ellram and Cooper, 1990, p. 2).

"The coordination or integration of a series of activities/processes which procure, produce, and deliver products or services to customers." (Metz, 1994, p.2).

Three major aspects recur in all these definitions: the scope of SCM, the functions affected by SCM, and its focus. Regarding the scope, it is clear that these traditional definitions of supply chain management are very oriented towards the total flow of materials from supplier to the final customer. The functions of SCM are stressed in terms of supply, manufacturing and distribution. The focus of SCM is on the integration of the whole supply chain system to make exploitation of synergism possible.
A major problem of this traditional SCM understanding is that it suggests that firms should focus on engineering practices that facilitate the movement of goods from manufacturing to the distribution, facilitate the information flow between the partners, and reduce the total delivered cost through the chain. Although all these practices are important for the success of any supply chain, this traditional conceptualisation of SCM missed a fundamental element upon which the whole supply chain is dependent: the customer.
Apart from logistics, the theories closely associated to the development of supply chain management, and from which it emerged, are marketing relationships, marketing channels, transaction costs economics, Porter's value chain, and the interaction approach developed by the IMP group in Europe. These theories will be briefly examined in the following sections.

2.3.1.1 Marketing channel literature

Marketing channel theory is one of the most traditional schools of thought in marketing channel management (Coughlan et al., 2001). It consists of two main streams of approach, namely the microeconomic and the behavioural. The microeconomic stream draws on elements of the microeconomic theory to explain the way in which individual marketing functions are allocated across different types of organizations (Bucklin 1966; Stern and Reve, 1980). Economic efficiency was the general criterion underlying the models while the governance decision was a choice between internal and external organizations. The behavioural stream focuses on designing the mechanism by which to control the performance of individual channel members. In this stream the governance of actors in a channel is a matter of establishing and employing power. Authors in SCM such as Johnson and Wood, 1996; Ellram, 1991 considered the supply chain as an expansion of the marketing channel concept.

Although both marketing channel and SCM literature focus on the flow, SCM focuses on the entire move from the supplier to the end customer, while marketing channel literature focuses on the flow from manufacturer to the customer. SCM literature has expanded the scope of the marketing channel literature from existing products and processes to the reengineering of products and processes (Johnson and Wood, 1996). Additionally, while SCM is interested in long-term relationships, marketing channel literature is just concerned with simple transactions. Although there is evidence that the marketing channel literature influenced the emergence of SCM, the two approaches present more differences than similarities, while both aiming to identify the most efficient way of moving products to the final consumer.

More recently, the economizing tradition has been dominated by so-called transaction cost economics (TCE). Building on Williamson's (1975; 1979) contributions, the TCE approach interprets structural arrangements as being driven by an economizing imperative. This approach has been used often in SCM literature to set the principles of the joint work within a supply chain (Lambert and Cooper, 2000).

2.3.1.2 Transaction Cost Economic

Transaction cost economics (TCE) is a body of theory first elaborated by Coase (1937) and further developed by Williamson (1975) and Williamson (1979). TCE uses the concept of transaction cost to explain the organization of firms and the ways in which they interact along a supply chain. Transaction cost is generated by: a) opportunism face the individualistic behaviour of self-interesting seeking; b) considerable levels of specific investments that, when combined with opportunism, leads to high levels of transactions; and c) the information process, face the limited capacity of people receive, store and process data.

Williamson's analysis spends a lot of effort in explaining that in cases where high levels of specific-assets are shared by buyer and seller, and both want to maximize each other's interest, evidently a kind of governance structure is needed to attenuate opportunism and otherwise infuse confidence. The governance structure that is developed to minimize transaction costs can be a) highly specific in structure: able to deal with the special needs of the transaction; b) semi-specific in structure: fall in-between; and, c) non-transaction-specific: buyers and sellers meet to exchange standardized goods at equilibrium prices.

TCE has been vastly used on the development of SCM theory (see for example, Ellram (1991); Cooper (1993)). Supply chain management is seen as being situated between fully-vertically-integrated systems and the spot market (Cooper and Ellram, 1993). SCM attempts to overcome some of the disadvantages (or, put another way, is an attempt to combine the advantages) of vertical integration and spot marketing (Ellram, 1991; Cooper and Ellram, 1993).

However, the economic motive of transaction costs analysis has been considered to not be enough to fully explain joint action in chains (Kim, 1999). The chain organization is dependent on economic motives, but also in strategic motives actors are likely to engage in chains to pursue their respective or common goals. In this sense, the interest of supply chain theorists is moving towards a different, purely discrete transaction approach as proposed by TCE. The interest has shifted to approaches that try to understand the efforts of independent members cooperating in the chain.

2.3.1.3 Marketing relationship

In each chain, the members have some degree of relationships. Usually, two extreme relationships appear in the literature: the transaction relationship and the partnering relationship (Coughlan et al., 2001). The two extreme relationships appear when transactional relationships occur on one side based on operational aspects, and on the other side partnerships occur through extensive socio-cultural, economic, service, and technical ties over time (Figure 2.1). A chain partnership in this perspective is considered as in-depth collaboration between suppliers and their customers (Claro, 2004). From this view, parties should have common objectives and polices, as such procedures for delivery the required output by end-users.

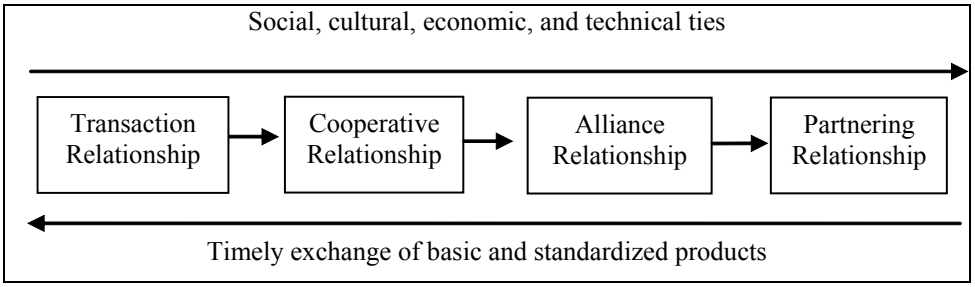


Figure 2.1 - Chain relationship

When buyers and suppliers interact in a coordinate format, the resultant chain should be viewed as a competitive unit, and thereby requires a management philosophy characterized by supply management orientation. Scholars have pointed out that one characteristic of an organisation that is guided by supply management orientation is their extended planning horizon, since each participant expects the relationship to continue for a considerable amount of time (Heide, 1994; Coughlan et. al., 2001). Many advantages are associated with a long-term relationship between a buyer and suppliers, with such a close relationship increasing the intensity of buyer-supplier coordination and the company's financial performance (Carr and Pearson, 1999). In a long relationship chain, participants may also

share risks and rewards to reduce supplier costs, and to improve quality and flexibility. In practice, a better performance of the entire chain occurs when the adversarial relation buyer-supplier is substituted by a closer relationship, and the participants are willing to maintain the relationship over the long term (Shin et al., 2000).
The proper functioning of a supply chain according to marketing relationship theory is very much influenced by the degree of such elements as collaboration, trust and transaction-specific investments (Heide, 1994; Claro, 2004). These elements form the essential components of the day-day supply chain practices and constitute key aspects studied in the SCM literature (Fearne, 1998; Palmer, 1997).

2.3.1.4 Porter's value chain

Porter (1985) introduced the notion of "generic value chain", which represents the factors and activities from the point of view of buyers that derive value from the products and services bought. The value chain displays total value, i.e. any activity performed or margin obtained along a supply chain. The value chain is linked to the types of competitive advantage a company can possess: low costs, differentiation or focus, and its goal is to create value for buyers at a profit. A pre-requisite for the achievement of any of these strategies, and consequently competitive advantage, is the alignment and synergism of the building blocks, i.e. activities comprising the value chain from the first suppliers to the final buyer. In this sense, Porter was the first to recognize the link between generic strategies in terms of cost, differentiation and focus and the value chain.
The value chain is one of the most common theories related to the basic set of literature in SCM (Jones and Clarke, 1990; Ascombe, 1994). However, the contribution of Porter's value chain is more on the progress and popularisation of SCM than in its emergence (note that Porter's value chain was published in 1985 and the first works on SCM were published in the early 1980s). Porter's value chain has also contributed to distinguishing the core activities that create a product/service that is valuable to buyers. Indeed, Porter's value chain has been one of the key theoretical backbones for the development in SCM observed in the 1990s. In particular, the positioning of SCM as a strategic and competitive entity is directly derived from Porter's insights.

2.3.1.5 The interaction approach (IMP group)

The Industrial and Marketing Purchasing group (IMP group) has greatly influenced the understanding of SCM concerning the nature and development of inter-company relations in the business market. The IMP group was formed in the mid-1970s by researchers originating from European universities that brought with them a more eclectic and wider reading and sources of ideas to understand buyer and seller interactions than the channel

literature of the time (Wilkinson, 2001). They emphasized the positive aspect of the relation for value creation (i.e. the healthy relation) to the parties involved. This perspective contrasted with the more adversarial focus of the channel literature that was used to emphasize potential problems, conflicts, power employment and transaction costs (i.e. the sick relation).

Four basic elements are important when characterizing the marketing and purchasing of goods as an interaction process between buying and selling companies (Hakansson, 1982): the interaction process itself, the participants in the interaction process, the environment within which interaction takes place and, the atmosphere affecting and affected by the interaction. The approach shows the short-term and long-term aspects of the interaction process between buyers and sellers, the influences of the characteristics of the organizations and individuals involved in buying and selling, and the influences of the environment where the interaction takes place. Additionally, the approach also shows that the interaction is dynamic and can be affected by the individual episodes that develop within the atmosphere of the relationship.

As the interaction approach deals with relationships, authors in the SCM theory have used its insights as a foundation for the establishment and on-going operations of supply chains. Specifically, the IMP interaction approach contributed to triggering the attention of scholars towards collaboration (Elram and Cooper, 1990;) and mutual dependence (Lambert et al., 1998) within the SCM theory. Additionally, the interaction approach has been very useful for delineating the theoretical boundaries of SCM (see Svensson, 2002).

2.3.2 The emergence of the demand chain management

A series of reasons for the rise of the demand chain are enumerated in the literature (Langabeer and Rose, 2002; Verhallen et al., 2004; Williams, et. al. 2002). The most salient of all motives is the effect of the differentiation in consumer preferences. As consumers are so diverse in their needs, companies must adapt and customize their products/services to meet the unique needs of each of the markets in which they compete. As a consequence, a proliferation of types of products, packages, sizes, shapes, colours, etc are introduced into the market every year, and companies are forced to hold an excess of stocks, inventories, which tend to increase the supply chain inefficiencies.

Supply chains have been very efficient at moving products to consumers, but supply chains need to progress towards effectiveness. In this sense, since consumers are the focus of a chain's existence, consumer demand should be at the core of a chain's business strategy. In doing so, the supply chain transforms itself into a so-called demand-driven chain (Verhallen et al., 2004; Langabeer and Rose, 2002) or, simply, a demand chain. The objective of DCM, according to Langabeer and Rose (2002), is to understand, influence and manage the consumer demand and achieve agility and responsiveness throughout the whole chain. This

line of reasoning is derived from Fisher's (1997) work in which a given supply chain facing demand uncertainty has to choose whether to emphasize efficiency or market mediation, i.e. adjusting production to match actual demand.
In fact, Fisher's work has been the turning point in the supply chain management literature by introducing the significant role of market mediation for supply chains (see Treville et al., 2004). From this point in time, authors such as Vollmann et al. (2000) and Hugos (2003) suggested that a better term than SCM would be necessary to emphasize the shift in emphasis from efficient supply to meeting the needs of the customers. Although the efforts in developing theory in the domain of DCM (see, for example, the special issue dedicated to the demand chain in the *Journal of Operations Management*, 2002) and in changing the nomenclature have been somewhat unsuccessful, it has become clear that there is a fundamental difference between chains focused on the final demand and chains focused on efficiency. The concepts of DCM, in essence, are based on supply chain concepts and here are two examples:

"*…a practice that manages and coordinates the supply chain from end customers backwards to suppliers*" (Vollmann et al., 2000 p. 82).

"*…is a set of practices aimed at managing and co-ordinating the whole demand chain, starting from the end customer and working backward to raw material suppliers*" (Selen and Soliman, 2002, p. 667).

The concept has therefore evolved from a supply-driven supply chain to a demand-driven supply chain perspective. That is, the focus has moved from managing the entire flow of products and services to serve the final demand, to managing the final demand to sequentially organize the entire flow of products and services. Since it is not possible to manage demand without a strong emphasis on the customer (both end customers and intermediaries customers), this implies that the concept of DCM is closely related to the market orientation perspective (see Narver and Slater, 1990; Kohli and Jaworski, 1990). Indeed, the DCM concept developed from the SCM concept by reversing the supply chain focus from pure standardization to grasping customer demand, which is one of the key elements of market orientation.
Market orientation emerged as a hot topic in the beginning of the 1990s with the publication of the papers by Narver and Slater (1990) and Kohli and Jaworski (1990). Narver and Slater (1990) conceptualised a cultural market orientation perspective to emphasize the organizational norms and values that encourage behaviours that are consistent with market orientation. Kohli and Jaworski (1990) emphasized a behavioural perspective that concentrates on organizational activities that are related to the generation

and dissemination of, and responsiveness to, market intelligence. Both perspectives, however, share the same idea that the final objective of market orientation is to achieve sustained success by creating superior value for customers.

Kohli and Jaworski's market orientation perspective seems to be particularly relevant for DCM with respect to three aspects: (1) organizational-wide acquisition and generation of market intelligence and information, pertaining to current and future customer needs; (2) Information dissemination within departments of a company and between companies composing the demand chain and; (3) organizational-wide responsiveness. Being responsive does not only mean being reactive to customer demand by selecting a target market, and adjusting products/services, promotional and distributional mixes to this target market, but also being proactive, or driving the evolution of the markets (Jaworski, et al., 2000; Kumar et al., 2000). It follows that a true demand chain is a complex network of business entities that not only follows the demand, i.e. in a reactive or driven perspective, but is also capable of driving the demand.

The underpinning theories that contributed to the formation of SCM and its evolution to DCM are illustrated in Figure 2.2. These theories, as already mentioned, were the sources of SCM, and also influence the key belief of the DCM concept. In brief, as SCM is directly derived from logistics, DCM is an extension of SCM, but with a strong emphasis on demand management due to the incorporation of the market orientation perspective.

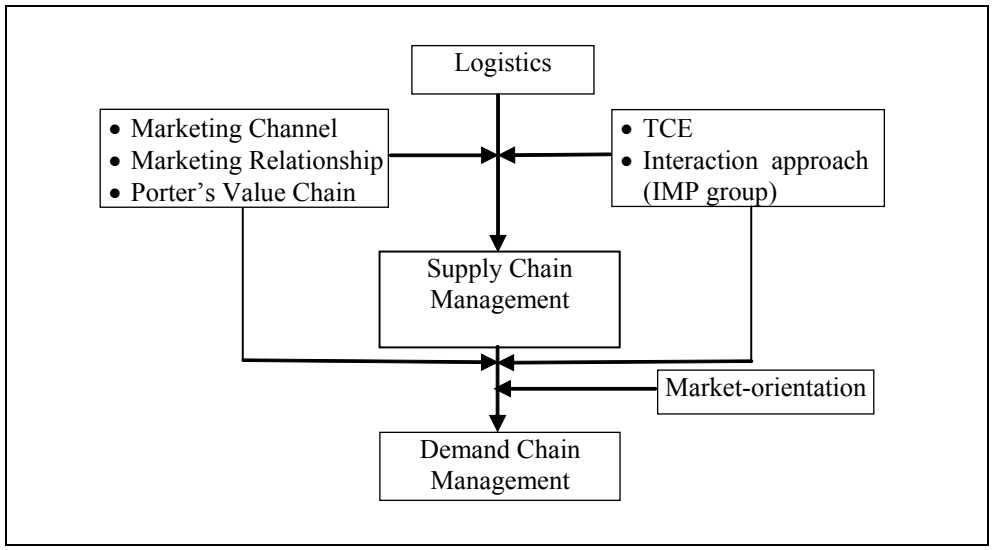


Figure 2.2 – The sources of the DCM concept.

The additional factors that differentiate SCM from DCM are displayed in Table 2.2. It is not our intention to explain all possible differences between SCM and DCM but to highlight four aspects that we think contribute to the clarification of DCM (you can find more details in the introductory chapter of this thesis, and also in Langabeer and Rose, 2001; Vollmann et al., 2000; Treville et al., 2004; and Walters and Rainbird, 2005). First, the DCM is primarily focused on meeting demand in the right market, versus the traditional supply chain emphasis on pushing products/services to undifferentiated markets. In this sense, in the SCM approach the products/services offered to clients are given/fixed, i.e. the emphasis is on pushing them through the pipeline to capture value through cost strategy. In contrast, in DCM products/services are not given, but variables in which the members of the chain will work for satisfy customers and capture values through differentiation strategy. Second, DCM creates revenues through managing the demand, i.e. acting proactively and driving the market, versus a reactive (i.e. driven) perspective of SCM. Third, DCM strives for supply chain effectiveness, while SCM strives for efficiency. Fourth, in DCM the end-customer information, i.e., the information generated about current and future customer needs, permeates all chain steps, while in SCM it stops at an intermediate level.

Table 2.2 – Supply and demand chains particularities.

Key features	Supply chain	Demand chain
Focus	On meeting the demand in the market (standardization).	On meeting the demand in the right markets (customized to one or more individuals).
Demand Objectives	Creating revenues through pushing products to the markets	Create revenues through consumer understanding and managing demand.
Supply objectives	Efficiencies in the production and logistic processes	Improve the alignment of the complex interactions of key business processes within and between companies in order to increase overall effectiveness.
End-customer information flow	Stops at an intermediary stages of the chain	Permeates all chain stages

The transition from SCM to DCM has been slow in many businesses, however. One sector we think illustrates such a transition is the beef business in the Rio Grande do Sul. In the next section, we will show how this business has evolved from a supply-oriented business to a demand-oriented business since the 1990s.

2.4 Consumption trends and the beef business context in Rio Grande do Sul

In the state of Rio Grande do Sul, beef consumption has risen to around 41 kg per capita (IBGE, 2005), although changes in consumption habits have caused a slight stabilization in beef consumption since the mid-1980s, while consumption of poultry has increased. Compared to the meat consumption in Brazil, the Rio Grande do Sul population eats more beef on average (Brazilian per capita consumption = 25 kg), but the same level of poultry (32 kg), and pork (12 kg per person per year).

In the past, beef in Rio Grande do Sul was made available by hunters who caught selvage animals living in the wild in the Pampas[1] and brought them to the place of slaughter near the villages. With the decrease in the number of animals in the wild, a more rational production system started. In that time (around 150 years ago), a new type of farmer arrived who, besides breeding and raising livestock, brought them to be sold at a common marketplace named "Charqueadas". Sometimes, in order to facilitate comparisons for potential buyers, some kinds of auction systems were also utilized.

Nowadays, the generic beef chain in Rio Grande do Sul consists of supply industries, breeders (farmers), brokers, slaughterhouses, wholesalers (although marginally active), retailers, and consumers. A complex differentiation of the beef business has emerged mostly due to the development in the retail sector and in consumer demand. For example, supermarkets, including hypermarkets, have significantly increased their market share. The new pattern of beef distribution assigns 60% of the total beef to supermarkets; 30-35% to butcher's shops; and 5-10% to special butchers, also known as "meat boutiques". The three largest supermarket companies represent around 40% of the retail market in the state (Tellechea, 2001).

Increasing concerns with product quality and safety, as well as convenience, have driven consumer purchases from butchers to supermarkets and to the special butcher – also known as meat boutiques (Aguiar and Silva, 2002). These categories of retailers exercise a more strict control of product quality and are under tighter public inspection than the others. In general, supermarkets and meat boutiques are specialised in serving the more exigent consumers from the top economic classes. Consumers from the lower economic classes used to buy meat from the suburb butchers, and the mini-market, but also in supermarkets.

Since the 1990s, companies are strongly emphasizing quality and differentiation in an attempt to decommoditize the beef market. In this context, brands have appeared from both supermarkets and abattoirs, activities and routines have been changed, actors are being eliminated, and new coordination mechanisms are being adopted to govern the transactions.

[1] A huge grassland area located on the borders of Argentina and Uruguay.

In the next section we will introduce the case study to investigate two types of beef businesses, i.e., the traditionally supply-oriented beef business and the new demand-oriented beef business. Additionally, these cases are linked to SCM and DCM perspectives.

2.5 Case study

2.5.1 The case study framework

The goal of the case study is to identify whether different ways of doing business at the supply and demand sides in the Rio Grande do Sul's beef chain can be linked to SCM and DCM concepts. As the objective is exploratory in nature we adopted the case study approach to investigate the phenomenon (see Yin, 1994). The case studies were designed with propositions based on the theory and from empirical observation that the beef chain in the Rio Grande do Sul has continuously evolved from supply to demand orientation.

The way in which companies and chains have to respond to specific market demand is through jointing valuable resources for deploying competences (Srivastava et al., 2001). Competences may result from assets and capabilities, either tangible (such as machinery, plant, trucks and land), or intangible (such as the ability to build up a brand, ability to organize agreements in the chain, and reputation) (Mahoney 1995; Hooley et al., 1999). Any supply chain or demand chain strategy involves the strategic management of competences, which are the basic requirements for companies to create values for customers in the form of products and services (see similar understanding in Leiblein, 2003).

The strategic choice of adopting a supply chain or a demand chain business practice implies a relation of dependence between the resources a company has and how it uses these resources. In the end, as pointed out by Davenport (1993), the conversion of resources of any kind into products or solutions for customers occurs through the medium of processes, that is, a collection of interrelated tasks performed in and between companies.

The elements that constitute the reference frame for the case study are summarized in Figure 2.3. Based on the outcomes (values) demanded by a company-specific customer, competences are required on the supply and demand sides of this company. Additionally, when the deployment of specific competences involves two or more independent actors, a relational-based competence is needed to coordinate the transactions held with external partners. Then, by investigating the tasks and resources (i.e., the deployment of competences) needed to produce and deliver goods and services, we hope to clarify the differences in adopting SCM and DCM practice in the beef business.

Next, the data collection is described, and then, before entering into to the competences description, an analysis of the focus of each company is needed to identify its customers.

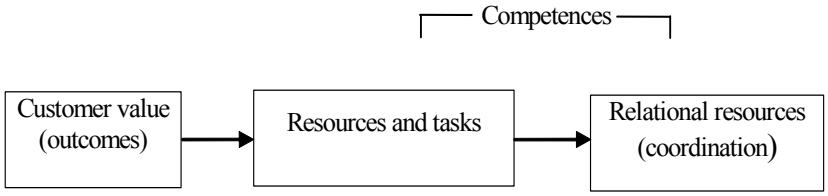


Figure 2.3 – Case study frame

2.5.2 Data Collection

Two types of chain organizations were identified as co-existing in Rio Grande do Sul beef's business (see Ferreira and Barcellos, 2005). One traditional, whose main focus is targeting the mass market, and one differentiated, whose main goal is to compete in highly sophisticated markets. Based on this categorization, and on a list of 45 butchers and supermarkets in the telephone directory of Pelotas (the second largest city in Rio Grande do Sul), two leaders of a butcher's association (the president and the secretary) allocated each of these companies in one of the two groups. Forty companies were classified as traditional and five as differentiated.

The research was undertaken over a period of 2 months, from June 2005 to July 2005. In the first instance, retailers' managers/owners of supermarkets and butchers were contacted by phone to elicit co-operation in the study. After contacting 15 potential interviewees (10 traditional and five differentiated), eight managers agreed to participate in the study, but just seven interviews (four traditional and three differentiated) were finalized since not all managers were willing to spend the time required for a semi-structured interview. The main characteristics of these groups are presented in the Table 2.3. The interviews, which lasted on average 1.5 hours, took place in the respondent's company, and they were taped for further analysis. Additionally, five interviews were realized with abattoirs' managers to complete the information requested to identify and understand the chain complexity in which each of the seven retailers was involved.

Table 2.3 – Characteristics of the respondents

Characteristics	Traditional group				Differentiated group		
	Super-market 1	Butcher 1	Butcher 2	Super-market 2	Butcher 3	Butcher 4	Butcher 5
Main products	Food and non-food products	Beef, chicken, pork	Beef, chicken pork	Food and nonfood products	Beef, chicken, pork	Beef, chicken, pork, wine, and adjoining take-in beef restaurant	Beef, chicken, pork, wine, oils, condiments
Place of location	Down-town	Down-town	Down-town	Suburb	Suburb	Downtown	Down-town
Number of fixed workers	24	2	1	35	2	5	8
Firm establishment (years)	20	16	14	18	3	8	24

2.6 Results

2.6.1 Retailer focus

As shown in Table 2.4, the two groups differed in terms of the main types of targeted consumers. The first group is basically composed of companies focused on consumers with different classes of income, while the second group is focused on segments with different levels of loyalty within higher-income consumer classes. In fact, these retailers are keen to build a different image with respect to high-income clients. This is illustrated by a respondent, who linked high-income consumer classes to a different way of doing business in the beef chain: "*…we focus on consumers from classes A and B, because our interest is to differentiate from the standard beef chain"*.

Additionally, the traditional retailers recognized more client profiles than retailers in the differentiated group, even though they hardly mentioned responding to these profiles with customized products or services. For them, the key element on focusing customers is treating all of them in the same way, as noted by a respondent: "*I don't sell anything, consumers buy. So, what I have to do is treat everybody in the best way possible, but equally"*. Indeed, it is clear that as they treat everyone equally, they hardly have any focus at all.

Both the internal and external views of the shops in the traditional group are simpler and less attractive than shops in the differentiated group. As the retailers in the differentiated

group are mostly interested in building loyalty, they have a sophisticated meat shop; they strive to preserve the companies' image, and constantly try to enhance the relationship with buyers and suppliers. This will be stressed in the next section.

Table 2.4 – Key segments at each group

Groups	Companies	Type of Segments
Traditional	Supermarket 1	Class A Start-ofthe-month's buyers Poor buyers
	Butcher 1	Barbecue buyer (classes A, B and C) Daily buyers (Classes A, B and C) By-products buyer (Class D)
	Butcher 2	Class A (loyal) Class B Class C
	Supermarket 2	Start-of-the-month's buyers Daily buyers On the spot buyers
Differentiated	Butcher 3	Daily buyers Weekend buyers (Regular)
	Butcher 4	Loyal 65% (classes A and B) Irregular 45% (Classes A and B)
	Butcher 5	Loyal (80%) Irregular (20%)

2.6.2 Tasks needed throughout the chain

2.6.2.1 Tasks on the demand side

The daily practice of the traditional retailers towards clients is basically push-oriented. The key factors behind the success of managing the demand for these retailers are competitive price, quality, and product availability, in that order. Moreover, as all clients are treated equally, there is no special treatment, or services to preferred clients. The employees are well-trained, but not committed to developing bonds of friendship with clients, and companies have no room for marketing specialists. All these elements influence the scarcity and insipient information generation about clients behaviour in these types of retailers.

By contrast, the practices of the differentiated retailers are based on an interrelated web of business processes designed to understand, manage and create demand. The specific actions

that are crucial to the success of their business is based on consumer satisfaction. They focus on friendship, personal relationships, and high quality products to build trust, and consequently loyalty, among consumers. They provide better services and try to get closer to consumers – some of these retailers visit their best clients, send cards to them, and some even track customers and recommend products customized to their needs. One company has started to collect information about its customer preferences in terms of type of cuts, size of cuts, and quantity bought for guiding other business processes in the chain.

The differentiated beef retailers also distinguish themselves from the traditional ones by having a greater range of products related to beef consumption in their shops. For example, they sell special condiments, all kinds of salamis, wine, soft drinks and beer, barbecue equipment, cheese, tea, erva-mate[2], which constitute basic ingredients especially for a perfect barbecue consumption situation. In this sense, these retailers are trying to position themselves as "one-stop-shops", rather than a simple butcher. Additionally, for well-known clients, these retailers also provide a telephone purchase alternative and home delivery service.

In summary then, the retailers in the differentiated group demonstrated more interest in accessing and using consumer information to create and stimulate demand than the retailers in the traditional group. Their promotional strategy is based on personal contact and friendship, and word-of-mouth is the way to create market awareness and desires that will translate into eventual purchases. The traditional retailers, on the other hand, use the traditional price-discount and media advertisement strategies.

2.6.2.2 Tasks on the supply side

The traditional retailers typically buy carcasses from several abattoirs. The products are pushed to the retailers through a centralized selling department based at the slaughterhouse's head office, which then distributes the products to various retailers. The product replenishment is based on a weekly telephone call (mostly from Tuesday to Thursday) from the abattoirs to the retailer, or vice and versa. The retailer owners/managers then compare the prices, the product availability and payment terms of each potential supplier before making the purchase decision. As soon as retailers and abattoirs come to an agreement, the abattoir transports and delivers the products in plastic packages to the retail store. The products, usually half- and quarter-carcasses are deboned, portioned and cleaned at the retailer's before being stored or displayed on the beef counter. Therefore, the retailer is the agent responsible for transforming carcasses into edible meat.

[2] A special tea for preparing "Chimarrão", which is served with hot water in a calabash "cuia".

At the abattoir, the procurement strategy is based on a group of buyers (either abattoirs employees or brokers) who procure finished livestock from the seller's farm. The grading system is based on visual inspection of the living animal, and the animals are divided into classes of quality in the abattoir. That is, the quality segregation is made at the abattoir reception area. Farmers usually raise their calves until they are ready to be sold in a production system called complete cycle. Generally, the breeds are of double finality, i.e. for milk and meat or Zebu-derived cattle, which are raised extensively in natural pastures and the animals are then sold to the abattoir markets at 3-4 years of age.

Based on the distribution of the main tasks from the animal production in the farm to the moment the meat is placed on the consumer's table, we found two different ways of grouping the supply chain of the traditional retailers studied (Table 2.5). Group (a) is composed of supermarket 1 and butchers 1 and 2. Group (b), refers to supermarket 2. The groups differ for three reasons: 1) the cold store is made by retailers in group (a), while it is also partially made by the abattoir in group (b); 2) in group (a) abattoirs are approved by the municipal and provincial inspection system, while in group (b) this is done through the federal inspection system; and 3) retailers in group (a) buy from many different abattoirs, while in group (b) there is only one abattoir responsible for the company's entire supply.

The second type of beef business - "the differentiated" - is characterized by companies that organize their activities more professionally. Generally, retailers are responsible for portioning the carcasses (half- or quarter-) received from the abattoir, deboning and cleaning them, and preparing the meat (i.e. mincing, cleaning, cutting, weighing, packaging) in front of the client, i.e. at the moment of purchase. Consumers are responsible for choosing the meat in the retailer shop, paying, transporting (although this can also be done by the retailers), storing, preparing, cooking and eating the meat. These tasks therefore are similar to those performed by retailers and consumers in the traditional group. What differs between the two types of beef business, i.e., the traditional and differentiated groups, is the activities in the upstream phases of the production chain needed to confer safety, transparency and guarantee that the appropriate eating quality in terms of tenderness and taste will be achieved.

