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TIME AND LOCATION AS CUSTOMER PERCEIVED VALUE DRIVERS

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Time and Location as Customer Perceived Value Drivers

Key words: Customer perceived value, time and location, conceptual framework, abductive logic, mixed method design, technology-based services, online banking services

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Helsinki, February 23, 2004

Kristina Heinonen (née Isoniemi)

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1. INTRODUCTION

> "The United States is moving toward a 24-7 economy in which customers refuse to be held hostage by time and place"
>
> (Sheth et al. 2000:62)

The citation above illustrates an important transition in society today. The emergence of e-business and the development of technology have emphasised new possibilities for value creation. The Internet and mobile technology are removing traditional temporal and spatial boundaries, making time and space more crucial than before. Where companies previously have been able to lengthen opening hours and establish more branches to create value for customer, it is now possible for customers more easily to decide where and when they want to interact with companies and other customers. In this respect, from having been seen as customers' implicit considerations in buying processes and factors that are included in a *company's* strategic positioning, time and location may be seen to have become elements of the value-creation process of *customers*. As such, in order to take a customer point of view of customer perceived value, time and location need to be considered as explicit value dimensions.

This chapter clarifies the motives for undertaking this study and the reasons for developing a conceptual framework to explore customer perceived value by including a temporal and spatial perspective. This discussion results in a presentation of the aim of this thesis. Research questions derived from the aim are raised and the choices made concerning the delimitation of the study clarify the scope. Also a discussion on the author's theoretical perspective and definitions of key theoretical concepts are included. A presentation of the structure of the thesis concludes the chapter.

1.1. A customer perspective on value creation

Two issues may be seen to influence customer perceived value. One issue in extant research involves different perspectives on who creates value, where a shift towards value created by the customer is seen (e.g. Wikström 1996). Another issue is the technology developments that are making it easier for customers to create value and thus moving the emphasis on new elements of value (e.g. Bitner 2000; Brady and Cronin Jr. 2001). These two issues represent the starting points for this study and are discussed in this subchapter.

The transactional marketing perspective that dominated in the early 1900s was customer-oriented only to the extent that it focused on the offering as output of production processes, and customer value was created through discrete transactions (Grönroos 2000). This mass production society that emerged after World War II emphasised production with the goal of achieving production cost reduction. The traditional transaction orientation of the customer-provider relation focused on the *relieving* approach of service providers. This perspective was focused on the firm's point of view of what is possible in terms of satisfying customer needs, and the customer was referred to as only a recipient of the offering and marketing measures. Value was seen as being inherent in the product, and the firm defined, according to the knowledge of its offerings and target groups, what relevant elements the customer might

need and prefer. In other words, value was created in the discrete *transactional interactions* between the customer and the firm, and the product is viewed as value adding in itself.

A shift started with the focus on services in the 1960s and resulted in the emergence of the service marketing paradigm (e.g. McCarthy 1960; Rathmell 1966; Regan 1963; Shostack 1977). Researchers from the Nordic School of Services contributed extensively to this development in the 1970s (e.g. Grönroos 1978; Gummesson 1977). The service-marketing paradigm that can be seen to have evolved from the industrial logic assumed that the service was an input in the value creation process.[1] Relationship marketing evolved as a related paradigm and it focused on customer satisfaction and retention more than services (Berry 1995)[2]. The focus was placed on customers and thus concentrating on fulfilling customer needs to create and maintain loyal customers (Grönroos 2000). The customer-service provider relationship was assumed to create value for the customer. The relationship marketing approach is based on the notion that customer relationships establish a foundation for business activities and that value is related to *long-term relationship* between the customer and the firm.

The service and relationship marketing approaches differ in their view on the linkage between services and relationships. According to some researchers, services are complex constructs and include relationships (e.g. Grönroos 2000). Conversely, other researchers have posited that services are acts or episodes (e.g. Holmlund 1997) making them inherent in relationships. Although the focus differs, in both views the customer is seen as an active participant in the value creation process. The latter view is taken in this study, i.e. services are seen as inherent in relationships.

Different perspectives on value creation can be identified in past research in traditional product marketing, service marketing and relationship marketing. Traditionally, from a product marketing perspective, products were said to be the *output* of production, whereas from a service marketing perspective, services were seen as the outcome of process consumption. Recently, in service and relationship marketing research, products and services have been seen as resources in the customer's activities making them tangible and intangible *inputs* in the customer's processes (Grönroos 2000; Ramírez and Wallin 2000). In these paradigms, value is not something that is delivered *to* the customer; rather it is something that is produced in cooperation *with* the customer (e.g. Storbacka and Lehtinen 2001). The customer is perceived as an active participant and co-creator in the value creation activities (Grönroos 1978; Johnson and Gustafsson 2000; Lehtinen 1982; Normann and Ramírez 1994). In fact, the customer is the one that assesses whether the service is valuable. The service delivery becomes an intertwined process of involvement and participation where the customer is creating and competing

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[1] A synthesis on the evolution of services marketing can be found in Fisk, Raymond P., Stephen W. Brown, and Mary Jo Bitner (1993), "Tracking the evolutions of services marketing literature," Journal of Retailing, 69 (1), 61-103. and Berry , Leonard L and A. Parasuraman (1993), "Building a new academic field - the case of services marketing," Journal of Retailing, 69 (1), 13-60.

[2] For a discussion of relationship marketing see e.g. Berry, Leonard L. (1995), "Relationship marketing of services - growing interest, emerging perspectives," Journal of Marketing, 23 (4), 236-45., Grönroos, Christian (2000), Service management and marketing a customer relationship management approach (2 ed.). Chichester: John Wiley & Sons. and Gummesson, Evert (2002), Total relationship marketing: [rethinking marketing management] from the 4Ps- product, price, promotion, place- of traditional marketing management to the 30Rs- the thirty relationships- of the new marketing paradigm (2 ed.). Oxford: Butterworth/Heinemann..

for value (Prahalad and Ramaswamy 2000). This customer-oriented approach focuses on what is valuable based on what customers need at specific moments in a relationship. In many respects, the relationship is seen to generate much of the perceived value (e.g. Ravald and Grönroos 1996).

Consequently, if the value creation process in the traditional product marketing and the service and relationship marketing are contrasted it is possible to identify two opposite views. In the former, a product is seen to be value adding in itself, while in the latter perspectives the value is seen to be inherent in the interaction between the customer and service provider. Accordingly, where the firm is seen to create value for the customer in the traditional product-marketing paradigm, the customer is recognised as a value creator in the service and relationship marketing paradigms. In other words, one factor in distinguishing how value is created is a continuum ranging between *value created by the firm and value created by the customer*.

Technology developments involve another issue that influences the perspective on customer perceived value taken in this thesis. The role of technology in services has been explored extensively (Bitner 2001; Bitner 2000; Dabholkar 2000; Parasuraman and Colby 2001; Parasuraman and Grewal 2000; Quinn 1996) moving the focus of research on remote and technology-based interactions. Traditionally services were seen to involve interpersonal interactions between customers and service employees and they were explored through the service encounter or moment of truth (e.g. Czepiel et al. 1985; Hollander 1985; Shostack 1985). Simultaneously self-service delivery has been acknowledged (Bateson 1985b) meaning that the customer may in fact not interact with the service provider directly. More recently, technology-based self-service encounters have been investigated (e.g. Bitner et al. 2000; Dabholkar 2000; Dabholkar 1994; Meuter et al. 2000; Parasuraman and Colby 2001; Quinn 1996). In other words, in addition to interpersonal service encounters, research has recognised that customers are delivering the service themselves through technology-based self-services (Dabholkar 1994; Meuter and Bitner 1998) and that service evaluations are influenced by technology-based interactions (Anselmsson 2001; Dabholkar 1996; Meuter et al. 2000). Hence, customers can independently create value without the explicit involvement of the service provider (Gummesson 1993).

These technology-based processes that customers interact with thus improve customers' opportunities to independently perform the service delivery without interacting with the service personnel. While there are some predetermined steps in the service delivery process, customers independently perform the service act and thus produce and consume the service themselves. In this manner, customers can customise the service delivery according to their own preferences. But without interacting with the service personnel the customer gains more control over service delivery and as such can affect the process more. The extent which technology is included in the service delivery can thus be used as another factor to describe value creation processes.

Consequently, in conclusion, the value creation process can be described with two factors, as depicted in Figure 1 below. The first factor involves the *actor* performing the service act, and thus creating value, and it ranges between value created completely by the firm and value created completely by the customer. Value created by the firm denotes that the service employee performs the main part of the service process, for example makes and serves the food in a restaurant. Conversely, if the customer creates value, then the service act is seen as a self-service, for example, that the customer

collects the meal himself and pays the cashier. Value created by the firm involves a customer-service provider interaction, either interpersonal or distant. In contrast, value created by the customer means that the service act is performed as a self-service by the customer, for example through a technology interface.

Customer creates value	Traditional self-service e.g. self-service at a restaurant	Technology-based self-service e.g. Internet bank, or self-service check-in
Firm creates value	Traditional interpersonal service e.g. Restaurant service	Interpersonal service with technology infusion e.g. airline telephone service
	Low technology infusion	**High technology infusion**

Figure 1: Aspects influencing the value creation process

The second factor involves the *technology infusion* in service delivery, ranging from low to high. It is essential to note that the degree of technology infusion does not range from no technology infusion to totally technology-based service, rather, it is a question of relative degree of technology infusion. Traditional self-services or interpersonal services represent situations where the technology infusion is low, whereas technology-based self-services and interpersonal services with high technology infusion represent situations with high technology infusion. Additionally, low technology-infused services also include services that are connected to a physical product as opposed to intangible information. An example of interpersonal services with high technology infusion is an airline telephone service where the service provider uses technology to assist in booking a flight (firm creates value), or an Internet bank where the customer pays bills online (customer creates value). An example of low technology infusion is a self-service restaurant where the customer pays the food in cash (customer creates value).

The focus in this study is on *technology-based self-services*, i.e. a context where the customer creates value and the technology infusion is high. This situation is depicted in the upper right hand quadrant. As is discussed in the next subchapter, in these situations where the customer creates value and the technology infusion is high, the service provider's ability to control resources in the service process becomes more complex. Due to the customer activity in and initiation of the value creation process and interactions with technology-based environments, the customer can more easily utilise the service wherever and whenever wanted. With this focus towards customers as value creators in a technology environment, the time and location of value creation becomes even more crucial than in traditional interpersonal services. In many situations the service provider may only create an arena where the service may be delivered, but it is up to the customer to actually create value. The research problem related to these issues is discussed next.

1.2. Research problem

In the light of the current focus in research on value created by customers and high technology infusion, it seems reasonable to explore further the elements that form the basis of value from a customer perspective. Through technology-based services such as

services delivered via the Internet, new sets of marketing challenges emerge. The Internet has been argued to be more than just a new sales channel where services are pushed to the consumer; rather the Internet is seen as an *access* channel where the customer can initiate the contact with the firm (Rust and Lemon 2001). Research on the effect of self-services on customer perceptions of firms and perceived service quality has been called for, and it has been suggested that research on the change in marketing models are needed because of customer-initiated relationships (Rust and Lemon 2001). These issues emphasise a new focus on the customer's perception of the value-adding elements. Considering that customers may create value themselves makes value creation processes increasingly less fixed to a specific time or location. It makes service delivery an accessibility issue and this requires explicit consideration of time and location.

This naturally calls for research on customer perceptions of the accessibility to the service environment. The service environment has been argued to be relevant in traditional interpersonal services (e.g. Baker 1987; Bitner 2000; 1992). It has been suggested that the service environment influences service quality and value (e.g. Baker et al. 2002; Brady and Cronin Jr. 2001; Lehtinen 1982; Lehtinen and Lehtinen 1991; Rust and Oliver 1994).

However, although service researchers have studied technology-based services and service quality in a technology environment, few studies have been conducted that focus on perceptions of the service environment as elements of customer perceived value. Existing research in service quality and value focuses on several approaches to technology-based services, such as describing and categorising technology-based services (e.g. Bitner et al. 2000; Dabholkar 1994; Joseph et al. 1999; Meuter et al. 2000) or adoption and attitudes (e.g. Anselmsson 2001; Bobbitt and Dabholkar 2001; Dabholkar 1996; Dabholkar and Bagozzi 2002; Meuter et al. 2003; Mick and Fournier 1998; Parasuraman and Colby 2001). Research has also been focused on value co-created by the customer (Normann and Ramírez 1994; Ramírez and Wallin 2000) in a highly technology-oriented environment (Colby and Parasuraman 2003; Lovelock 2001; Parasuraman and Grewal 2000; Quinn 1996).