The most important of these differences are: (1) the tasks along the whole chain are done by far fewer suppliers, i.e. the supply base is reduced to facilitate the transparency and traceability throughout the chain; (2) various tasks have special requirements such as: the breed selection (only European breeds are accepted such as Hereford and Angus); the raising system (either a weaner system focused on selling calves to feedlots and a complete cycle system are accepted. However, the cattle must be kept on a high nutritional plane through supplementation with grains and cultivated pasture, and ready to be slaughtered at 2.5 years of age); and the slaughtering and transport have to be done at a different moment and isolated from the other regular slaughtering and transport to avoid mixing beef with

unique characteristics with those of unknown origin; (3) some tasks are performed by different agents. For example, the transport of the meat from the abattoir to the retailers, which is realized by a truck owned by the farmer in the cases of retailers 3 and 5; (4) elimination of chain agents, such as brokers; (6) cattle's breed selection in the farm. This classification is needed to separate animals that comply with the requested grade from those that do not comply. The discarded animals are sold in the regular regional cattle market; and (7) the slaughtering process performed in a strictly controlled abattoir (usually those regulated by the federal inspection system). Columns c and d of Table 2.5 display the agents responsible for performing the various tasks in the chain led by butchers 3 and 5 and butcher 4, respectively.

Table 2.5 – Agents responsible for the different tasks from farm to consumer's table.

Tasks	Agent responsible for performing the tasks			
	Traditional retailers		Differentiated retailers	
	(a) Supermarket 1 Butchers 1 and 2	(b) Supermarket 2	(c) Butchers 3 and 5	(d) Butcher 4
Eating	consumers	consumers	consumers	consumers
Preparing	consumers	consumers	consumers	consumers
Inspection	SIM/SISPOA	SIF	SIF	SIF
Transport to retailers	n abattoirs	1 abattoir	1 farmer	1 abbatoir
Cold storing	n retailers	1 abbatoir / retailer	1 abbatoir / 1 retailer	1 abbatoir / 1 retailer
Trimming (deboning)	n retailers	retailer	retailers	1 retailer
Slaughtering	n abattoirs	1 abattoir	1 abattoir	1 abattoir
Livestock transport	n abattoirs	1 abattoir	1 farmer	1 abattoir
Livestock selection and buying	n abattoirs / n brokers	1 abattoir / n brokers	1 farmer	1 farmer / butcher
Livestock production	n farms	n farms	1 farm	1 farm

Note: n=various agents; SIM=Municipal Inspection System; SISPOA=State Inspection System; SIF=Federal Inspection System.

Additionally, the decision making in upstream phases of the differentiated chain is based on retailers' past and present sales information. In this sense, the whole chain is geared by the end demand and the differentiation of the products starts at earlier stages in the chain. For example, the farmer decides the number of animals to send to the abattoir, breeds, animal age, etc, based on customer orders rather than abattoir procurement planning as observed in the first group of retailers.

2.6.3 Coordination mechanisms

Within the traditional group of retailers, Figure 2.4 (a) shows a type of organizational arrangement in which the actors do not cooperate, in a one-to-one relationship. In this type of arrangement, a retailer typically buys carcasses from several abattoirs and an abattoir sells carcasses to several retailers. In this sense, instead of viewing the beef chain as a pipeline, which brings the products to the final consumer, it is more realistic to consider it as an intricate combination of actors resulting in a network type of structure. The several more or less independent actors involved in the chain are not committed to integrate and coordinate the processes throughout the chain. Consequently, there is no extended sharing of information; nor any joint planning and control of the activities, which leaves the retailers ignorant about any event that has occurred in previous supply phases.

A second type of organizational arrangement within the traditional group has been observed in a chain led by supermarket 2 (Figure 2.4, b). This supermarket moved away from the free market towards a contractual relationship with one slaughterhouse. The basic intention of this agreement was to secure a supply of carcasses at a reasonable price, reduce inventory costs as well as having more control over the products sold on its shelves. The slaughterhouse activities are programmed according to weekly supermarket orders. However, the abattoir livestock acquisition is still based on informal transactions with a vast amount of farmers.

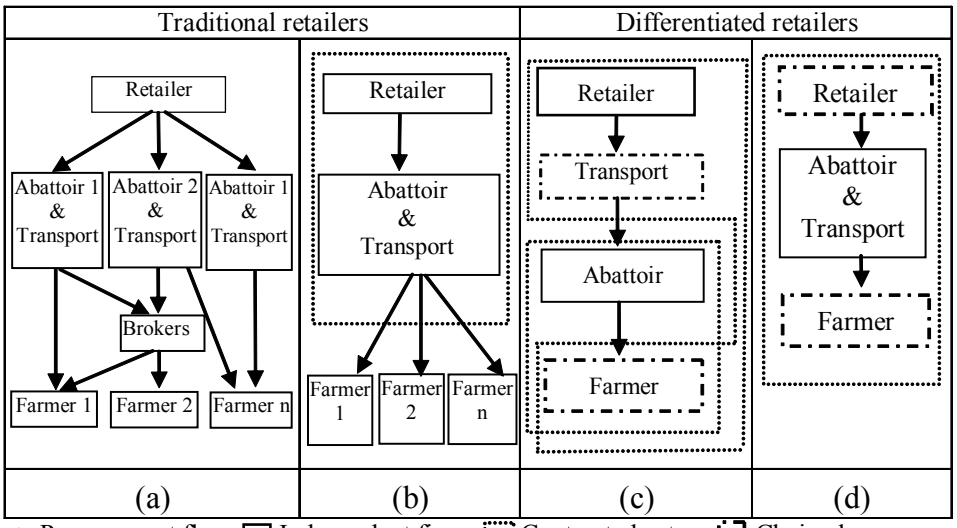


Figure 2.4 – Chain organizational arrangement across the two groups

Figure 2.4 (c) and (d), show the chain organizational arrangements found for retailers in the differentiated group. These retailers possess a specific and defined marketing strategy for targeting their particular market segments. In order to deal with their customer' demand, their respective supply chain is tightly coordinated around a small number of suppliers through contractual arrangement or vertical integration. For example, in the organizational arrangement illustrated in the Figure 2.4 c (butchers 3 and 5), the product shipment from the slaughterhouse to the retailer store is made by two trucks owned and coordinated by the farmer. Additionally, the butcher has a contract with one supplier-farm, which supplies all beef sold on its shelves through a contractual arrangement with one abattoir. Similarly, butcher 4 (Figure 2.4, d) was originally a livestock producer who vertically integrated the beef retailing phase. This company has a contract with one abattoir, which is responsible for slaughtering the cattle and transporting carcasses to the retailer store.

By instituting a strict control over the whole chain, these retailers, who play the central role in the chain, are moving towards a close management of the key risk points within the chain (particularly at the farm level). The strong relationship between the partners is set to decrease uncertainty and creates the opportunity to implement a coherent quality standard definition and transparency procedures throughout the chain. One specific example is butcher 4, who has promoted his products with a slogan "Here we have traceability". His intention is to stimulate consumer quality awareness and differentiation of his own

livestock production and beef shop, even thought its traceability programme is not approved by any recognized accreditation scheme.

In all four types of organizational arrangements, companies keep buying and selling to each other with certain continuity. As the needs of buyers and sellers arise, the flow of products and services, quality requirements, payment terms, etc, is subject to continuous adaptation. However, a distinctive feature of the organizational arrangement found in the cases refers to the interdependencies between companies. In the last two types of organizational arrangements, the relationship with suppliers seems to be crucial to retailers targeting their highly sophisticated types of final customers. While for the companies that adopt the first two types of arrangement, the dependence on suppliers is less intense and their economic performance is also less affected by suppliers' performance (except supermarket 2, which is totally dependent on one exclusive slaughterhouse). Moreover, the economic consequence of the relationship with suppliers in the differentiated group seems to be not only dependent on the transference of products/services and its price, but also to volume capability and willingness to change practices and routines that are important for guaranteeing safety, the quality of the products, as well as the transparency of the whole beef business.

2.6.4 Linking the cases with SCM and DCM perspectives

Figure 2.5 provides a summary of the key elements that characterize the two groups of beef retailers. The focus, demand and supply tasks revealed that DCM is practised when companies put a strong emphasis on their markets. In fact, the demand chain observed in the beef business in Rio Grande do Sul may be characterized as a supply chain that emphasizes the demand management to a greater degree than the efficient physical supply of products. As observed in the cases of butchers 3, 4 and 5, this way of doing business is based on superior intelligence and insight to sense and shape the market demand, and better capabilities for shaping the chain organizational arrangement.

Through introducing new customer benefits in terms of better services, better product quality and by enabling a kind of "one-stop shop" for a range of related products in beef consumption, these chains are following and shaping consumers' buying behaviour. Additionally, by eliminating traditional beef players (e.g. brokers and wholesalers), and by changing the functions performed by players (e.g. backward integration of the livestock production or by forward integration into products transportation) they are driving the beef value chain to meet their customer value goals.

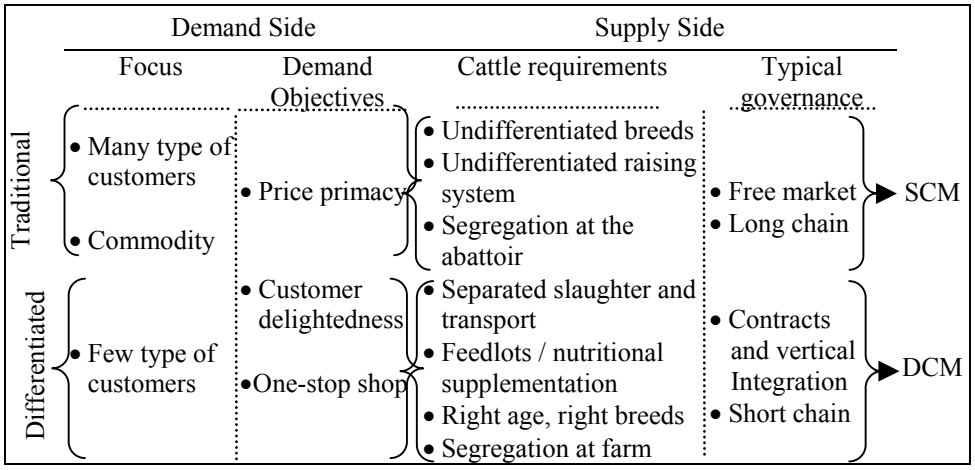


Figure 2.5 – DCM and SCM in the beef business in the Rio Grande do Sul

Therefore, they presented two distinctive aspects that put them ahead of their competitors: an innovative customer value proposition offered in terms of product quality, transparency and services, and a unique organizational arrangement used to coordinate the livestock production, beef processing, transport and delivery to the final consumers. Butchers 3, 4 and 5 fulfilled the key features of DCM displayed in table 2, and, therefore, are better characterized as adopting a DCM approach rather than an SCM approach.

On the other hand, supermarkets 1 and 2 and butchers 1 and 2 are better characterized as following an SCM approach because their key features in terms of focus, supply and demand objectives are, respectively, meeting the standardized demand in the market, creating revenues by pushing products to the market and being efficient at providing low-priced products to the market.

2.7 Conclusions and implications

Business systems have undergone dramatic shifts in the past decades. After a long period in which suppliers (producers) and buyers (consumers) functioned in a typical barter economy, mass production technology, better transportation, greater financial resources and the intensive urbanization of societies facilitated the emergence of the mass production system. The emphasis was on supplying standardized products for meeting customers' needs at reasonable prices (Holbrook and Hulbert, 2002).

However, as competition increased (more firms entered the market) and consumer diversity reached levels never seen before (age diversity, ethnic diversity, income diversity, lifestyle diversity) (Sheth et al., 2000; Jaworski, et al., 2000). Then, gradually, companies and chains started to pay more attention to markets. The shift from a product-oriented to a demand-

oriented business system has been occurring concomitantly with a certain increase in the customer power expressed by more information and communication and product availability elsewhere (Urban, 2005). Thus, the concept of market orientation was developed (Kohli and Jaworski, 1990; Narver and Slater, 1990), which explicitly recommends that in order to gain sustainable competitive advantages, organizations should focus on the markets that they serve. More recently, others have proposed that as a way to effectively and efficiently serve customers, companies and chains need to adopt a customer-centric perspective through DCM instead of an internally oriented perspective represented by the SCM approach (Hugos, 2003; Langabeer and Rose, 2002; Schuster and Dufek, 2004).

In order to build a demand chain, besides having an external orientation, all members of a chain need to share a common vision and work in harmony not only when reacting to the market but also in shaping it with products and services responsive to the customers' demands. Thus, a strong relationship between market agents is expected because this creates better opportunities to develop, communicate and implement the specific response required by the end customers. Additionally, as the market diversifies in terms of needs, and as customer behaviour has become less predictable and the forecast less accurate, companies started to manage their supply chains to rapidly meet demand. In this context, the demand-oriented supply chain or simple demand chain concept appeared to better balance the marketing management (i.e. product specifications, brand names and communication strategies, and the ways of capturing the value created through the price mechanism) with the supply management (contracts and agreements with other companies to get products and services to the customer) based on a customer value perspective.

The business systems and actions have therefore advanced from a barter-type business economy, passing to mass production and mass consumption through to a demand-oriented type of business. However, in most of the business activities, these stages (orientation) are not dichotomous, but blurred together so that some chains and companies are in different stages or different orientations are fitted together even within the same chain or company.

In the beef business in the Rio Grande do Sul, we observed two distinct orientations: the supply-oriented and the demand-oriented businesses. The supply-oriented business is tightly related to the traditional beef market. The farmers produce undifferentiated livestock and sell them to brokers or directly to slaughterhouses. As soon the animals are slaughtered, the beef is pushed to wholesalers or to retailers. Retailers (butchers, supermarkets and restaurants) add services and distribute the products to a vast range of undifferentiated consumers. Is common sense in Rio Grande do Sul that 85% to 90% of the whole beef business is following a supply-oriented perspective (Ferreira and Barcellos, 2005).

As the diversity of the beef market has increased in the last decade, this presented a great possibility to practise customer-centric business by individualizing the offerings for smaller

customer groups. Thus, a different way of doing business in the beef chain emerged, and this can be characterized as a demand-oriented beef chain.

2.7.1 Managerial Implications

Although the vast majority of the beef business in the Rio Grande do Sul is still supply oriented, we expect that it is moving towards the market centrism perspective and soon will adopt a demand chain management approach to the detriment of a supply management approach. This, we hope, will be facilitated by the introduction of technology for creating more customized products and faster replenishment cycles with fewer stock-out through customer relationship management (CRM) and Internet. However, the adoption of these tools by small companies such as those reported in this study is still limited through costs and operational effectiveness when compared to large supermarkets and hypermarket chains.

As the consumer beef market is diversifying in terms of income (rich and poor), lifestyle (health- conscious and pleasure-conscious), conspicuousness (social consumption and private consumption), place of consumption (at home and restaurants), being all things to all customers will be a great challenge. Therefore, managers in the beef business should note that a better strategy is to sense the final demand and manage the whole chain to deliver the right value to the targeted customer.

If companies and chains and, particularly, retailers are moving towards being demand oriented (i.e. specialist to a particular group of beef's customer), managers in the beef business should also note that the scope of their offerings needs to be enlarged to spread the costs across a large product assortment. Scale economies are not a crucial requirement, but retailers have to begin to look more like one-stop shops, where a vast range of products and services are available.

2.7.2 Further Research

Based on the evidence from the literature review, research has made significant progress towards the understanding of the business system evolution and its practical implementation. However, despite this progress, there are several gaps in knowledge about the implementation of DCM. The findings from this study about the empirical examination of DCM suggest the following directions for further research: First, research must focus on extending the current definitions and the theoretical boundaries of DCM to embrace the vertical dependencies and horizontal dependencies within and between chains. The consideration of the dynamics within and between chains requires the holistic approach of DCM. Furthermore, the pros and cons and potential obstacles for a redefinition of SCM towards DCM need to be explored. The antecedents and consequences of adopting DCM

for companies and its relation to business performance in and between demand chains also need to be addressed. Finally, we need to ask ourselves to what extent DCM depend on short chains and integrated relationships with other chain members.

We believe that the future of DCM will be attractive and interesting but needs to be challenged both in academia and in practice. We also believe that the proposed theoretical framework of DCM discussed in this study may contribute significantly towards positioning, organizing and structuring these potential studies.

Part 2: CONSUMER UNDERSTANDING

Chapter 3: Situational influences on consumer goals at different levels: An application to beef consumption

3.1 Introduction

After decades of focusing on improving their operational performance, agro-food businesses are now placing a greater emphasis on satisfying their customers. This change in behaviour has been driven by market saturation, changes in technology as well as changes in consumer demand (Verhallen *et al*., 2004). A series of strategies has been used for coping with the new trends (Larson, 2003), generally focused on decommoditization. In the beef business, companies have introduced new brands, new packages and certification schemes, and retailers are attempting to differentiate between their consumers so as to provide them with an optimal shopping experience. From this perspective, companies and retailers in the beef business need to understand the effects of anticipated consumption situations on consumer purchase behaviour, since such knowledge may contribute to value-adding initiatives as a base for differentiation, which will ultimately give a competitive advantage to the whole business in its activities to survive.

More than 25 years ago, a number of studies showed evidence that the perceived characteristics of situations that consumers are in, contribute significantly to the explanation of consumer behaviour (see e.g. Belk, 1974, 1975). The focus in these studies was primarily on the development of taxonomies of situations (Belk, 1974, Mehrabian and Russell, 1974), and on the effects of the usage situation on buying behaviour (Miller and Ginter, 1978; Ratneshwar and Shocker, 1991; Srivastava, 1981). More recently, it has increasingly been recognised that situations have an effect on the salience of specific values that consumers pursue in their purchase and consumption behaviour (Houston and Walker, 1996; Walker and Olson, 1991).

Although a lot of progress has been made in the field (for instance, see Carver and Scheier, 1996; Huffman *et al.*, 2000), most studies have dealt with the effect of situations on one specific aspect of the consumer decision-making process only: either on value activation, or on the benefits that consumers look for, or on preferences for concrete product features. In this chapter, we propose a theoretical model for explaining how situations affect consumer behaviour in terms of goals at various (interrelated) levels of abstraction. The model builds on the work of Austin and Vancouver (1996) in the psychological literature, and of Huffman *et al.* (2000) in the consumer behaviour literature. Central to the model is the

contention of Austin and Vancouver (1996) that values, current concerns, desired benefits and desired product features are all interrelated elements of one and the same motivational hierarchy. In this hierarchy, higher-level motivational goals (e.g. values) may affect lower-level motivational goals (e.g. desired benefits) and vice versa. The idea of a hierarchy of motivations is also found in means-end chain theory (see e.g. Pieters, 1993; Pieters *et al.*, 1995; Walker and Olson, 1991), theories on quality perception (see e.g. Steenkamp, 1990) and Lancaster's (1966) premise that consumers do not value products for their own sake but because of their utility-bearing features.

In the sequel of this chapter, we first discuss our model of a motivational hierarchy together with the background of three dimensions along which perceived situations may vary, and are varied in our empirical study. In addition, we formulate a number of hypotheses that can be derived from our model and the literature. Subsequently, we present the design of an empirical study to test our model and hypotheses in the context of beef consumption in Brazil. Finally, we describe and discuss the results from our empirical study, come up with managerial implications and give suggestions for future research.

3.2 Theoretical model

Much of consumer behaviour in daily life is driven by so-called current concerns that consumers want to resolve. Current concerns, also called “doing goals”, are relatively well-defined problem representations (Ratneshwar *et al.*, 1996), which lead to a task that a person sees him/herself working on for a specific, limited period of time (Cantor *et al.*, 1987). A typical example of a current concern is ‘I have to host a party for friends’. To resolve them, people engage in (structured) activities, such as going out and looking for products (but they may, for instance, also look for personal contacts) that have those features and therefore deliver those benefits that will help them to resolve their current concerns. Desired benefits constitute an intermediate level in the goal hierarchy (see Figure 3.1). In the literature, a distinction is made between functional and psychosocial benefits, where functional benefits reflect a physiological consequence (e.g. satisfying hunger or thirst) and psychosocial benefits reflect the personal and social outcomes (e.g. pleasure) of product usage, ownership and disposal (e.g. Gutman, 1982; Reynolds *et al.*, 1995). In the end, it is the products’ features that deliver benefits to consumers, and therefore, because of current concerns, people will be motivated to look for particular features. Desired product features mostly deal with the operational aspects of behaviour and are therefore placed at the lowest level in the goal hierarchy. Together, desired product features and benefits are called “having goals” and define the “how” of behaviour (Kleine *et al.*, 1993; Pieters, 1993).

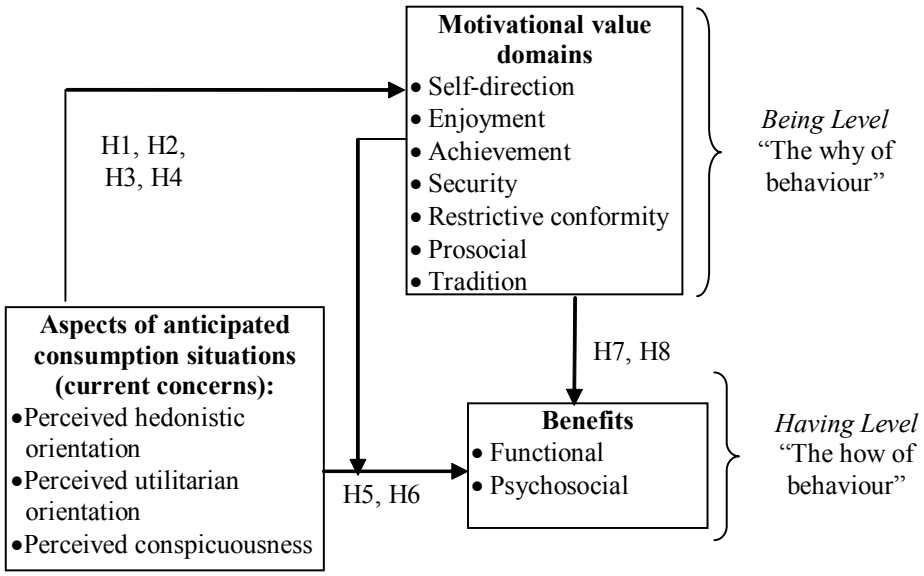


Figure 3.1 – A model of the influence of perceived aspects of anticipated consumption situations (current concerns) on higher- and lower-level goals

Above the goal level of desired benefits, we find the values that people strive for in their life (Rokeach, 1973). Values represent, in the form of conscious goals, responses to three universal requirements with which all individuals and societies must cope: biologically based requirements, social-interaction requirements, and requirements for the smooth functioning and survival of groups (Schwartz and Bilsky, 1987). Based on these three universal requirements, Schwartz and Bilsky (1987) derived seven general value types from Rokeach's (1973) original list of values: self-direction, achievement, enjoyment, restrictive conformity, security, prosocial, and tradition. Values are also called "being goals" and explain the "why" of behaviour (Pieters *et al.*, 1995).

Current concerns can consist of anticipated consumption situations, like hosting a dinner with friends, and to resolve such current concerns, people will engage in for instance purchase and meal-preparation situations. At that point, current concerns can be seen as part of the task dimension (see Belk, 1974) of purchase and meal-preparation situations. Our model posits that perceived aspects of anticipated consumption situations, such as their social visibility, directly influence which values are being activated (i.e. "being goals") and which benefits and features (i.e. "having goals") are searched for when people try to resolve their current concerns. We essentially assume a sequential process in which values are

activated by perceived aspects of anticipated consumption situations first. This is called adaptation (Huffman, 2000). Then, activated values influence which benefits and features will be desired, by a process of incorporation (Huffman *et al.*, 2000). Also, we assume that the activated values moderate the effect of perceived aspects of anticipated consumption situations on desired benefits. This is because higher level goals, such as values, are a reference and provide alignment and coherence to lower-level goals such as benefits sought (Carver and Scheir, 1990), and therefore the relationship between anticipated aspects of the consumption situations and desired benefits may differ at different levels of values.

3.2.1 Hedonism, utilitarianism and conspicuousness in consumption situations

Consumption situations can differ from each other in many aspects. In this chapter, we limit ourselves to three of them, which have been addressed in various disciplines such as sociology, psychology and consumer behaviour: hedonistic orientation, utilitarian orientation and conspicuousness. In hedonistic consumption situations, the focus is on multisensory stimulation, fantasy and emotive response and the consequences for consumers result fundamentally from fun and playfulness (Babin *et al.*, 1994). Hedonism refers to what Hirschman and Holbrook (1982) called the festive, ludic or epicurean side of consumption. The motivation to engage in hedonic activities is reported to be subjective and personal (Ratchford, 1987; Rossiter *et al.*, 1991). In addition, hedonic consumption situations are associated with the generation of strong emotional involvement.

In utilitarian consumption situations people typically look for functional/utilitarian rewards (Hirschman and Holbrook, 1982). Consumption performed in a rather quotidian/mundane experience is likely to be perceived as utilitarian, and their relevance to the consumer depends mostly on tangible aspects, like nutritional value (Ratchford, 1987). In this sense, the utilitarian focus of a consumption situation lies in the notion of performing a useful function. Although, the utilitarian and hedonistic orientations are two different aspects, a relative amount of each one is present in any consumption situation, but also in shopping (Babin *et al.*, 1994; Fischer *et al.*, 1990) and sports (Deci *et al.*, 1982). For example, hosting a Meal can be both a rather mechanical activity from which consumers gain utilitarian rewards (e.g. nutrition), and a pleasurable act from which the hedonic rewards are obtained by sensory stimulation and pleasure.

The conspicuousness of consumption situations deals with their social visibility (Boune, 1957; Richins, 1999). Conspicuous consumption situations allow and force consumers to show and communicate something about themselves to others, and are therefore assumed to trigger a consumer's consciousness about how others judge him/her on the basis of the product or brand he/she uses (Richins, 1999; Schenk and Holman, 1980). As such, the

degree of conspicuousness is associated with perceived risk (Campbell and Goodstein, 2001; Dowling and Staelin, 1994), self-images and social identity (Ligas, 2000).
Both the hedonistic and the utilitarian orientation can be seen as part of Belk's (1974) task dimension of consumption situations. Conspicuousness can on the other hand be seen as a part of Belk's social dimension of consumption situations.
In this chapter we will empirically test the theoretical model, put forward in Figure 3.1, about the influence of the perceived hedonic and utilitarian orientation and the perceived conspicuousness of anticipated consumption situations on consumer goals at several levels of abstraction. In the next section, we formulate some more specific hypotheses about this influence.

3.3 Hypotheses

In this section, we develop more specific hypotheses that follow from our theoretical model and the literature. Figure 3.1 shows the relations that each of the hypotheses deals with. In spite of the fact that we recognize that the relationship between aspects of the anticipated consumption situations and desired benefits may vary as a function of the values, we did not hypothesize any specific moderating effect. The existing literature provides only general arguments for moderating effects, but no explicit indications that could guide us to derive specific hypotheses. Therefore, the moderating effects were tested in more exploratory way.

3.3.1 Anticipated consumption situations and value importance

The situational context within which individuals perform activities may sensitize by adaptation a specific pre-existing set of values within a person's value system (Carver and Scheier, 1990). For example, Walker and Olson (1991) claim that values activated in "sending a wedding card" significantly differ from those that are activated in "sending a thinking-of-you card". Houston and Walker (1996) found that consumers that perceived a situation as more self-relevant brought out more abstract goals than those that perceived a situation as less self-relevant. In short, although the values that people have are relatively stable and important for maintaining the individual internal degree of consistency and equilibrium, different values may be prioritized in different situations.
We expect that perceived hedonism and utilitarianism of anticipated consumption situation are, respectively, positively and negatively associated with value domains that express and entail a desire for affectively pleasant arousal as "enjoyment" (Schwartz, 1994). This is because hedonic consumption triggers excitement, entertainment and emotional worth (Hirschman and Holbrook 1982), while utilitarianism is related to for instance physical energy replacement and hunger satiation. Hence, the more a person perceives an anticipated

consumption situation as hedonic (utilitarian), the more (less) enjoyment values will be important.

H1: The importance of enjoyment values is positively associated with the hedonistic orientation of the anticipated consumption situation.

H2: The importance of enjoyment values is negatively associated with the utilitarian orientation of the anticipated consumption situation.

Security values, like health, family security, etc. (Schwartz, 1994), express the need for physical, mental and psychological safety of the individual and of the group to which he/she belongs (e.g. family). The utilitarian orientation of anticipated consumption situations is expected to be positively associated with security values. The more a consumption situation is seen as utilitarian, the more security values will be important.

H3: The importance of security values is positively associated with the utilitarian orientation of anticipated consumption situations.

Consumption situations that are perceived to be conspicuous are likely to be used by consumers to show and communicate something about themselves to others (Richins, 1999; Schenk and Holman, 1980). Consequently, conspicuous anticipated consumption situations motivate consumers to preserve their self-image by being benevolent and kind to others. The perceived conspicuousness is expected to be positively associated with prosocial values, like altruism, benevolence and kindness (Schwartz, 1994). So, the greater the perceived conspicuousness, the more important prosocial values will be.

H4: The importance of prosocial values is positively associated with the perceived conspicuousness of anticipated consumption situations.

3.3.2 Anticipated consumption situations, value importance and desired benefits

A well-established body of literature on motivational theory (Hirschman and Holbrook, 1982; Ratchford, 1987; Rossiter and Percy, 1991) links functional and psychosocial benefits to utilitarian and hedonic products and activities, respectively. According to these authors, in utilitarian activities and products, the importance of functional benefits prevails over the importance of psychosocial benefits. Conversely, hedonic activities and products would tend to reinforce the importance of psychosocial benefits. Then, it is hypothesized that:

H5: The perceived hedonistic orientation and utilitarian orientation of anticipated consumption situations are positively associated with the importance of psychosocial and functional benefits respectively.

Conspicuous consumption situations may make a consumer feel self-conscious about behaving appropriately in order to avoid embarrassment or negative consequences, such as losing self-esteem and reputation. As a functional benefit such as quality constitutes a *sine qua non* condition for avoiding embarrassment and other negative consequences, we expect that quality is very important for consumption situations that are perceived to be conspicuous. Therefore, it is hypothesized that the importance of the quality is positively related to the perceived conspicuousness of the anticipated consumption situation.

H6: The perceived conspicuousness of anticipated consumption situations is positively associated with the importance of the quality benefit.

Higher-level goals, such as values, can play a direct role in shaping lower-level goals, such as desired benefits (Ratneshwar *et al.*, 1996), through a process of goal incorporation (Huffman *et al.*, 2000). For instance, in deciding which type of benefit to seek, a person may choose quality because his/her value toward preserving the safety of herself or her family is very important. We, specifically, expect that the value domain security will exert a direct effect on the quality benefit. So, it is hypothesized that:

H7: The importance of security values has a positive effect on the importance of the quality benefit.

Another motivational value domain expected to affect the desired benefits is achievement. As achievement is concerned with self-enhancement and competence (Schwartz, 1994) it is expected that it will influence consumers to strive for benefits that confer performance on the consumption. Specifically, we expect that the importance of suitability and quality benefits that are baselines for a successful consumption, are affected by the achievement values. Then, it is hypothesized that:

H8a: The importance of achievement values has a direct, positive effect on the importance of the suitability benefit.

H8b: The importance of achievement values has a direct, positive effect on the importance of the quality benefit.

3.4 Methodology

3.4.1 Data collection

To test our model and hypotheses, a survey was carried out among principal beef buyers from households that were randomly selected in 26 cities in the state of Rio Grande do Sul, Brazil. Respondents were randomly allocated to two different versions of a questionnaire on beef consumption. One version of the questionnaire dealt with the anticipated beef consumption situation of "hosting an everyday meal with beef", whereas the other version dealt with "hosting a barbecue with beef". These anticipated beef consumption situations were purposely chosen to induce variation in the scores on the key independent variables: hedonistic and utilitarian orientation and conspicuousness.

A preliminary version of the questionnaire was tested in a pilot study with a sample of 60 respondents (30 for the everyday beef consumption situation and 30 for the barbecue beef consumption situation), and adjusted where necessary.

3.4.2 Subjects

From 611 interviews started, 82.5% were completed. 11.6% were not completed because the interviewee did not buy/prepare beef in his/her household at least once a year, and 5.9% were not completed because the interviewees were vegetarian. In the end, our sample consisted of 252 respondents for each of the two consumption situations. The interviews took about 45 minutes, and each respondent received a gift (an apron) for his/her participation.

The sample comprises 170 women and 82 men for the everyday beef consumption situation, and 122 women and 130 men for the barbecue beef consumption situation. The mean age was 39.7 for the everyday and 41.6 years for the barbecue situation. Mean reported income was US$526.00 for the everyday and US$532.00 for the barbecue situation. There are no statistically significant differences in the demographics of the two samples, except that the percentage of men is higher for the barbecue beef consumption situation ($p<.01$). This is not surprising, given that the sample procedure was designed to represent the actual behaviour of the respondents, and others have already indicated gender differences in beef consumption in Rio Grande do Sul (Maciel, 1996).

3.4.3 Measures

3.4.3.1 Conspicuous dimension

To measure conspicuousness, a scale was constructed. First, five in-depth interviews were held, in which the respondents were encouraged to construct pairs of phrases with opposite meaning for characterizing each of the two consumption situations in terms of visibility. Based on these phrases, three items were constructed and pre-tested with 15 respondents (8

for everyday beef consumption, and 7 for barbecue beef consumption) using a semantic differential scale ranging from 1 to 5. Each of the items started: “You think that consumption of beef on an everyday/barbecue consumption situation is…”.

Secondly, a focus-group discussion was organized with seven consumers. First, the participants were asked to make comments about two photos; one showing family meal consumption, and the other one showing barbecue consumption. A wide range of comments was gathered over the course of the discussion, and from that five more items were constructed.

The eight semantic differential scale items (all rated on a five-point scale) were pre-tested in the pilot study with 60 respondents. Based on the results of an exploratory factor analysis, five of these eight items were retained for the final survey.

Confirmatory factor analysis was conducted to examine the scale dimensionality. Because the assumption of multivariate normality was violated, estimation of the final scale was done by generally weighted least squares. A one-factor model for the five items did not fit very well (χ^2 = 23.83, df = 5, p < 0.001; RMSEA = 0.087; GFI=0.93; AGFI=0.80; NFI=0.81; CFI=0.82). The highest residuals were all associated with the specific item with end poles labelled “Is a routine moment, in which nothing special is prepared" and "Is a special moment in which a better dish, better food is prepared”, and therefore this item was dropped. A one-factor model for the remaining four items fitted very well (χ^2 = 4.57, df = 2, p = 0.197; RMSEA = 0.050; GFI=0.99; AGFI=0.93; NFI=0.95; CFI=0.95). Table 3.1 shows the squared multiple correlations of the items, which are all well above the common threshold of 0.50.

Factor scores were calculated and used as a measure for the perceived conspicuousness of the beef consumption situations. The mean perceived conspicuousness of the barbecue beef consumption situation (M = 0.79) was indeed higher (t = 28.22, df = 499, p < 0.001) than the mean perceived conspicuousness of the everyday beef consumption situation (M = -0.78), showing that our manipulation of perceived conspicuousness succeeded.

Table 3.1 – Confirmatory factor analysis for the conspicuousness of beef consumption situations

Items	Squared multiple correlation	Cronbach's α
1. Less festive…..More festive	0.72	0.92
2. Is just a feeding moment… Is a feeding moment, but also a fraternization moment	0.75	
3. Is a private moment (usually involves just people that reside under the same roof)….. Is a social moment (involves people that live under the same roof, but also married sons/daughters, sons and daughters in law, friends, relatives, etc.)	0.90	
4. It is just for family members and happens daily…. It is a family members' meeting and happens more in the weekends	0.89	

3.4.3.2 Utilitarian and hedonic dimensions

The perceived utilitarian and hedonic orientation of the beef consumption situations were assessed using the eight semantic differential items proposed by Batra and Ahtola (1990), translated into Portuguese, with back-translation. This scale consists of four utilitarian items (useful/useless, valuable/worthless, beneficial/harmful, and wise/foolish) and four hedonic items (pleasant/unpleasant, nice/awful, agreeable/disagreeable, and happy/sad), all rated on five-point scales.

The eight scale items were tested in the pilot study and subjected to principal components analysis with Varimax rotation to examine their dimensionality. The first two factors accounted for 33.35 and 32.83 percent of the total variance, respectively, while no additional factor accounted for more than 7 percent. All four hedonic items had a loading higher than 0.70 on the first factor, whereas all utilitarian items had a loading higher than 0.70 on the second factor. From this we concluded that the set of items from Batra and Ahtola (1990) covers the two intended constructs and they were therefore integrally used in the final survey.

Next, we did a confirmatory factor analysis (estimation by generally weighted least squares) in the final scale to test a two-factor model for these two constructs. This two-factor model fitted reasonably well (χ^2 = 25.73, df = 19, p = 0.137; RMSEA = 0.027; GFI=0.96; AGFI=0.93; NFI=0.87; CFI=0.91). The Cronbach's α is quite satisfactory for both constructs. Table 3.2 shows that only one squared multiple correlation is (just) below the threshold value of 0.50.

Table 3.2 - Confirmatory factor analysis for the hedonic and utilitarian orientation

Items	Squared multiple correlation	Cronbach's α
Hedonic orientation		0.86
Awful…Nice	0.71	
Disagreeable…Agreeable	0.69	
Unpleasant…Pleasant	0.70	
Sad…Happy	0.68	
Utilitarian orientation		0.82
Foolish…Wise	0.72	
Useless…Useful	0.69	
Worthless…Valuable	0.58	
Harmful…Beneficial	0.49	

The unidimensionality of each of the two scales was tested in confirmatory factor analyses on the data from the main survey (Hedonic orientation: $\chi^2 = 0.60$, df = 2, p = 0.739; RMSEA = 0.000; GFI=1.00; AGFI=0.99; NFI=0.99; CFI=1.00; Utilitarian orientation: $\chi^2 = 0.47$, df = 2, p = 0.791; RMSEA = 0.00; GFI=1.00; AGFI=0.99; NFI=0.99; CFI=1.00).

Factor scores were used to measure the perceived hedonic and utilitarian orientation of the beef consumption situations. The mean perceived hedonic orientation of the barbecue beef consumption situation (M = 0.55) was indeed higher (t = 14.01, df = 482, p < 0.001) than the mean perceived hedonic orientation of the everyday beef consumption situation (M = -0.51), showing that our manipulation of perceived hedonic orientation succeeded. The mean perceived utilitarian orientation of the barbecue beef consumption situation (M = -0.40) was on the other hand lower (t = -9.59, df = 482, p < 0.001) than the mean perceived utilitarian orientation of the everyday beef consumption situation (M = 0.40), showing that our manipulation of perceived utilitarian orientation also succeeded.

Despite the fact that we simultaneously manipulated the perceived conspicuousness, and hedonic and utilitarian orientation, by presenting two different beef consumption situations, the correlations between the measures are still not so high that they would refute discriminant validity between the measures: r=0.53 for perceived conspicuousness and perceived hedonic orientation, r=-0.30 for perceived conspicuousness and perceived utilitarian orientation, and r=0.00 for perceived hedonic and perceived utilitarian orientation. Additionally, we tested the discriminant validity of each pair of constructs by confirmatory factor analysis. For all three pairs the goodness-of-fit indices for the two-

factor model indicated reasonable fit, while for one-factor model they were not reasonable[3]. Thus, discriminant validity between the constructs is supported.

3.4.3.3 Values

Using back translation, we prepared a Portuguese version of the Rokeach Values Survey with two more values proposed by Schwartz and Bilsky (1987) "*Being healthy*" and "*Maintain the tradition, preserve your own culture*". In the pilot study, the respondents were asked to rate a total list of 38 values as "a guiding principle in your everyday/barbecue beef consumption" on a five-point scale: 1 = 'Not at all important', 5 = 'Very important'. Each item contained a brief explanation of its meaning in parentheses (as originally suggested by Rokeach, 1973). Based on the results of this pilot study, 22 values were retained and 16 were excluded due to their low importance for beef consumption. Value items were retained only if their mean importance across the two beef consumption situations in the pilot study was at least equal to 2.

For the hypotheses test, these value items were a posteriori summated into value domains according to a suggestion of Schwartz and Bilsky (1987, see Table 3.3). Cronbach's α of each summated scale was well beyond the threshold level as displayed in Table 3.3. As we have dropped 16 value items from the original Rokeach list and added two value items, slight differences with the value domains derived by Schwartz and Bilsky (1987) are observed. E.g., no value from the maturity motivational value domain appeared to be relevant for food consumption. Additionally, the value "being healthy" was located in the security domain, while "maintain tradition" was allocated in an entirely new domain called tradition (see suggestion of Schwartz and Bilsky, 1987: p.60).

[3] Hedonic and utilitarian constructs: One factor model (χ^2 = 172.32, df = 20, p < 0.001; RMSEA = 0.32; GFI=0.39; AGFI=-0.09; NFI=0.51; CFI=0.53); and for two factors model (χ^2 = 25.77, df = 19, p < 0.13; RMSEA = 0.02; GFI=0.96; AGFI=0.93; NFI=0.87; CFI=0.92). Hedonic and conspicuous constructs: One factor model (χ^2 = 201.91; df = 19; p < 0.001; RMSEA = 0.31; GFI=0.33; AGFI=-0.19; NFI=0.46; CFI=0.47); and for two factors model (χ^2 = 84.95, df = 19, p < 0.001; RMSEA = 0.07; GFI=0.86; AGFI=0.74; NFI=0.68; CFI=0.70). Utilitarian and conspicuous constructs: One factor model (χ^2 = 372.07, df = 20, p < 0.001; RMSEA = 0.35; GFI=0.32; AGFI=-0.21; NFI=0.49; CFI=0.51); and for two factors model (χ^2 = 29.05, df = 19, p < 0.06; RMSEA = 0.03; GFI=0.96; AGFI=0.92; NFI=0.86; CFI=0.89).

Table 3.3 - Seven motivational value domains

Enjoyment (α=.91)	Self-direction (α=.86)	Achievement (α=.89)	Security (α=.79)
Cheerful Pleasure Happiness Comfortable life	Imaginative Freedom Exciting life	Self-respect Capable Accomplishment Broadminded Social recognition	Family security Inner harmony Being healthy
Restrictive conformity (α=.91)	Prosocial (α=.89)	Tradition	
Self-controlled Polite Clean	Loving Honest True friendship	Maintain tradition	

3.4.3.4 Benefits sought

The selection of benefits sought with respect to the everyday and the barbecue beef consumption situations was based upon: a) a literature review – a list of 35 possible important benefits was collected from the food and meat literature (Steptoe *et al.*, 1995; Grunert, 1997; Roininen *et al.*, 1999; Barcellos, 2002), b) talking to experts – the 35 previously generated benefits were discussed in two informal interviews with butchers. 27 benefits were retained for further investigation, and c) a pilot study – respondents in the pilot study were asked to rate the importance of the 27 benefits. After the pilot study, ten benefits were deleted because they appeared to be irrelevant for both types of beef consumption situations.

The final survey consisted of 17 benefits (Table 3.4), divided into 11 functional, and 6 psychosocial benefits. In order to reduce analysis complexity in the further analysis, factor scores were calculated for a few functional and psychosocial benefit dimensions. The functional benefits were captured in three factors, which accounted for 75.52% of the variance. They were named "Nutrition" which includes three items related to nutritional benefits of beef consumption, "Quality" which includes two benefits concerning beef quality, and "Suitability", which consists of two items dealing with the appropriateness of the beef for different people and dishes. The items "*convenience*", "*the juiciness of the beef"*, "*healthiness of the beef*", and "*hunger satiation*" did not fit in any of these three factors. Therefore, they were dropped from further analysis.

The psychosocial benefits were summarized by two factors, which explained 76.91% of the total variance. Factor 1 consists of three socially rewarding related statements that lead to preserving self-esteem, and is therefore labelled "Social reward". Factor 2 includes two

items concerning pleasure in eating, and is labelled “Pleasure”. The item “Pleasure in preparing meals” was excluded because it did not fit well in either of the two factors.

Table 3.4 - Functional and psychosocial benefit factors

Kind of benefit	Factor	Benefit	Factor loadings	Variance explained (%)	Cronbach’s α
Functional	Nutrition	Healthy (low cholesterol level)	.87	30.87	.80
		Easy to chew	.82		
		Nutritional value	.82		
	Quality	Quality of the beef	.89	23.60	.78
		Sense of quality guaranteed	.88		
	Suitability	Suitability for many dishes/recipes	.85	21.06	.63
		Suitability for everybody	.83		
Psycho-Social	Social reward	Being considered a good cook	.87	42.49	.80
		Feeling valued by the family	.85		
		Feeling good about making the food	.76		
	Pleasure	Pleasure in savouring good beef	.91	34.42	.83
		Pleasure in tasting	.90		

3.5 Results

3.5.1 Hypotheses H1 to H5

In order to test hypotheses H1 to H4, a series of regression analyses were performed. In each of these regression analyses, the importance of a value domain was regressed on the three perceived aspects of anticipated consumption situations. As expected, the perceived hedonic orientation has a positive impact (β=.259; t=5.05; df=3,479; p<.001) on the importance of enjoyment values (see Table 3.5). The perceived utilitarian orientation has a negative impact (β=-.109; t=-2.39; df=3,479; p<.05) on the importance of enjoyment values. Hence, these results confirm H1 and H2. The perceived conspicuousness does not have a significant effect on the importance of enjoyment values.

The perceived utilitarian orientation of anticipated consumption situations was predicted to affect the importance of security values (H3). As expected, there is a significant, positive

effect of perceived utilitarian orientation on the importance of security values (β=.201; t=4.31; df=3,479; p<.001). Hence, this result confirms H3. Additionally, while the perceived hedonic orientation has a significant, but smaller, negative effect on security value importance (β=-.161; t=3.07; df=3,479; p<.01), the perceived conspicuousness does not have a significant effect on the importance of security values.

Perceived conspicuousness of the anticipated consumption situation was predicted to be positively associated with the importance of prosocial values. Our results show that that indeed is the case (β = .220; t=3.89; df=3,479; p<.001). Therefore, H4 is confirmed. Nevertheless, the proportion of variance accounted for in the importance of prosocial values by the perceived aspects of anticipated consumption situations is admittedly weak: adjusted R^2 = .027. The perceived hedonic and utilitarian orientation do not have a significant effect on the importance of prosocial values.

There are only a few significant effects of perceived aspects of anticipated consumption situations on the importance of the other value domains (self-direction, achievement, restrictive-conformity, and tradition): the perceived hedonic orientation has a significant, but small, negative effect on the importance of restrictive-conformity values (β = -.117; t=-2.16; df=3,479; p<.05), and the perceived utilitarian orientation has a significant, but small, positive effect on self-direction values (F = .108; t=2.23; df=3,479; p<.05) and achievement values (β = .108; t=2.22; df=3,479; p<.05). Nevertheless, the adjusted R^2's for the effect of all three aspects together are not significant.

Table 3.5 – Value importance regressed on perceived aspects of anticipated consumption situations

Value domain (criterion)	Perceived aspect of anticipated consumption situations (predictor)	Unstandardized Coefficients		F	Adjusted R Square
		B	Std. Error		
Enjoyment	(Constant)	15.155***	.180		.120***
	Conspicuousness	.437	.227	.104	
	Hedonic orientation	1.108	.219	.259***	
	Utilitarian orientation	-.459	.192	-.109*	
Security	(Constant)	11.892***	.133		.086***
	Conspicuousness	-.217	.168	-.071	
	Hedonic orientation	-.500	.162	-.161**	
	Utilitarian orientation	.613	.142	.201***	
Prosocial	(Constant)	11.458***	.158		.027*
	Conspicuousness	.777	.200	.220***	
	Hedonic orientation	-.278	.193	-.078	
	Utilitarian orientation	.126	.169	.036	
Self-direction	(Constant)	11.236***	.150		.007
	Conspicuousness	.192	.189	.058	
	Hedonic orientation	-.274	.182	-.082	
	Utilitarian orientation	.357	.160	.108*	
Achievement	(Constant)	18.668***	.252		.009
	Conspicuousness	.223	.317	.040	
	Hedonic orientation	-.512	.306	-.091	
	Utilitarian orientation	.595	.268	.108*	
Restrictive conformity	(Constant)	11.706***	.160		.008
	Conspicuousness	.259	.202	.073	
	Hedonic orientation	-.421	.195	-.117*	
	Utilitarian orientation	.310	.171	.088	
Tradition	(Constant)	4.084***	.045		-.001
	Conspicuousness	.079	.056	.080	
	Hedonic orientation	-.011	.055	-.011	
	Utilitarian orientation	.010	.048	.010	

* Significant at p<.05; **significant at p<.01; ***significant at p<.001

3.5.2 Hypotheses H5 to H8 and moderating effects

To test hypotheses H5 through H8 and the additional moderating effects of value dimensions on the relations of anticipated aspects of consumption and desired benefits, five regression analyses were carried out with the benefit-importance factors as the dependent variables. Predictors were entered in the equation in three blocks: 1) the three perceived aspects of anticipated consumption situations (block 1); the importances of the seven value domains (block 2); and the interactions between the three perceived aspects of anticipated consumption situations and value-domain importances (block 3). For the interactions, we calculated the product of the scores on the perceived aspects and the value-domain importances. In order to avoid problems with multicollinearity, the linear effects of the perceived aspects and the value-domain importances were partialled out from these product terms. As some value-domain importances are correlated, and we did not hypothesize any specific relationship between values and anticipated aspects of consumption situation in advance, the predictors in block 2 and 3 were entered in a stepwise fashion. Hence, the final models just contain the predictors that have a significant effect. Also, if some interaction effect was included, then the main effect of the corresponding value domain was also included.

The results of the regression analyses are presented in Table 3.6. The results show that all benefit dimensions are affected by the predictors. However, the empirical support for the effect of the perceived aspects of the anticipated consumption situation on the benefit-importance factors is moderately weak (the highest adjusted R^2 is .12). H5 states that the perceived hedonic and utilitarian orientations of the anticipated consumption situation affect respectively the importance of psychosocial and functional benefits. Table 3.6 reveals that the importance of the psychosocial benefit pleasure is significantly and positively affected by the perceived hedonic orientation of the anticipated consumption situation (β=.280; t=5.05; df=6,468; p<.001). On the other hand and contrary to our expectations, the perceived hedonic orientation has a significant and positive effect on the importance of the functional benefit quality (β=.209; t=3.91; df=8,467 p<.001). More striking, however, is the absence of any significant effect of the perceived utilitarian orientation on the importance of functional benefits. So, overall, the results support the hypothesized effects of perceived hedonic orientation on the importance of psychosocial benefits, but do not support the expected association of perceived utilitarian orientation on the importance of functional benefits.

Table 3.6 - Main and interaction effects of perceived aspects of anticipated consumption situations and value-domain importances on benefit-factor importances.

Benefit factors	Predictor		Unstandardized Coefficients		F	Adjusted R^2	
			B	Std. Error		Change	Total
Pleasure	Block 1	(Constant)	-.534**	.200		.100***	.12***
		Conspicuousness	.005	.055	.005		
		Hedonic orientation	.285	.057	.280***		
		Utilitarian orientation	-.019	.049	-.019		
	Block 2	Enjoyment values	.032	.013	.135**	.015**	
		Security values	.003	.018	.009		
	Block 3	Hedonism x Security values	-.034	.016	-.095*	.005*	
Social Rewards	Block 1	(Constant)	.037	.157		.065***	.073****
		Conspicuousness	.281	.056	.285***		
		Hedonic orientation	-.092	.054	-.092		
		Utilitarian orientation	.014	.047	.015		
	Block 2	Self-direction values	-.002	.013	-.007	.000	
	Block 3	Utilitarianism x Self-direction	.027	.013	.092*	.008*	
Quality	Block 1	(Constant)	-.694	.220		.034**	.096***
		Conspicuousness	-.028	.056	-.028		
		Hedonic orientation	.210	.054	.209***		
		Utilitarian orientation	-.071	.048	-.072		
	Block 2	Security values	.058	.025	.180**	.029**	
		Rest. conformity values	-.029	.021	-.104		
		Tradition values	.085	.050	.084		
	Block 3	Conspicuousness x Rest. Conformity	.057	.014	.204***	.033***	
		Conspicuousness x Tradition	-.113	.048	-.117*		
Suitability	Block 1	(Constant)	-.258	.162		.041***	.066***
		Conspicuousness	-.198	.056	-.199***		
		Hedonic orientation	.066	.054	.065		
		Utilitarian orientation	.032	.048	.032		
	Block 2	Self-direction values	.031	.031	.103	.006	
		Achievement values	-.004	.018	-.025		
	Block 3	Utilitarianism x Self-direction values	-.088	.031	-.294**	.019**	
		Utilitarianism x Achievement	.040	.019	.215*		
Nutrition	Block 1	(Constant)	.253	.167		.013	.033**
		Conspicuousness	-.029	.059	-.029		
		Hedonic orientation	-.055	.055	-.054		
		Utilitarian orientation	.014	.049	.014		
	Block 2	Prosocial values	-.067	.022	-.235**	.020**	
		Self-direction values	.045	.023	.150*		

*Significant at p<.05; ** significant at p<.01; and ***significant at p<.001

Similarly, there is no support for H6, which states that the perceived conspicuousness of anticipated consumption situations has a positive effect on the importance of the benefit quality (β = -.028; t = -.49; df=8,467; t>.05). However, perceived conspicuousness does have a significant, positive effect on the importance of the social-reward benefit (β = .285; t=5.05; df=5,469; p<.001), and a significant, negative effect on the importance of the suitability benefit (β=-.199; t=-3.51; df=7,467; p<.001). Hence, the more conspicuous an anticipated consumption situation is perceived to be, the more, less important are social-reward and suitability benefits respectively.

Two value-domain importances turn out to have a main effect on benefit importance: enjoyment-value importance has a significant and positive effect on the importance of pleasure benefits (β=.135, t=2.46, df=6,468; p<.01) and security-value importance has a significant and positive effect on the importance of quality benefits (β=.180, t=2.36, df=8,467; p<.01). This result confirms the hypothesis H7. Additionally, we did not find support for the expected association between achievement values and quality and suitability benefits. Therefore, H8a and b were rejected.

Scrutinizing the regressions presented in the third blocks (Table 3.6), it is observed that seven interaction terms significantly predicted the desired benefits[4]. For the sake of brevity, just two significant interactions are shown: a significant and negative effect of the interaction between the perceived hedonic orientation and security values in the importance of the benefit pleasure (β=-.095; t=-2.20; df=6,468; p<.05); and the significant and positive interaction effect of perceived conspicuousness and the restrictive-conformity values importance in the benefit quality (β=.204; t=4.07; df=8,467; p<.001). Figure 3.2(a) shows that the perceived hedonic orientation of anticipated consumption situations is less effective in influencing the importance of the benefit pleasure when the importance of security values is high. On the other hand, Figure 3.2(b) shows that the restrictive conformity values reinforce the positive effect of perceived conspicuousness on the importance of the benefit quality.

[4] We used 2 standard deviations above and below the mean for drawing the graphics. For the hedonic orientation: mean=0.0; Std deviation = 0.99; For the Conspicuous orientation: Mean = 0.0; Std deviation = 0.99. For the security value: Mean = 11.88; Std deviation = 3.06; and for restrictive conformity: Mean = 11.70; Std deviation = 3.54.

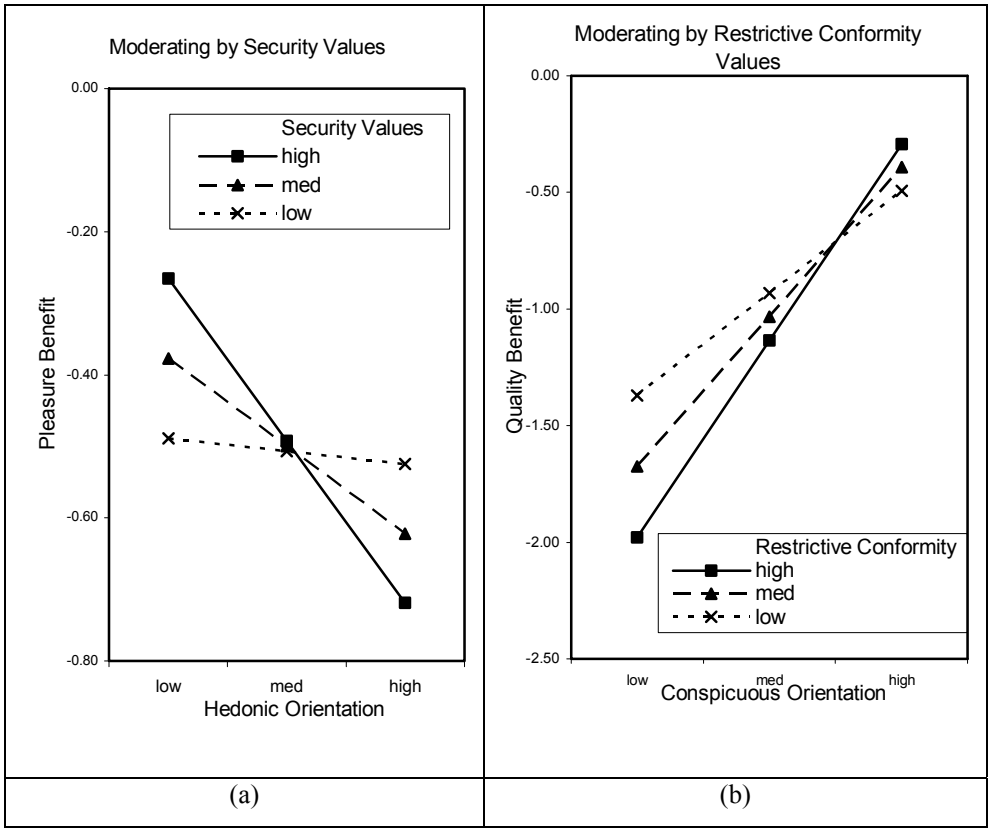


Figure 3.2 – The moderating effect of value-domain importances on the relationship between aspects of anticipated consumption situations and the importance of benefits.

3.6 Discussion

Huffman *et al.* (2000: 10) have criticized the neglect of contextual situation in studying goals: "…although a handful of researchers have argued persuasively for the inescapable role of situational influences on consumer goals – such as the social, cultural, physical, and temporal context of consumption – most have simply ignored such factors and their relations to consumer goals". The results of this study resonate with those of other studies in supporting the important differences in goals according to different consumption situations (Belk, 1975; Kleine *et al.*, 1993). In our model the process of goal determination is conceptualized to depend on aspects of perceived consumption situations, and on relations among goals, particularly, the top-down process. More specifically, there are two main forces for goal determination, (a) the adaptation process, in which high-level goals (e.g. the enjoyment values) and low-level goals (e.g. pleasure benefits) are affected by the

perceived hedonic and utilitarian orientation and the conspicuousness of anticipated consumption situations; and (b) the incorporation process, in which high-level goals (e.g. enjoyment values), directly or through interaction with the contextual situation, affect goals at lower levels (e.g. the benefit pleasure).

Previous studies using the concept of adaptation have demonstrated that different social contexts activate different goals at high levels (Kleine *et al.*, 1993; Walker and Olson, 1991). Similarly, Ratneshwar *et al.,* (1996) argue that social and spatiotemporal aspects of the context are likely to activate and determine goals at lower levels, for example, benefit sought and feature preferences. The present research advances these works by investigating the influence of situational context on goals at both levels.

Results confirmed that the perceived hedonic orientation of anticipated consumption situations is respectively positively and negatively related to enjoyment and security values. Conversely, the perceived utilitarian orientation has respectively a negative and a positive effect on these two value domains. The perceived conspicuousness of anticipated consumption situations appeared to increase the importance of prosocial values. At the lower level, the effects of the perceived anticipated consumption situation on benefits sought are controversial. First, the perceived hedonic orientation of anticipated consumption situations is positively associated with the pleasure benefit, which is consistent with previous studies (Hirschman and Holbrook, 1982; Ratchford, 1987). Hence, this is hardly a surprise. It is more of a surprise that none of the functional benefits are significantly related to the perceived utilitarian orientation of anticipated consumption situations. It seems that the perceived utilitarian orientation of beef consumption does not trigger consumers to strive for functional benefits, which is inconsistent with the claim that the central meaning of utilitarianism resides in functional consequences (Claeys *et al.*, 1995).

Some sources suggest that the level of visibility of consumptions might be used to show a positive image to others (Boune, 1957; Richins, 1999), and we anticipated that perceived conspicuousness could trigger the consumers to strive for quality benefits. However, our results do not support the hypothesis that perceived conspicuousness causes consumers to avoid embarrassment (Campbell and Goodstein, 2001; Dowling and Staelin, 1994), for example, due to low quality and unsuitable dishes. Instead, perceived conspicuousness of consumption situations seems to be more related to psychological benefits expressed by others in the form of appreciation, esteem and feelings. The more conspicuous a consumption situation is perceived to be, the more consumers strive for benefits that they themselves prize, such as being considered a good cook and feeling good (social reward), and less for benefits that others prize, such as suitability for everybody and many dishes (suitability).

With regard to the incorporation process, the benefits sought were shown to be related to value-domain importances and the interaction between value-domain importances and perceived aspects of anticipated consumption situations. Nevertheless, the variance accounted for in the benefits sought by these effects is rather low.

The results of this study suggest that the top-down influences on lower goals may operate in multiple ways. For example, the importance of quality benefits is influenced both directly by the importance of security values, and additionally by the interaction between the importance of restrictive conformity and tradition values with the perceived conspicuousness of the anticipated consumption situation. In this sense, lower level goals display the property of being influenced through multiple means.

Previous studies found that not all value domains are relevant to consumer behaviour (Grunert and Juhl, 1995; Thogersen and Olander, 2002). We suggest that in the case of beef consumption, the main motivational-value domains that are relevant for shaping the benefit goals are the enjoyment, security and prosocial values. Additionally, the value domains which exert influences on benefit importances in interaction with the situational context are the security, restrictive conformity, self-direction, tradition and achievement domains.

To summarize, our study showed that (1) some motivational-value domains are significantly associated with the situational context, (2) some motivational-value domains, as well as the perceived hedonic orientation and conspicuousness of consumption situations, have a direct main effect on the benefits sought, and (3) motivational-value domains sometimes moderate the effects of situational context on benefits sought.

3.6.1 Limitations and future research

Our study has several limitations. First of all, only two anticipated consumption situations, i.e. current concerns, were examined. For the sake of generalization, other consumption situations not only related to food need to be investigated. Future research could test whether the framework proposed in this research is applicable for other consumption situations or use of other products, with the same or different degrees of personal concerns and levels of perceived hedonic and utilitarian orientation and conspicuousness.

In our questionnaire, we used a rather long list of 22 values. From a methodological standpoint it would seem to be worthwhile to use a short value list. Perhaps the LOV list proposed by Kahle *et al.,* (1986) might be an option more relevant to consumer behaviour. Further, the inclusion of the feature preferences as a goal in the goal hierarchy would allow for a more cohesive goal structure.