One gap in the current service management paradigm is the lack of explicit focus on the perceptions of the service environment based on the time and location of value perceptions. Traditionally, research on the service environment has been focused on tangible and static perspectives making only implicit consideration on time and location of service delivery (e.g. Bitner 2000; 1992). Existing service management models including quality models have not considered the role of the empowered customer who may perform the service at various locations and in different time frames. The service environment has been argued to be controllable by the service provider (Shostack 1981). For example, time and location are modelled as accessibility resources such as opening hours and service location (Grönroos 2000) which are elements that are decided by the service provider. The focus is often on the tangible environment or servicescape (Bitner 2000; 1992) controllable by the service provider (Shostack 1981) making only implicit considerations of time and location of service delivery. This implicit consideration of time and location of service delivery in service management research is discussed further in the literature review.

The service environment in terms of temporal and spatial elements is increasingly relevant in value creation related to both traditional interpersonal and technology-based services and this points to a need to focus on these dimensions. One approach would be

to include perceptions of the service environment, e.g. temporal and spatial accessibility, as value-creating elements. Considering the empowered customer performing the service act and co-creating value (Normann and Ramírez 1994) the role of the service environment and the time and location of service delivery is accentuated. If customers may create value themselves, this makes value creation processes increasingly less fixed to a specific time or location controlled by the service provider.

It appears reasonable to expect that time and location are potential dimensions of customer perceived value in addition to technical and functional dimensions. Research has shown that "the ability to produce and consume the service when needed or where needed is one factor in customer satisfaction" (Bitner et al. 2000:144) showing the importance of this independence of time and location. It also affects loyalty, profitability and quality perceptions through the indirect or direct linkages between the constructs. Also, it has been argued that there is a need to reconsider the dimensions of service quality by incorporating environmental quality in addition to the traditional technical and functional dimensions (Brady and Cronin Jr. 2001; Lehtinen 1982; Lehtinen and Lehtinen 1991; Rust and Oliver 1994). These new dimensions, although especially interesting and relevant for technology-based services, can be seen to create value for all kinds of service processes, not only technology-based. In this respect it is relevant to explore the influence of customer participation in the value creation process and study customer perceived value from a temporal and spatial perspective.

As a consequence there is a need to re-evaluate existing value conceptualisations and develop a framework that improves the understanding of the nature of customer perceived value. The focus in this study is on the service environment as perceived by the customer. Thus, service providers cannot control and manipulate all the elements in the value creation process. It is argued that the service environment involving a temporal and spatial perspective requires more attention in research in marketing. The rationale for this is that time and place are not seen as only background conditions that exist in the service delivery process. Rather, it is proposed that time and location are in fact at the forefront of the attention span of customers and can increase or decrease the value for customers. In this thesis the focus is on evaluating customers' perceptions of temporal and spatial aspects in value with the objective of re-conceptualising the scope and content of current value models. This is done by explicitly incorporating time and location as value dimensions in service management models

1.3. Purpose of the study

It has been discussed that there is a need to deepen the understanding of how time and place potentially create value for the customer. In the light of this, by incorporating the service and relationship marketing research paradigms, the purpose can be formulated:

The purpose of this thesis is to develop a framework for understanding and analysing customer perceived value by explicitly including a temporal and spatial perspective.

It is important to note that the value construct is reconceptualised by redefining and extending its scope and then studying the phenomenon both holistically and in depth. Consequently, this study focuses on concept and theory development through theoretical and empirical insights. Traditional service quality models only implicitly involve the time and location of the service process. In contrast, this study explores the

notion of time and location as value dimensions. As such, the focus is moved further from merely concrete offering characteristics into more specifically incorporating the customer's perceptions of a broader context. In other words, time and location are seen in relation to other dimensions traditionally used in service quality and value. In the last chapter, the proposed model is evaluated in the light of previous conceptualisations and it is illustrated that the conceptualisation provides additional insight not previously incorporated in extant conceptualisations at the same time as it is thoroughly supported in past literature. Three research issues are relevant in creating this framework.

First, it is necessary to understand the relative importance and sensitivity of different value dimensions and the effect of time and location in customer perceived value. The traditional perspective on value has stated that value is a result of products and services delivered by the firm and is a function of technical and functional dimensions. A challenge to this perspective is that where technology enables interactions on multiple locations and moments of time, value also depends on the successful convergence of right resources to right persons at the *right time and place*. Thus, the time and location where the service is produced and consumed may become increasingly relevant. Consequently, a conceptual framework that adds to the traditional view on value as a function of technical and functional dimensions and includes temporal and spatial dimensions is proposed. Time and location are hypothesised to be drivers of value and through this research question the relative importance of time and location on value perceptions is measured. The technical and functional dimensions are defined as the core in the value creation whereas time and location are included as additional value elements. This is motivated when considering that the value creation process is multifaceted as customers frequently serve as important actors (Ramírez and Wallin 2000) and that technology has loosened many of the traditional limitations of services connected to time and location (Balasubramanian et al. 2002). To summarise, this research issue concerns:

- The relative importance of different value dimensions
- The trade-offs among the value dimensions
- Differences in perceptions of the value dimensions

A second research issue is to deepen the conceptualisation of the value dimensions by building on existing literature to create a tentative categorisation and then empirically specifying the categorisations. In other words, it involves a detailed level of investigation where empirical and theoretical elements are combined to form an understanding of the content of the value dimensions. This exploratory phase is motivated when considering that the two new proposed dimensions have not been conceptualised in extant research and it is thus necessary to explore their nature more in-depth. The content of value dimensions is used to define what value is, how it is created, where and when wanted, and results in an understanding of the reasons for the perceived importance of the value dimensions. To summarise, this research issue involves:

- The relationship between the benefit and sacrifice components and the value dimensions
- Definition of the value dimensions

A third research issue is to explore whether there exist different value profiles that can be used to describe customer perceived value. These profiles can be seen to result from

the understanding of the scope and content of the value dimensions. Customers may be seen to have different preferences concerning the value dimensions depending on their own processes and potentially various background variables such as technology preference. This third research issue explores:

- Diverging value profiles among customers.

1.4. Delimitations

Delimitations were central to creating a relevant research design and studying the phenomenon in a focused manner. In this section choices concerning theoretical and empirical limitations made are presented, while issues that relate to the theoretical perspective taken by the author are discussed in subchapter 1.4.2.

One theoretical delimitation includes a perspective on *subjective* perceptions of customer value as traditionally used in service management research. The subjective value perspective is more abstract and relies on individual perceptions (Zeithaml, 1988). Value research is closely related to psychology as well as socio-economic and cultural studies, making it both a subjective and an objective perception. According to the perspective of microeconomics, value has been defined as an objective utility (e.g. Stigler 1950); however, this perspective on the utility function of value which assumes that the utility is comparable for different individuals is excluded from this study. Also, the supplier perspective on customer value defined as the value of customers to the organisation (e.g. Gale 1994) is not in focus in this study. The reason for this is that the supplier perspective, by looking at customers as sources of economic return, measures the monetary worth of customers. This means that the value creating systems and value networks (e.g. Normann and Ramírez 1994; Porter 1980) are not included in the current study.

However, with the focus on subjective customer perceptions, it seems necessary to note here that in this study the emphasis is on value, and not values, a construct found in the social science literature and pioneered by Rokeach (e.g. 1979). It is assumed that although the customer's values affect value perceptions, perceived value is a preferential judgement, whereas values are the criteria by which such judgements are made. As such, values are seen as antecedent factors to value. An extensive review on the linkages of and differences between value and values can be found in Huber, Herrmann and Morgan (2001). Still, "value" is frequently used interchangeably with "values". For example, many studies on the perceived value construct are based on the studies of Sheth, Newman and Gross (1991) and Holbrook (1994), which in fact emphasise values as the underlying motives for consumer behaviour. [3]

[3] Also the means-end thinking in value models (Woodruff, Robert B. (1997), "Customer Value: The next source of competitive advantage," Journal of the Academy of Marketing Science, 25 (2), 139-53., Zeithaml, Valarie A. (1988), "Consumer perceptions of price, quality and value: A means-end model and synthesis of evidence," Journal of Marketing, 52 (July), 2-22.) involve customers' end goal or objectives, which can be interpreted as values. Research has explored values through a laddering technique, which involves means-end process between attributes, consequences and values (Gutman, Jonathan (1982), "A means-end chain model based on consumer categorization processes," Journal of Marketing, 46 (Spring), 60-72.). Value can be connected to end goals and values, which can be seen as a result of the life philosophy of the individual. Taking this perspective, values could be seen as a function of attributes, consequences of these attributes in relation to the end goals. Zeithaml (Zeithaml, Valarie A. (1988),

Empirically, the study is focused on technology-based self-service options, with particular interest towards the influence of time and location. As was discussed in the introduction, technology-based offerings such as services delivered via the Internet offer particular opportunities for almost unlimited temporal and spatial flexibility. Hence, they are studied as resources into customers' activities rather than as end sources of customer perceived value. This means that offerings are not analysed as separate value entities, rather they are studied as a means for providing value through their facilitation of time and location independence. The empirical context is discussed further in chapter 2.1.4.

1.4.1. Key theoretical concepts

This study explores value dimensions from a customer perspective. Before detailed definitions of key theoretical concepts are given, there is a need to describe the perspective on customer perceived value taken by the author.

Research on value perceptions extends to many related areas, but the focus here is on service management literature. As Table 1 depicts, three main perspectives on customer perceived value can be identified. The first perspective focuses on antecedent factors to value, i.e. values, and is excluded from this thesis. The second perspective is based on a preferential judgement of value and is based on the trade-off between benefit and sacrifice. The third perspective depicts customers' perceptions of service quality and involves technical and functional quality dimensions. The last two perspectives form the building blocks of the conceptualisation developed in this thesis.

Table 1: Different views on value

Author	Emphasis	Relevant issues
Gutman (1982) Holbrook (1994)	Values	The consequences of attributes on end goals
Zeithaml (1988) Woodruff (1997)	Evaluation	Trade-off between benefit and sacrifice
Donabedian (1980) Grönroos (1982), PZB (1985; 1988)	Perceived service quality	Technical and functional dimensions, quality characteristics

In this thesis, *customer perceived value* refers to customers' subjective perceptions of the value-increasing or-decreasing elements, which result either directly or indirectly from a given service. This definition is based on the service quality literature where

"Consumer perceptions of price, quality and value: A means-end model and synthesis of evidence," Journal of Marketing, 52 (July), 2-22.) and Woodruff (Woodruff, Robert B. (1997), "Customer Value: The next source of competitive advantage," Journal of the Academy of Marketing Science, 25 (2), 139-53.) later developed this thinking and demonstrated the hierarchical existence of different levels of value. This perspective is based on higher abstraction levels and consists of assessments of benefits that fulfil goals (Gutman, Jonathan (1982), "A means-end chain model based on consumer categorization processes," Journal of Marketing, 46 (Spring), 60-72.). In contrast, value, is a construct that received more attention in the mid-1990s. Rather than defining value as the consequences of attributes on end goals, customer perceived value is defined as perception in relation to the trade-off between different elements. In this respect, value occurs at lower levels of abstraction and does not include the consequences and goals of customers.

quality dimensions may be seen to define characteristics of services that customers perceive as important. This is discussed further in section 1.4.2.

In Table 2, the key theoretical concepts used in this thesis are defined. They are described in more detail in chapter 5 where the theoretical conceptualisation is described.