3.6.2 Managerial implications

Research on consumer goals and their relations with situational context can serve to focus more attention on the behaviour of consumers. Analyzing how consumers perceive their current concerns, e.g. anticipated consumption situations, their goals and the relations between them, might provide fruitful information for marketers deploying strategies targeted at satisfying the focal goal of consumers. Knowledge of goals and their dependence on situational context can also facilitate attempts to change consumer behaviour through communication strategies that appeal to both the context, which can be more or less conspicuous, or have a stronger or weaker orientation towards hedonism or utilitarianism, and goals (e.g. values and/or benefits). Additionally, improvements could also be directed towards designing product lines or retailer shops that specialize in serving consumers with a particular profile in terms of the current concerns and goals they have. In this sense, the whole chain would benefit by becoming more demand-oriented as has been exhaustively recommended (Day, 1990; Kotler, 1997)

Chapter 4: Benefit-feature segmentation: a tool for demand chain design

4.1 Introduction

The central idea of marketing is to match the needs and wants of customers (demand side) with companies' competences (supply side) in such a way as to accomplish the goals of both parties (McDonald and Dunbar, 2004). But matching the supply side with the demand side is not an easy task. Companies usually cannot appeal to all buyers because they are too numerous and too varied in their needs and wants (Kotler 2002). Additionally, no companies are able to serve all buyers of the market because companies have limited skills and resources to execute all activities needed to produce and deliver the demanded products. To match the demand and the supply sides of the equation, at least two strategies are needed: Firstly, a company needs to share its competences with other companies, forming a system of upstream and downstream linkages which constitute a chain (Cristopher, 1992). Secondly, as the demand is not homogeneous (Kotler, 1997; Wind, 1978), supply chains cannot appeal to all buyers in the same way, which forces them to follow some segmentation strategy (McDonald and Dunbar, 2004). In this regard, the current marketing practice recommends that organizations first investigate the customer needs, then segment customers in groups with similar needs, and finally target them with differentiated products and services (Day, 1990; Kumar et al., 2000).

Market segmentation has long been considered one of the major ways to direct companies' resources and strategies to match the needs and wants of buyers (Dickson and Ginter, 1987; Wind, 1978). Segmentation approaches are focused on tailoring strategies in terms of product positioning (Gil et al., 2000; Matear and Gray, 1995), retail strategies (Coughlan et. al. 2001; Lockshin et al., 1997; Steenkamp and Wedel 1991), but rarely for chain design. There are many ways to segment the market, but not all segmentation methods and bases are effective from a chain management point of view.

For chain strategy design to be effective, the segmentation study needs fundamentally to be responsive (i.e. segments that will respond in a unique way) and actionable (i.e., easy to translate the segment requirements into practical and useful chain competences). Product/service feature preferences have been considered to be the most actionable bases in segmentation studies (Kotler, 1997; Wedel and Kamakura, 1998). However, as consumers require products with a determined group of features for obtaining benefits, i.e., the benefits

are the reasons for which consumers strive for features, segmentation studies based simply on feature preferences may not be responsive since consumers within a feature segment may not respond homogeneously in relation to benefits strived for. Conversely, segmentation based simply on benefit sought may provide insights into which groups of consumers potentially can be a target (i.e. the segments derived may be responsive), but it provides no information on how consumers obtain the benefits sought. In other words, the segments are not actionable because features constitute key information for deploying strategies in the supply chain.

Several researchers have already suggested that the linkage of product characteristics to consumer benefits provide a suitable basis for segmentation (Gutman, 1982; Kamakura and Novak, 1992; Ter Hofstede et al., 1999). Particularly, Ter Hofstede et al. (1999), proposed a sophisticated methodology to identify responsive and actionable segments based on the cognitive association between product features, benefits and values. Through a binary matrix (APT matrix), they estimated the probabilistic relations that one element (e.g. product feature) will cause the occurrence of the other element (e.g. benefit) for deriving segments.

An alternative method, proposed in this study, is to determine segments by means of benefit importance, and sequentially investigate whether segments differ significantly with regard to feature importance. In doing so, the responsiveness requirement is achieved. Further, through the use of structured interviews with key stakeholders in the beef chain, we examined the actionability of the derived segments concerning strategies towards clients and suppliers. The objective of the article is to propose an easy and suitable segmentation approach for chain strategy design, which bridges an important gap between market segmentation and strategy implementation - an area much in demand by practitioners (Datta, 1996; Rao and Wang, 1995; Shapiro and Bonoma, 1984), and rarely emphasized in the marketing literature.

The chapter is organized as follows: first, there is a literature review on segmentation approaches and bases. Next, the theoretical segmentation model is presented. Then the methodology used is described. The results of the segmentation process and the stakeholders' evaluation are then reported. Finally, an overall discussion and conclusions are presented.

4.2 Literature review and model

4.2.1 Segmentation approaches and segmentation bases

Market segmentation is one of the most important ways to develop successful marketing strategy (Kotler, 1997). Supply chain strategies can be developed within the continuum of treating consumers as being entirely homogeneous or entirely individually. The former

strategy is known as mass marketing, where the seller mass-produces and mass-distributes one product and attempts to attract all kinds of buyers (Kotler, 1999). While the latter, mass customization, precludes personalization of some components of the marketing mix to each member of the market (Lampel and Mintzberg, 1996; Wedel and Kamakura, 2002). These two extreme strategies will typically not be very successful, given the diversity of customers' demand for treating everybody as a homogeneous (Walley et al., 2000), and the costs involved in the customization strategy. Segments appear in between these two extremes (Kotler, 1997).

Segmenting the market implies distinguishing different segments and targeting one or more of these segments to focus on. The key element is to develop product and marketing mixes tailored to meet the needs of each target market. Market segmentation and targeting have been shown to improve the sellers' position to identify market opportunities, to make fine adjustments to their product, prices, distribution channels and promotional mixes (Kotler, 1999; Wind, 1978).

A review of current literature on consumer market segmentation indicates two major approaches to segmentation (Day, 1990; Frank et al., 1972; Kotler, 2002; Wind, 1978). One approach is an a priori segmentation scheme based on "macro-segments" such as geographic location, socio-economic status. This category of segmentation derives from microeconomic theory (Wedel, 1990) and is outcome-oriented. Its main goal is to describe the differences in choice behaviour between segments. This approach has been widely used because it can help management decision-making (Rao and Wang, 1995). For example, demographic date can assist management to target a specific group of clients (e.g. children, adults or the elderly). The most important argument for adopting an a priori segmentation, however, has been its simplicity (Day, 1990). Yet, a priori approaches rely on descriptive factors rather than causal factors (Haley, 1968), which results in lack of predictability of purchase behaviour (Day, 1990; Frank et al., 1972), and, consequently, is its major disadvantage.

The other strategy is a cluster-derived segmentation approach originated from the behaviour-oriented school (Day, 1990). The ultimate objective of this segmentation approach is to define groups with a homogeneous response to marketing stimuli (Frank et al., 1972). Central to this approach is the understanding of segment differences on the basis of behavioural science theory (Wedel, 1990). Generally speaking, while this approach has the advantage of being superior in terms of ability to identify gaps in the market, it has been shown to be relatively more difficult to apply (Datta, 1996) and less effective in providing clues for strategic decision in the business arena (Robertson and Barich, 1992).

Although other approaches toward segmentation have appeared (flexible, componential; see Wind, 1978), a priori and cluster approaches have been the standard for separating the research tradition (Rao and Wang, 1995). The two approaches have implications for the

bases used to identify segments. Table 4.1 outlines the major variables used in segmenting consumer markets according to these approaches. As can be seen, the bases on a priori segmentation are observable, i.e. they can be measured objectively, while those used on a clustering-derived approach are unobservable, i.e. have to be inferred (Frank et al., 1972).

Table 4.1 – Consumer market segmentation basis

A priori bases	Clustering bases
Geographic: region, county size, density, climate, nationality	Psychographics: life style, personality
Demographic: age, gender, family size, race	Behavioural: benefit importances, attitudes, preferences, intentions, perceptions
Cultural: religion, language	
Socio-economic: income, occupation, education, social class	
Product specific: user status, usage frequency, brand loyalty, usage situation	

The effectiveness of market segments identification is crucial for creating value for consumers and competitive advantages for supply chains (Porter, 1985; Kotler, 1997). In this regard, the marketing segmentation literature emphasizes that the usefulness of market segments is dependent on the following criteria (Day, 1990; Kotler, 2002; Wedel, 1990): *Measurability* - The degree to which the size, purchasing power and profits of a market segment can be identified; *Accessibility* - The degree to which a market segment can be reached and served through promotional or distributional effort; *Substantiality* - The degree to which a market segment is large to warrant the profitability of a targeted market program. *Responsiveness* - The degree to which a market segment is sufficiently distinct to constitute a gap in the market; *Stability* - The degree to which a market segment is durable to justify the investments in targeting marketing programs; and *Actionabilit*y - The degree to which strategic decisions can be designed to attract and serve the segment.

All segmentation bases have their own advantages and drawbacks. However, behavioural variables (see Table 4.1) are assumed to dominate the other types of bases on responsiveness and actionability (Wedel, 1990). In particular, benefits that people look for have been one of the most used segmentation bases in both consumer and industrial markets (Day, 1990; Wedel and Kamakura, 1998; Wind, 1978). Haley (1968) argues that benefits are the basic reasons for the existence of true market segments. Day (1990) emphasized the importance of benefits as an appropriate basis because they can satisfy all requirements for an effective segmentation basis.

Means-end chain theory (Gutman, 1982; Reynolds et al., 1995) suggests that product features/attributes are means by which a consumer is able to achieve a desired consequence, i.e. benefits. Both features and benefits sought are goals hierarchically organized in such a way that the more abstract - the benefits - provide the motives for striving for the less abstract - the features (Huffman et al., 2000; Pieters et al., 1995). Therefore, feature preferences are likely to be highly influenced by pertinent benefits being sought by consumers. For example, when buying a car, someone's preferences for particular features such as medium-size, 16-valve engine, brand Saab, etc, are shaped by benefits such as fuel economy , speed, attractiveness, etc, which this individual is seeking. Therefore, benefits determine (Barsalou, 1991; Ratneshwar et al., 1996) "what" features/attributes a product should possess.

Although the reasoning just presented is straightforward, and numerous studies have linked benefits to features (Bagozzi and Dholakia, 1999; Barsalou, 1991; Ratneshwar et al., 1996; Sheth et al., 1991), it is expected that customers/consumers with similar demands in terms of benefits may strive for different features (McDonald and Dunbar, 2004). In this sense, consumers can pursue benefits through trading off features found in the product itself but also in the environment in which the purchasing decision has to be taken. Therefore, knowing how customers go from benefits "what the customer gets that they explicitly need" to features "what it is, consists of, or is made from", or vice-versa, might be worthwhile for providing insights into the business side in terms of marketing mix required, and consequently processes and competences needed to produce and deliver these requirements. In this sense, we suggest that the advantage of looking at benefits and features sequentially is that it ensures how to deliver customer needs thorough the features.

4.2.2 The model

We propose an approach to segment the market based on (i) the benefit importances (ii) the feature importances (see Figure 4.1). Through segmenting consumers based on the benefits, groups of consumers with similar motives for buying are distinguished. Once segments have been identified, the next phase involves identifying groups of consumers with homogeneous answers in terms of feature preferences in each benefit segment. Segmenting consumers based on feature preferences within each benefit segment enable the identification of groups of consumers that respond similarly in terms of what they strive for to accomplish the benefits sought.In doing so, the segments will be more responsive than when uniquely segmenting the market based on the benefit sought.

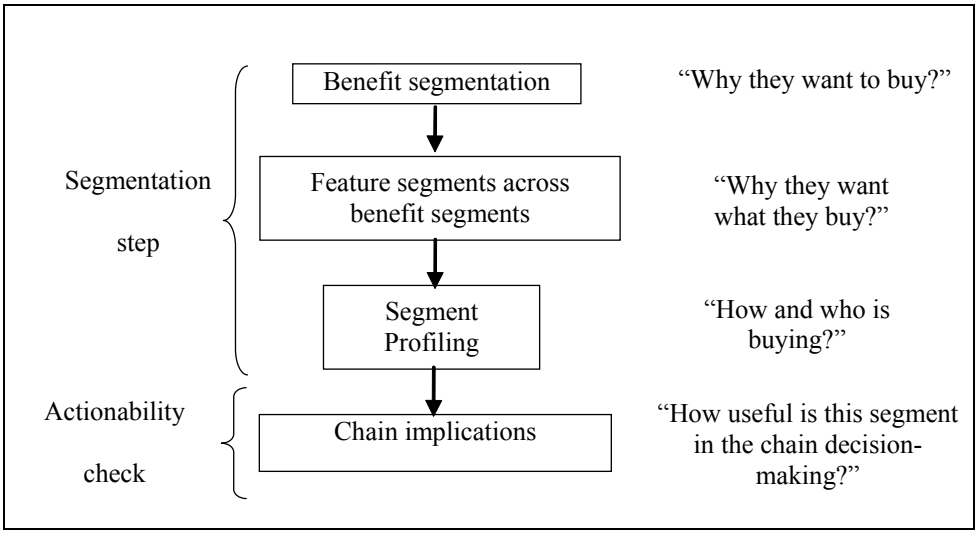


Figure 4.1 – Segmentation model

After profiling the segments with socio–demographic variables, the next step of our model involves checking the suitability of the segments generated for the decision-making on the business side. That means that this phase comprises the managerial evaluation of the segments in terms of their usefulness for taking strategic decisions towards companies' suppliers and customers.

4.3 Methodology

This section is divided into two parts. The first part consists of a survey with beef consumers and the statistical procedures for dealing with this data. The second part specifies the data collection and measurements used in the interviews with managers of the beef business.

4.3.1 The consumer data

4.3.1.1 Data collection and subjects

The segmentation approaches were based on a survey with consumers responsible for buying beef for regular meal and barbecue consumption situations in 504 households randomly selected in 26 cities of the Rio Grande do Sul's state, Brazil. Respondents had to be the principle beef buyer in the household. If another person answered the door they were asked whether the beef buyer was present. If the answer was positive, the interviewer asked if he or she was willing to participate in the research, and, if yes, the interviewer asked if he or she bought beef more than once a year. In the case of a positive answer, the interview

took place, otherwise this respondent was excluded from the survey and the next house was approached. The original sample comprises 292 women and 212 men with mean age of 40.65 years old. The mean reported income was US$529.00 and a medium education of completed highest level of primary school.

4.3.1.2 Measure and procedures

4.3.1.2.1 Benefits sought

Respondents were requested to evaluate the benefit importances of beef consumption on 17 statements rated on a five-point Likert scale ranging from 1 = Not at all important to 5 = Very important. The selection of benefits sought was based upon literature review (Barcellos, 2002; Grunert, 1997; Steptoe et al., 1995), interviews with butchers, and pretests of a 35 benefit-item list with sixty consumers. Only those benefits with mean importance above 2 were retained for the final survey. In order to reduce analysis complexity, the benefits sought were subjected to factor analysis with varimax rotation, which reduced the 17 items into five independent factors (Table 4.2).

Table 4.2- Benefit factors

Items	Nutrition	Social reward	Pleasure	Quality	Suitability
Being healthy (low cholesterol level)	.87				
Being easy to chew	.83				
Nutritional value	.82				
Being considered a good cook		.87			
Feeling valued by the family		.85			
Feeling good on making the food		.76			
Pleasure in savouring a good piece of beef			.90		
Pleasure in tasting			.90		
Quality of the beef				.89	
Sense of quality guaranteed				.88	
Suitability for many dishes/receipts					.85
Suitability for everybody					.83
Variance explained (%)	18.29	17.98	14.17	13.80	12.31
Cronbach's alpha	.80	.80	.83	.78	.63

These five factors, which accounted for 76% of the underlying variance, and possessed eigenvalues greater than 1 were the baseline for factor score computation and used in the

clustering procedure (see section 4.3.1.2.3). Three functional benefit factors were captured: (a) Nutrition - which includes three items related to nutritional aspects of beef consumption; (b) Quality - which includes two items concerning beef's quality; and (c) Suitability - which consists of two items dealing with the appropriateness of the beef for different people and dishes. Additionally, two psychosocial benefits factors were also captured: (d) – Social reward - consisting of three socially rewarding related statements; and (e) Pleasure - concerning pleasure on eating. The items, pleasure in preparing, convenience, the juiciness of the beef, healthiness of the beef, and hunger satiation did not fit with any of the above factors and were dropped from further analysis.

4.3.1.2.2 Features

The features used in this study were based upon (a) a collection of important features in beef-specialized literature (Barcellos, 2002; Grunert, 1997; Issanchou, 1996), and (b) four in-depth interviews with butchers. After these two phases and a pretest with 60 respondents, 26 features with mean importance greater than 2 on a five-point scale ranging from 1 to 5 were considered in the final questionnaire (Table 4.3).

Factor analysis with varimax rotation yielded eight factors according to the Kaiser criterion, which explained 70% of the total variance: shop services – which refers to services provided by the place of purchase; stamp - dealing with quality label; cleanness - which deals with hygiene of the beef and the shop; trustfulness – which deals with shop and salesperson confidence and reputation; animal information – which is concerned with the information about the livestock's raising systems; sensorial – refers to the visible characteristics of the beef; and preparing in locus – which refers to the possibility of checking the product during the purchasing time; and fat – which refers to the presence or absence of fat on the cut[5].

[5] Although the "Fat" factor presented a very low Cronbach's alpha, we decided to retain it for further analysis because the importance of fat content was emphasized by the respondents and the scores of this factor varied significantly between the segments in both feature and benefit-feature approaches (see Sections 4.4.1.2 and 4.4.1.3).

Table 4.3–Features factors

Items	Shop services	Stamp	Clean-ness	Trust-fulness	Animal informa-tion	Senso-rial	In locus prepara-tion	Fat
Speed of attendance	.82							
Vast assortment	.81							
Counter organization	.81							
Beef availability	.79							
The low price	.74							
Federal Inspection Stamp		.84						
Beef expiration date		.83						
Quality certificate		.80						
Slaughterhouse name		.75						
Beef cleanliness			.90					
Shop atmosphere			.86					
Beef agreeable smell			.85					
Shop confidence				.86				
Personnel friendship				.84				
Shop reputation				.81				
No use of additives or hormones					.85			
Beef origin/source					.82			
Raised on pasture					.78			
Freshness of the beef						.84		
Beef good appearance						.83		
Colour (moderate red)						.78		
Piece cut uniformity							.72	
Prepared at the time of the purchase							.70	
Beef without tendons							.60	
Marbling								.80
Beef being fat								-.71
Variance (%)	12.60	11.01	9.29	9.06	8.52	8.51	6.25	4.66
Cronbach's alpha	.86	.86	.87	.87	.80	.81	.52	.47

4.3.1.2.3 Clustering procedures

The segments derived in this study were based on a two-step procedure (see Hair et al., 1995). First, hierarchical cluster analysis based on Ward's linkage was applied to the factor scores to decide the possible number of clusters that may be present in the data set. Then, K-mean cluster analysis was performed to fine-tune the segmentation. The resultant mean factor scores indicate which of the components are more or less important to the segment. A positive mean factor score indicates that the benefit or feature is relatively important, and a negative factor score indicates that the benefit or feature is a relatively unimportant goal in beef consumption for that particular group of consumer.

The sequential cluster analysis, i.e. the benefit-feature segments, was carried out first based on benefit importances. After dividing the market into benefit segments (B_1 to B_5), each segment in turn was split into smaller segments based upon feature importances. Figure 4.2 shows a schematic view of the 11 segments originated based upon these two types of bases. Once the segments were defined, they were profiled in terms of demographics, socio-economics and purchasing pattern characteristics. Because not all questions were answered, the final sample varied according to the segmentation approach adopted. The total sample for the benefit cluster approach was 489; 452 for the feature cluster approach; and 439 for the benefit-feature cluster approach.

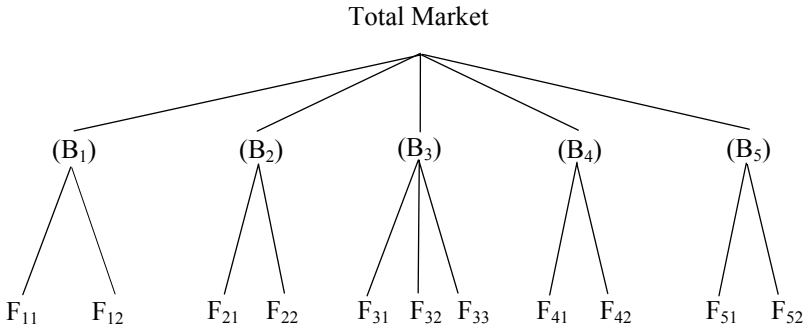


Figure 4.2 – Final segments generated

4.3.2 The managers' interviews

4.3.2.1 Data collection and subjects

To assess the managers' evaluation of the segmentation approaches, semi-structured interviews were conducted with marketing managers and firms' owners involved at the retailer and slaughterhouse phases of the beef business. From the original sample (n=26)

contacted by phone, 19 managers agreed to participate in the study, but just 12 interviews (Table 4.4) were finalized because not all managers were prepared to spend the time required to read and answer the questions. The interview lasted on average 1.5 hours and took place at the managers' company headquarters. They were recorded on tape for further analysis.

Table 4.4 – Overview of the interviews

Chain phase	Types	#	Respondent's position
Industry	Slaughterhouse	5	2 owners, 3 marketing managers
Retailer	Butcher's	5	5 owners
	Supermarket	2	2 marketing managers

Each interview was composed of two parts. In the first part, the interviewer asked a series of questions to determine how the company dealt with its supplier and customer's market in terms of segmentation strategies. In the second part of the interview, the respondents were requested to evaluate the usefulness of different segmentation approaches for strategic decision-making in their respective business. For that purpose, first of all, the managers were presented three different ways of segmenting the market: (a) segments based simply on benefit sought; (b) segments based just on feature; and (c) segments based on benefit-feature sequence[6].

4.3.2.2 Actionability measurements and procedures

For measuring the effectiveness of the approaches for helping managers' decision-making, two questions were asked: (a) Which of the three approaches is more useful for guiding your daily practice towards the clients and why? (b) Which of the three approaches is more useful for guiding your daily practice towards the suppliers and why? A third question: "Within each approach presented, do you recognize any of the segments as belonging to your actual business?" was also included to check the relations of their choices with their actual market segments.

4.4 Results

The result section consists of two parts. The first part is the segmentation step, in which the various clusters of each segmentation approach is presented. The second part is the

[6] Each method with its respective segments and some profiling variables were presented graphically as shown for the benefit segments in the appendix. The other methods are not presented here for the sake of brevity.

clustering of performance measures in which the responsiveness and the actionability of the segments derived are presented.

4.4.1 Segmentation approaches

4.4.1.1 Benefit segments

As Table 4.5 shows, the first segment (n=155) consists of those who were interested in socially rewarding benefits but were not interested in suitability. Thus, we can label this group as "Self-centred" since social reward is a self-oriented benefit and suitability an others-oriented benefit, respectively. It should be noted that quality and nutrition benefits were also important to this segment. For the second segment (n=33), pleasure and quality were the only decisive criteria for beef consumption. This group was labelled as the "Pleasure-quality seekers". Members in the third segment were in the majority (n=214) and were the most focused on pleasure and suitability but relatively disinterested in socially rewarding benefits. This group was named "The careful" because they care about both self and others-oriented benefits. The fourth group (n=44) was not particularly interested in benefits of any kind, except pleasure, which was considered moderately important. We shall refer to segment four as the "Indifferent", meaning that for these people, it was difficult to endorse any benefit as a key motivating goal for consuming beef. The fifth group (n=43) represented those consumers for whom the only decisive benefit for consuming beef was the nutritional value. Thus, it can be referred to as the "Nutrition-conscious" segment.

Table 4.5 – Final cluster centres (mean factor scores for each cluster).

Benefit factors	Segments					Test F
	Self-centred A	Pleasure-quality seekers B	The careful C	Indifferent D	Nutrition-conscious E	
Nutrition	.33	-2.84	.16	-.06	.23	171.85***
Socially rewarding	.32	-.03	-.18	.030	-.01	6.06***
Pleasure	.11	.21	.34	.12	-2.48	176.46***
Quality	.37	.34	.18	-2.24	-.046	136.97***
Suitability	-.77	-.16	.61	-.07	.01	67.70***

*** significant at $p<0.001$

Profiling variables were used to explore differences between the segments in terms of demographics, socio-economics and purchasing pattern characteristics. Significant differences in proportion among the groups are indicated by letters in Table 4.6. The variable which differed significantly among almost all segments (using the Chi-Squared statistic $p<.05$) is concerned with the type of consumption situation in which the respondent was engaged. Except segments C and D were not statistically different, meaning that the proportion of respondents in one or other consumption situation in these groups were the same.

It appears that for the place of purchase a higher proportion of consumers in the "Self-centred" segment prefer to buy at the supermarket/hypermarket than consumers in the "Careful", Indifferent", and "Nutrition-conscious" segments. Additionally, a higher proportion of consumers in the "Self-centred" segment prefer to buy in meat boutiques[7] than consumers in all other segments. Consumers in the "Careful" and "Indifferent" segments are used to buying in mini-markets more frequently than consumers in the "Self-centred" and "Nutrition-conscious" segments. Finally, a higher proportion of consumers in the "Indifferent" and Nutrition-conscious" segments are used to buying from a butcher's than consumers in the "Pleasure- seekers" and "Careful" segments.

Consumers in the "Pleasure-quality seekers" segment were younger than consumers in the "Indifferent" segments. The same pattern was observed for consumers in the "Careful" segment when compared to consumers in the "Indifferent" segment. The other profiling variables (income level, education level, price/kg, and family size) were not statistically different among any of these five groups.

[7] A sophisticated butcher specialised to attend more exigent consumers from top economic classes. They have a more strict control of product quality and are under tighter public inspection than other retailers.

Table 4.6 – Benefit segments: profiling variables

Variables	Segments				
	Self-centred	Pleasure-quality seekers	The careful	Indifferent	Nutrition-conscious
	A	B	C	D	E
Income level[1]					
Low	57.1	57.1	52.7	68.3	55.6
Medium	30.6	25.0	34.1	22.0	36.1
High	12.2	17.9	13.2	9.8	8.3
Respondent Age[2]					
<35	28.4	24.2	21.5	27.3	18.6
35 to 55	41.9	d 57.6	d 52.3	31.8	39.5
>55	29.7	18.2	26.2	40.9	41.9
Purchase frequency[3]					
1 or more times/week	65.8	66.7	67.8	50.0	79.1
1 to 2 times/month	26.5	27.3	d,e 28.5	e 35.7	11.6
Sometimes/year	7.7	6.1	3.7	14.3	9.3
The average price/kg[4]	5.37	6.09	5.54	4.96	5.89
Respondent education[5]					
Primary school or less	49.7	39.4	39.7	54.5	48.8
Secondary school	32.9	36.4	40.2	31.8	27.9
University	17.4	24.2	20.1	13.6	23.3
Number of people in the household	3.45	3.39	3.58	3.64	3.63
Consumption situation[6]					
Everyday	c,d,e 40.6	c,d,e 12.1	e 56.5	e 50.0	79.1
Barbecue	c,d,e 59.4	c,d,e 87.9	43.5	50.0	20.9
Place of purchase[7]					
Supermarket/hypermarket	c,d,e 71.0	60.6	59.3	51.2	55.8
Mini-market	c,d 18.7	24.2	32.2	e 30.2	9.3
Meat boutique	b,c,d,e 2.3	3.0	7.0	2.3	2.3
Butcher's	29.7	d,e 18.2	d,e 25.2	37.2	37.2

Note: 1=Percentage of households with low incomes (below 5 minimum wages ≈ U$430,00), medium (between 5 and 10 minimum wages ≈ U$430,00 – 860,00), and high (over 10 minimum wages > U$860,00). 2=Percentage of respondents within each age category. 3=Percentage of respondents with purchase frequency within each category. 4. R$1,00 ≈ U$0,35. 5=Percentage of respondents in each educational level. 6=Percentage of respondents in each consumption situation. 7=Percentage of respondents that mentioned buying in each outlet category. Letters in cells indicate which other percentage or mean values in the row are significantly different to the percentage or mean values in that cell, using Chi-Square or Anova's with *post hoc* Least Significant Differences tests.

4.4.1.2 Feature segments

Feature segments mean factor scores are shown in Table 4.7. Each segment was further characterized taking into account consumers' demographic, socio-economic and purchasing pattern characteristics (see Table 4.8).

The first segment accounts for 12% of the sample. It includes those people who show a vested interest in fat content and shop services. Therefore, the segment is labelled "The fat seekers". Additionally, this is clearly the group least concerned with in locus beef preparation. Consumers in this segment possess the highest income and educational levels, and are used to paying the highest price per kilo of beef compared with all other segments (although the differences are not statistically significant at p = .05). They are also mostly barbecue decision-makers with the highest level of purchasing at a meat boutique and the least at a butcher's. It should be noted that retailers could use these profiling characteristics to identify and access the group for delivering the right product and services.

Table 4.7. Feature segments centres and sizes.

Product and service features	Segments				F
	The fat seekers	The Formal	The fat conscious	The Informal	
	(n = 54)	(n = 235)	(n = 102)	(n = 61)	
Shop services	0.45	-1.25	0.33	0.03	98.72**
Stamp	0.13	0.16	0.39	-1.29	88.15**
Cleanness	-0.08	-0.28	0.19	0.09	5.51**
Trustfulness	0.13	-0.61	0.21	0.21	18.21**
Animal information	-0.11	0.00	0.39	-0.80	31.02**
Sensorial	0.11	-0.27	0.02	0.04	2.70*
Preparing in locus	-0.40	0.43	0.08	0.20	14.05**
Fat	1.12	0.23	-0.48	-0.62	131.18**

* significant at p<0.05; ** significant at p<0.001

The second segment includes 52% of consumers. Respondents mostly interested with in locus beef preparation form this segment. Additionally, these consumers were moderately interested in beef stamp, but absolutely not interested in shop services and on the trustfulness of the shop in relation to the other segments. Therefore, this is a consumer group that relies on its own ability to judge quality, but that also pays attention to the quality indication signalised by the official stamp. We labelled this group "The formal" as these characteristics indicate a rather formalized way of shopping for beef. The segment possesses the highest proportion of respondent that are used to buying beef at a

supermarket/hypermarket, and an intermediate level of income and education compared to other segments. Similar to the "Fat Seekers" respondents, consumers in the "Formal" segment were mostly engaged in barbecue consumption.

The third segment accounts for 23% of respondents. Consumers were relatively interested in all beef and service features, except fat content. Therefore, we labelled segment three "The fat conscious". The segment contains the highest proportion of everyday meals decision-makers, the highest percentage of respondents that are used to buying beef at a butcher's, and the highest purchase frequency among the segments. They are also the lowest educated and the poorest segment.

The fourth segment includes 13% of consumers. It is formed by respondents mostly interested in shop trustfulness, but absolutely not interested in the official stamp. For these reasons, the segment is labelled "The informal". Additionally, they are clearly not concerned with animal information or fat content. More than one third of these consumers are older than 55 years old. They are used to buying beef in all types of outlets, except in meat boutiques, and are used to paying the lowest price per kilo of beef among the segments.

Table 4.8 – Feature segments: profiling variables

Variables	Segments			
	Fat seekers A	Formal B	The fat conscious C	The Informal E
Income level[1]				
Low	41.7	54.5	67.0	51.7
Medium	c 41.7	c 31.5	d 27.7	32.8
High	16.7	14.0	5.3	15.5
Respondent Age[2]				
<35	24.1	21.7	30.4	23.0
35 to 55	55.6	48.9	42.2	39.3
>55	20.4	29.4	27.5	37.7
Purchase frequency[3]				
1 or more times/week	72.2	63.8	73.5	64.4
1 to 2 times/month	20.4	30.2	20.6	27.1
Sometime/year	7.4	6.0	5.9	8.5
The average price/kg[4]	6.06	5.39	5.41	5.37
Respondent education[5]				
Primary school or less	27.8	46.8	51.0	49.2
Secondary school	b,c 46.3	35.3	31.4	34.4
University	25.9	17.9	17.6	16.4
People in the household	3.70	3.55	3.57	3.51
Consumption situation[6]				
Everyday	c,d 42.6	c,d 43.4	64.7	60.7
Barbecue	c,d 57.4	c,d 56.6	35.3	39.3
Place of purchase[7]				
Supermarket/hypermarket	59.3	c 66.4	55.9	61.7
Mini-market	27.8	27.2	26.5	25.0
Meat boutique	d 9.3	d 8.5	d 5.9	-
Butcher's	c,d 16.7	c 23.8	35.3	31.7

Note: 1=Percentage of households with low incomes (below 5 minimum wages ≈ U$430,00), medium (between 5 and 10 minimum wages ≈ U$430,00 – 860,00), and high (over 10 minimum wages > U$860,00). 2=Percentage of respondents within each age category. 3=Percentage of respondents with purchase frequency within each category. 4. R$1,00 ≈ U$0,35. 5=Percentage of respondents in each educational level. 6=Percentage of respondents in each consumption situation. 7=Percentage of respondents that mentioned buying in each outlet category. Letters in cells indicate which other percentage or mean values in the row are significantly different to the percentage or mean values in that cell, using Chi-Square or Anova's with *post hoc* Least Significant Differences tests.

4.4.1.3 The sequential clusters: Benefit-feature segments

Clustering the respondents of each benefit segment based on feature importances (Table 4.9), evidenced eleven sub-groups, all of which, on average, acknowledge the importance of both the characteristics of the place of purchase and the features of the product itself in their decision processes. For example, two relatively homogeneous groups were derived within the first benefit segment. In other words, they respond in two different ways in terms of product and service features. Twenty-six consumers (see segments A1, Table 4.9) were mostly interested in fat content and beef stamp, while the other 117 consumers (see segment A2, Table 4.9) were much less concerned with these two features, but particularly interested in cleanness and information about how the animals were raised. Therefore, the individuals in the Self-centred segment went in search of features which they regarded as key in divergent ways, although they behaved homogeneously at the benefit level. The same pattern was observed in all other benefit segments, where agglomerating individuals with respect to feature similarities formed at least two distinct sub-groups within each benefit segment.

We had expected redundant final segments to result from the strategy of agglomerating individuals in the benefit-feature sequence. After scrutinizing the 48 combinations of resultants from the eleven final segments through pair-wise comparison in Anova, no sub-groups could easily be combined[8]. Just three sub-groups possessed similar factor scores for product and services characteristics. Segment D2 could be combined with segments E1 or E2, but still, at least, two items differed significantly between the groups (stamp and sensorial for segments D2 and E1, and cleanness and sensorial for segments D2 and E2).

[8] The sub-groups within the same benefit segments were not tested because they resulted from cluster analysis.

Table 4.9 – Feature segments across benefit segments (mean scores and segment size)

Benefit segments	Sub-groups	Size	Services and product features							
			Shop servi-ces	Stamp	Clean-ness	Trust-fulness	Animal Infor-mation	Senso-rial	In locus prepa-ration	Fat
A	A1	26	0.06	0.43	-1.75	0.38	0.02	0.09	-0.06	0.52
	A2	117	0.18	0.21	0.40	0.32	0.36	0.10	0.02	0.16
B	B1	10	-1.09	0.35	-1.50	-0.67	-1.11	-0.22	-1.8	0.36
	B2	20	0.03	-0.15	0.17	0.76	-1.97	0.52	0.25	0.45
C	C1	89	0.29	-0.02	0.05	0.23	-0.04	0.21	-0.01	-0.86
	C2	40	-1.53	0.45	0.16	-0.17	0.24	-0.08	0.38	-0.28
	C3	62	0.47	0.20	0.26	-0.00	0.23	-0.11	0.15	1.00
D	D1	28	0.11	-1.59	-0.29	-1.26	0.26	0.32	-0.01	-0.02
	D2	9	0.24	-1.14	-0.30	-0.44	-0.34	-2.95	0.29	0.08
E	E1	24	-0.07	0.63	-0.34	0.23	0.31	-0.79	0.19	-0.15
	E2	14	-0.52	-1.21	0.68	-0.97	-0.87	0.05	0.25	-0.68

Comparing the descriptor variables across the sub-segments derived within each benefit segment, some significant differences were observed, mostly related to income level, the place of purchase, the consumption situation in which the respondent was engaged, and the mean price paid for a kilogramme of beef (See Table 4.10). For illustrative purposes, comparisons are presented only for the sub-segments generated within the two largest benefit segments (Self-centred and The careful). Within the Self-centred segment, it is observed that: the sub-group A1 is composed of a higher proportion of respondents engaged in barbecue consumption, who possess a higher income, are used to paying a higher price, and more consumers used to buying at the meat boutiques than respondents in sub-segment A2. While in the Careful segment it was observed that: a) sub-segment C1 has a lower proportion of consumers that mentioned buying at the butcher's than respondents in sub-segment C2, and a higher proportion of respondents engaged in an everyday consumption situation than C3; and b) the sub-segment C2 has a higher proportion of everyday meal consumers, a higher proportion of lower incomes, and a higher proportion of consumers that are used to buying at butcher's than sub-segment C3. Thus, it is not surprising that sub-segment C2 presented much lower factor scores for shop services and fat level than sub-segment C3 (see Table 4.9), although both sub-segments strive for the same benefits. Sub-segment C2 does not require many services, as they are used to buying from the butcher's instead of outlets that offer more services, although the mean price paid is not statistically different between them. Furthermore, as they are mostly engaged in preparing everyday meals, they do not require fat like the barbecue consumers in the C3 sub-segment do.

Table 4.10: Sequential cluster profiles

Variables	A1	A2	B1	B2	C1	C2	C3	D1	D2	E1	E2	Total
Income level												
Low	a2 48.0	59.5	75	50	56	c3 56.4	45.8	d2 55.6	100	55	54.5	55.9
Medium	40	27.9	12.5	27.8	31	41	35.6	29.6	-	35	36.4	31
High	12	12.6	12.5	22.2	13.1	2.6	18.6	14.8	-	10	9.1	12.7
Respondent Age												
<35	34.6	25.6	30	20	20.2	32.5	21.0	28.6	33.3	20.8	14.3	24.6
35 to 55	50.0	41.9	70	50	50.6	40	59.7	35.7	33.3	41.7	42.8	46.9
>55	15.3	32.5	0	30	29.2	27.5	19.3	35.7	33.3	37.5	42.8	28.5
Purchase frequency												
1 or more times/week	61.5	65.8	60.0	75.0	64.0	70.0	71.0	53.8	66.7	91.7	64.3	67.3
1 to 2 times/month	30.8	28.2	30	20	32.58	27.5	22.6	26.9	22.2	4.2	21.4	26.3
Sometimes/year	7.7	5.98	10	5	3.37	2.5	6.4	19.2	11.1	4.2	14.3	6.4
The average price/kg	a2 6.06	5.15	6.23	5.85	5.62	5.46	5.36	5.24	4.34	6.02	6.12	5.47
Respondent education												
Primary school or less	69.2	45.3	40	45	34.8	50	38.7	53.6	55.6	50	42.9	44.9
Secondary school	23.1	35.9	20	40	46.1	30	40.3	32.1	33.3	25	35.7	36.2
University	7.7	18.8	40	15	19.1	20	21	14.3	11.1	25	21.4	18.9
People in the household	3.69	3.39	3.4	3.3	3.7	3.55	3.58	3.82	3.56	3.79	3.64	3.57
Consumption situation												
Everyday	a2 23.1	43.6	10	15	c3 71.9	c3 72.5	25.8	42.9	66.7	91.7	71.4	50.1
Barbecue	76.9	56.4	90	85	28.1	27.5	74.2	57.1	33.3	8.3	28.6	49.9
Place of purchase												
Supermarket/hypermarket	61.5	73.5	60	60	59.55	65	58.1	51.8	44.4	50	64.3	62.6
Mini-market	23.1	19.7	10	35	34.83	25	37.1	33.3	33.3	12.5	7.1	26.7
Meat boutique	a2 19.2	7.7	10	-	5.6	7.5	11.3	-	11.1	-	-	7.1
Butcher's	38.5	24.8	20	15	c2 19.1	c3 42.5	21	37	33.3	37.5	35.7	26.9

4.4.2 Clustering performance and evaluation

4.4.2.1 Responsiveness

To provide support for the notion that the sequential approach yields homogeneous segments, nested Anova was undertaken. Each feature factor score was the dependent variable, and the independent variables were the benefit segments and the benefit-feature segments. We used nested Anova because the benefit-feature segments were nested within benefit segments. The results suggest that in each Anova both the benefit segments and feature segments within benefit segments significantly predict the variability in the feature importance scores (Table 4.11). In other words, the benefit segments and the sequential feature segments explain much of the variation of features. The relative size of the F-values also suggests that the variability of four feature importances scores is better predicted by feature segments nested within benefit segments than just by the benefit segments. Hence, when approached from the responsiveness perspective, benefit-feature segments are in fact better than the benefit segments because the variability on features may depend on the differences between feature segments nested within benefit segment.

Table 4.11 – Feature variances per benefit and benefit-feature segments

Feature importances	F Test		Adj. R square
	Benefit segments (df = 4, 435)	Feature segments within the benefit segments (df = 6, 433)	
Shop services	5.68***	30.34***	0.30
Stamp	28.57***	11.13***	0.33
Cleanness	21.05***	35.48***	0.34
Trustfulness	13.30***	9.12***	0.24
Animal information	27.10***	6.46***	0.29
Sensorial	17.37***	20.34***	0.24
In locus preparation	6.63***	6.59***	0.09
Fat	7.62***	33.75***	0.34

***significant at p<.001

To test whether the benefit-feature segments cases are in alignment with the feature segments, the cases were cross-classified (Table 4.12). There is corroborating evidence that the benefit-feature segments are aligned with the feature segments. For example, within the benefit-feature segment A2, 91 cases (≈78% of the segment) were classified in the second feature segment. In short, in all eleven benefit-feature segments, at least 50% of the cases were classified in just one feature segment. Overall, these results suggest that we more or

less got the same feature segments, but this time with homogeneity with respect to benefit importances added.

Table 4.12 – Cross-classification of the segmentation schemes

Feature Segments	Benefit-feature segments											Total
	A1	A2	B1	B2	C1	C2	C3	D1	D2	E1	E2	
1	3	-	5	15	15	2	4	1	-	1	5	51
2	13	91	2	4	50	3	52	2	-	12	-	229
3	9	22	3	-	9	33	5		7	11	1	100
4	1	4	-	1	15	2	1	25	2	-	8	59
Total	26	117	10	20	89	40	62	28	9	24	14	439

4.4.2.2 Managers' evaluation

The managers presented two different perspectives on the effectiveness of the three approaches for guiding their daily practice towards clients and suppliers. For the managers in the first group, the benefit-feature segmentation outperforms the other approaches in helping their organization achieve their ultimate business objectives (see Table 4.13). Nonetheless, some of the managers had a certain amount of difficulty in recognizing each of the eleven segments.

Table 4.13 – The manager evaluations

Variables	First group	Second group
Sample	Retailers (n = 3) Slaughterhouses (n = 3)	Retailers (n = 4) Slaughterhouses (n = 2)
Best approach	Benefit-feature	Feature
Reasons for their choice	• It simultaneously shows the motives for beef consumption and what drives the actual consumer's choice (features). • It provides more details about what suppliers need to offer to satisfy the target clients.	• The segments are more recognizable and general. • More simple.

The respondents that chose the feature segmentation as being more useful were mostly interested in generalizability and recognizability of the segments. In other words, the ideal is to have simple and general (broad) segments that can be easily integrated into the company's ongoing business approaches. They also pointed out that the segmentation based simply on benefits is too risky (because it is too abstract), while the benefit-feature

segmentation is too cumbersome to implement. The arguments, therefore, were in line with their daily marketing practices, which emphasize simplicity.

4.5 Discussion

Since the advent of segmentation as a major concept in marketing literature, segmentation has provided guidelines for firms' marketing strategy and resource allocation (Wind, 1978). However, the segmentation role in real-world practice has long been discrepant in relation to the advances observed in the academic segmentation studies (Dibb and Simkin, 2001; McDonald and Dunbar, 2004). One reason for the discrepancy is the lack of straightforward insights provided by segmentation approaches on how to translate the consumers' segment demand into chain competences. In this regard we proposed an approach which revealed the existence of possible market segments that are able to capture the consumer distinctiveness in the market and that can be used for strategy design within chains.

The most important aspect of the segmentation approach proposed in this study concerns the potential of using the benefit-feature sequence to form segments. The advantage of applying this sequence to segment the market is that it ensures which benefits are deliverable by the features. Thus, consumers belonging to the same benefit cluster may value features differently or, as observed by McDonald and Dunbar (2004), a particular benefit may drive customers to strive for different product or service features. For example, the "Careful" segment, which is particularly concerned about suitability, pleasure, quality and nutrition, presented three sub-segments with distinct demands for features. In addition, these sub-segments were found to shop in different outlets and had different purposes for beef consumption. Therefore, the marketer can both identify and reach these particular market segments (although the market is relatively fragmented; just three segments accounted for more than 10% of the market). Using the benefit-feature sequence as a segmentation basis not only supports strategies at the feature level for product development or improvements in the chain, but also may contribute to communication strategies at the benefit level.

As the market is viewed from the perspective of the consumers rather than company management, our segmentation approach provides insights for planning processes in different steps of the chain according to specific segment needs, expressed in terms of the benefits and product/service features. For example, the members of a particular segment, in which the core benefit proposition refers to nutritional value, may requires a relatively high level of trustfulness for buying in a certain shop, and a low level of fat content. As these key features can hardly be delivered by a single company working in isolation, but by an integrated set of companies working together, these features could be the departure point for designing processes, activities and resources allocation along the whole chain for meeting the specification of the final consumer. In doing so, the whole chain would benefit

from more effective and efficient coordination and alignment of its various decision-makers towards a common goal, referred to by Porter (1985) as "focus strategy", and constitutes one of the major ways to compete.

Based on the results of the qualitative evaluation of the usefulness of the approaches, managers identified that basing segments on the benefit-feature sequence is appropriate to companies for customizing their marketing, and drive their suppliers by: (1) providing precise information about the needs of segments; (2) pushing suppliers to meet the product requirements of each specific segment; and (3) programming the production volume according to the level of the final demand. This approach, therefore, is viewed as contribution to solving a critical and often problematic stage of any segmentation process (Dibb and Simkin, 2001; Hooley and Saunders, 1993; McDonald and Dunbar 2004), namely its implementation. The most valuable aspect of the benefit-feature base is its appropriateness and facility for implementation, two core criteria in the managers' evaluation of segmentation processes (Frank et al., 1972). Not surprisingly, the respondents identified the benefit-based segments as the most difficult to implement, and, therefore, not useful for guiding daily practice in their chain.

The knowledge that managers have of their marketplace, customers, and suppliers means that they can actively judge the feasibility of segment implementation. In this regard, two types of reactions to the approaches presented were observed: (1) those that considered the benefit-feature sequence the most appropriate method; and (2) those managers that considered the segmentation based on product and service features as the best. The first group is focused on the final demand and adopts a pull strategy, while, the second group seems to be supply-oriented, i.e. adopting a push strategy.

4.6 Conclusions and implications

From the above findings it seems evident that neither benefits nor product/service features alone are sufficient to establish the optimum segments for matching the goals of customers and suppliers. In this chapter we have argued for the importance and feasibility of segments based on the benefit-feature sequence for supply chain strategic designing. Using the benefit-feature goals hierarchy, we have derived segments for beef consumed in everyday meals and barbecue consumption. Further, we have verified the appropriateness of the segments for retailers and processors (slaughterhouses) to take actions regarding their customers and suppliers.

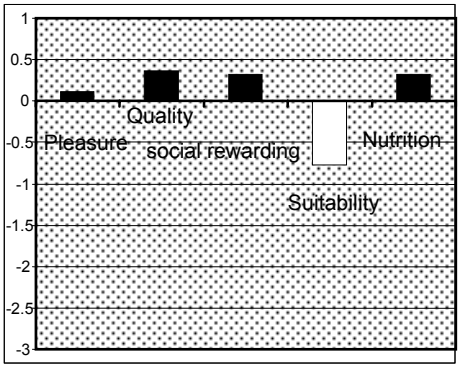
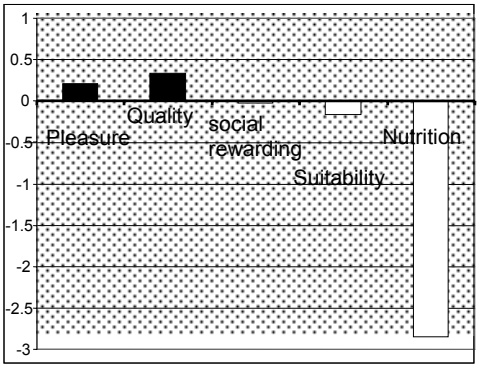
We believe that we have demonstrated that sequential segmentation is an appropriate method for segmenting the market, when the objective is to have a more demand-driven chain design. First, it derives distinct segments based on the alignment of what consumers need (benefits) with how they achieve these needs (features). Secondly, it provides

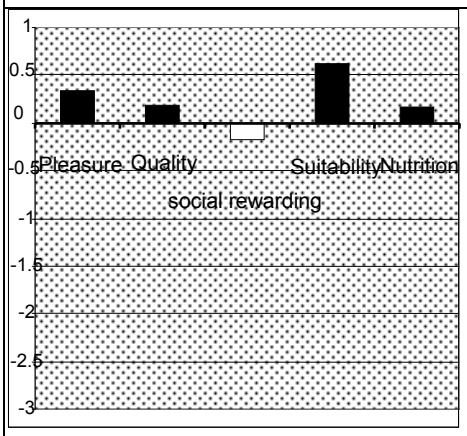
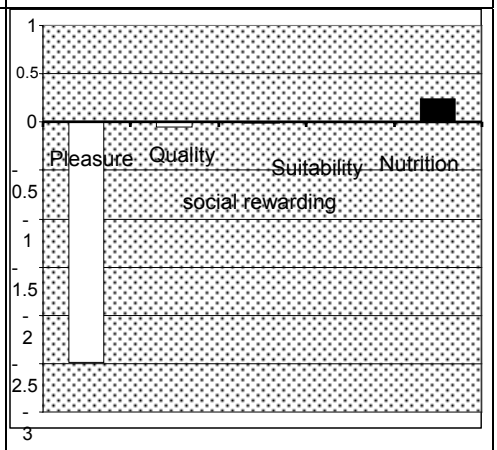
manageable and useful segments that can enable marketers to make changes or take innovative actions within their own companies or across other chain members.

The objective, of course, is to provide a tool that progresses beyond the analytical and mathematical aspects by providing an easy and practical tool for market segmentation in the area of chain strategy design. The logical implication is that chains can become more demand-oriented by meeting the requirements of closely-defined markets.

Appendix

Benefit segments

<table>
<tr>
<td colspan="2"><u>Segment 1</u>: "The individualists"
This group does not care whether the beef is suitable for everybody/many dishes. They are interested in quality, social rewarding and nutrition.</td>
<td colspan="2"><u>Segment 2: "Pleasure-Quality seekers"</u>
Consumers are interested in quality and pleasure. They really do not care about nutrition.</td>
</tr>
<tr>
<td colspan="2"> 
</td>
<td colspan="2"> 
</td>
</tr>
<tr>
<td>Size=31.7%
Price/Kg=5.37</td>
<td><u>Place of purchase:</u>
Super/hyp.=71.0%
Beef shop =12.3%
Mini = 18.7%
Butcher's =29.7%</td>
<td>Size=6.7%
Price/Kg=6.09</td>
<td><u>Place of purchase:</u>
Super/hyp.=60.6%
Beef shop=3.0%
Mini = 24.2%
Butcher =18.2%</td>
</tr>
<tr>
<td><u>Income level:</u>
Low = 57.1%
Medium = 30.6%
High = 12.2%</td>
<td><u>Education level:</u>
Primary =49.7%
Secondary= 32.9%
College = 17.4%</td>
<td><u>Income level:</u>
Low = 57.1%
Medium = 25.0%
High = 17.9%</td>
<td><u>Education level:</u>
Primary =39.4%
Secondary= 36.4%
College = 24.2%</td>
</tr>
</table>

Segment 3: "The careful"		**Segment 4: "Nutrition conscious"**	
This group is very interested in beef appropriateness for everybody/many dishes. They also strive for pleasure, quality and nutritional benefits.		This group characterizes by striving for nutrition and is relatively disinterested in pleasure	
			
Size=43.7% Price/Kg=5.54	**Place of purchase:** Super/hyp.=59.3% Beef shop =7.0% Mini = 32.2% Butcher's =25.2%	Size=8.8% Price/Kg=5.88	**Place of purchase:** Super/hyp.=55.8% Beef shop =2.3% Mini = 9.3% Butcher=37.2%
Income level: Low = 52.7% Medium = 34.1% High = 13.2%	**Education level:** Primary =39.7% Secondary= 40.2% College = 20.1%	**Income level:** Low = 55.6% Medium = 36.1% High = 8.3%	**Education level:** Primary =48.8% Secondary= 27.9% College = 23.3%

Part 3: DEMAND CHAIN DESIGN

Chapter 5: A framework for demand chain design: with an illustration from the beef business

5.1 Introduction

In recent years the management of the supply chain is becoming increasingly important for business performance improvements (Fearne 1998; McDermott et al., 2004). At the same time, several developments on the demand side, such as increased importance of health, convenience and variety, have emerged, which require more emphasis on markets rather than products (Larson, 2003; Verhallen et al., 2004). Additionally, changes in logistics and information technology coupled with the intensification of competition have brought about fundamental changes in the business strategies and operations of companies (Achrol and Kotler, 1999; Berthon et al., 2000; Kumar et al., 2000).

As a result of these changes, many authors have recommended that in order to enhance competitive advantage, supply chains need to become market-oriented (Day, 1994; Slater and Narver, 1998; Webster 1992). Market-oriented - also referred to as demand-oriented - supply chains are those that place the interests of the customers ahead of all other claimants on the resources (Deshpandé et al., 1993; Webster 1992). Based on these theoretical developments, and on empirical observation that some companies and chains have indeed started to become demand oriented, a new concept entered the arena, called demand chain management (DCM) (Langabeer and Rose, 2002; Selen and Soliman, 2002; Vollmann et. al., 2000), which aimed at managing and coordinating the whole chain, starting from the end customer and working backwards to the raw materials suppliers. The focus of DCM, therefore, changed from a supplier-oriented chain perspective to a customer-centric orientation where a group of companies - simultaneously coordinated - generates goods and services based on a common end: the final customer demand.

Despite the positive association between demand orientation and economical performance/competitive advantage, the literature provides little guidance on how to construct demand-oriented chains. Our goal is to propose a framework that shows the main steps and issues that need to be addressed when designing demand chains. The demand chain design differs from the channel design models proposed by Coughlan et al. (2001), Rosenbloom (1999), among others, because the emphasis shifts from distribution strategy design to competencies design, i.e. processes, assets and tasks, as well as coordination mechanisms, and the selection of the required chain members needed in the upstream

phases of the chain for satisfying a particular group of customers. In this sense, the idea of demand chain design is conceptually similar to new product design through the quality function deployment (QFD) approach.

We will use QFD as guiding principle to integrate the different steps of the demand chain design framework. QFD is an effective tool for dealing with questions like: "what to do?" and "how to do it?". These questions are answered in four steps, also called houses of quality (HOQ), which relate the what? questions with the how? questions in a systematic order from specific product planning to more general production planning operations (Hauser and Clausing, 1988).

Building on the traditional QFD, we propose a modified QFD for chain design, which ensures that customer requirements are integrated into chain construction as early as the design stage. The modified QFD can be carried out by inter-firm teams enhancing collaboration before the real implementation takes place. Furthermore, it enables organisations to be proactive rather than reactive to changes. That is, due to the structured QFD process, the design team is forced to consider what the customer wants, then identify innovative ways of achieving that end, rather than concentrating on existing chain solutions.

The chapter consists of two parts. In the first part, we present the demand chain design framework. In the second part, we illustrate the framework with a beef demand chain in Rio Grande do Sul, Brazil.

5.2 Demand chain design model

Figure 5.1 illustrates the major steps in our framework for the development of demand chain design. The framework starts out from the determination of the needs and preferences of the customer. As the result of determining the customer's voice, a list of descriptions concerning the design target is generated along with the identification of segments existing in the market. Once the overall demand has been identified, the second step consists of choosing one of the revealed segments for starting the analysis of the chain's response. As shown in Figure 5.1 and further developed in steps 1 and 2, section 5.3.1 of this chapter, these two steps of the model comprise what we call the "inputs" for the "chain's responses" that are developed in section 5.3.2.

The third step is concerned with the translation of the needs and wants into key processes required to fully provide the products/services demanded by a particular segment. This is done by establishing the first HOQ. The fourth step is designed to break down each key process into the required tasks and assets needed for its accomplishment, which comprises the second HOQ. The fifth step delineates the feasible coordination mechanisms for governing the interdependencies among different actors in the chain through the third HOQ. Next, it is necessary to determine the companies needed to provide the resources required,

which is realised by establishing the fourth HOQ. This is the task of the sixth step of the framework shown in Figure 5.1. Finally, the last step comprises the resultant chain and its continuous appraisal for providing direction to day-to-day decisions.

QFD provides a systematic tool for integrating and linking the demand chain design steps identified in Figure 5.1. QFD has been extensively studied as a strategy for assuring that quality is built into new products (Hauser and Clausing, 1988; Dekker and Linnemann, 2001), and recently it has been extended to such areas as service improvement (Trappey et al, 1996; Carpinetti et al., 2000), business operational planning (Crowe and Cheng, 1996), and strategic planning (Samuel and Hines, 1999; Gonzalez et al., 2004). A few authors mention that QFD has been applied in the context of chains. Hines et al. (1998) advocate a refined QFD method for understanding the actual supply chain situation, quantifying the need for change and scenario planning to help ascertain and prioritise the best course of action for the supply chain. Sohn and Choi (2001) developed a four-step QFD for handling the relationship between customers' needs and design variables in different phases of the supply chain for product development process. Benner (2005) proposed a modified QFD approach for new product development that considers impacts on different supply chain actors. However, up till now, no QFD approach has been developed for chain design.

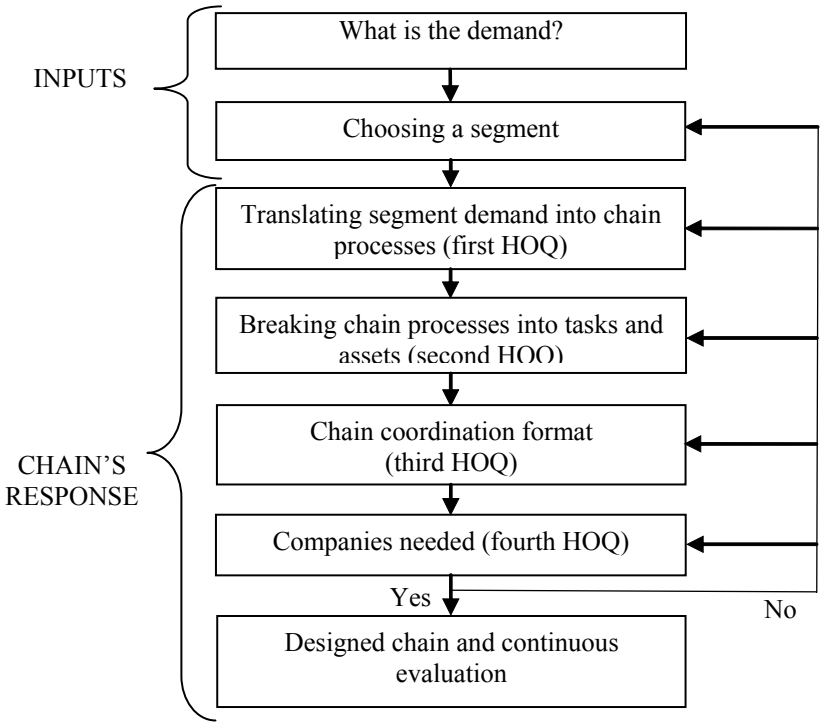


Figure 5.1 – Demand chain design framework

The traditional QFD consists of four hierarchical HOQs. The first HOQ represents the relationship between the end user's needs and product design variables. In the second HOQ, design variables of a product are related to those of the parts. In the third HOQ, parts of the design variables are related to assembling and operational processes. Finally, in the last HOQ, processes are related to production requirements. These steps are also known by: design, detail, process and production (Hauser and Clausing, 1988). Each step has a matrix consisting of a vertical column of 'whats' and a horizontal row of 'hows'. Whats are customer requirements, hows are ways of achieving them. At each step, the hows that are most important become the whats in the following step. Through QFD, the design team—generally composed of inter-functional managers (e.g. technical departments, marketing department, account department, etc)—is forced to consider what the customer wants, then identify possible ways of achieving that end. The result is a better design, a shorter product development cycle, better product quality, and lower costs (Crowe and Cheng, 1996).

In order to expand the application of QFD for developing demand chain design, we first have to study the fundamental differences between the traditional uses of QFD in product design with the QFD in chain design as proposed in this chapter. Table 5.1 highlights these differences.

Table 5.1 – Differences of QFD in product design and chain design

	QFD in product design	QFD in chain design
Number of HOQ	Four (product planning, component deployment, process planning and production planning)	Four (process planning, detailed tasks and assets deployment, interdependencies coordination planning and chain structure planning)
Team members	Cross-functional engineers	Cross-firm top managers and cross-functional level managers
Output	Specific process for manufacturing the product	Technical, tactical and strategic issues for chain organisation

The modified QFD we propose consists of four houses. As illustrated in Figure 5.2, we call these houses: business process planning; detailed tasks and assets deployment; interdependencies coordination planning and chain structure planning. Although the addition of extra houses would be possible, the QFD version proposed in this study is restricted to four houses because the relations between more abstract consumer goals (such as benefits and values) and product/service features were studied in detail in chapters 3 and 4.

The first HOQ represents the relationship between the end users' needs in terms of product/service features and business processes. In the second HOQ, processes are related

to sub-processes (tasks) and assets needed throughout the chain. In the third HOQ, tasks and assets are related to formats of coordination. Finally, the last step consists of an HOQ that relates coordination formats to chain members selection. The team in the chain design QFD exercise should consist mostly of top management and functional level managers of companies interested in organising the chain. The decision-making process is sometimes strategic (for example, in deciding whether to internalise or outsource a particular process in the chain), tactical (for example, decisions concerning changes in the manufacturing flow, or the number of suppliers), and operational (for example, decisions at the level of tasks or sub-processes in a particular step of the chain).