Table 2: Key theoretical concepts used in the thesis

Concept	Definition
Value dimensions	Dimensions that directly or indirectly relate to a service which customers perceive as valuable.
Interpersonal services	Service that is performed in face-to-face interactions or distant interactions with the service employee and customer.
Technology-based service	Service with both tangible and intangible elements that is performed totally or partly by the customer via a technology interface. One form includes technology-based self-services.
Technical dimension	Value dimension involving attributes related to the core service
Functional dimension	Value dimension involving attributes related to the service process
Temporal dimension	Value dimension involving attributes related to the time of the service delivery
Spatial dimension	Value dimension involving attributes related to the location of the service delivery

For simplicity, the term "services" is used in this study to indicate a mix of both tangible and intangible elements. However, it is recognised that different terms for the object of exchange exist, for example, products, services, and offerings, all involving a different perspective. In this thesis a broad meaning of services is taken, moving more towards the definition of offerings. In some respect, the border between services and products becomes diffuse as they both may include tangible and intangible elements. This is especially true for technology-based self-services, where technology makes the service experience more tangible. Normann (2001) takes another perspective and defines the object of exchange as an offering. This is actually a conceptual development as it involves a combination of products and services.

1.4.2. Positioning the study

The focus of this study is on the customer perspective of value, through which dimensions that create value for customers may be analysed. The aim is to contribute to existing service management research through an improved insight into the perceived value construct. By integrating and broadening perceived quality and value models, the results can be seen as a step to extend and deepen the knowledge about value dimensions from a customer's point of view.

This thesis is theoretically oriented within one main research area, namely the service management paradigm. Although basically involving a normative management perspective, the service management literature is explored with an emphasis on the

customer perspective. The customer perceived value construct forms the core research object in this study, and existing theoretical research is explored from the basic notion that value is a result of something that customers perceive as valuable. Service management literature gives relevant insights into aspects of customer perceived value by its focus on the value-creating unit, i.e. a product or service. Hence it is a relevant research paradigm for this study.

In this thesis it is argued that to understand customer perceived value there is a need for a customer-oriented perspective combined with a focus on episode-based value.[4] This current focus is depicted in the lower right quadrant in Figure 2. In other words, it is assumed in this thesis that the *customer* creates value in *episodes*. This contributes to a deeper understanding on customers' value creation by exploring *customers'* value creation processes. Traditionally within the service management paradigm, research initially emphasised the service provider perspective, mainly by analysing technical aspects of quality (lower left quadrant in the figure). Even though the customer was seen as a part of the service process, this approach was in many respects transaction-oriented with the emphasis on the service controlled by the firm. Later on, with the emergence of service quality research, the focus in the late 1970s shifted to functional aspects of the service delivery. Value was still seen to be created by the firm but the impact of customer participation and interaction was acknowledged. The relationship-marketing paradigm more specifically focused on the customer as well as on the relationship. However, in many respects, this research emphasises the value that the relationship provides the customer, which means that the focus is on value created by the service provider (upper left quadrant).

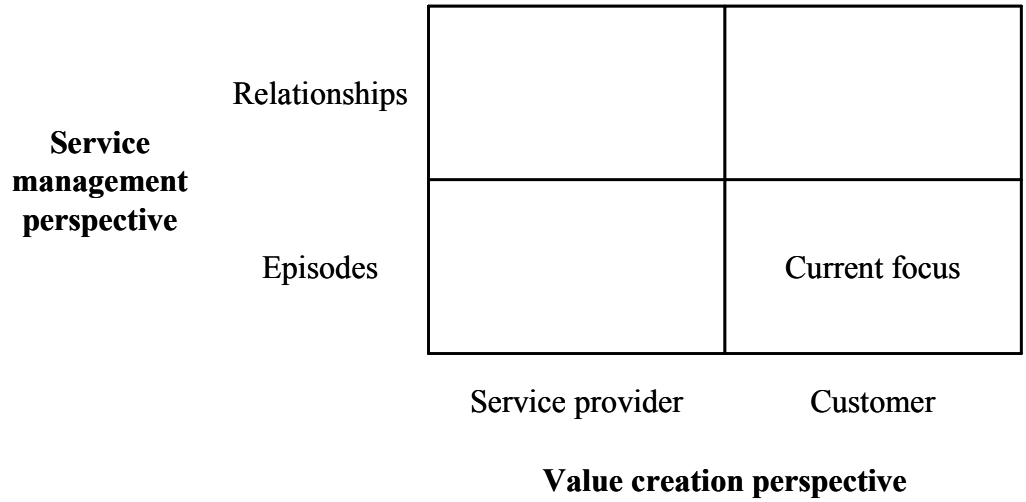

Figure 2: Focus of the study

The upper right hand corner is a situation where the customer creates value but the focus is on relationships with a specific service provider. This situation is important, but beyond the focus of this study. Although services are seen as inherent in relationships, the unit of analysis is not relationship value, i.e. the value of the relationship as such. This thesis focuses on the customer's process that traditionally has been denoted as the consumption process, which is based on an episode perspective on value. In other words, relationships between buyers and customers are assumed to exist and affect the

[4] The difference between episode and relationship quality and value is discussed in section 3.2.4.

total perceived value, but the unit of analysis is the customer perceived episode-based value.

Linked to this focus on the customer is the perspective taken on the definitions of the actor creating value, i.e. customer or consumer. Traditionally, "customer" has denoted the buyer of a product or service in a business-to-business context, whereas "consumer" has characterised the end user of a product or service in a business-to-consumer context. This distinction is not made in this thesis. With the approach on value creation from a customer perspective, the boundary between the actor that produces something (frequently defined as the supplier or service provider) and the actor that consumes something (often termed the consumer) is becoming blurred. Both the supplier and the consumer are seen to *create* value, rather than viewing the service provider as producing something and the consumer as consuming something. In contrast, production implies that something is created, whereas consumption traditionally means that something is destroyed. In this respect, a value-creation process is a more accurate term for the activities that the supplier and customer perform because it states that both parties create value rather than only the service provider. This is one reason why the term customer is used in this thesis. The term "customer" is used in a broader sense involving the individual that uses and creates value elements. Another reason is that the main focus in this thesis is on value in relation to the use of services that can be assumed to be independent of who pays the service, e.g. a firm or an individual consumer, but more concerned with the individual using an offering. It is thus assumed that the perceived value in using the service can be seen as similar for B2B-contexts and B2C-contexts.

In this study the focus is on depth rather than width, signifying that the objective is not generalisation in its traditional meaning where large amounts of empirical data are used to verify hypothesis. Rather the aim with this study is conceptual development and the use of analytical tools, theoretical models and empirical findings to deepen the knowledge of a specific phenomenon. Accordingly, the phenomenon is explored in a specific context in order to describe its structure and nature. In this respect, the abductive approach of moving between theoretical and empirical reasoning is used to create a comprehensive understanding about the nature of customer perceived value. For this reason, a very narrow and specified approach is more than appropriate.

Another issue in positioning the study is the approach taken on customer perceived value. The aim of this study is to develop a framework for understanding and analysing customer perceived value. Two approaches may be relevant for this: a processual or a structural approach, and the latter approach is the focus of this study. The processual approach entails a dynamic focus on the value-creation process, i.e. to understand how value is created. This may include an exploration into the relationships between different antecedents and outcomes related to value perceptions. In other words, the series of actions that produce a change or development are explored (Lindberg-Repo 2001; e.g. Roos 1998)s. The structural approach differs from this in that it involves an investigation and description of the compositions that constitute value perceptions. In other words, oppositions, contrasts and hierarchical structures of customer perceived value are explored and interpreted (e.g. Parasuraman et al. 1985).

A third theoretical starting point is the perspective taken by the author on the relationship between value and quality. In short, quality is seen as a sub-element of value, making quality and value embedded in the same concepts. Whereas the theoretical constructs of value and quality have traditionally been kept separate, the

distinction is not emphasised in this thesis. Service quality (e.g. Grönroos 1982; Parasuraman et al. 1985; Rust and Oliver 1994) and value (e.g. Woodruff 1997; Woodruff and Gardial 1996; Zeithaml 1988) have been researched separately in the services management literature. The majority of existing theoretical perspectives have conceptualised customer perceived value as a trade-off between benefit and sacrifice (Zeithaml 1988). Quality on the other hand has been defined as the outcome of an evaluation process of the perceived service and the expected service (Grönroos 1982). More recent definitions of value and quality can be found that have defined value as a hierarchical and consequential construct (Brady and Cronin Jr. 2001; Rust and Oliver 1994; Woodruff 1997). Following the line of recent research, quality and value may in fact be seen as interconnected. Quality is often connected to value (Parasuraman and Grewal 2000; Zeithaml 1988) and has been shown to be a result of quality or a higher-order element in relation to quality (Rust and Oliver 1994). The relationship quality model developed by Liljander and Strandvik (1995) also suggests that quality and value are embedded in the same concept.

However, taking a perspective where quality and value are linked has implications on the focus of this study. Based on this perspective, it is possible to use the same line of thinking used in quality research for conceptualisations of the value construct. The theoretical underpinnings are discussed further in Chapter 3, but following these findings, this study uses quality dimensions to conceptualise value. As proposed in Chapter 4, customer perceived value can be described as a function of benefit and sacrifice components of technical, functional, temporal and spatial dimensions. This is a result of two things. By following both value and quality literature, it is assumed that the elements that affect value also affect quality, and vice versa. This means that the elements of value and quality are integrated. This line of thinking is further developed below but at this point it can be noted that quality dimensions and value components (benefit and sacrifice) can be combined to form value dimensions. Secondly, taking this thinking one step further, it means that new value dimensions that are introduced can be defined with the same structure, i.e. that they are based on benefit and sacrifice. In other words, as will be discussed, time and location that are introduced as value dimensions are seen to involve benefit and sacrifice elements.

The level of abstraction is another critical issue in the positioning of this study. A means-end model approach (Zeithaml et al. 2000) provides a structure to describe the perspective taken on perceived value. It structures the perceptions on a continuum of specific and abstract elements as depicted by Figure 3. In fact, it has been suggested that the focus of service quality should have originally been on service features (Grönroos 2001), which are in fact more closely linked to the *attributes* of the service rather than the quality or *performance* of the service. The example of temporal value in the figure involves the perceptual attribute time allocation as benefit and it in turn is represented by speed of delivery as a concrete cue.

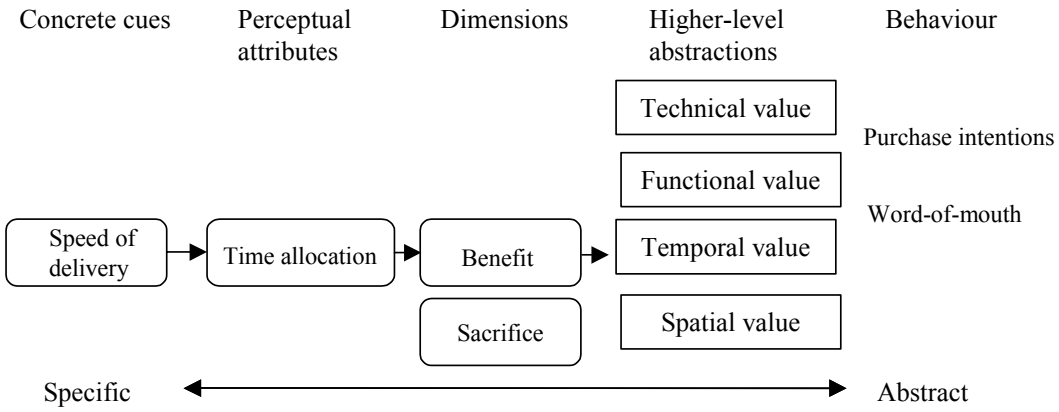

Figure 3: A means-end model of perceptions (adapted from Zeithaml et al. 2000)

In this thesis the focus is both on high levels of abstraction that exist on the right hand side of the figure and a more detailed level on the left in the figure. The former involves the scope of the value dimensions and it represents a holistic perspective. The latter involves content of the value dimensions based on attributes related to the benefit and sacrifice of each dimension. As is discussed further in the literature review, customer perceived value can be seen as either a subjective and highly individual perception, or alternatively an objective more measurable perception. The investigation of the scope of value results in more general aspects in the value perceptions that may be stable across situations and contexts. The more one moves to more abstract levels of perceptions, the more stable the value perceptions may be. Investigating the content of the value dimensions involves value as subjective and relative, and in this respect value perceptions are not seen as rational. Accordingly, the investigation of the content results in aspects on a more detailed level. The scope and content of the value dimensions are discussed in more detail in subchapters 4.1 and 4.2. The performance and effect of the attributes, such as customer behaviour in terms of purchase intentions or word-of-mouth is excluded from this study.