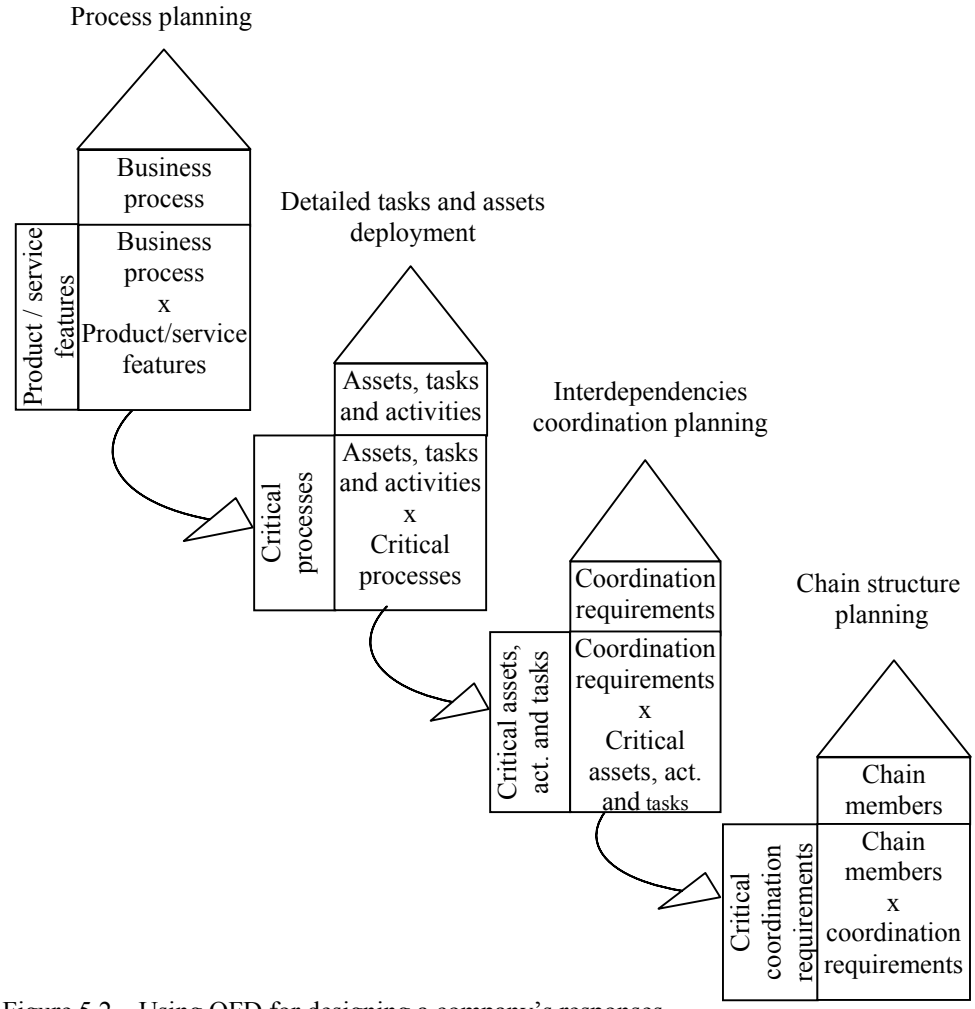


Figure 5.2 – Using QFD for designing a company's responses

Each HOQ in the product design is a roof-like structure resembling a house. The roof room shows the interrelationships among the hows. Positive correlations between hows show that they support each other. Negative correlations show that the hows adversely affect each other (Hauser and Clausing, 1988). At each stage, the roof room helps the design team specify the various hows that have to be improved collaterally and those that conflict with each other. To make the model more concise and simple in this study, the roof room will be left out, though we recognize that the hows may not be independent from each other. As a result, the HOQs will resemble more a matrix-like structure than a house-structure as in the traditional QFD for product design.
Next, each of the sixth demand chain design steps will be developed in detail along with a demonstration about how QFD can be used to integrate the design steps of our framework.

5.3 Design steps

5.3.1 Chain design inputs

Step 1 – Identifying the demand

As our aim is to have a demand-oriented design process, the first step is to divide the final demand into homogeneous segments (see Figure 5.1). Segments are derived from the recognition that the total market is often made up of more homogeneous submarkets. Because of this intra-group similarity, consumers are likely to respond somewhat similarly to a given marketing strategy. That is, they are likely to have similar feelings and ideas about a marketing mix consisting of a given product or service, sold at a given price, distributed in a certain way, and promoted in a certain way (Kotler et al., 2002).
The major challenge in segmenting consumer demand for chain design strategy relates to two questions: which bases to use and how to segment the total market. The first question refers to the effectiveness of the basis for identifying groups of consumers (Day, 1990; Kotler, 2002). All segmentation bases have their own advantages and drawbacks, but when the objective is design chain management, the ability to derive easy-to-implement segments (i.e. actionable) is of crucial importance. Although there are many segmentation bases that could satisfy this requirement, both benefit and product/service features seem to dominate the other bases because they are easy to link to what companies need to do to respond to the market (Day, 1990; Wedel and Kamakura, 1998; Wind, 1978).
The second segmentation question deals with the issue of how to segment the total market. As feature preferences are likely to be highly influenced by pertinent benefits being sought by consumers (Gutman, 1982; Reynolds et al., 1995), we believe that a sequential segmentation scheme can be suitable for separating distinct subgroups of consumers. Hence, the segmentation should be executed taking into account the identification of homogeneous groups in terms of feature preferences within groups with similar demands in

terms of benefits. The segment derivation is therefore a relatively straightforward procedure and can easily be estimated using the cluster analysis options available in most statistical packages. However, other more sophisticated approaches could be used as well such as latent segmentation models (Kamakura and Novak, 1992) and approaches based on consumer product relations (see Ter Hofstede et al., 1999), to mention just a few.

Step 2 - Choosing a segment

After the segments have been derived, the design team has to decide which segment to use to start the chain's design response steps. Many criteria have been proposed for targeting segments, including: segment fit to the company objectives and resources, segment costs for penetrating the market, segment expected growth, segment size, etc (Kotler et al., 2002). These criteria might be important to consider for indicating whether a specific segment presents potential for further design effort. Therefore, at this point, based on some or all of these criteria, the design team should select one segment for tailoring the supply response.

5.3.2 Chain design responses

Step 3 - First HOQ: translating the segment demand into chain processes

Once a segment has been chosen, it is necessary to translate the consumer wants in terms of product/service features into chain competence requirements. The way that companies and chains have to respond to specific market demand is through jointing valuable resources for deploying competencies (Srivastava et al., 2001). Competencies may result from any type of tangible capabilities (such as machinery, plant, trucks and land), or intangible capabilities (such as the ability to build up a brand, ability to organize agreements in the chain, and reputation) (Mahoney 1995; Hooley et al., 1999). Ultimately, as pointed out by Davenport (1993), the conversion of resources of any kind into products or solutions for consumers occurs through the medium of processes. Following Davenport, we define a process as a set of logically related tasks (actions or operations) performed to achieve a defined business outcome, either within an individual company or across company borders.

In this thesis, a process is considered at an intermediate level of abstraction. For example, transport, harvesting, feeding animals, selling, etc, are all processes and the various individual operations realised to execute these processes are defined as tasks. Additionally, we acknowledge that the execution of processes is also based on tangible assets such as machine and land, and intangible assets such as information and knowledge.

The translation consists essentially of linking processes with product/service features demanded by a particular segment. However, before the translation can be realized, the design team needs to ensure that all features of a particular product or service are well-

defined and clear. Then, the first HOQ can be started by listing, on the left hand side, all product/service features relevant for a specific segment as determined in step one of our design approach (Figure 5.3). In QFD, this stage constitutes the voice of the customers, also referred to as the WHATs (Hauser and Clausing, 1988). It is important that product and service features as demanded by consumers are rated against each other to indicate how important they are to the consumers. These weights are displayed next to each product service features and are usually reported on a scale from 1 to 5.

The room on the upper side of the first HOQ is the process requirements, which gives the overall description of how to realise the segment demand. This is also called the HOWs. The centre part of the first HOQ contains the relationship matrix, which indicates the strength of the relationship between each product/service feature and each process. The strength of the relationship between each what and how is usually weighted according to: strong relation = 9 symbolised by •; medium = 3 symbolised by o; weak = 1 symbolised by Δ.

The bottom of the first HOQ contains the priority room, which is the determination of the key processes to achieve the consumer demand in terms of product/service features. The critical processes are determined by multiplying the relation weight in the relationship matrix with the segment product/service feature importance rating and summing up the total for each process. For example, as displayed in Figure 5.3, process 1 has the highest priority and therefore is crucial for assuring the requirements of the segment. On the other hand, process 2 has the lowest priority and therefore companies in the chain do not need to invest much effort on this to reach the intended level of product/service features.

Once the processes have been distinguished in terms of their importance, each planned process can be compared against the same process organized by competitors. This information is plotted graphically, in an area below the strategic priority room and shows the competitive strength of the planned process compared to competitors.

However, it is necessary to go beyond processes to understand actions that give the demand chain the ability to perform certain demand requirements satisfactorily. Then, in the second HOQ, each process is broken down to specify the tasks and assets required to fulfil them.

			HOWs				
		Rating	Process 1	Process 2	Process 3	..	Process n
WHATs	Product feature 1	5	o	Δ	•		o
	Product feature 2	1		o			o
	..						
	Product feature n	2	Δ	•	o		
	Service feature 1	4	•		o		o
	Service feature 2	3	•	3			Δ
	..						
	Service feature n	2	o	Δ	o		•
Technical priority			86	37	69		51
Process competitive assessment ■ Our target ● Chain B ◆ Chain C		Best 5 4 3 2 Worst 1	■ ◆ ● 	● ◆ ■ 	■ ● ◆		 ■ ● ◆

Figure 5.3 – The first HOQ

Step 4 - Second HOQ: Breaking processes into chain tasks and assets

The construction of the second HOQ aims to break down and identify the critical tasks (activities) and assets needed to fulfill each of the chain processes identified in the first HOQ. The second HOQ starts by placing all the most important processes prioritised in the first HOQ on its left hand side. The processes need to be rated against each other to determine their importance for fulfilling the product/service features as demanded by the consumer. The rating procedure is similar to the one applied in the first HOQ with product/service features. In the upper side of the matrix the processes are broken down into tasks and assets, which represent the elements necessary to fulfill each of the process. Then, the relationship matrix is completed in the same way as in the first HOQ. The next step of the second HOQ is to estimate the priority list of assets and tasks by multiplying each

process rating by the weight in the relationship matrix, and finally summing up the total for each asset or task (Figure 5.4).

			HOWs						
		Rating	Asset 1	Asset 2	..	Asset n	Task 1	..	Task n
WHATs	Process 1	5				Δ	•		o
	Process 2	1	Δ	o		o			o
	..								
	Process n	2	Δ			•	o		•
Technical priority			3	3		26	15		35
Chain added cost (example: $/kg)		Alternative 1							
		2							
		n							

Figure 5.4 – The second HOQ.

The goal of the second HOQ is to make a detailed process design in technical terms, but it does not give us the economic criteria for decision-making. In addition to the technical aspects, the design team needs now to consider the costs involved in each asset and/or task alternatives for fulfilling a particular process. Then, the last step of the second HOQ is to estimate the chain added costs of each asset and task alternative and place them in its lower part. By combining the technical aspects with the economical aspects, each asset and/or task that constitutes each process can finally be established. In order to facilitate the decision-making, the design team can also compare each figure for added costs for each task or asset with the costs incurred by competitors.

The technical and economical aspects referred to above provide opportunities for the demand chain to enhance its competitive advantage through differentiation and cost as originally proposed by Porter (1985). The importance of differentiation in our design model relates to the fact that the choice of how to fulfill a required process may have implications for the uniqueness of that consumer value (as shown in the technical priority room). On the other hand, the cost criterion for tasks and assets selection relates to cost reduction goals, which will impact the competitive advantage of the whole chain. In theory, we can have a situation where a task or asset can be executed at different levels of costs and with different

levels of impact on the uniqueness valued by costumers. Figure 5.5, presents four possible combinations. The most feasible option for enhancing the competitive advantage of the demand chain is clearly the one in quadrant 2, which is cheap and provides a major positive impact on the demanded final product. On the other hand, the option available in quadrant 3 will never be appropriated to the specific process. The option in quadrant 1, although it is not optimal considering its high cost, should be considered in cases where there is no other cheaper way of getting things done in a very important process. Option 4 should be chosen in cases where the process is not important for fulfilling critical product/service features.

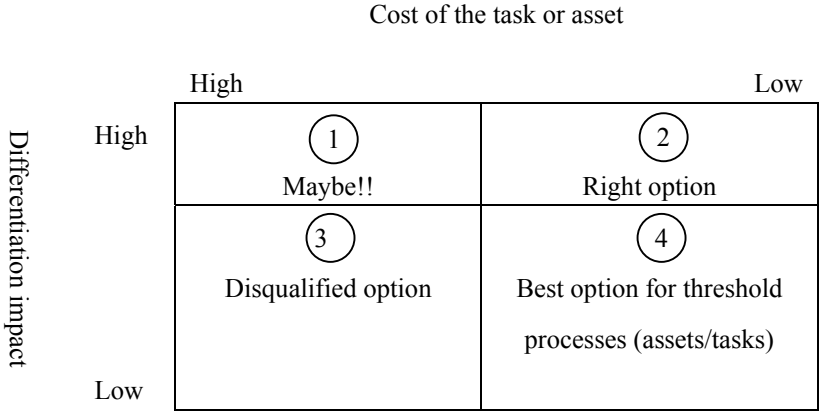


Figure 5.5 – Cost and differentiation trade-offs in design processes in the chain

The challenge for the design team is to find breakthroughs for creating customer value at low cost, though this is rarely achievable. In short, if in the third step of the framework (first HOQ) it was identified that a certain process is fundamentally important to satisfy customers, then more expensive asset and task alternatives should be considered. By contrast, in cases of less important processes, the design team may choose less expensive asset and task alternatives.

Step 5 - Third HOQ: Chain coordination requirements

This step of the demand chain design is concerned with the choice of the coordination mechanism as a means to integrate value-added tasks and assets across different actors. Coordination has been generally known as a mechanism to regulate interdependent objects (for example, tasks and assets) of different actors that must match common objectives in form and time (Malone and Crowston, 1994). Originally, Thompson (1967) identified different coordination mechanisms that are used to respond to different levels of interdependencies between organisations, and categorised these interdependencies as

pooled, sequential and reciprocal patterns of workflow. Later, Malone and Crowston (1994), extended the understanding of interdependence by separating two types of activities that are present within a process: activities that directly contribute to the output of the process (as those outlined in the second HOQ), and activities called coordination mechanisms, which must be carried out in order to manage the various interdependencies among actors. These are the activities that the design team will deal with in the third HOQ.

Much of the extant research applying coordination theory to design organisational mechanisms points out that the interdependencies can be coordinated within a continuum where activities may be totally organised internally, i.e. through hierarchy or, otherwise, totally performed by external providers in an 'arm's length' type of relationship, i.e. through the spot market (see for example, Williamson, 1999; Crowston, 1997; Cox 1999; Heide 1994; Ring and Van der Ven, 1992). Any coordination mechanism positioned between these extremes is characterised as a network type of coordination, in which independent actors work jointly and simultaneously, resulting in many types of partnerships such as short-term contract, long-term contract, joint-venture (Simatupang et al., 2002; Xu and Beamon, 2006).

However, other authors, headed by Powell (1990), perceived that a network is indeed a different mode of exchange, not like a halfway mechanism between market and hierarchy. Based on this development, and on the three types of interdependencies identified by Thompson (1967), authors such as Lazzarini et al (2001) and Diederen and Jonkers (2001) have derived the corresponding coordination mechanism to assess all types of interdependencies. By balancing the three typical mechanisms, i.e. market, network and hierarchy, numerous coordination mixes can be designed. For example, in cases of sequential interdependencies, where the actors are ordered in a serial fashion (one actor's input is another actor's output) the usual coordination mechanisms emerge between market and hierarchy. The most common coordination mechanisms are short- and long-term contract, joint ventures and participations. Usually, these coordination mechanisms are designed to reduce transaction costs and appropriate property rights (Lazzarini et al., 2001).

The interface between market and network is the locus for interchanges characterized by pooled and reciprocal interdependencies. The more the actors are engaged in strong social ties, i.e. densely interconnected, the more they rely on a network mechanism. By contrast, the less they seek interconnections with their partners, both at the same chain level or in different chain levels, the more they manage the interdependencies through a market mechanism. The coordination types that emerge between market and network are particularly relevant for the understanding of the informal transactions occurring between actors.

The interface between hierarchy and network is characterized by relations, the key driver of which is authority. When interdependencies are managed through lower authority levels,

the coordination is closer to a network. By contrast, when authority is highly employed, the coordination mechanisms move closer to hierarchy. The type of arrangements found in a family, a tribunal or a church, where an actor is accustomed to issuing commands and the other to obey, might be examples of coordination mechanisms emerging between hierarchy and network.

In summary then, any coordination mechanism designed to govern interdependencies contains elements of hierarchy, network and market. This is illustrated by point A in the Figure 5.6, which represents a coordination mechanism primarily based on market mechanism, but with some residual elements of network and hierarchy. Additionally, a particular coordination mechanism can move to different areas of the exchange space according to the progress of the relationship through time as shown by the arrows in the Figure 5.6.

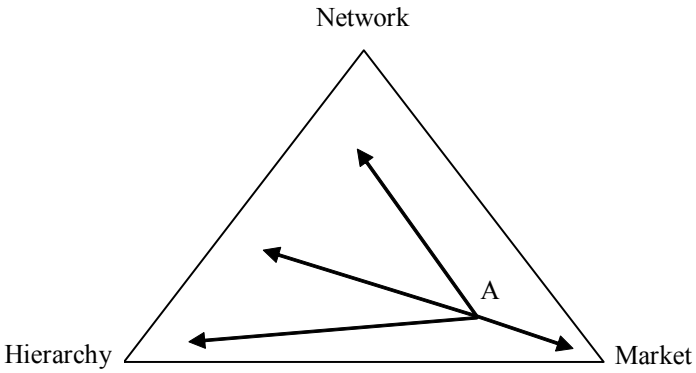


Figure 5.6 – Coordination mechanism in the demand chain (adapted from Diederen and Jonkers, 2001)

The construction of the third HOQ starts with the placing of the critical assets and tasks determined in the second HOQ of our design framework on its left hand side in the same way as was done in the first two HOQs. The crucial difference, however, is concerned with two houses on the right hand side. The first, called “demand chain phase”, shows where each task or asset has to be performed or deployed in the chain. This is important because a supplier may be able to provide more than one asset or perform more than one task; therefore a unique coordination mechanism can cover many key interdependencies in the chain (Figure 5.7)

Once the tasks and assets have been assigned to different chain phases, a second room, called "chain coordination criteria", should be built to help the design team choose the best coordination mechanism to govern the actors' interdependencies.

The criteria for establishing coordination mechanisms have been exhaustively investigated within the transaction cost economic theory (Williamson, 1975; 1979) and management theories (Cox, 1999; Heide, 1994; Ring and Van de Ven, 1992; Coughlan et. al., 2001). By integrating the main outcomes of these theories, a few broad criteria can be derived for designing the coordination mechanisms to regulate transactions between chain members. The objective is not to exhaust the possible list of criteria, but to show how the design team has to proceed to design the appropriate coordination mechanism. The criteria should be placed on the right hand side of the third HOQ. Each asset or task should be weighted against each criterion according to ++ = very important, + = important, and blank space = no relation.

As mentioned above, the typical interdependencies in a demand chain are sequential, and consequently coordination mechanisms fall mostly between hierarchy and market. However, it should be kept in mind that any exchange may contain characteristics typically found at the interface between hierarchy and network, as well as between network and market. Given the characteristics of demand chain interdependencies, some criteria for choosing coordination mechanisms will be developed in the sequence.

Two types of criteria may be important in this step: transaction intrinsic criteria and chain-actor wishes. Transaction intrinsic criteria relate to the characteristics of the transaction itself. For example, the level of uncertainty involved in exchanging an asset or task, the specificity level of an asset or a task, the possibility of standardization, and the complexity of the goods transacted.

Market uncertainty and specificity are the two top intrinsic criteria emphasized in the literature (Williamson, 1979; Cox, 1996; Simatupang et al., 2002). High supplier uncertainty about an asset or activity in terms of supply lead time, quality specifications and price, lead agents to avoid market coordination mechanisms. Market coordination is appropriate for regulating interdependent assets and tasks for which the uncertainty degree is relatively low, while hierarchy is more suitable in situations where supply uncertainties are high. Any type of partnership is best for assets and tasks with neither too much uncertainty not too little. Similarly, Fisher (1997) finds that closer coordination will be more likely to emerge under conditions of high demand uncertainty.

Tasks and assets should be vertically integrated only if they are indispensable for fulfilling the important processes defined in the third step of our design framework, i.e. only if they are highly specific for fulfill important processes for a particular group of customers. The more tasks and assets contribute to the maintenance or creation of processes essential for a particular group of customers, and they can not be used in other production process and

markets, the more they should be regarded as of high specificity, and the more they should be undertaken within the organisation. By contrast, the market coordination mechanism is appropriate for regulating interdependent assets and tasks for which the degree of specificity is low, i.e. they can be used in other production processes and markets (see similar approach in Cox, 1996). Complementary assets and tasks interdependencies, i.e. those not indispensable for targeting a particular group of customers but also not conditional for being in the business, may be best managed through partnerships. However, the more a complementary asset or task becomes essential for an adequate fulfillment of the segment demand, the more hierarchy has to be considered through a merger or acquisition. By contrast, the more assets and tasks are residual, i.e. not essential for aggregate value for the specific group of customers, the more it should be managed within the scope of the spot market.

The second type of criteria – the chain-actor wishes - deals with the wishes of the chain designers regarding the type of chain they want to organize. For example, an important aspect is the type of climate for exchange. Market transactions are usually characterised by suspicion interactions, while hierarchy is characterised by a formalised and bureaucratic organisational climate. The coordination mechanisms emerging between these two extreme poles usually provide a climate that is rather collaborative and open-ended by nature (Claro, 2004). The design team needs to choose which organisational climate is the best for the demand chain. If the choice is to rely on unilateral and authoritarian structures that confer power, then it is better to stay close to hierarchy. However, if the goal is to rely on a flexible and possibly less costly supply, but within an uncertain climate, then the market mechanism should be chosen. Otherwise, if the goal is to have collaboration by emphasizing mutual responsibility and trust, then the choice falls to building a partnership with suppliers.

Another example is the level of information control the chain wants to achieve. If the demand chain requires a high level of information control about processes, obviously vertical integration is more appropriate. By contrast, lower requirements in terms of information precision can be obtained at less cost by the market coordination mechanism. Through collaborating in a network, the demand chain is also able to obtain medium to high levels of information control (Powell, 1990).

Briefly, in the fifth step of the demand chain design, the design team has to answer the following questions: (1) In which chain phase do the assets and tasks have to be deployed or performed? (2) How should the interdependencies be managed? To answer the first question, the design team has to check the juxtaposition of each asset or task in the chain. Then, for example, choosing a livestock breed and feeding cattle are activities performed at the farm level, while stunning and trimming are activities needed in the slaughter phase of the beef chain. The second question is answered by looking at such variables as: the

importance of the input in the final customer-segment value creation, the uncertainties involved in its purchase, the desired level of information control, and the climate for exchange. The last step of the third HOQ is to choose the coordination mechanism and display it (check mark) on its central part.

	Coordination mechanism			Demand Chain phase	Chain coordination criteria				
	Market	Partner-ship	Hierar-chy		Uncerta-inties	Speci-ficity	Climate	Control	..
Task 1		✓		Trans-port	++	+		+	
Asset									
Task n						+	++	++	
Task 1		✓		Industry	+	+			
Asset 2					+	++	+		
Task n					-	-	+		
Asset n			✓	Assem-bling					
Task					++	++		++	
Asset					+	+	+	+	

Figure 5.7 – Designing coordination mechanism

Step 6 – Fourth HOQ: Which suppliers have to be involved?

If in the previous phase of the demand chain design it was decided that an asset or task is better managed internally, i.e. through hierarchy, then there is no need to worry about the chain members' selection decision. However, this constitutes an exception because companies are normally not able to execute all the processes required to fulfill the opportunities on the demand side. On the other hand, tasks and assets that are best managed through an external arm's length relationship in the spot market do not require much effort with regard to suppliers' selection. Usually, these resources are provided by multiple sources of suppliers and there is relative certainty about replacement alternatives. The real problem with chain member selection arises for assets and tasks that need to be managed through partnership. This phase of the chain design is primarily concerned with the identification of an external source of resource to reverse demand requirements that are internally deficient. Indeed, if too few resources are internally available, the demand chain has to obtain them through external suppliers, which, inevitably, requires a strong emphasis on the selection of chain members**.**

Several lists of criteria have been developed in the channel literature (see, for example, Hlavacek and McCuistion, 1983; Rosembloom, 1999; Shipley, 1984) and vendor selection literature (Ghodsypour and O'Brien, 1998; Verma and Pullman, 1998; Weber, et. al. 1991) regarding the attributes of potential suppliers for chain strategic optimisation. Generally

speaking, these studies presented a varied number of attributes that a supplier needs to offer in order to engage in a chain. Consensually, however, they agree about the importance of two criteria we think might be relevant for demand chain design: the agent's ability to add value and the agent's disposition to collaborate and his interest in becoming an active and proactive actor in the chain.

The first prerequisite for a supplier to be selected is his ability to offer unique or scarce resources in terms of assets and activities to the demand chain. Suppliers with consistent historical performance in terms of quality and reliability and who are expected to match future exigencies are better positioned to address the day-to-day activities of the demand chain.

The agent's disposition to collaborate and his interest in becoming an active/proactive actor in the chain is important because in a demand chain all agents should: (a) be responsible for doing the best to fulfill the very specific processes that contribute to the distinctiveness of the final product for a specific group of customers; (b) regularly invest in process-specific knowledge and skills; and (c) work aligned around processes that usually cut across companies and different functional areas within companies. Therefore, collaboration is essential for chain effectiveness, and is a prerequisite in selecting chain members.

The construction of the fourth HOQ follows the same sequence of the previous ones, where the critical WHATs, i.e. partnerships identified in the previous HOQ, are placed on its left hand side (Figure 5.8). In the upper side of the house, the criteria for selecting suppliers to engage in the chain are positioned along with the list of existing suppliers. The centre part of the fourth HOQ contains the checklist of criteria that the suppliers are able to fulfill, which are symbolised by a checkmark and crosses when they are unable to do so. The last phase is to select suppliers as shown at the bottom of Figure 5.8.

	Supplier base											
	Supplier 1				Supplier 2				Supplier n			
	Criterion 1	Criterion 2	:	Criterion n	Criterion 1	Criterion 2	:	Criterion n	Criterion 1	Criterion 2	:	Criterion n
Partnership (transport)	✓	✓		✓	×	✓		×	✓	×		✓
	Yes				No				No			
	Selected suppliers											

Figure 5.8 – Selecting chain members

5.4 Case study

5.4.1 Stimulus and method

The beef business is one of the most important agro-activities in the state of Rio Grande do Sul, Brazil. The livestock farms and slaughter plants are located mainly in the Southern lowlands, and in the past they supplied beef for almost the whole of the local market, comprising nearly 10 million consumers. However, in the last decade, new competitors have entered the local market (beef imported from other states), a new pattern of beef distribution has emerged with supermarket concentration, and consumers are more selective about where to buy, what to buy and the price they want to pay for the products. These trends have revolutionized the beef market and, as a result, some companies have closed, others have been taken over and, generally, consumers are benefiting from better products and services.

In this context, many small and medium-sized companies are striving to survive, although some of them have been extremely successful because they have identified specific market segments and tailored the supply chain to match the requirements of these segments. Based on the success of these companies, other beef stakeholders (farmers, abattoirs and retailers) are now trying to find ways to improve their business performance. These stakeholders are aware that to compete in the beef market they have to offer an appealing value proposition in terms of product and services to particular market segments, and a unique chain organization tailored to respond to the opportunities on the demand side.

Therefore, the Rio Grande do Sul beef industry seems particularly suited to illustrate the applicability of our model. For this purpose, we have brought together a diversity of stakeholders in a group discussion (a five-hour workshop) consisting of two slaughterhouse managers, three butchers' owners, and two farmers.

5.4.2 The illustrative chain design example

As input to our meeting, we used the market structure and segmentation results obtained from the consumer research reported in chapter 4. Succinctly, and for illustrative purposes, the main benefits and product/service features demanded by the segments emerged in the market are described next.

Step 1

The benefits considered important in beef consumption in Rio Grande do Sul were: nutritional value, quality, suitability for everybody and for use in many dishes, social reward of preparing beef and pleasure in eating. With a sample of 439 consumers, five benefit segments were derived, first based on a hierarchical cluster analysis, and then fine-tuned by K-mean cluster analysis.

Here we will describe the third segment, which is the largest (43% of the population). The members of this segment are mostly focused on pleasure and suitability and not interested in socially rewarding benefits. Clustering these respondents based on product/service features resulted in three smaller and relatively homogeneous subgroups with distinct demands (Figure 5.9). Segment F31 (18% of the population - are mostly interested in the sensorial aspect of the beef, the services delivered by the outlet, and to the trustworthiness of the outlet); segment F32 (8% of the whole population - are particularly interested in animal information, the presence of an official stamp on the cuts, and the cleanness of the beef, and the place of purchase); and segment F33 (13% of the population - distinguishes itself from the second because consumers also require a high level of shop services and fat. Comparing the descriptor variables across the subgroups, it is observed that the segment F31 has a lower proportion of consumers that mentioned buying at the butcher's than respondents in the segment F32, and a higher proportion of respondents engaged in an everyday consumption situation than in the segment F33. The segment F32 has a higher proportion of everyday meal consumers, a higher proportion of lower incomes, and a higher proportion of consumers that buy at the butchers than the segment F33.

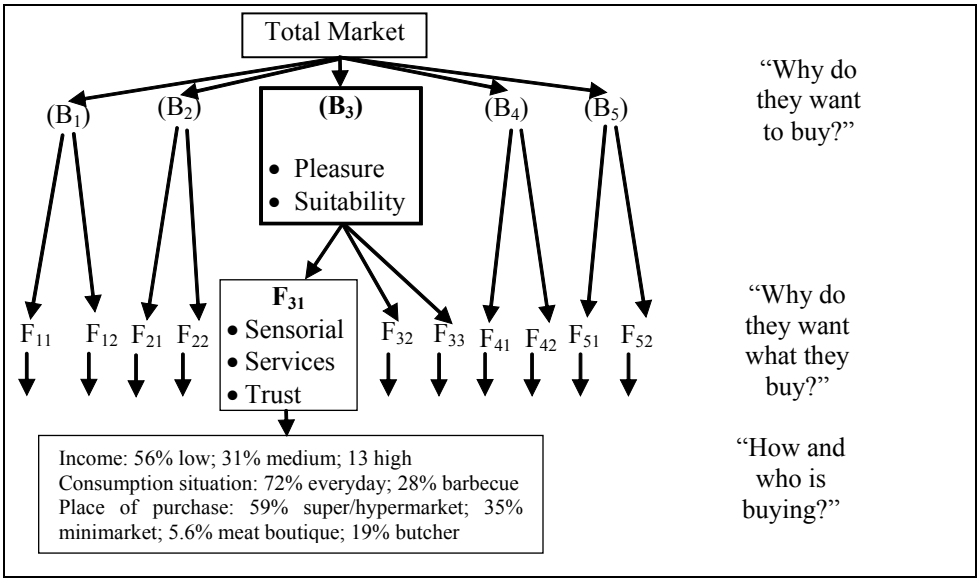


Figure 5.9 – Consumer segments in the beef market

Step 2

At this point, the design team has to decide which segment to target. Since the objective of this study is to propose a design approach, we decided to ask the managers to select one

segment to follow through with the other design steps. Segment F31 was selected based on its distinctiveness in terms of product/service features for consuming beef. That is, managers were triggered by the high demand sophistication of this segment despite the fact that more than two-thirds of the respondents were engaged in an everyday beef consumption situation instead of barbecue consumption, where the consumers usually are more critical. Additionally, the segment size is considerably large.