1.5. Contribution of the study

In this study perceptions of the service environment are conceptualised with temporal and spatial elements and it is suggested that they are dimensions in customer perceived value. Although investigating customer perceived value in a specific context of technology-based self-services, the findings are argued to be relevant on a broader level. The proposed framework based on four value dimensions is expected to be applicable to both technology-based services as well as traditional interpersonal services. The reason for this is that these value dimensions are general and abstract. However, the importance and relevance of the value dimensions is a matter of degree depending on the service setting and customer characteristics.

By using ideas from earlier research and extending extant service models, it is proposed that technical, functional, temporal and spatial dimensions influence customer perceived value. In doing this, time and location are placed on the same level as the process and outcome of a service delivery, and hence they are proposed to be value dimensions. As discussed in more detail in the literature review, two extensively used models are

integrated and broadened. The models used are the benefit and sacrifice trade-off model of perceived value (Monroe 1990; Zeithaml 1988) and the perceived service quality model (Grönroos 1982). The final theoretical conceptualisation is a result of an iterative process between theoretical structures, empirical findings and methodological underpinnings. These elements enable a sufficient support for the customer perceived value model as the parts in the model are supported by the theoretical and empirical findings.

1.6. The structure of the thesis

As is depicted in Figure 4 the purpose presented previously in this chapter has both theoretical and practical relevance and the findings are developed as a result from an iterative process between deduction and induction. Following the purpose to develop a framework for understanding customer perceived value, a pilot study and a literature review are conducted. Because of the research interest in customer perceived value, the literature review includes service management research with particular attention to service quality and value from a customer perspective. Four value dimensions based on benefit and sacrifice components were identified in this first literature review. This preliminary conceptualisation forms the frame of reference that defines the scope of further analysis. The study purpose also influenced the empirical study design in the sense that it framed the context in which the study was conducted. Because of the evident influence of technology on value creation, a technology-based service context was chosen for empirical study.

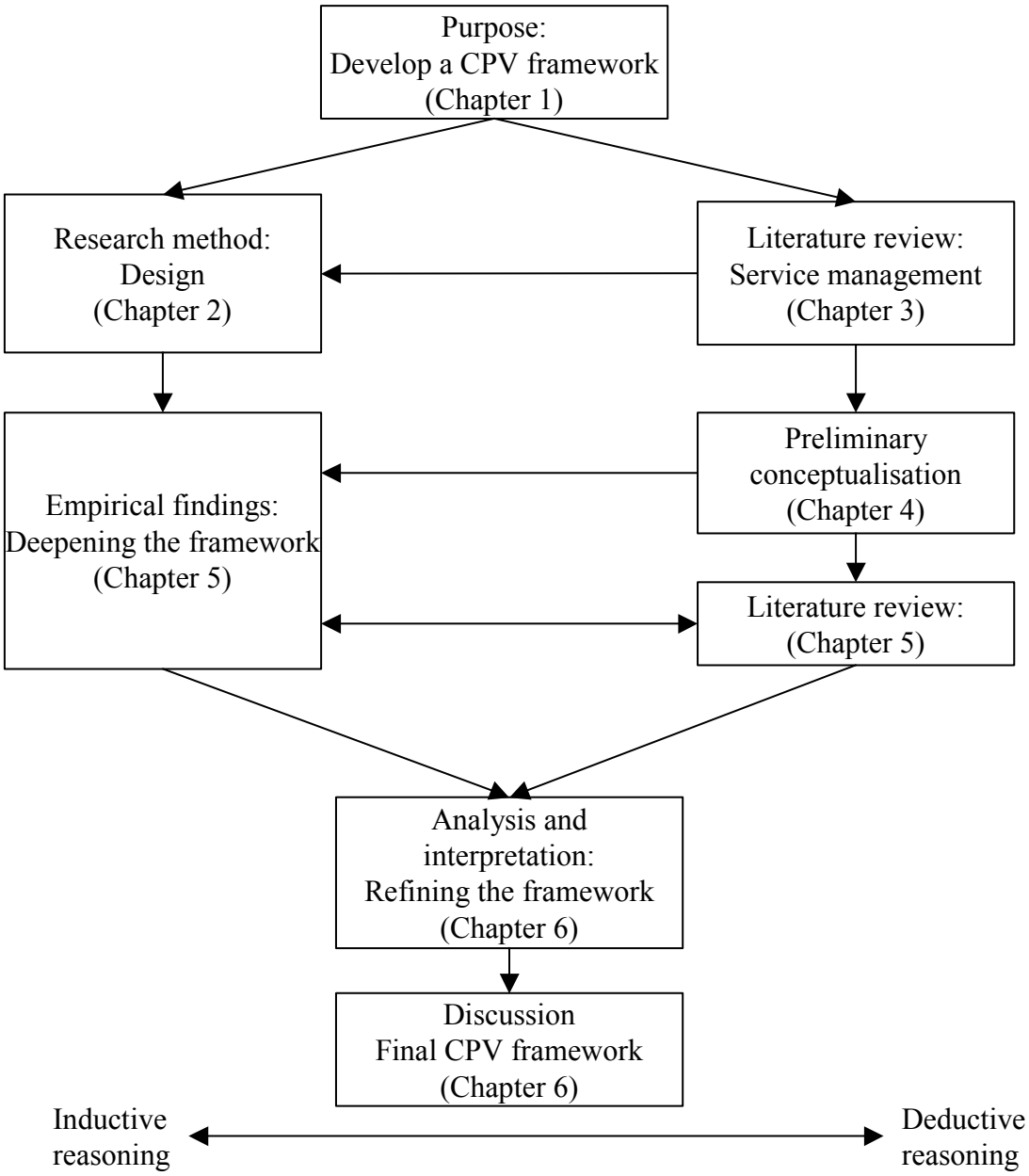

Figure 4: Research strategy employed in this study

A pilot study was conducted after the initial literature review to explore the significance of the four value dimensions. It was found that the proposed value dimensions were indeed relevant and that the research design was suitable for exploring them. The pilot study and the main study are interconnected in the sense that the same research design was used with some modifications. Modifications were made in order to improve the research design. In other words, the literature review is used to create a preliminary conceptualisation, it is tested in a pilot study, the findings of the pilot study are used to develop the research design, and the framework is further explored empirically in the main study. The findings from the main study are used to create a final theoretical conceptualisation.

Then in the final theoretical conceptualisation a more detailed perspective is taken on customer perceived value where input is taken from both the empirical findings and an additional literature review. The empirical findings from the main study are linked to a

follow-up literature review where categories found in the empirical data are compared to extant attributes and categories. The preliminary conceptualisation is also used to guide the literature review. These empirical and theoretical analyses are then used to deepen the preliminary conceptualisation and to develop a final theoretical conceptualisation.

The final theoretical conceptualisation forms a frame of analysis and a tool for exploring customer perceived value. It is based on a broader perspective, and moves from a detailed conceptualisation to a more general application of the value dimensions. This research strategy thus means that the thesis is gradually moving towards a more detailed presentation of the theoretical conceptualisation and then concluding with a broader perspective, which creates an understanding on how the theoretical conceptualisation emerges in an abductive manner from both theory and practice.

The thesis is divided into six main chapters. In Chapter one, the reader was introduced to the research topic and the motives for conducting the research. The purpose of the study was presented as well as the delimitations, the positioning of the study and the key theoretical concepts. Chapter two discusses methodological issues concerning the study design. First the research approach is presented by describing the research process in terms of preunderstanding, abductive logic and mixed methodology. Also the empirical setting and choice of respondents are discussed. Then secondly the process of developing the conceptual framework is presented by describing the literature review. It is followed by a discussion on how the conceptualisation was deepened with two empirical studies. It includes a presentation of the data collection and analysis.

Extant research on the concept of value is reviewed in Chapter three. It includes a discussion of the perspective of customer perceived value taken by the author and presents relevant theoretical aspects influencing the development of the theoretical conceptualisation. Concepts such as trade-offs, service quality, service environment, e-service quality and relationship quality are discussed.

In Chapter four, the theoretical conceptualisation is developed by building on ideas from literature on customer perceived value and service quality. Two main models are used as a basic foundation – the trade-off model of value (Zeithaml 1988) and technical/functional service quality model (Grönroos 1982) because they have been extensively used (Brady and Cronin Jr. 2001; Mels et al. 1997; Woodruff and Gardial 1996). This conceptualisation is the starting point for the empirical study and it is further explored in the empirical study and developed into a conclusive conceptualisation. The argument is that temporal and spatial dimensions create different foundations for customer perceived value in addition to the traditional value dimensions of technical and functional elements. It is proposed that customer perceived value is based on technical, functional, time and spatial dimensions. This forms the preliminary conceptualisation of customer perceived value that is based on contextual elements.

The empirical results of the study are presented in Chapter five in order to deepen the theoretical conceptualisation. More specifically, by analysing online services, the scope and content of the value dimensions are described. An additional literature review is conducted to substantiate the empirical findings. The goal is to substantiate and modify the theoretical conceptualisation.

The sixth and final chapter includes a discussion on implications of the study for research and management. First, the findings from the study are discussed and summarised. Then secondly, theoretical, empirical and methodological contributions are discussed followed by a critical review of the study. Thirdly, suggestions for future research evolving from this study are given. In conclusion, managerial implications are discussed.

2. RESEARCH STRATEGY

In this chapter the theoretical and methodological considerations related to the research process are presented. The chapter begins with a discussion of the methodological underpinning used in carrying out the study. The research approach is reflected upon by illustrating the methodological and empirical setting. This is followed by a discussion on how the conceptual framework is first developed through the literature review and pilot study and then deepened through the main data collection and analysis.

2.1. Research approach

In this subchapter the research approach used in this study is described. As depicted in Figure 4 in the previous chapter, this study is based on the notion that ideas are generated from empirical and theoretical sources in a parallel manner in order to create the final conceptual framework. The research follows the logic of abductive reasoning that involves an iterative process between inductive and deductive reasoning. The role of the deductive phase is to evaluate the importance of the value dimensions, whereas the goal of the inductive phase is to substantiate the content of each value dimension. It starts from the purpose of the study through the pilot study and literature review and through the preliminary conceptualisation and main study to the final conceptualisation. Another fundamental starting point discussed below is that the study is based on a mixed method approach that combines qualitative and quantitative research methods and techniques.

2.1.1. Preunderstanding

This study was conducted at the research centre CERS, Center for Relationship Marketing and Service Management, associated with the Department of Marketing and Corporate Geography at the Swedish School of Economics and Business Administration. The marketing discipline that dominates the research conducted at this research centre is service management and relationship marketing based on the Nordic School approach.[5] This research tradition has resulted in conceptual development mainly focused on service management and relationship marketing. The fundamental starting point of the Nordic School is that service management is not limited to existing conceptualisations and norms and that by using exploratory research new marketing frameworks for services may be developed.

2.1.2. Abductive logic

The research approach is based on abductive logic, which means that the conceptualisation was developed through an iterative process (Spiggle 1994) between induction and deduction. This approach is frequently used in research at the Nordic School to logically generate and discover hypotheses and findings (e.g. Holmlund 1997;

[5] For a review on the major contributions from the Nordic School of Service Management see for example Grönroos, Christian (1991), "Scandinavian management and the Nordic School of Services - Contributions to service management and quality," International Journal of Service Industry Management, 2 (3), 17-25.

Lindberg-Repo 2001; Roos 1998; Voima 2001). Abduction refers to the logical analysis that generates new sensitising concepts or hypotheses that are tested and confirmed by the empirical data (Patton 2002), as depicted in Table 3.

Table 3: Abductive logic

Induction	**← Abduction →**	**Deduction**
"This is commonly a statement whose truth or falsity is made more probable by the accumulation of confirming evidence (a posteriori: based on experience) – referring to instances of reasoning in which statements are made about a phenomenon based on observation of instances of that phenomenon. It consists in arguing that because all instances of *a* so far observed have the property of *b*, all further observations of *a* will also have the property of *b*." (Hart 1998:82)	Logical generation and discovery of hypotheses and findings (Patton 2002:470)	"It is commonly a statement or theory whose truth or falsity is known in advance of experience or observation (a priori: prior to experience) – referring to instances of reasoning in which the conclusion follows from the premises. Deduction (or inference) can proceed from the general to particular, general to general and particular to particular." (Hart 1998:82)

In line with abductive logic, this study takes a pragmatist approach that moves between induction and deduction - see Table 3. Patton (2002) argues that the extent to which a research approach is deductive or inductive varies along a continuum and thus implies that some research phases can be inductive while other can be more deductively oriented. The pragmatist approach discussed in the following section creates the basis for the mixed method model design.

2.1.3. Mixed method model design

Mixed model studies are products of the pragmatist approach and combine qualitative and quantitative approaches with inductive and deductive logic within different phases of the research process (Tashakkori and Teddlie 1998). It differs from positivism and frequently also from postpositivism that use quantitative methods with a deductive logic. It contrasts from constructivism at the other extreme that is based on qualitative methods with an inductive logic. Positivism seeks causes and effects while constructivism believes that all entities are simultaneously shaping each other, which makes it impossible to distinguish causes from effects.

Methods can be tactically mixed where needed and appropriate (Patton 2002). Mixed model studies use simultaneously both types of data collection, i.e. quantitative and qualitative, and both types of data analysis, i.e. statistical and qualitative analysis (Tashakkori and Teddlie 1998).

> "Being pragmatic allows one to eschew methodological orthodoxy in factor of *methodological appropriateness* as the primary criterion for judging methodological quality, recognizing that different methods are appropriate for different situations" (Patton 2002:72, emphasis in original)

From an axiological and ontological perspective, the pragmatist approach lies somewhere between postpositivism and constructivism (Tashakkori and Teddlie 1998).

Mixed model designs acknowledge that there may be causal relationships, but that they are difficult to pinpoint. In these designs the research question is considered to be more important than either the method used or the ontology. Pragmatism research is driven by anticipated consequences that are guided by the value systems of the researcher. The researcher decides which areas are important to study. An external reality is assumed to exist but the researcher chooses the explanations that best produce the desired outcomes. Compared to mixed designs, traditional monomethod research designs are limited exclusively to one of the predominant paradigms, positivism or constructivism. Postpositivist inquiry based on critical or transcendental realism involves values that may be controlled whereas constructivist inquiry based on relativism is value-bound.

The mixing can occur on different levels in the design of the research, the form of the data, or the data analysis. Single application within stages of the study is such that each approach appears in at least one stage of the study. Multiple application design on the other hand involves both methods in at least one stage of the study. The research design can be either exploratory with research questions and/or confirmatory with research hypotheses. Data collection and operations can be either qualitative, e.g. ethnographic interviews or nonstructured observations, and/or quantitative with structured interview protocols or observational rating scales. The data analysis and interpretation can also be mixed with statistical inferences and linkages and/or in-depth explanations.

Taking a pragmatist approach that matches concrete methods to specific research questions (Patton 2002), the empirical study reported here is based on a parallel mixed method model that consists of both quantitative and qualitative methods. This multiple application design is a combination of qualitative and quantitative data collection, data analysis and inference in parallel form. The research design consisted of research questions (qualitative) with methodological expectations (quantitative). For example, the main research question hypothesised the relevance of time and location with the aim of measuring the importance of time and location. The quantitative part of the data collection consisted of a conjoint task that provided customer utility estimates on the value dimensions and a questionnaire that provided background information on the respondents. The qualitative part of the data collection consisted of interview questions that provided deeper and more comprehensive information on the respondents' perceptions and motivations. As a consequence of the combination of quantitative and qualitative data collection techniques, data analysis was mixed in the respect that it involved both statistical and qualitative interpretation and inferences.

The data collection methods are discussed in more detail in subchapter 2.3. However, it is important to note that considering the aim of this study, i.e. to reconceptualise a framework for understanding customer perceived value, the aim of the quantitative part of the study was not to statistically measure and test constructs and relationships. The aim was to describe the nature of customer perceived value by exploring its content and scope. This meant that the findings from the quantitative part of the study were used to explore how the phenomenon can be operationalised, rather than to test and verify exact relationships.

2.1.4. Empirical setting

To understand the relative importance of time and location as value dimensions it was decided to base the study in the banking industry because banking services may vary

across different value dimensions. One technology-based self-service, online bill payment services, was chosen as a unit of analysis. The rationale for this is that because banking services are frequently performed by the customers and involve few or no interpersonal interactions, they enable service delivery in varying time and location. As a consequence, it is possible to find depth in the perceptions of the services concerning the temporal and spatial dimensions. In this section, the empirical setting is discussed, and it is shown that the chosen setting of banking services provides variation in the value dimensions.

Banking services are particularly interesting as an empirical setting for studying customer perceived value for a number of reasons. From a general socio-economic perspective, banking services are faced with important considerations. Customer perceived value, the perceived trade-off between benefits and sacrifice, is especially challenging for banking services because of the changing competitive environment of banks. Banks are currently downsizing and reducing costs by standardising services, closing down bank branches and shortening bank office hours. As a result, personal service at bank branches is moving towards self-service at ATMs, the Internet, or telephones. In other words, this technology environment creates challenges for creating value and may involve a shift in focus towards other elements of value than merely the service or interaction with the service employee.

Moreover, banking services are changing through the use of new service delivery channels, and banks are currently in the forefront of the developments of technology-based service delivery. Because bank services are information-based they are especially suitable to be delivered via a technology interface such as an automatic teller machine, Internet or mobile phone and these arm's length technology-based services are growing in use. For example, both the frequency and number of users of technology-based services are growing in importance particularly for transaction banking (Howcroft and Hamilton 2002) such as bill payments.

Because the service process can take many forms of technology-based alternatives it involves many time frames and can stretch over spatial boundaries. Technology enables interaction and consumption on multiple contact points and points in time. Self-service technologies (SST), where customers interact with companies through a variety of technology-based options (such as self-service machines, Internet, telephones or mobile devices) (Dabholkar 1996; Meuter et al. 2000) enable customers to independently perform the service act and customise the service (Bitner 2000; Bitner 1992; Bitner et al. 2000). It has even been suggested that technology is eliminating interpersonal service encounters altogether (Bitner et al. 2000). For example, strict opening hours are no longer limiting the service delivery and the individual can perform tasks and activities wherever and whenever wanted or needed by using technology. In this sense, technology-based services in particular enable a higher degree of convenience, immediacy, flexibility and choice independently of traditional day and night separations.

As a result, there is a growing customer interest towards gaining control of the time and location of banking activities. For example, Marr and Prendergast (1993) suggest that customers seek time and location utility by gaining access to banking services independently of temporal and spatial restrictions. More specifically, Lewis (1991) found that location and opening hours were perceived as two of the most important service quality variables for American bank customers. Similarly, the 24-hour-a-day

availability of the service is perceived as the most important attribute in adopting direct banking services (Howcroft and Hamilton 2002; Lockett and Littler 1997). Research has also pointed out limitations in the temporal dimension, for example inconvenient branch opening hours (Lewis 1991) or the spatial dimension of banking services, such as inconvenient location of a contact point to the service (Howcroft and Hamilton 2002) which may decrease perceived value and discourage the use of technology-based banking services.

However, not all banking services necessarily support the kind of flexibility in time and space that customers are seeking, which may improve customer perceived value. By looking at banking services from a temporal and spatial perspective, then different services can be identified, see Figure 5:

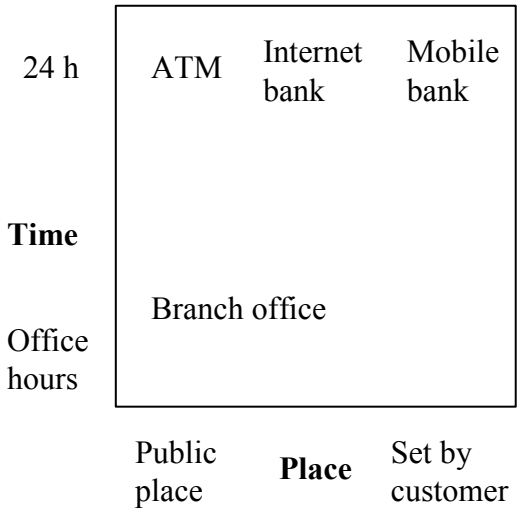

Figure 5: Temporally and spatially different banking services

Branch office services are the most temporally and spatially fixed offerings because they are provided at a specific public place, i.e. a bank, during limited office hours. Mobile bank services, on the other hand, can occur 24 hours a day wherever the individual is, depending obviously on the reliability of technology. These services differ from Internet bank services in that, although Internet banking services can occur irrespective of temporal limitations, they require a connection to an Internet-linked computer and thus are limited to a specific private or public place.

Looking at specific service contexts, a number of different technology-based self-services could be used as an empirical basis, such as ATMs, telephone services or online services, each providing a different combination of temporal and spatial flexibility. Technology-based banking services in general allow the customer to pay bills, transfer money and apply for credit cards outside office hours. Also, with e-mail and SMS, customers can send a request or question to a colleague in a different time zone and be sure that their request is registered at a suitable time. As such, the time element is less limiting and enables the individual to perform his activities whenever is relevant. Online banking services were used because in addition to providing temporal and spatial variation, they have existed for a reasonable long time in Finland and the use of them is large (Hankkila 2003). As such, the range of different types of online banking services is large. The result of these issues is that bill payment services may vary across the different value dimensions and hence form an interesting empirical context.

The type of online banking service is also important. Bill payment services are banking services that are extensively performed by customers themselves. In Finland Internet banking services are extensively used to pay bills and the number of users is expected to increase. For example, Nordea, one of Finland's leading banks has estimated that almost half of all bill payments are performed via the internet, and only 3 % are performed at branch offices (Hankkila 2003). The development is consistent with all other Finnish banks. This would indicate that the self-service delivery alternatives involve something that customers value, something that is not provided at bank branch offices.

In sum, bill payment services can be categorised as being:

- based on a standardised offering,
- delivered via multiple channels,
- offered on a continuum ranging from full service to self-service options, and
- created in technology-based or interpersonal interactions.

It is important to note that the study does not explore how customers use online bill payment services. Rather the focus is on understanding how the value dimensions are formed in the customers' subjective concept of reality. In order to do this, it is necessary to fix it to some reference point, and online bill payments are used for this. In other words, the emphasis in this study is on the relative effect of time and location in addition to process and outcome aspects in the mental process of customers.

2.1.5. Choice of respondents

An empirical study was conducted to explore perceptions of the value dimensions. It contained a pilot study and a main study. The choice of respondents in the two studies is discussed in this section.

A convenience sampling was used for the pilot study resulting in varying demographics and usage patterns. This is described in section 2.1.5. Because of this variation in the sample, it was decided that the main study would focus on a more specific context in order to explore whether a homogeneous sample of respondents using mainly one methods for their banking activities would result in different findings. This is discussed below.

The respondents in the main empirical study were chosen based on a purposeful sampling method of critical cases (Patton 2002). According to this approach, the sampling is based on information-richness, i.e. the choice is dependent on a sample that can advance the understanding of the research area. This sampling method used emphasised the generation of in-depth information on the phenomenon.

Critical case sampling is one method to get information-rich respondents (Patton 2002) and is based on a review and study of respondents that meet some predetermined criteria of importance. This sampling method assumes that a focus on a critical setting that involves some predetermined key dimensions may generate the best information.

> "Critical cases are those that can make a point quite dramatically or are, for some reason, particularly important for the scheme of things. A clue to the existence of a critical case is a statement to the effect that "if it happens there, it will happen anywhere" or vice versa "if it doesn't happen there, it won't happen anywhere". Another clue to the existence of a critical case

> is a key informant observation to the effect that "if that group is having problems, then we can be sure all the groups are having problems." (Patton 2002:236)

A disadvantage of this method is that it may restrict the information to the very narrow and specific set of worldviews that the sample holds. However, considering that the aim was to focus on the existence and form of the phenomenon, it was felt that the sampling method was appropriate if it revealed the phenomenon even in a focused sample. Also, the sampling of the pilot study was less focused and provided a broader focus.