Step 3

An example of the first HOQ worked out in the meeting is given in Figure 5.10. As can be seen, the labour management, regularity of supply process, breed/age/category management, slaughtering management practices, carcass grade management and transport management were the outstanding processes prioritised by the stakeholders for matching the demand requirements of segment F31. Additionally, the managers recognized that processes might be interrelated. For example, a process might support or undermine the outcomes of a sequential process if not properly performed. Indeed, this is the case with on-farm management, transport management and pre-slaughter management on carcass grade management. This information in the traditional QFD is summarized in the upper room of the first HOQ – the roof – which has been omitted in this study.

The last step of the first HOQ – the competitive assessment - shows that the managers perceived that to satisfy the segment F31, the planned chain has to be as good as the best competitors in three processes: slaughtering management practices, carcass grade management and labour management. Additionally, the planned chain has to perform well above the average chains in breed/age/category management, transport management, transparency management and supply regularity. The remaining processes in the short-medium term do not require much attention and the planned chain may be as good as the average chains.

		Rating	Feeding management	Breeds/age/ category management	On-farm management	Transport management	Pre-slaughter management	Slaughtering management practices	Carcass grade management	Transport management	Labor management	Transparency management	Regularity of supply
Senso-rial	Freshness (not frozen)	5									Δ		o
	Good appearance	5	o	o	o	o	o	•	o	o	•		Δ
	Colour (moderated red)	5		o			Δ	o	•	Δ	Δ		Δ
Servi-ces	Speed of attendance	4									•		
	Vast assortment	4		Δ						o	•		Δ
	Organization of the beef counter	4									•		
	Beef availability	4		o						•	o		•
Trust	Shop confidence	3	o	•			o	o	o		o	•	o
	Sales personnel friendship	3									•		
Technical priority			18	73	15	15	29	69	69	68	211	27	74
Process competitive assessment	Best 5												
	4												
	3												
	2												
	Worst 1												

Figure 5.10 – The first HOQ in the context of segment F31

Step 4

Once the critical processes have been identified, the next important step starts with breaking each process into the tasks and assets required to fulfil the process. This is shown in Figure 5.11 for breed/age/category management, slaughtering management practices, transport management and labour management. The other processes, which will not be described here, can be broken down following the same procedure.

For breaking the processes into tasks and assets, it is extremely important to keep in mind what each process does in terms of product/service features to the customers. In the relationship matrix of the first HOQ, it is observed that the process breed/age/category management and labour management affect the sensorial aspects of the beef, shop services and shop trustworthiness. Slaughtering management practices is a process that affects the sensorial and trust customer requirements, while transport management relates to the sensorial aspect of the beef and shop services. Based on this information, the design team is now able to determine which assets and tasks should be deployed or performed in order to influence positively each of the customer requirements. For example, regarding the process "breed/age/category management" the managers decided that the use of only *Bos Taurus* breeds would be preferable to the Zebu derived cattle because they have a positive impact on the eating quality in general, and on the sensorial aspect of the beef in particular. The managers also emphasized the need to slaughter animals at a maximum of 2.5 years of age. Besides that, the managers emphasized that both steers and heifers could be used to satisfy the customer's group.

In summary, Figure 5.11 shows that the following assets and tasks are critical for accomplishing the four processes: use of *Bos Taurus* breeds, slaughter age under 2.5 years, pH control, adequate refrigerated truck of medium size, just-in-time transport availability, motivated sales force, and a technically prepared sales force.

		Rating	*Bos Taurus* breeds	Slaughter age: under 2.5 years	Category (steers or heifers)	pH control activity	Temperature of the slaughter floor	Electrical carcass stimulation	Hygienic and cleaning control	Refrigerated truck and medium size	Just in time available	Motivated sales force	Sales force technically prepared
Breed/age/category management		4	•	•	o								
Slaughtering management practices		5				•	o	o	o				
Transport management		4								•	•		
Labour management		5										•	•
Technical priority			36	36	12	45	15	15	15	36	36	45	45
Chain added cost ($/Kg)	Alternative 1		?	?	?	?	?	?	?	?	?	?	?
	2		?	?	?	?	?	?	?	?	?	?	?
	..		?	?	?	?	?	?	?	?	?	?	?
	n		?	?	?	?	?	?	?	?	?	?	?

Figure 5.11 – The second HOQ in the context of segment F31.

The final step of the second HOQ is concerned with the determination of how much should be invested in monetary terms for deploying a specific asset or performing a task. Processes which have been classified as being of high importance and in which the demand chain plans to excel (see step 3, first HOQ), may provide an indication for the investment decision. However, even in processes such as slaughtering management practices, which has been classified as of high importance and an area in which our demand chain wants to beat the competitors, three of the tasks needed for its fulfilment do not require much investment according to the managers involved in the discussion group. For this process, only the pH control task has been highlighted as demanding a high level of investment because of the drastic negative effects of a high pH on meat colour, texture, keeping ability and eating quality.

Additionally, through pH control in the slaughterhouse, the demand chain is able to assess how well other processes such as feeding management, on-farm handling, transport, and pre-slaughter management were executed. That is, if the meat's pH has not fallen below 5.7 within a specific period of time (normally 8 to 10 hours after slaughter), some or all of these processes would fail. Based on these aspects, the stakeholders decided to create a special procedure within the abattoir for checking each carcass pH, rejecting carcasses with a high pH, creating a pH database and informing farmers and transporters about the pH grading. A trained employee has to be hired for doing this task and some special equipment have to be provided such as a pH meter, an office with a computer and a printer. However, due to time limitations, the chain-added costs in monetary terms were not calculated in the workshop.

Another example worked out was the selection of breed. As illustrated in Figure 5.11, breed is one of the most important assets for fulfilling the demand of the segment F31 because it has a direct effect on the meat's colour, marbling and tenderness, which influence the consumers' sensorial evaluation. Not all breeds have the same performance with respect to these characteristics and some breeds are less cost-effective than others, which forced the managers to trade off the breeds as illustrated in the Figure 5.12. Given the cost and differentiation impact of each breed used in Rio Grande do Sul, two breeds were selected: Aberdeen Angus and Hereford.

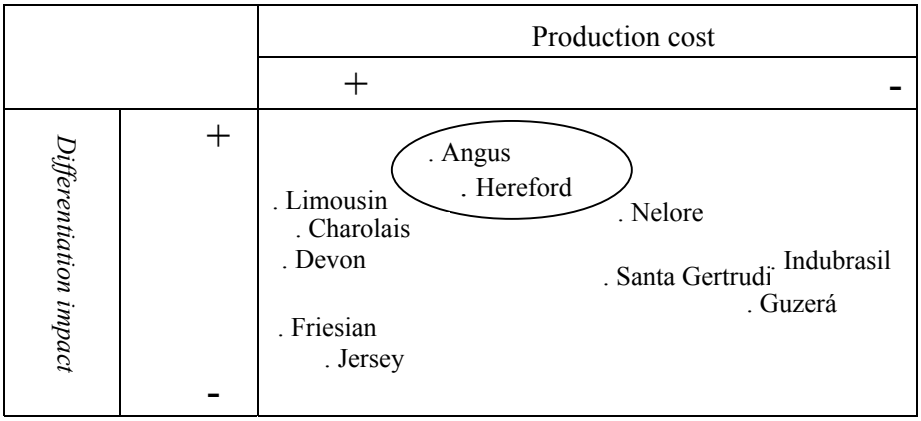


Figure 5.12 – Cost and differentiation trade-offs in breed selection

Step 5

The tasks and assets (for fulfilling the four processes broken down in the previous HOQ) were allocated at the farm, abattoir, transport and retailer levels (Figure 5.13). Based on the relations between tasks/assets and criteria, the following coordination mechanisms were designed: a preferential supplier partnership with farmers, a strategic alliance between retailer and abattoir, vertical integration of the transport of the beef from the abattoir to retailers, and contractual relationship with employees at retailer level with additional compensation according to annual revenue generation.

Based on the transaction intrinsic characteristic of the interdependencies and on the wishes of the managers, the way to guarantee the provision of livestock was to build up partnerships with farmers. *Aberdeen Angus* and *Hereford* breeds are a moderately important asset, i.e. they affect all three features demanded by the segment F31 (see first and second HOQs). Additionally, the supply base in the context of the Rio Grande do Sul is limited, i.e. risky, and the managers demonstrated the intention to have a moderate control over the raw materials suppliers because if changes were to occur at the breed/age/category management, changes would have to be made in other processes such as the transparency management (particularly to the labeling task) and pricing and advertising[9]. Then, a preferential supplier relationship was designed to govern the interdependencies at the farm

[9] Indeed the interdependencies of the type process-process or task/asset-task/asset within a chain could also be considered as another criterion for establishing a coordination mechanism. For example, when a process (and consequently its assets and tasks) assigned to a chain's actor affects processes (and their assets and tasks) assigned to other chain's actors, the relationship between actors needs to be more tightly coordinated. Thompson (1967) suggested that this type of interdependence requires a discretionary action by a coordinating agent, who plans the flow of inputs and information and promotes adaptation when necessary.

level. That is, farmers will be only accepted into the demand chain after their farms and livestock have been checked and registered by the central board of the chain. Registered farmers are free to sell their livestock to other buyers, but if they sell to the demand chain, a price premium is guaranteed for those that comply with the guidelines.

	Coordination mechanism			Demand chain phase	Chain coordination criteria			
	Market	Partner-ship	Hierar-chy		Uncertainties	Specificity	Desired climate	Information control
Bos Taurus breeds		✓ Preferential suppliers		Farm	++	++	++	+
Slaughter age: < 2.5 years					++	++	++	++
Category (steers or heifers)						+	++	++
pH control activity		✓ Strategic alliance		Abattoir		+		++
Temperature of the slaughter floor					+	+		+
Electrical carcass stimulation						+		++
Hygienic and cleaning control						+		++
Refrigerated truck and medium size			✓ by the retailers	Transport	++	++		++
Transport availability					+	+	+	+
Motivated sales force		✓ contract with compensation		Retailer	+	++	++	+
Prepared sales force						+	++	

Figure 5.13 – The third HOQ in the context of segment F31.

An agreement between retailers and an abattoir in the form of strategic alliances was seen as the best way of coordinating the interdependencies between these two chain members. The strategic alliance has to leverage the strengths of the two chain members in the long-term through mutual commitment.

The beef shipment from the abattoir to retailers has to be done with a specific truck to avoid mixing beef with unique characteristics with those of unknown origin, and it has to be quick and accessible to the partners. Based on these requirements, the managers suggested

that the transport is best coordinated through vertical integration. The integration could be realised by a retailer or retailers or by the abattoir.

Finally, given the importance of labour management at the retailer level for the success of the whole chain, it was decided that the best way to coordinate the sales force is through a contractual relationship combined with a variable commission based on the retailer performance. The managers recognized that the success of the new demand chain is highly dependent on the sales force's quality in terms of technical and human skills, and their level of motivation. To ensure highly motivated and skilful employees, the monetary reward has to be adequate but also the relationship of employee-employer has to be friendly and based on mutual commitment. In this sense, the employee-employer relationship is an example of a coordination mechanism that escapes from the market-hierarchy type of coordination mechanism. Managers emphasized the need to build the employee-employer relationship based on responsibility and trust, which is typically the type of exchange found at the interface between hierarchy and network as described in step five of our design framework (see section 5.3.1).

Step 6

Of the four coordination mechanisms designed in the previous HOQ, the interdependencies with farmers raised most of the concerns to the managers. As farmers easily switch their livestock to different abattoirs according to price differences, a price premium of 5% was stipulated as an incentive for assuring the provision of livestock with the necessary specifications. Later, 12 farmers located within 150 km of the abattoir were contacted by one of the managers involved in the discussion. From those, 6 were preliminarily inclined to collaborate (Figure 5.14).

	Joao Santos		Pedro Jr.		Jose Carlos		Altair Dias		Agenor V.		Terubio		Carlos A.		Ze Pereira		Andrade		Antonio B.		Valmor C.		Geovani J.	
	Criteria																							
	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
Partnership with farmers	✓	×	✓	✓	✓	✓	✓	×	✓	✓	✓	×	✓	×	✓	✓	✓	×	✓	×	✓	✓	✓	✓
	No		Yes		Yes		No		Yes		No		No		Yes		No		No		Yes		Yes	
	Selected suppliers																							

Crit. 1 = Ability to provide steers and heifers (*Herford and Angus*) under 2.5 years of age
Crit. 2 = Willingness to collaborate
Figure 5.14 – Selecting chain members

5.5 Discussion and conclusions

The demand chain design framework reported in this study provides a summary of the steps that involve building a demand chain. Designing a demand chain involves six closely interrelated steps: 1) market demand identification; 2) choosing segments; 3) translation of segment demand into chain processes; 4) breaking processes into chain tasks and assets; 5) coordination mechanism delineation; and 6) chain members' selection.

The demand chain design framework was based on a QFD approach, a methodology regularly used in new product design. The authors reviewed current uses of QFD in the context of chains, and identified that so far QFD has not been used to design chains. To make QFD a useful tool to design chains, a modified approach was proposed and then illustrated in the beef business. The modified QFD approach used information gathered from the Rio Grande do Sul consumer market. Thus the process has the "voice of the customer" built into it, i.e. the design approach reflects customers' wants and desires. Second, the approach provides a means by which consumer objectives (wants and desires) can be translated within the chain environment through the four HOQs. Third, the approach provides a means of designing chains based on the view, opinion and knowledge of all people involved in the chain. Finally, the adoption of the designed chain can be established in a cyclical perspective, in which refinements can be introduced in each of its six steps.

This research has several limitations, however. First, the managers only became involved in our study after the segments had been identified. A more complete exercise would involve managers in the market segmentation step as well. Second, the study was limited to the examination of only one segment; a more realistic option would involve more than one consumer segment. Third, the empirical illustration was developed during just one afternoon workshop; a more detailed framework application would require many workshops. However, the findings from this study could be useful to managers in their efforts to improve and implement demand orientation in their own businesses.

Studies such as this can give companies an invaluable input for their strategy, since they can understand their consumers and then configure tailored value in the form of products and services to match the requested demand. As a manager in the workshop said "*design chain is not an exercise that we should do every day, but it can be helpful once in a while to better understand our business and to decide which direction we should take*". Although the designed chain is still being implemented, and it is therefore too early to judge its success, these managers now have a design approach that is capable of turning around the demand chain design challenges. Notably, however, the spirit of demand chain is already happening in the Rio Grande do Sul beef business, where small stakeholders, i.e., special

butchers, abattoirs and farmers, are aligning their chain to provide an innovative value proposition to particular market segments.

The results could also help researchers design further research. Since the demand chain design framework is new, more work needs to be done to make it fully robust. First, researchers must validate the steps of the demand chain design, particularly the four HOQ approach. Second, further investigation needs to make the extended QFD more useful for design strategic processes in the chain context and for considering other chain stakeholders such as banks, competitors and other suppliers in the design process. Third, a fertile subject for further research is the extension of the criteria proposed to select the best coordination mechanism, and the criteria to select demand chain members. Fourth, further research could attempt to extend the QFD proposed in this research by considering the interrelationships between the hows in each of the four HOQs. Then, areas of conflict or those that have to be improved collaterally, such as processes, tasks and assets, can be identified. Finally, it is important to recognize that the theoretical framework suggested in this study needs to be validated in other real-life settings.

Part 4: KEY MESSAGE

Chapter 6: Conclusion, implications, limitations and future research

6.1 Conclusions

This thesis specifically focuses on the issue of demand chain management (DCM). As DCM is a new paradigm in the business terrain, the tools and instruments for implementing it successfully are still underdeveloped. This thought led us to formulate the research statement as: "*How can DCM be brought into reality*?"

In the course of our study, we have shown that DCM is based on the understanding of the customers' demand for aligning the supply chain to create value in the form of products and services. DCM relates to Levitt's (1960) original idea that in order to stay in existence, companies should not focus on selling products but rather on fulfilling needs. The emphasis of DCM is not on how to sell the product but rather on creating value for the customer and, in the process, creating value for the chain.

As outlined in chapter 2, DCM is seen as an evolution from the SCM approach by incorporating the market orientation perspective into its concept. Now, the focus has moved from managing the entire flow of product and services to serve the final demand, to managing the final demand to sequentially organize the entire flow of products and services. In other words, the concept has evolved from a supply-driven supply chain to a demand-driven supply chain.

Thus, the question is, what is new about DCM? On the basis of our preceding discussion, it could be argued that DCM is the relabeling of a mixture of different business ideas in the extant business literature. However, we believe that DCM represents an evolution beyond a repackaging of existing ideas. Specifically, we posit that DCM goes beyond extant SCM literature because it "considers the customer as the point of origin of any business activity, and comprises both demand orientation strategy (which is the source of business effectiveness) and supply oriented strategy (which is source of business efficiency)". DCM is concerned with how to satisfy the customers' needs through the integration of competencies throughout the demand chain. Indeed, DCM includes the integration of all the activities across the chain to generate customer value, while creating shareholder value for each company involved in the chain.

However, the traditional view has been dominated by SCM practice, which places the customer at the end of the chain. In SCM, the better the chain is at servicing the customer,

the more value is believed to be created (Langabeer and Rose, 2002; Bingham, 2005). The emphasis has been on operational excellence for achieving high sales volume and market share. But because operational efficiencies are no longer sufficient to bring significant improvements in the company's level of competitiveness, authors start to doubt the potential of SCM (Langabeer and Rose, 2002; Walters and Rainbird, 2004; Bingham, 2005). Now, the concept of DCM has emerged as an alternative model.

Yet DCM is still in its nascent stage in most businesses. In the agro-food business, and specifically in the beef business in the Rio Grande do Sul, our findings show that a small proportion (5-10%) of the beef business can be characterized as following a DCM practice. Compared to stakeholders that follow a SCM practice, those following DCM have well-defined market segments to target; they invest in information generation and they act proactively to drive the final demand, mostly with innovative services. Beyond that, they also have a supply system able to effectively respond to the demand-side requirements by making use of short, well-organised and tightly integrated chains.

Although SCM practice is still dominant in the beef business in Rio Grande do Sul, our findings show that DCM is starting to become established and is serving as source of competitive advantage for the first entrants. In this regard, our result resonates with other studies (Walters and Rainbird, 2004; Verhallen et al., 2004; Williams et al., 2002) in expressing the increased importance of DCM in today's business. Therefore, the answer to the first research question: *Is DCM an answer to what is happening in business*? is likely to be positive. Conceptually, we found strong support for the establishment of DCM in today's business, but empirical researches that show its importance in practice are still very scarce. In spite of that, we believe that DCM has great potential because the market is becoming increasingly complex, diverse and dynamic, and this will force companies and chains to adopt approaches that actively support their customers. Therefore, a better strategy is to become aware of the final demand and manage the whole chain for delivering the desired value to the targeted customer. Furthermore, this is in line with the shift towards customer value as observed in the marketing theory (Urban, 2005).

DCM must be seen more as an option for business organizations than a unique path to success. We posit that in a business context characterised by stable demand and with customer needs revolving around reduced price and standardized product/services, SCM can be a feasible strategy for doing business. But, as the market is splitting up into small and fragmented groups, and customer demand is constantly changing and requiring customized products and services, the popularity of DCM in modern business is expected to rise. But to exploit the advantages of DCM, research still needs to clarify the pros and cons as well as the potential of and obstacles for DCM. In this regard, the theoretical boundaries of DCM may be explored in relation to challenges on both the supply and demand sides.

In that respect, chapter 3 describes a study for understanding demand in order to answer the second research question: *How to cope with demand differentiation for making DCM explicit and actionable?* With this purpose, we developed a model and tested several hypotheses concerning the effects of the consumption situation, specifically its perceived conspicuousness, and its hedonic and utilitarian orientation on consumer goals (values and benefits). The model built on the work of Austin and Vancouver (1996) in the psychological literature, and of Huffman *et al.* (2000) in the consumer behaviour literature explains how situations affect consumer demand in terms of goals at various (interrelated) levels of abstraction.

The results on testing the model at the regular meal and barbecue consumptions show that the three situational dimensions are both positively and negatively related to values. Kleine et al. (1993) and Walker and Olson (1991) suggested that different social contexts activate different goals at high levels, such as values. Our results elaborate on this view by specifying which values and situational dimensions are related to each other, as summarised in Figure 6.1.

Also, our results confirm that goals at a less abstract level, such as benefits that consumers strive for, are related to the three situational dimensions of consumption. Both psychosocial benefits, i.e., pleasure and social rewarding benefits, and functional benefits, i.e., quality and suitability benefits, vary in importance according to how hedonic, utilitarian and conspicuous the consumption situation is perceived to be. These results also resonate with those of other studies in supporting the important difference in goals according to different consumption situations (Belk, 1975; Huffman et al., 2000).

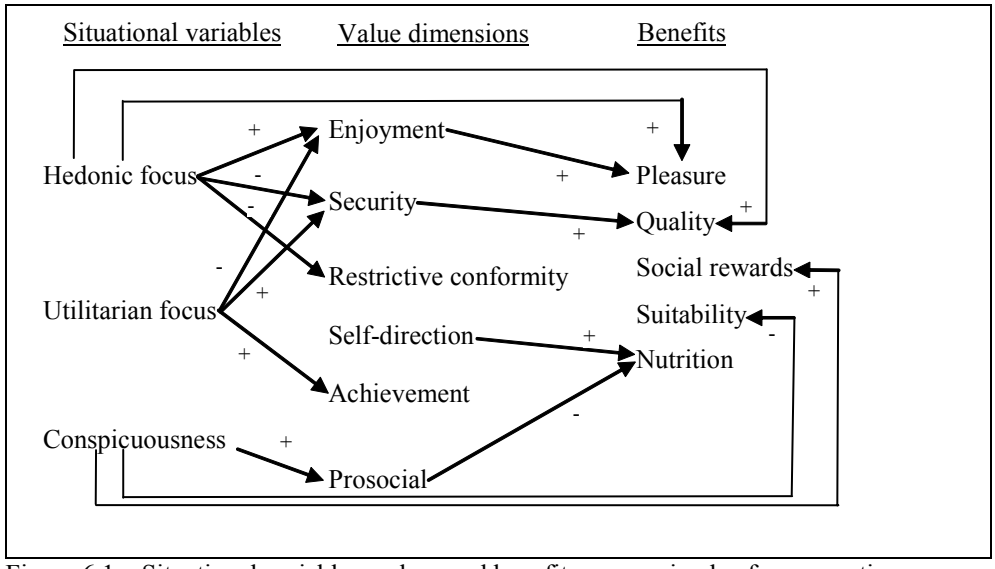


Figure 6.1 – Situational variables, values and benefits concerning beef consumption

Furthermore, our results in chapter 3 show that the highly abstract goals, such as values, are also related to lower level goals such as benefits. More specifically, high-level goals might shape goals at lower levels directly or through interactions with the situational dimensions.
In DCM there is a high degree of importance placed on understanding and exploiting customer behaviour. Particularly for agro-food companies, it is of great importance to obtain information about how food preferences may change from one situation to another (King et al., 2005; Edwards et al., 2003). In chapter 3 we went beyond this by studying what is actually driving the goals of consumers at value and benefit levels. In this regard, careful assessment of the consumer goal structure triggered by the three situational variables as presented in chapter 3 are valuable, for example for identifying new product opportunities and for repositioning the existing products. A useful way to operationalize these strategies is, for example, by considering end goals (values) as enjoyment and security, and middle-level goals (benefits) such as pleasure of eating and quality, as the starting point for designing products to be consumed in a hedonic consumption situation. Marketers could also consider conspicuousness of consumption as the reason that consumers strive for prosocial values and social reward benefits in product branding, advertising and communication strategies. Additionally, improvements could also be directed towards repositioning retail shops to attract consumers engaged in different consumption settings in terms of utilitarianism, hedonism and conspicuousness.
The information acquired should also enable the organisation to segment customers, to forecast accurately with respect to those segments, and to adjust product/service processes

to ensure that the right product mix arrives in the marketplace at the right time for the right customer group. In this regard, in chapter 4 we proposed a segmentation approach to answer the third research question: *How can consumer demand be identified and quantified in a format that is actionable for demand chain design*?

Despite the attention that segmentation attracts, the outcome of the segmentation process may not necessarily result in workable segments of customers for which appropriate marketing programmes can be developed. Segmentation may fail for various reasons (Dibb and Simkin, 2001; Palmer and Millier, 2004). Chapter 4 addresses one of the causes of segmentation failure that is related to the lack of actionability. Our goal was to develop a pragmatic solution for making market segmentation implementable and, at the same time, understandable for practitioners.

Therefore, specific attention was given to two aspects: (1) the segmentation bases and (2) how to derive the segments. Regarding the segmentation bases, their ability to derive easy-to-implement segments is of crucial importance. Following the suggestions of Day (1990), Wedel (1990) and Wind (1978) both benefit and product/service features were chosen because they are easy to link to what companies need to do to respond to the market.

The segments were derived in a sequential approach, where the total market was first divided based on benefits sought by consumers and then by product/service features. The segmentation approach is therefore a relatively easy procedure and can be estimated using cluster analysis available in most statistical packages.

Based on the importance that consumers attached to benefits and product/service features, eleven segments were identified in the sequential benefit-feature segmentation scheme. Findings show that, analytically, the sequential benefit-feature segments outperform the separate benefit and feature segments in yielding homogeneous segments.

However, some of the practitioners that evaluated the usefulness of the segmentation approaches thought that the benefit-feature segmentation schema is still complex and not easy to implement. Nonetheless, most of them approved it because it ensures precise information about what consumers need (benefits) together with how to achieve these needs through product/service features.

Segmentation is seen as key to achieving superior competitive advantage because it aids in understanding the customers (Albert, 2003), helps the allocation of resources (Freytag and Clarke, 2001) and the adaptation of the product mix and the development and evaluation of new approaches with respect to products and markets (LaPlaca, 1997). However, as noted by Shapiro and Bonoma (1984) and re-emphasized by Palmer and Millier (2004), segmentation has been used more as a way of explaining and understanding marketing outcomes rather than as an important component of planning for the future. In this regard, our segmentation approach is geared towards undertaking the task of planning the competencies needed throughout the chain to match the goals of customers. More

specifically, the segmentation approach is useful as input for the demand chain design approach proposed in chapter 5.

With the demand chain design approach, we intended to answer the fourth research question: *What steps and trade-offs are required for the implementation of DCM*? Built on the QFD model, we proposed an approach for chain design that ensures that the customer requirements are integrated into earlier stages of the chain construction. This is in accordance with the very basic principle of DCM, where the customer demand is the common end of any effort towards value creation.

The design approach facilitates a quick and structured step-by-step procedure for designing a demand chain. The findings show that six major steps are needed for demand chain design: (1) market demand identification – which was based on benefits and product/service features requested by consumers; (2) segment targeting; (3) translation of segment demand into chain processes, which relates product/service features to business processes throughout the chain – first HOQ; (4) breaking processes into chain tasks and assets, which relates critical business processes to tasks and assets deployment – second HOQ; (5) coordination mechanism delineation, which relates critical assets and tasks to chain coordination requirements – third HOQ; and (6) chain members' selection, which relates the critical coordination requirements to chain possible candidate members – fourth HOQ.

Though our design model aims to be simple, design demand chains in real-life settings are more like a giant task rather than a smooth and straightforward academic exercise. Nonetheless, grounding our design model in the Rio Grande do Sul beef business provided invaluable insights into how to build a demand chain within a real business context. Examples of the decisions and trade-offs needed are given and discussed in each of the six steps of the design model particularly for one beef customer segment.

6.2 Reflection and implications

Each of the theoretical frameworks developed in this thesis emphasizes different aspects of the DCM, but at the same time they are also complementary to strategy formulation. The key message of this thesis is that to make DCM a reality, much effort needs to be put into building easy-to-implement tools. Such tools must help practitioners to build customer insights, but they also need to help the integration of all activities across the chain, and to link these activities to both chain and customer value.

Indeed, DCM is highly dependent on alignment across all parts of the chain for ensuring that a general convergence around customer demand can be reached. As customer demand is becoming more heterogeneous, besides being efficient, companies and chains must be flexible (i.e. able to adapt quickly) and responsive (i.e., able to customise their products) to fit the slightly unique needs of each of the markets in which they compete. Of course,

efficiency is a prerequisite, otherwise it is impossible to compete, but efficient supply chains alone do not produce value if they are not attuned to the market by maximizing customer value.

Langabeer and Rose (2002) explained that to extract the best results, DCM has to rely on enabling tools for transforming higher-level customer demand signals into decisions. Based on tools for accessing information and decision planning, companiess are able to align the supply chain to the demand, to use a single set of data for departmental and company plans, and to focus on improving results through business process management. That is, DCM is highly dependent on technological tools, particularly information and communication technology as the key enabler to focus on the demand and to optimize and synchronize the underlying processes in the chain. But important questions still remain, for example: Are these tools adequate to implement DCM? And, how can we establish DCM in small businesses, which are unable to implement highly technological and expensive tools?

With respect to the first question, Bolton (2004) and Sherer (2005) have criticized the narrow view that the application of advanced technological tools per se would make the entire chain demand oriented. In fact, technological tools can be very helpful for boosting speed to market, customer understanding and responsiveness, and improving chain optimization (Alvarado and Kotzab, 2001; Martin and Matlay, 2001), but these tools alone are unlikely to promote demand orientation if nothing more is changed in the chain. DCM requires clear strategies and appropriate changes in business processes throughout the entire chain. That is, DCM should be seen as a business philosophy that puts the customer at the centre for putting products and services onto the market that customers want, need, and are willing to pay for – rather than strictly tools implementation.

As mentioned in chapter 2, none of the beef companies studied have sophisticated information technology tools to manage their chains; remarkably, however, two distinct ways of doing business in the beef chain were identified. The first is traditional, following a SCM-type of business, and the second differentiated, following a DCM-type of business by emphasizing demand management to a greater degree than the efficient physical supply of products. As observed for the differentiated beef business in Rio Grande do Sul, demand chain implementation involves strategic orientation that ensures that all key business processes are demand-centered. This might involve the integration of customer strategy (customer and markets) with supply chain strategy (focusing on manufacturing and network optimization), and an aligned product/brand and sales strategies for maximizing value for both the customers and the companies involved in the chain. Therefore, we conclude that DCM is not a matter of tool implementation but a business philosophy organized around demand orientation.