Use of technology and age has been found to impact attitudes towards self-services. Young people and people using technology-based services were seen as particularly interesting respondents. For example, young people have been found to be more optimistic and innovative regarding e-service (Colby and Parasuraman 2003; Parasuraman and Colby 2001). In banking services, the influence of experience on use of technology-based self-service alternatives has been argued by many researchers. For example, people who are more comfortable and feel more in control when using technology-based self-services are probably more likely to value such services more (Zhu et al. 2002). In general, young age, prior experience of computers and technology, as well as attitudes towards computers have been argued to influence both attitudes towards online banking and actual behaviour (Karjaluoto et al. 2002). More specifically, consumers between the ages of 26 and 35 have been shown to have the lowest preference for branch usage and to prefer self-services, whereas older consumers valued face-to-face contacts (Howcroft and Hamilton 2002). Also, people aged between 25 and 34 are the largest group of online bill payment users (Halonen 2003) Hence, young people and individuals using technology-based self-services seem to value something in these types of services. If this something is time and location, it would indicate that the temporal and spatial dimensions are potentially of importance in creating value. Technology-based self-service options such as Internet bank, ATMs or telephone banking allow individuals to perform banking activities almost without temporal and spatial limitations. This would indicate that if the temporal and spatial dimensions are value drivers, individuals using these channels should value time and location to some extent. These individuals have actively chosen to conduct their banking activities via these electronic channels over interpersonal banking services.

Respondents were chosen on the above-mentioned criteria, i.e. their age and their usage of Internet banking services. Two techniques were used to choose the respondents. Initially, the first few respondents were chosen from the researcher's own social network, but additionally snowball sampling was used where each respondent was asked to name another respondent that might offer other interesting opinions. In this way, it was perceived that the negative outcome of using familiar respondents would diminish, as the following respondents were unfamiliar to the researcher. At the same time, an assistant who was briefed on the research area recruited respondents from a business school. These respondents could be either part-time or fulltime students; however, a balanced number of students and working individuals was aimed at because they could be assumed to have varying levels of freedom in terms of time and energy. This choice was made in order to avoid having only students that have as much time on their hands as they want, which could distort the findings. In order to avoid having a bias of respondents who knew too much of the research area, marketing students were excluded from the sample.

2.1.6. Descriptive presentation of the sample

The respondents included in the study are described in this section. This involves a presentation on the sample demographics as well as the respondents' technology readiness, attitude towards self-service alternatives and the perceived time availability. The data analysis is discussed further in section 2.3.5.

The pilot study included a total sample of 40 respondents between 19 and 76 years (median 27, mode 27) with 45 % women and 55 % men. The respondents used different methods for conducting their bank activities and the most frequent methods were the Internet, ATMs, and direct debits. Many respondents used two methods, and often complemented the Internet with ATM or direct debits.

The age dispersion of the main sample of 37 respondents was between 20 and 33 with a median of 27 and a mode of 27. Of the sample, 54 % were female and 46 % were male, 68 % were employed and 57 % were students. While the number of persons per household ranged from one to four, 38 % lived in one-person households, and 43 % in two-person households. More than half of the respondents had 5-8 bills to pay per month (58 %), and 30 % had 0-4 monthly bills. Of these monthly bills, most of the respondents had 3-5 regular bill payments (median 4, mode 4).

All except one respondent used the Internet as a first alternative to perform their bank activities. However, the respondent that did not use the Internet as a primary method was familiar with it and used another self-service alternative, i.e. a telephone bank, for bank activities. The use of this type of telephone bank was similar to the use of the online bank and, in this respect, it was concluded that this respondent could be included in the sample.[6] 76 % of the respondents used other alternative methods for bill payment activities, and of the alternatives, direct debits were the most frequently used: 38% used direct debits and 19 % used ATMs as second method for bill payments. Interestingly, only 5% used the bank branch office to pay bills. 11% had a third alternative method for bill payments, of which ATM was the most preferred.

The respondents were highly technology ready, relatively time pressed and preferred self-service alternatives. 38 % of the respondents were in the "highly techno-ready" group, and 43 % in the "somewhat techno-ready" group. The rest were in the "average" group. The average technology readiness was 5.35 (median and mode 5) ranging from 4 to 14. Also the perceived time pressure and preference toward self-service alternatives were high. The scores for time pressure ranged from between 6 and 15 resulting in an average perceived time pressure for the respondents of 11. The preference toward self-service alternatives ranged from 16 to 28 with an average of 22.

2.2. Creating a conceptual framework

The conceptual framework is based on a literature review and an initial study and involves an iterative process with the aim of creating a preliminary conceptual framework. The objective with the conceptual framework is to redefine and expand the scope of customer perceived value and to incorporate new value dimensions.

[6] In fact, based on the data analysis this respondent did not differ from the other respondents; rather, the same types of responses were given.

This study begins with a literature review within the service management area (Chapter 3). Different parts in the extant literature were reviewed separately, followed by a short discussion at the end of each subchapter. The literature review was concluded with a critical review on implications of existing theory for this study. The basic idea of the literature review is that although it is basically a separate phase, it is one element in an intertwined process between the empirical study and the theoretical structures.

Following the literature review, the customer perceived value model was created (chapter 4). The aim of this process was to create a tentative conceptual framework that would form the foundation for the empirical study. Insight was taken from both empirical and theoretical parts. In this respect, the findings from the literature review were evaluated against the initial knowledge emerging from the pre-understanding and the findings from the pilot study. The initial literature showed that the importance of time and location was not sufficiently represented in extant service quality models. It was implicitly recognised but it required a broader review on other service management models to explore how time and location influence customer behaviour and perceptions. In the literature review chapter, existing theories are compared and analysed from the author's perspective. By using different parts of existing theory, a new conceptualisation can be introduced that integrates and combines them in a new form. In practice this meant that value and quality models were combined to form a new conceptual framework. In the empirical part, this preliminary conceptual framework was deepened. This process is discussed in the following subchapter.

2.3. Deepening the conceptual framework

The main empirical study in terms of the data collection and data analysis is presented in this subchapter. The objective of the empirical study was to deepen the proposed conceptual framework and to establish a final conceptual framework for customer perceived value. The data collection process is discussed with a detailed presentation on the design and use of the methods. The first section describes the data collection on a general level. Thereafter, each of the elements in the mixed method design of the study is presented separately, starting with a review of the conjoint task, followed by discussions on the interview and additional information collection. Issues relating to data analysis and data reporting conclude the chapter.

2.3.1. Overview of the data collection

Three issues were relevant to the development process of the empirical design. First, the technical and functional service quality model (Grönroos 1982) was chosen as a starting point for the theoretical conceptualisation. Secondly, the definitions of the technical and functional dimensions were specified so that they would better fit the current focus. Finally, in doing this, by searching existing literature it was possible to substantiate the suggested definitions. This support was beneficial because the four proposed value dimensions were operationalised by only one attribute each.

A pilot study was conducted to test the conceptualisation based on the literature review. The aim with this initial study was to increase the understanding of the nature and relevance of the value dimensions. Additionally, interview questions relating to the value dimensions were included. The pilot study was conducted among a convenience

sample of 40 respondents in February-March 2002. Each interview lasted approximately 20 minutes. Senior marketing students briefed on the topic and instructed to interview a specific number of respondents collected the data among relatives and friends. The research design of the pilot study was based on the same method as in the main study, i.e. a mixed method technique was used. Consequently, the pilot study included qualitative parts, i.e. interview questions, and quantitative parts, i.e. a conjoint task. Differences between the pilot study and main study exist are discussed in the following sections.

Considering the encouraging results of the exploratory pilot study it was relevant to continue investigating the value dimensions and to deepen the understanding of the scope and content of value perceptions. Based on the research design in the pilot study, an empirical study was designed and conducted to further refine and elaborate the conceptual framework. The choice to conduct a second exploratory study that offered more detailed data was motivated when considering that two new dimensions were included that had not previously been conceptualised. This study thus aimed at exploring perceptions on the value dimensions and it was built on the first study, with modifications made to further elaborate and explain underlying motivations. The study was conducted by the researcher with 37 respondents in December 2002 – May 2003. Each interview session lasted between 45 minutes and 1.5 hours.

The data collection methods that were used and their specific focus are summarised in Table 4 below. The complete interview guide and questionnaire are included in APPENDIX 1 and APPENDIX 2. Each interview session started with the questionnaire including demographics, technology readiness and general orientation in order to familiarise the respondent with the research area without revealing the research objective. Then followed general interview questions that aimed at getting initial understanding on the perceptions of the value dimensions. Thereafter followed the conjoint task, where the respondents were asked to rank order the conjoint profiles. The interview session was concluded with specific questions on how and why the respondent had rank ordered the conjoint profiles. If asked, the research objective was revealed after this stage. For simplicity, the data collection process is described as consisting of three separate phases.

Table 4: Overview of the data collection methods

DATA COLLECTION PHASE	METHOD	CONTENT	DESCRIPTION
Background information	Questionnaire	Demographics Technology readiness Customer general orientation towards banking services	Age, gender, household size, number of payments Perceptions of technology Perceptions of self-service vs. personal service
Payment process	Conjoint task	Importance of each value dimension	Ranking of combinations of value dimensions
Motives and reasons	Interview	General discussion of payment process Discussion about activities and issues related to payments Overall goals with financial activities Importance of value dimensions	What, how, when, where Time, money, knowledge, physical resources Convenience, social interaction, savings How the value dimensions are perceived

The conjoint task obviously represented one fundamental data collection method as it measured the importance of each value dimension. It illustrates quantitatively what the customer values in specific bill payment services. However, the interviews and questionnaire were imperative elements in the data collection to explain and elaborate the differences in the perceptions of the value dimensions. The questionnaire emphasised the customer's perceptions of and behaviour towards banking, i.e. focused on a general level on the customer's tendency towards banking. It thus provides a profile of each respondent. The interview that concludes the data collection involved specific reasons and motives for valuing different dimensions of the service. The design of the conjoint task is discussed in detail in the following section. It is followed by a presentation of the interview guide as well as a discussion on the questionnaire.

2.3.2. The conjoint task

A conjoint task was conducted to gain information about and specific utility estimates of the respondents' specific trade-offs in relation to the value dimensions. The value dimensions were operationalised with four aspects linked in the theoretical conceptualisation that have been used in service marketing and consumer behaviour research and that especially characterise technology-based services. This design was applied in a pilot study, resulting in modifications in the attribute levels, and the modified design was tested with four individuals in order to ensure that it was usable.

Conjoint analysis is a decompositional method for estimating the structure of respondents' preferences in relation to the overall evaluations of a set of predetermined alternatives (Green and Srinivasan 1978). It gives a specific illustration on how the customer behaves in specific contexts and in respect to different predetermined situations. It is a method that provides utility estimates of different attributes by having the respondent evaluate different levels of the attributes. The conjoint task has been argued to be an important method for exploring and measuring consumer evaluations of services and service quality (Carman 2000; e.g. DeSarbo et al. 1994; Green and

Srinivasan 1978; Gustafsson et al. 1999; Oppewal and Vriens 2000; Ostrom and Iacobucci 1995; Strandvik 1994).

Conjoint analysis, although ultimately a quantitative approach, is also highly exploratory. Conjoint analysis is based on conceptual assumptions and is theory-driven in its design, estimation and interpretation (Hair et al. 1998). This makes it essential to ground the conjoint design in thorough theoretical analysis. The assumptions of theoretical constructs must be known before the research design is created. In this study, conjoint analysis is used to explore how the phenomenon can be operationalised, rather than to test and verify exact relationships.

An advantage of a conjoint task is that it enables a comparison of the different value dimensions and a measurement of the relative importance in quantitative terms. This indirect measurement technique provides implicit importance weights. In other words, in this study the respondents evaluated the perceived trade-off between different profiles consisting of descriptions of attributes on different levels, rather than explicitly evaluating the service. For example, it may be difficult for the respondent to compare and rate the attributes of an offering without choosing the best alternative of all attributes. But when the respondent has to make a trade-off between two value dimensions, the one that weighs the most, i.e. the dimension that gives more value for the respondent, is preferred. When rating the dimensions directly it would be difficult to see which dimension is more important because they may all be perceived as important. Also, a respondent might say that one dimension is important in the qualitative interview but still when in a trade-off situation would prefer another dimension to it.

The conjoint analysis involves a seven-phase process (Gustafsson et al. 2000):

1. Selection of preference function (Partial, ideal vector or ideal point model)
2. Selection of data collection method (Profiles methods, two-factor method or ACA)
3. Selection of data collection design (Full profile or reduced design)
4. Selection of the way the stimuli are presented (verbal or visual)
5. Selection of the data collection procedure (person-to-person interview, mail survey or computer interview)
6. Selection of the method for evaluating the stimuli (metric or non-metric procedure)
7. Estimation of benefit values (methods for metric or non-metric scale levels)

In this study, the conjoint design emerged through the pilot study and the conceptual framework based on the literature review. Moreover, before the main study, a small-scale test of the research design was conducted among a convenience sample of four individuals. It supported the research design. The design and process of the study are subsequently discussed.

2.3.2.1. Basic model form and method for data collection

The presentation method used to describe the stimuli was a full-profile method where each stimulus is described separately consisting of all attributes and their levels (Hair et al. 1998). The respondent evaluated different combinations of each attribute level as described by the stimuli. Another approach, the trade-off matrix procedure, would have included assessments of combinations of two attributes at a time. This approach was not used, because it seems to lack in realism, as it does not involve all relevant attributes,

and more importantly, it often involves too large a number of judgements (Green 1984). The attributes and their levels used in the pilot and main study are discussed further below.

The conjoint task in the pilot study included nine profiles. A full profile alternative of the conjoint task with four attributes and two-three levels would include 36 possible combinations (2*3*2*3). However, using a fractional factorial design it was possible to reduce the number of profiles to nine. No holdout profiles were included.

Using the full profile method also in the main study, the conjoint task with four attributes and three levels would include 81 possible combinations (3*3*3*3). By choosing the additive composition rule, these combinations could then be reduced to 9 stimuli using a fractional factorial design obtained by the optimising module in SPSS. This is a useful procedure to facilitate the conjoint task, but results in additive main-effect utilities only. This means that potential independent interaction effects between attributes cannot be accounted for. However, following the conclusion of Carman (2000) that technical and functional dimensions are segregate, it was assumed that there were no interaction effects between the attributes. Also by relating attributes against a clear reference point such as an experienced service, attributes are defined as specifically as possible and thus if there potentially is some interattribute correlation, it may be minimised (Hair et al. 1998). Hence, the nine combinations represented all 81 possible stimuli and enabled the measurement of part-worth estimates for all profiles, even those that were not used in the data collection.

Validation stimuli (also called holdout profiles) may be used as holdouts to assess the validity and reliability of the estimates (Hair et al. 1998). In other words, some profiles are not used in the estimation of part-worths with the rest of the profiles in the conjoint task. Instead, the estimated part-worths are used to estimate the preference for the holdout stimuli. The respondents will not see a difference between the actual stimuli and the validation stimuli because they are included in the actual conjoint task and presented in the same manner. Three holdout profiles were randomly chosen by SPSS/Conjoint and they were included in the conjoint task.

The full-profile descriptions allows for estimation of the orthogonal main effect for each attribute (Hair et al. 1998). The design used was optimal also because it was balanced in the sense that each level appears the same number of times. No part-worth relationships, i.e. shape of the part-worth estimates for each attribute level such as linear, ideal or anti-ideal relationships were decided upon beforehand. These resulting separate estimates for each attribute meant that it was possible to see the added (or decreased) utility for each attribute level without posing predetermined constraints on the estimates such as linearity. The preferences were measured with a rank-order task, where the respondent ranked the stimuli from most to least preferred. The strength with the complete rank-order procedure is that it contains a great deal of information and is productive for the time spent with the respondent. It is also ideal to measure individual differences. (Weller and Romney 1988)

The basic conjoint task consisted of nine profiles and three validation profiles characterised by four attributes on three levels.

Attributes	Technical dimension – What Functional dimension – How Temporal dimension – When Spatial dimension – Where
Levels	More = more (less) than the current service Equal = equal to the current service Less = less (more) than the current service
12 payment profiles that the respondents placed in order of preference (9 actual profiles and 3 validation profiles)	

Figure 6: The basic conjoint task

The design is critically evaluated in the last chapter. This includes the potential correlation between the attributes, the different levels of abstraction for the attributes, the use of a reference service, and the design of the holdout profiles.

2.3.2.2. Attributes

The attributes of the conjoint task included the value dimensions based on a theoretical pre-understanding and were derived from the proposed theoretical conceptualisation of value. As such, four attributes in total were used to operationalise customer perceived value, namely technical, functional, spatial, and temporal value. Insight was also taken from knowledge on technology-based self-service options and it was based on a pre-understanding of banking services. The attributes as they were presented to the respondents were 1) possibility to choose different services (what, technical dimension), 2) customers' input in the service (how, functional dimension), 3) possibility to choose the time of service delivery (when, temporal dimension) and 4) possibility to choose the place of service delivery (where, spatial dimension). To simplify, the attributes are denoted in the text and tables as "what", "how", "when", and "where". The attributes were the same in both the pilot study and the conjoint study. All except the technical dimension functioned well in the pilot study and the follow-up interview questions indicated similar results. The basic operationalisation of all the attributes are discussed below.

The technical dimension (what) denoted the technical dimension. The ability to select different alternatives has been shown to be relevant for e-services. For example, Zeithaml, Parasuraman and Malhotra (2000) identified flexibility as an e-service quality factor that denoted the customer's choice to conduct the service as well as the knowledge of such options. Similarly, Liljander, van Riel and Pura (2002) elaborated this factor and raised the issue of service options referring to the option to choose from a fixed number of service alternatives. In the pilot study it was operationalised as "flexibility in service options". However, the findings from the pilot study interview implied that this operationalisation was ambiguous and the discussions showed that the respondents might have misunderstood it. The respondents seemed to incorporate temporal and spatial elements in this variable, rather than only focusing on the service outcome. This attribute needed further specification to better incorporate only service-specific elements, and not contextual elements. However, when considering the verbal description of the attribute in the conjoint profiles it was assumed that not all of the respondents may have misunderstood the dimension. Thus it was still perceived to be an important dimension and after revising it with a stricter definition it would better reflect

the intended meaning of the dimension. In the main study this dimension denoting service options, it was operationalised as the "ability to choose different service options". In this study, the technical dimension related to the respondents' possibility to choose among service options and it denoted how extensive the service is.

The functional dimension (how) was operationalised as the process and it referred to the level of customer involvement in the service delivery. Looking at service production as a continuum, services may be produced by firms, jointly by firms and customers, and by customers only (Bitner 1992). Similarly, Meuter and Bitner (1998) distinguished between self-service, joint production, and full service. Three different types of service delivery have been identified; automatic, self-service and human service (Lehtinen and Lehtinen 1991). Zeithaml, Parasuraman and Malhotra (2000) suggested efficiency as a factor of e-service quality to denote the level of customer input needed in providing necessary information. In this study, the functional dimension denoted the "customer's effort in the service process". As such, the focus of it is shifted away in this study from the customer-service provider interaction towards the customer's activities in relation to the service process.

The temporal dimension (when) was described as the time of service delivery and it related to how much the customer is temporally bounded. Temporal flexibility, i.e. a result of latitude in activities, has been conceptualised as a continuum ranging from complete latitude, through some latitude to no latitude (Hendrix et al. 1979). Considering that technology-based self-service options are available almost independently of temporal boundaries, this issue is particularly relevant. In this study, the dimension denoted temporal freedom, i.e. the "ability to choose the time to conduct the service".

The spatial dimension (where) denoted the place of service delivery and how much the customer is spatially limited in the service delivery. Dabholkar (1994) concluded that the service delivery for technology-based self-service options could occur at the service site, on a neutral site, or at customer's site. This conceptualisation is based on and similar to Lovelock's (1983) conclusions. Customer's site involves home or work when considering that technology-based services are based on technology that is fixed to a location, such as computers. Customer's site can further be conceptualised as being spatially flexible, i.e. occur wherever, such as on the move, particularly when taking into account portable devices such as mobile phones. This study involved this broader meaning of the location with availability of portable mobile devices for service delivery and denoted spatial freedom, i.e. the respondent's "possibility to choose the place to perform the service".

It was decided not to focus on price as a sacrifice; the assumption was that the price level was fixed. It was also assumed that the value dimensions include other forms of sacrifice that is implicitly considered. In other words, benefit and sacrifice are seen as integrated in the design on the value dimensions. The benefit and sacrifice of each dimension are not separated in this study; instead the aim is to explore the value dimensions on a higher level of abstraction.

2.3.2.3. Attribute levels

One important issue concerning the conjoint task is to develop levels that could be easily understood by the respondents (Hair et al. 1998). Although the attributes are well grounded in both practice and theory and included concrete features (levels) of the different service attributes, there was always a risk that the profiles become too detailed.

The attribute levels in the pilot study were operationalised in the following manner. The levels of the attributes were created through reasoning based on existing knowledge of banking services and consisted of two levels for the technical and temporal dimensions and three levels for the functional and spatial dimensions. The technical dimension was operationalised as *flexibility* on two levels: "all parts of the payment are flexible" and "no parts of the payment are flexible". Due dates was included as an example of what was meant with flexible service parts. The functional dimension related to the *input in the payment* and consisted of three levels: no customer input, equal input from customer and bank, and self-service. The levels were specified as "The bank does the large part of the payment (e.g. direct debit)", "You and the bank do approximately the same amount", and "You perform the service yourself". The temporal dimension, the *time of service delivery*, had two levels, "anytime" and "office hours", and was specified as "The payment is performed whenever" and "The payment is performed during office hours". The spatial dimension, the *location of service delivery*, consisted of three levels: at specific place in connection with the bank, at homeground, and anywhere. It was specified as "The contact to the bank occurs at a fixed public place (e.g. bank or ATM)", "The contact with the bank occurs at homeground (home, office or corresponding)", and "The contact with the bank occurs wherever". A description and example of profiles used in the pilot study can be found in APPENDIX 3 and APPENDIX 4.

The findings from the pilot study indicated that some modifications in the attribute levels were necessary for the main study. Although the individual attribute levels were clear, the profiles with variations in levels became somewhat complex and difficult for the respondents to visualise. This was much due to the fact that all the levels for each attribute were different. Also, the profiles were sometimes comparable to an existing service, but sometimes they were highly hypothetical, which meant that the evaluation of the profiles could differ.[7] It was thus assumed that it would be easier to compare different attribute levels in relation to a service that the respondent currently was using.

Consequently, for the main study it was decided to operationalise the attribute levels on a more abstract level and anchor the reference point in an experienced service, i.e. to relate the profile descriptions to a service that the respondents were currently using. Monroe (1990) argued that consumers use reference prices stored in memory to judge the price at hand. Using this analogue, it may be assumed that respondents would more easily evaluate the services on the four attributes if they related the evaluation to their perceptions of the service they currently were using. Following Liljander and Strandvik (1993) attribute levels were specified relative to a reference service, rather than given objective levels. The benefit of using a reference service is that it is behaviourally and contextually anchored in the respondent's consumption pattern (Liljander and Strandvik 1993) and the technique has been used in a number of conjoint analysis studies (e.g.

[7] The findings from the pilot study that inferred changes and modifications in the conjoint design for the main study are discussed in more detail in subchapter 5.1.

Birtwistle et al. 1998; DeSarbo et al. 1994; Strandvik 1994). Payment services were chosen as a unit of analysis because they are services that most individuals have used and are using frequently. The current payment service that each individual used was considered as the reference service. In practice this meant that the respondent compared each profile to the current service that they were using and rank ordered the profiles in order of preference.

For the main conjoint study, the attributes were operationalised with the same levels for all the attributes. As discussed further below, a reference point was taken in the service that the respondent is currently using. The levels were operationalised as "more than", "the same as" and "less than" compared to the current service that the respondent is using. For example, in the main study it was relevant to operationalise the functional dimension as customers' level of input in the service delivery without specifying the level of input from the service provider. In other words, the levels of the functional dimension included only different variations of customer input. Also, in the main study, the focus of the spatial dimension can be more on the amount of flexibility in choosing the location of service delivery, rather than limiting the levels to specific locations. A small pilot test of the new attribute levels was conducted and it showed that the respondents were able to imagine the levels when compared to a service that they had experienced.