Unfortunately, however, based on the results of chapter 2, we can not affirm that companies adopting DCM are better off than those adopting a SCM approach. This point remains open

for further investigation as well as the issue regarding which chain member is better positioned to take the DCM lead. As posited by Achrol and Kotler (1999), the network economy of the twenty-first century brings with it opportunities for all actors and it therefore does not matter at which stage in the chain an actor is positioned to assume the demand chain leadership. In the case of the Rio Grande do Sul beef business, the DCM leadership has been assumed by retailers and farmers, but recently, initiatives are being taken by abattoirs as well. What is vital is to be prepared to sense the customer demand and to manage the whole chain to deliver the right value to the right customer.

Regarding the second question - How to establish DCM in small businesses that are unable to implement high technological and expensive tools – DCM as a business philosophy is also appropriate for small businesses, but its implementation does not necessarily involve advanced tools for gathering information and facilitating decision-making. For example, while the operationalization of DCM in large organizations requires technology to facilitate data warehousing, data mining, and logistics (Blackwell et al., 2006; Langabeer and Rose, 2002), in small organizations the business processes are simple and all key staff can maintain an interaction – indeed a "relationship" – with both customers and suppliers. Therefore, the demand information and the collecting of customer insights necessary for planning the chain can be obtained via direct contact with customers or by market research. Similarly, the adjustment of upstream chain processes can be done in a one-to-one relationship to dynamically disseminate the customer insights throughout the entire chain. Of course, this will require a collaborative environment where all parts work together to bring customers and suppliers closer together. This has been particularly important for the beef stakeholders that have adopted the demand chain practice in the Rio Grande do Sul.

In this thesis, particularly in chapters 3, 4 and 5, we proposed conceptual instruments that can be useful for implementing the DCM philosophy particularly for small businesses. Specifically, the results of this thesis aid the development of DCM in three fundamental areas (see Figure 6.2): first by identifying aspects that are relevant for differentiating the markets (chapter 3). On this regard, hedonism of a consumption situation is particularly relevant to trigger the consumers to strive for enjoyment and pleasure. Utilitarianism of a consumption situation is particularly relevant for triggering the consumer sense of the individual and of group safety. The conspicuousness of the consumption is relevant to activate the consumer sense of benevolence and kindness, but also as a way to prize him/herself by being admired and loved by others.

The spirit of DCM is creating value for new customers and successfully retaining existing customers. But to achieve these goals, the chain actors need to be proactive in seeking out opportunities in the marketplace. Of course, there are many different ways to uncover the unmet needs, from indirect methods such as the one presented in chapter 3, to first-hand methods such as focus groups or direct one-to-one contact with customers. In addition,

unmet needs can be also identified through investigating other aspects not directly related to goals or consumption situations, such as risk, logistic needs, purchasing power, consumer health and emotions to mention but a few.

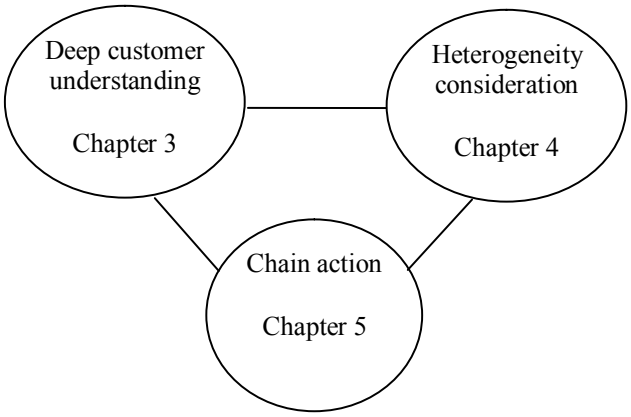


Figure 6.2 – Tools for bringing DCM into reality

The second contribution of this thesis for the evolution of DCM concerns the development of a segmentation model for understanding the fragmented market in terms of benefits sought and feature preferences (chapter 4). In this respect, marketers could, for example, identify why consumers want to buy, and why they want what they buy. Much has been written about different segmentation methods, the most common of which are demographical, psychographical, behavioural and situational. Each of the segmentation methods has its advantages, but unmet needs must be clearly articulated and accurately understood regardless of the segmentation method used. The sequential benefit-feature segmentation approach provides guidance about who will purchase, and for what reasons, which makes marketing activities of the demand chain easier.

Finally, the thesis contributes to DCM by developing a model that describes the steps needed to respond to the fragmented demand (chapter 5). In this regard, the designing steps summarize what has to be done to both adapt existing chains and configure new chains to become demand-oriented. Perhaps the biggest challenge is making the customer data translatable for the different companies and processes in the chain. That is, customer data must be converted into actions throughout the chain. Without this step, there can be no significant progress towards the implementation of DCM.

6.3 Limitations and future research

Throughout the different chapters of this thesis, many limitations and suggestions for future research regarding theoretical and empirical aspects have been presented. In spite of this, there are a few general and specific caveats that deserve further attention and provide opportunities for future research. First, at the general level, an important topic for research concerns the implementation of DCM and its implication for operation management in the agro-food business. Given the seasonal dependence, the large number of small stakeholders, and the interference of climatic and biological aspects, the synchronization of operations required by DCM would present interesting challenges for further research. For example, more research is needed to identify what information needs to be shared between chain members, how to build a collaborative environment for sustaining DCM, and which key performance indicators would be best to evaluate the overall business performance.

A second fundamental aspect that deserves further investigation relates to the lack of a conceptual foundation for DCM. Many of the DCM contributions to date stem from SCM and operations, and are based on best practice examples (Childerhouse et al., 2002; Williams et al., 2002; Treville et al., 2004). In building a more conceptual rationale for DCM, the following questions could be answered: What is the role of marketing within DCM, how can marketing and SCM sciences be integrated to build a richer framework for DCM, and what are the boundaries, and pros and cons concerning such integration.

Third, further research is needed in the field of tools for integrating the supply and demand sides of the chain. Tools to facilitate demand side management (e.g. purchasing data and segmentation) with supply side management (e.g. chain design, planning, forecast and replenishment) would enable an efficient and effective demand chain. This is a particularly important issue for small businesses that are unable to afford and adopt the highly expensive and sophisticated tools available today.

Regarding the specific research aspects that require further investigations, we will address these according to the interfaces of the three empirical chapters illustrated in figure 6.2. First, between the interface of chapters 3 and 4, further research could be done to develop a segmentation scheme based on alternative methods such as latent mixture models and conjoint analyses for deriving homogeneous segments based on different goal levels (values, benefits and features). Additional research is also needed to test whether the benefit-feature segments derived in our model hold in a cognitive type of segmentation model as proposed by Ter Hofstede et al. (1999).

In the interface between chapters 4 and 5, a possible direction for research is the development of easier and actionable segmentation methods that simultaneously balance information from both consumers and key stakeholders engaged in the business. Thus, the whole process of demand chain design would benefit from the information generated on the consumer side and the constraints and feasibilities existing on the supply side. This would

promote the usefulness of segmentation approaches and, at the same time, reduce the gap between strategy formulation and strategy implementation.

In the interface between chapters 3 and 5, further research should consider the inclusion of other consumption situations such as in restaurants, hospitals, university restaurants. Thus, extra insights could be acquired for a better understanding of the market and possible actions within the demand chain.

We also acknowledge that some studies presented in this thesis need further validation. Particularly the demand chain design framework has to be further tested in terms of checking its usability. Finally, as all studies presented in this thesis were focused in the Rio Grande do Sul beef market, further research should test each model applicability to a variety of other businesses.

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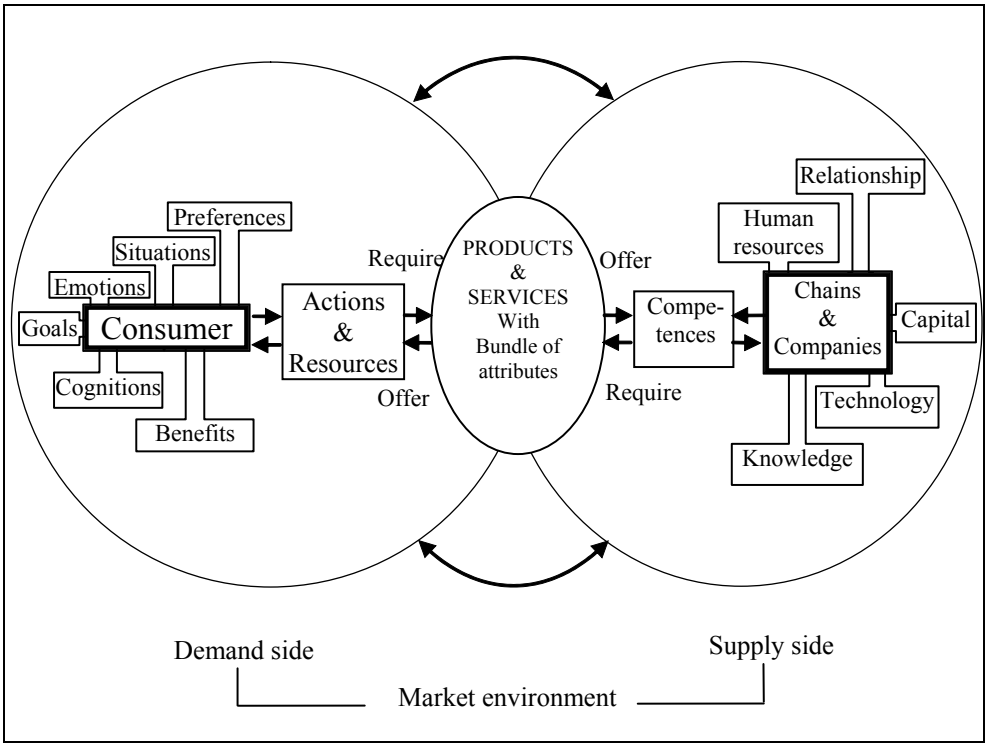
Summary

Demand chain management (DCM) is a business philosophy which objectives to understand customer demand and meeting this demand with possible alternatives through the deployment of chain processes. As DCM is a new paradigm in the business terrain, we developed studies for helping its conceptualization and implementation. A great deal of our study relates to the agro-food business; moreover, the changes that are forcing the introduction of DCM practices are expected to also affect most of the other businesses. The results of this thesis first outline what changes are occurring in the business and what are the critical elements of DCM that differentiate it from the more traditional supply chain management (SCM). Secondly, we portrayed two studies for gathering customer insights useful for DCM implementation. Finally, we outlined what needs to be done to build demand chain from the consumer's table back to farm. A detailed overview of each chapter of this thesis is presented in the sequence.

The introduction of the thesis provides an overview of the problem statement that reads: How can DCM be brought into reality? Based on the problem statement the following research questions were also elaborated: Is DCM an answer to what is happening in business? How to cope with demand differentiation for making DCM explicit and actionable? How consumers demand can be identified and quantified in a format that is actionable for demand chain design? And, what are the steps and trade offs for the implementation of DCM?

As presented in figure 1.1 (Chapter 1) and re-presented in the figure below, DCM has two key elements: the demand side and the supply side. The demand side is comprised by customers (or consumers) that need products and services that yield desired outcomes. At the supply side, companies and chains have potential resources (e.g. capital, labour force, technology, relationship, skills and knowledge) that, when combined, may result in competencies needed to produce and deliver the products and services to consumers. By combining demand and supply sides, the demand chain can focus on how to coordinate all activities and processes in order to facilitate the development of core competitive advantage based on the final customer perspective. However, the DCM approach is still in its nascent stage and as such the knowledge for making it a reality is still scarce. By answering the four research questions above this study aimed to contribute to DCM conceptualization and for the development of tools for DCM implementation.



The scope of DCM

In order to answer the first research question the different business system phases and their evolution during the last century were reviewed and discussed. It was concluded that the business system has passed through four distinct phases: the nascent industrialization phase, the economical phase, the technological phase, and the marketing phase. Next, the concepts of supply chain management and demand chain management were described as two different management practices in today's business. It is concluded that DCM is an extension of SCM concept by reversing the emphasis from supplying efficiently to effectiveness in demand management. SCM and DCM concepts were illustrated by examples obtained on the Rio Grande do Sul beef business. Findings show that a small proportion of the beef business can be characterized as following a DCM practice. Compared to stakeholders that follow a SCM practice, those following DCM have well defined market segments to target; they invest in information generation and they act proactively to drive the final demand mostly with innovative services. Beyond that, they have a supply system able to effectively respond to the demand side requirements by using short and tightly integrated chains.

In the sequence, we developed a study for making the DCM explicit and actionable (research question two). In this study we focussed specifically on heterogeneity on demand as a result of the intended usage context. We tested several hypotheses concerning the effects of situational dimensions, specifically the perceived conspicuousness, and hedonic and utilitarian orientation of beef consumption situations on consumer goals, and the relationship between high-level goals (values) and low-level goals (benefits). The results on testing the model at the regular meal and barbecue consumptions show that the three situational dimensions are both positively and negatively related to values. Positive relationship: hedonic focus and enjoyment values, utilitarian focus and security values, utilitarian focus and achievement values, and conspicuousness and prosocial values. Negative relationship: hedonic focus and security values, hedonic focus and restrictive conformity values, and utilitarian focus and enjoyment values. Additionally, the situational dimensions are also related to lower level goals (benefits). We found that the benefits pleasure and quality are positive related to the hedonic focus of the consumption situation, while the conspicuous dimension is positive related to the social reward benefits. In addition, we also demonstrate that the highly abstract goals (values) and lower level goals (benefits) relates to each other in a top-down fashion, i.e., once activated values such as enjoyment, self-direction and prosocial have the property of influence both pleasure and nutrition benefits.

Overall, this chapter shows that (1) some values are significantly associated with the three situational dimensions, (2) some values, as well as the perceived hedonic orientation and conspicuousness of consumption situations have a direct main effect on the benefits sought, and (3) values sometimes moderate the effects of situational dimensions on benefits sought. Through making these relationships explicit the chapter contributes for understanding the demand heterogeneity, which is an essential step for turning demand chain into reality.

For identifying and quantifying the consumer demand in a format that is actionable for demand chain design (research question three), we proposed a segmentation approach based on the needs of consumers. Specific attention was given to the effectiveness of the segmentation for helping managers' decision-making and to its analytical properties to derive homogeneous segments. Based on the importance that consumers attached to benefits and product/service features, eleven segments were identified in a sequential benefit-feature segmentation scheme. Findings show that the sequential benefit-feature segments statistically outperform benefit and feature segments in yielding homogeneous segments. Furthermore, managers in the beef chain emphasized its appropriateness and facility for implementation because it ensures precise information about what consumers need with how to achieve these needs through product/service features. As the approach does not rely on sophisticated and expensive techniques it is also useful for identify

fragmented demand in the context of small businesses such as those in the agro-food domain.

In conclusion, this chapter shows that benefit-feature importance segmentation yields more homogeneous and actionable segments, and may hold promise as a tool to improve market segmentation for strategy design in the chain arena.

Next, we provided a structured demand chain design framework for establishing the steps and trade offs for implementing DCM (research question four). The framework was built on the basis of quality function deployment (QFD) and involves six closely interrelated steps: market demand identification; choosing segments; translation of segment demand into chain processes; breaking processes into chain tasks and assets; coordination mechanism delineation and; chain members' selection. The designing of the firm's response to the market demand was carried with various beef's stakeholders interested in establishing a new demand chain. On the basis of such steps, we described some relevant findings in the context of the beef demand chain. The chapter provides an integrative approach for demand chain design based on the marketing, chain science and engineering literatures, and which explicitly recognizes the product/service concept as seen by the end costumer as the departing point of the designing process.

Finally, we conclude by looking back at the previous chapters and placed the results in a broader perspective. The main conclusion is that DCM is becoming a reality, and that its full implementation is dependent on clear strategies and appropriate changes in business processes throughout the entire chain. Furthermore, the implementation of DCM request tools for gathering customer insights and for the alignment of its supply side. In this respect, we have proposed studies, which are useful for understanding demand heterogeneity as a result of the intended usage context, for segmenting consumers in an easy and useful way for demand chain design, and for describing the steps needed to respond to the fragmented demand. In spite of that, a number of issues still need to be clarified and further investigated. Particularly, we highlight the need for a better conceptual foundation for DCM, which establishes its antecedents and consequences. Further tools should also be developed for making significant progress towards DCM implementation.

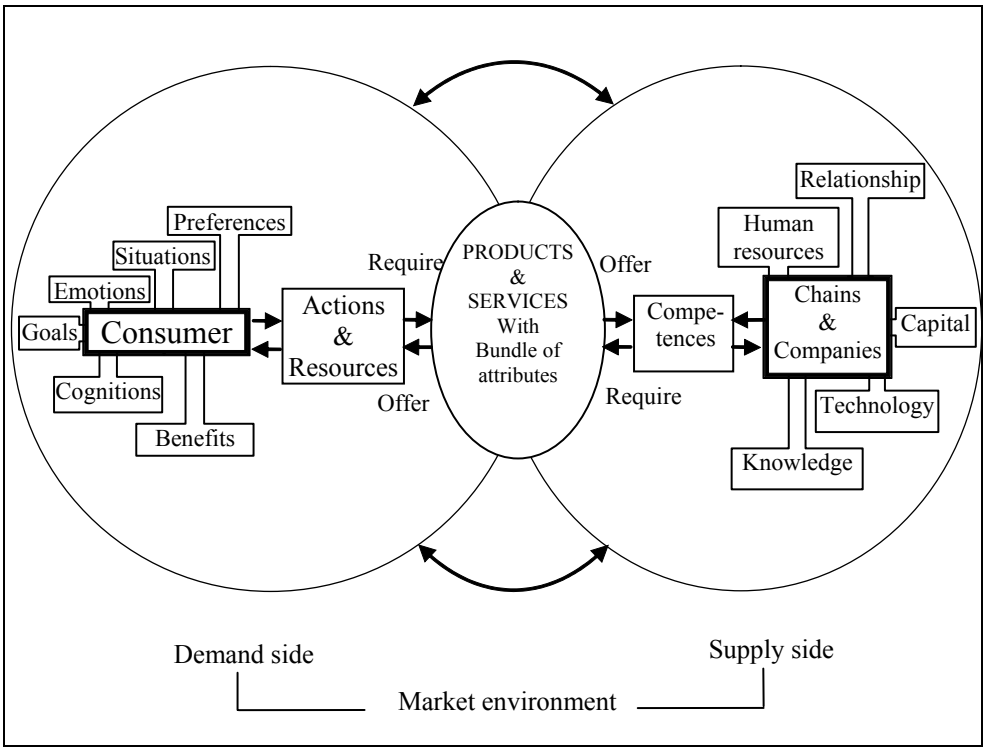
Samenvatting

Demand Chain Management (DCM) is een bedrijfsfilosofie die erop gericht is de vraag van de consument te begrijpen en eraan tegemoet te komen door het aanbieden van alternatieven via het toepassen van ketenprocessen. Omdat DCM een nieuw paradigma is op het gebied van bedrijfsmanagement, hebben we studies ontwikkeld om te helpen bij de conceptualisatie en implementatie ervan. Hoewel deze studies voornamelijk betrekking hebben op de agro-food sector, zullen de veranderingen die de introductie van DCM noodzakelijk maken waarschijnlijk ook andere commerciële sectoren beïnvloeden. In dit proefschrift wordt allereerst samengevat wat de veranderingen zijn in de agro-food sector en wat de kritische elementen van DCM zijn die het onderscheiden van het meer traditionele Supply Chain Management (SCM). Ten tweede worden twee studies gepresenteerd die, voor de implementatie van DCM nuttige, inzichten geven in de consument. Als laatste wordt besproken wat dient te worden gedaan om een vraaggestuurde keten te ontwerpen van de tafel van de consument terug naar het agrarische bedrijf. Een gedetailleerd overzicht van ieder hoofdstuk van dit proefschrift wordt in het navolgende gepresenteerd.

De introductie van dit proefschrift geeft een overzicht van de probleemstelling hoe DCM in de praktijk te implementeren. Op basis van deze probleemstelling worden de volgende onderzoeksvragen behandeld: (1) is DCM een antwoord op de ontwikkelingen in de bedrijfsector?, (2) hoe moet worden omgegaan met differentiatie van vraag om DCM expliciet en bruikbaar te maken?, (3) hoe kan de vraag van de consument worden geïdentificeerd en gekwantificeerd op een manier die bruikbaar is voor DCM?, en (4) wat zijn de stappen voor de implementatie van DCM en welke afwegingen spelen daarbij een rol?

Zoals is te zien in figuur 1.1 (Hoofdstuk 1) en in de onderstaande figuur, heeft DCM twee belangrijke elementen: de vraagkant en de aanbodkant. De vraagkant bestaat uit consumenten of klanten die producten en diensten nodig hebben met door hen gewenste gevolgen. Aan de aanbodkant staan bedrijven en productieketens die potentiële hulpbronnen hebben (zoals kapitaal, arbeidskracht, technologie, relaties, vaardigheden en kennis) die in combinatie kunnen resulteren in de competentie om de producten en diensten aan de consumenten te leveren. Door de vraag- en aanbodkant te combineren, kunnen vraaggestuurde ketens zich toeleggen op de coördinatie van alle activiteiten en processen om zo de ontwikkeling van een wezenlijk competitief voordeel vanuit het perspectief van de consument te faciliteren. DCM is echter nog in een ontwikkelingsfase en de kennis die nodig is om het te implementeren is nog schaars. De studies in dit proefschrift zijn erop

gericht om bij te dragen aan de conceptualisatie van DCM en de ontwikkeling van methoden voor implementatie van DCM door middel van het beantwoorden van de vier bovenstaande onderzoeksvragen.



Het veld waarop DCM betrekking heeft

Om een antwoord te geven op de eerste onderzoeksvraag, worden de verschillende fasen van bedrijfssystemen en hun ontwikkeling gedurende de laatste eeuw besproken. De conclusie is dat bedrijfssystemen vier verschillende fasen hebben doorgemaakt: (1) de ontluikende industrialisatie, (2) de economische fase, (3) de technologische fase, en (4) de marketingfase. Vervolgens worden de concepten van Supply Chain Management en Demand Chain Management beschreven als twee verschillende managementpraktijken in het moderne bedrijfsleven. De conclusie van dit deel is, dat DCM een uitbreiding is van het SCM-concept door verandering van een nadruk op efficiënte toelevering tot een nadruk op effectief management van de vraag. De concepten van SCM en DCM worden geïllustreerd met voorbeelden uit de rundvleesindustrie in Rio Grande do Sul (Brazilië). Een klein deel van deze rundvleesindustrie bleek het DCM-concept te gebruiken. In vergelijking tot de bedrijven die SCM gebruiken, bleken de bedrijven die DCM gebruiken zich op duidelijk

gedefinieerde marktsegmenten te richten; ze investeren in het genereren van informatie en handelen proactief om de uiteindelijke vraag te sturen, voornamelijk door innovatieve diensten. Bovendien hebben ze een toeleveringssysteem dat effectief kan reageren op behoeften vanuit de vraagkant te reageren, door korte en geïntegreerde toeleveringsketens.

Vervolgens is een studie opgezet om DCM expliciet en toepasbaar te maken (onderzoeksvraag 2). Hierbij werd specifiek de nadruk gelegd op heterogeniteit van de vraag als resultaat van de voorgenomen gebruikssituatie. Verschillende hypothesen werden getoetst met betrekking tot de effecten van situationele dimensies (vooral de waargenomen zichtbaarheid van rundvleesconsumptiesituaties en hun hedonistische en utilitaire oriëntatie) op de doelen van de consumenten, en de relatie tussen doelen op een hoger niveau (waarden) en doelen op een lager niveau (voordelen). Een test van het model op alledaagse rundvleesconsumptie en rundvleesconsumptie tijdens barbecues laat zien dat het belang dat consumenten toekennen aan verschillende waarden, gerelateerd is aan de drie situationele dimensies. Er zijn positieve relaties tussen een hedonistische oriëntatie en waarden verbonden met genot, tussen een utilitaire oriëntatie en waarden gerelateerd aan veiligheid en prestaties, en tussen zichtbaarheid en sociale waarden. Negatieve relaties werden gevonden tussen een hedonistische oriëntatie en veiligheidswaarden, alsmede restrictieve conformiteit en tussen een utilitaire oriëntatie en genotswaarden. De situationele dimensies blijken ook gerelateerd aan laag-niveau doelen (voordelen). Er werd gevonden dat het aan voordelen van genot en kwaliteit toegekende belang positief gerelateerd is aan de hedonistische oriëntatie van de situatie waarin de consumptie plaatsvindt, terwijl de zichtbaarheid positief gerelateerd is met het belang van sociale beloning. Bovendien werd aangetoond dat hoog-niveau en laag-niveau doelen op een top-down manier aan elkaar gerelateerd zijn, dat wil zeggen dat wanneer sociale-, genots-, en op de persoon zelf gerichte waarden geactiveerd zijn, ze zowel het belang van genots-, als van nutritionele voordelen verhogen.

Kort samengevat, laat dit hoofdstuk zien dat (1) sommige waarden significant zijn gerelateerd aan de drie situationele dimensies, (2) sommige waarden, alsook de hedonistische oriëntatie en zichtbaarheid van consumptiesituaties een direct effect hebben op de door consumenten gezochte voordelen, en (3) waarden de effecten van situationele dimensies op de gezochte voordelen beïnvloeden. Het hoofdstuk draagt bij tot een beter begrip van heterogeniteit in de vraag door deze relaties expliciet te maken. Dit is een essentiële stap voor de implementatie van DCM.

Voor de identificatie en kwantificatie van de consumentenvraag op een manier die bruikbaar is voor de implementatie van DCM (onderzoeksvraag 3), wordt een segmentatiemethode voorgesteld die is gebaseerd op de behoeften van de consumenten. Speciale aandacht is gegeven aan de effectiviteit van de segmentatie als hulp bij het nemen van beslissingen door managers en aan de analytische eigenschappen van de

segmentatiemethode bij de bepaling van homogene segmenten. Elf segmenten werden geïdentificeerd door een sequentiële benefit-feature segmentatiemethode, die eerst kijkt naar het belang dat consumenten hechten aan voordelen en vervolgens naar het belang van product-/service-eigenschappen. De sequentiële benefit-feature segmentatiemethode bleek statistisch gezien superieur bij de bepaling van homogene segmenten in vergelijking met segmentatiemethoden die alleen gebruikt maken van het belang van voordelen of van het belang van product-/service-eigenschappen. Managers uit de rundvleesproductieketen benadrukten de geschiktheid en het gebruiksgemak van het segmentatieschema voor implementatie omdat het garant staat voor accurate informatie over consumentenbehoeften en hoe deze behoeften kunnen worden vervuld door product-/service-eigenschappen. Omdat de aanpak niet gebaseerd is op verfijnde en dure technieken, is het ook nuttig voor identificatie van een gefragmenteerde vraag voor kleine bedrijven, zoals in het domein van de agro-food sector.

Concluderend, laat dit hoofdstuk zien dat segmentatie op basis van door de consument gezochte voordelen en product-/service-eigenschappen homogenere en meer bruikbare segmenten oplevert en een veelbelovend gereedschap is om marktsegmentatie voor de ontwikkeling van strategieën in ketens te verbeteren.

Vervolgens wordt een gestructureerd raamwerk gepresenteerd om de stappen en afwegingen vast te stellen tijdens het ontwerpen van vraaggestuurde ketens bij de implementatie van DCM (onderzoeksvraag 4). Het raamwerk is gebaseerd op quality function deployment (QFD) en omvat zes nauw aan elkaar verwante stappen: (1) de identificatie van de marktvraag; (2) de keuze van segmenten; (3) de vertaling van de vraag van de segmenten naar ketenprocessen; (4) de opdeling van ketenprocessen in taken en in te zetten bedrijfsmiddelen; (5) de kenschetsing van mechanismen van coördinatie, en (6) de selectie van ketenpartijen. Het ontwerp van de respons van ondernemingen op de marktvraag werd gedaan met verschillende belanghebbenden uit de rundvleessector, die geïnteresseerd waren in het opzetten van een nieuwe vraaggestuurde keten. Op basis van de genoemde stappen, worden enkele relevante bevindingen beschreven in de context van vraaggestuurde rundvleesketens. Het hoofdstuk biedt een geïntegreerde aanpak van het ontwerp van vraaggestuurde ketens, gebaseerd op marketing, ketenkennis en de ontwerpliteratuur, daarbij expliciet het product-/serviceconcept erkennend, zoals gezien door de eindgebruiker als uitgangspunt van het ontwerpproces.

Tot slot worden de resultaten uit de verschillende hoofdstukken samengevat en in een breder perspectief geplaatst. De voornaamste conclusie is dat DCM steeds vaker wordt toegepast, maar dat de implementatie afhankelijk is van duidelijke strategieën en geschikte veranderingen in bedrijfsprocessen door de gehele keten heen. Daarbij zijn gereedschappen vereist voor het verkrijgen van inzicht in de consument en voor de afstemming van de toeleveringskant. Vanuit dat oogpunt worden studies voorgesteld die nuttig zijn voor het

begrijpen van heterogeniteit van de vraag als gevolg van de beoogde consumptiesituatie, voor een segmentatie van consumenten op een manier die gemakkelijk is en nuttig voor DCM, en voor het beschrijven van de stappen die nodig zijn om te reageren op de gefragmenteerde vraag. Niettemin zijn er een aantal onderwerpen die nog verder moeten worden opgehelderd en onderzocht. In het bijzonder benadrukken wij de noodzaak van een betere conceptuele fundering van DCM, waarin haar antecedenten en gevolgen worden vastgesteld. Ook moeten methoden ontwikkeld worden om significante progressie te maken met de implementatie van DCM.

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About the author

Mario Duarte Canever was born in Lauro Müller, Santa Catarina, Brazil, on the 11th August 1968. From 1990 to 1994, he studied Agronomy at the Federal University of Pelotas (UFPel), and subsequently he followed an MSc in Rural Economics at Viçosa Federal University (UFV). From 1996 to 1998, Mario worked as a consultant in the chicken and pork chains in Brazil. Since September 1998 he has been an Assistant Professor at Pelotas Federal University, Pelotas, Rio Grande do Sul, Brazil. In December 2001 he started his PhD studies, which dealt with demand chain management in the agro-food business.
His main research interests are in chain science and marketing.

Completed Training and Supervision Plan

During the period of appointment a minimum of 20 credits educational program within Mansholt Graduate School (MGS) was completed. One credit is equivalent to 40 hours of course work.

Educational program completed by Mario Duarte Canever

Name of the course	Department/ Institute	Year	Credits
I. General part			
Written English	Centa Language Center	2004	1
Research Methodology: Designing and Conducting a PhD Research Project	Mansholt Graduate School	2001	2
Qualitative Methods of Research	Nobem – Netherlands	2002	2
Writing and Presenting a Scientific Paper	Mansholt Graduate School	2002	1
Subtotal part I (max. 6 credits)			*6*
II. Mansholt-specific part			
Mansholt Introduction course	Mansholt Graduate School	2002	1
Mansholt Multidisciplinary Seminar (presentation at the I PhD Day)	Mansholt Graduate School	2004	1
V International Pensa Conference on Agri-food chain/networks	Pensa/USP (Sao Paulo)	2005	1
Chain Conference	Wagenigen University	2006	1
Subtotal part II (min. 2, max. 6 credits)			4
III. Discipline-specific part			
Behavioral Economics	Mansholt Graduate School	2002	3
Supply Chain Economics	Mansholt Graduate School	2004	2
Socio-cultural Field Research Methods	Mansholt Graduate School	2004	2
Multivariate Analysis Techniques (D300-217)	Wageningen University	2002	2.8
Food Risk Analysis	Mansholt Graduate School	2006	2.8
Subtotal part III (min. 9 credits)			*12.6*
TOTAL			*22.6*