This level design has several consequences. First, it is assumed per se that level 3 for the technical, temporal and spatial dimensions receives higher utility, while level 1 receives lower utility. The reason for this is that level 1 involves less flexibility in service options, time and location. Secondly, for the functional dimension, the situation is the opposite. Level 1 involves higher utility while level 3 involves lower utility, because more input (level 3) is assumed to involve higher sacrifice than less input (level 1). For simplicity, in the analysis the results for the functional dimension are reversed. Thirdly, because the levels are designed this way, it is assumed that the perceived utility would be linear.

2.3.2.4. Profiles used in the study

The profiles used in the conjoint task are listed in Table 5. The profiles numbered 1-9 are part of the optimised fractional design that was used to estimate the utilities. The last three profiles (10-12) are holdout profiles that were used to check the reliability of the results. They were randomly chosen in the conjoint design.

Table 5: Profiles used in the study

Profile	What	How	When	Where
1	Same	More	Less	Same
2	Less	Same	Less	More
3	Same	Same	More	Less
4	Less	Less	More	Same
5	Less	More	Same	Less
6	More	Same	Same	Same
7	More	More	More	More
8	Same	Less	Same	More
9	More	Less	Less	Less
10 H	Less	Less	Same	More
11 H	Same	Same	Same	Less
12 H	More	More	Same	Same

H= Holdout profiles (randomly chosen)

Figure 7 illustrates an example of a profile that was used in the conjoint task. All profiles contained the same four sentences that described the four value dimensions. Only the some words differed for the profiles, and these were highlighted so that it would be easier for the respondents to see the differences. The profile depicted below describes a service that is equally extensive as the service that the respondent is currently using. The respondent's input in the service delivery is larger, but involves a smaller possibility to choose the time of service delivery. On the other hand, the possibility to choose the place of service delivery is equal compared to that of the service that the respondent is currently using.

Profile A
I have **neither larger nor smaller** possibility to choose different services My own input in the service is **larger** I have **smaller** possibility to choose time of service delivery I have **neither larger nor smaller** possibility to choose place of service delivery

Figure 7: Example of profiles used in the conjoint task

2.3.2.5. Implementation

The conjoint task was conducted as an interview situation where the respondents got verbal instructions on the conjoint task. The respondents were shown full profile descriptions that entailed complete descriptions of all attributes and their levels in a specific presentation. The respondents were asked to first arrange the profiles in two piles divided into the most preferred and least preferred profiles and then to sort the piles separately in order from most preferred to least preferred. In other words, they were to rank-order each profile from most preferred to least preferred by comparing the profiles to their experience of the current service that they are using. The respondents were asked to describe aloud the thoughts that arose from the sorting procedure. After sorting the profiles, the respondents were asked why they had sorted the profiles in such

an order. These questions in addition to a series of interview questions preceding the conjoint task are discussed below.

2.3.3. Interview questions

Semi-structured interviews were conducted to gain in-depth information about the customer's payment process and to complement the conjoint task with the compromises, tradeoffs and perceptions made in respect to the importance of the value dimensions. The conjoint task produced a specific illustration on the respondent's utility estimates of the value dimensions; however, it did not specify the reasons for the distribution of the perceived utility. The interviews reflected the choices and compromises made in relation to the evaluation of service profiles and provided insights into the aspects that affect the way the customer performs the payment activities. The findings were used to deepen the theoretical conceptualisation and describe the content in the value dimensions.

The pilot study included interview questions before and after the conjoint task and this was based on an interview guide. The interview before the conjoint task consisted of questions relating to the respondent's perceptions about paying bills, such as amount of payments, preferred payment technique etc. It also included background information and demographics. After these questions, the respondent was introduced to the conjoint task, with instructions and verbal information. After the conjoint task followed questions about perceptions of the four value dimensions including reasons why the respondent had sorted the profiles in the particular way.

The interview questions in the main study were based on an interview guide approach that lists questions or issues to be explored in the interview (Patton 2002). It was built on the interview guide in the pilot study. The advantage of using an interview guide is that it increases the comprehensiveness of the data and makes data collection more systematic and hence logical gaps in the data can be anticipated and closed. The drawback is that interesting areas may be omitted and questions may have complicated sequencing and wording. The interview guide that was used in this study is found in APPENDIX 1.

The interview in the main study started with a presentation of the study, but the focus and purpose of the study was not elaborated in too much detail. A broader presentation made it less likely that the respondents would emphasise too much the research interest in the temporal and spatial dimensions. The interview questions could be divided into two parts: one focusing on value on a general level and one on reasons for the perceived value. It was felt that the interview guide enabled a sufficient focus on relevant issues and facilitated the discussion. Yet the discussion was meant to be open and flexible and not too structured so that unexpected and interesting issues could emerge.

First, the respondent was asked questions concerning the preferred way to perform payment activities. These questions were open-ended and were not intended to lead the respondent into the importance of specific value dimensions. Rather, this part of the interview aimed at providing an overview on the respondent's overall perceptions of the experienced service. Another goal with these questions was to introduce the dimensions so that the respondent would be familiar with the line of thinking that was needed in the conjoint task. Yet the objective with the study was not revealed. Initially, respondents

were asked to describe the way they pay the bills and the reasons for using the specific service as well as the advantages and disadvantages. Often the respondents mentioned many of the value dimensions in this phase, making the transition to getting more detailed information on the perceptions of the value dimensions easier. Then, in the next phase, to get more detailed information on issues concerning the value dimensions, the respondent was also asked to reflect upon the service (service option) and the input in the service in relation to the service provider (input). Additionally, the respondent was asked to think about the time and location of the service delivery as well as the possibility to choose the time and location.

Second, after the conjoint task, the respondent was asked questions that elaborated the importance of the value dimensions. This phase was straightforward and aimed at probing into the underlying reasons for valuing different dimensions. It included specific questions to clarify the compromises and tradeoffs that were made in relation to the conjoint profiles. These questions resulted in an explanation of the reasons for valuing (or not valuing) each value dimension, with particular attention to time and location. More specifically, these questions concerned the perceived importance of service options, input, temporal choice and spatial choice.

2.3.4. Additional information

The interview session with the respondents started with a questionnaire that provided descriptive background information on the respondent. The goal with this questionnaire was to gain comparable and descriptive information on the sample. The first part of the questionnaire included information such as age, gender, household size, marital status, occupation and education (see APPENDIX 2). Although no formal hypothesis on the influence of demographic variables on the importance of the value dimensions were made, some tentative assumptions could be visualised. For example, it may be assumed that respondents with full time work or younger respondents would value time and location more as opposed to respondents that are keeping a household or older respondents. The reason for this assumption is that these persons would probably have less free time at hand, and thus would value it more.

The questionnaire also included questions on how respondents pay their bills. It included questions concerning the frequency of paying bills, and different payment methods that are used and the primary method for paying bills. This information would give some indication on the habits and usage of bill payment services, which was used to guide and facilitate the interview questions.

The second part of the questionnaire involved three scales that described the respondent's preference towards technology-based services. They were based on existing scales, but some minor modifications were done in one of the scales (the self-service scale) in order to emphasise banking services. Although the scales were not pre-tested it was assumed that they would work, considering that the modifications were only minor, as depicted in Table 6. A factor analysis testing the factor loadings was performed to validate the scales. This is discussed in section 2.3.5.3.

One scale measured the respondent's technology readiness, which was included based on the suggestion in existing research that the perceptions of technology impact the use of technology-based services. For example, Parasuraman and Grewal (2000) pointed to

the need to study the influence of technology readiness on quality and value perceptions. Karjaluoto (2002a) found that attitude towards computers is the most significant factor affecting the intention to use Internet banking. Parasuraman and Colby (2001) suggested that technology readiness, i.e. the tendency to embrace and use new technologies for attaining private and professional goals, affects the perceived value of technology-based services. They developed a measurement scale of technology readiness that shows that a technology-ready customer may perceive a technology-based product as more valuable than a customer with a lower technology-readiness index. In the scale, customers' technology readiness was measured in relation to assessments of 36 technology statements that concerned the use and perception of technology. The scale used in this study was a direct replication of the original technology readiness index with the exact wording and scale points. However, only the short version of the scale that included ten statements was used because its importance to the analysis was not that large and, because it was complemented by two other scales, it was considered to result in a tedious task if the complete scale was used.

However, technology-readiness does not necessarily mean that the customer prefers technology-based services. That is why the technology readiness index would only provide one aspect in the use of technology-based services. It seemed necessary to complement this technology readiness index with perceptions on the value of technology-based service delivery options. Attitudes towards self-service options have been found to be influenced by familiarity with computerised products (Dabholkar 1992). Hence, it was assumed that individuals that use technology-based services would prefer self-service options to interpersonal options. Also, time orientation and pressure have been found to indirectly affect service evaluations via service convenience (Berry et al. 2002). Accordingly, individuals using self-service options would presumably perceive themselves as highly time pressed. Hence, two other scales were included to measure respondents' attitudes towards self-service alternatives and perceived time availability. The scales with some modifications were based on existing research (Forman and Sriram 1991; Srinivasan and Ratchford 1991; Thornton and White 2001).

The first scale measured the perceived time availability and was based on a scale developed for a study on consumers' search efforts for automobiles (Srinivasan and Ratchford 1991). The items were used from this scale because, although not similar to the focus of this current study, the scale provided relevant items for time availability. The reason for this was that the items were general and did not specifically relate to the focus on consumer durables and search efforts. The objective with using this scale was rather to measure the perceived availability of time for service delivery processes. The items related to time availability were the only ones relevant as opposed to other constructs included in the original scale. The used items were directly operationalised with the original wording.

With the second scale the respondent's preference towards self-service alternatives or technology-based delivery options was measured. It was based on a scale on customer orientations toward convenience and confidence (Thornton and White 2001). This scale was originally developed to measure consumers' orientations towards financial distribution channels, which meant that the scale could be easily used as such. One modification was made on the convenience item, and it involved a specification of convenience as temporal and spatial flexibility. Four other items that measured technology, change, computer usage and knowledge were not used because of overlap with the technology readiness index. The item concerning measured personal service

was not used because of its overlap with the items that were used to measure self-service attitudes.

Additionally, three items were included from a scale for measuring attitudes toward self-service alternatives (Forman and Sriram 1991). Although this scale was developed originally to measure the perceived depersonalisation of retailing with particular focus on the loneliness of self-service stores, it was felt that some items could be used. The three items that were used involved the perception of the experience with the personnel, attitudes toward self-service alternatives, and preference toward machines over people. They were assumed to be relevant when measuring the perception of self-service alternatives; however some modifications to the scale items were made so that they would better reflect banking services. Table 6 describes the original scale items and the modified wordings. The focus of the item as used in the original scale is also included.

Table 6: Items on preference towards self-service alternatives

Item in original source	Modified item	Focus	Source
I enjoy talking to store personnel	I enjoy talking to bank personnel	Social experience	Forman & Sriram (1991)
I prefer dealing with machines than with people	In my banking activities, I prefer dealing with machines rather than with people	Machines	Forman & Sriram (1991)
Self-service stores are more pleasant	Self-service alternatives are more pleasant than interpersonal service	Self-service	Forman & Sriram (1991)
I feel confident using electronic banking methods for accessing my money	I feel confident using electronic banking methods for accessing my money	Confidence	Thornton & White (2001)
I prefer convenience over personal service	I prefer temporal and spatial flexibility over personal service	Convenience	Thornton & White (2001)

Because the scale points differed for the different scales used, modifications were done so that the respondent could more easily assess the items. The technology readiness scale was used as default, which meant that the scale points for the other scales were modified to fit the same design. A five-point Likert scale with verbal labels for all points was used: “strongly agree”, “somewhat agree”, “neutral”, “somewhat disagree”, or “strongly disagree”. More specifically, for the scale for attitudes towards self-service alternatives, the modifications only involved a switch of scale points from 5 for strongly agree to 1 for this label. In contrast, the scale for time availability involved a reduction from a seven-point Likert scale with verbal labels on the first and last points. However, because no changes in the order or presentation of the items were made, it was felt that the modifications were minor. The scales were translated into both Finnish and Swedish.

2.3.5. Data analysis

Coffey and Atkinson (1996) argue that different analytic strategies can be used to investigate different aspects of the researched phenomenon. However, the analysis should be thorough and the variety of data cannot be combined and aggregated to create a full and authentic view of the phenomenon in focus:

> "We can use different analytic strategies in order to explore different facets of our data, explore different kinds of order in them, and construct different versions of the social world. That kind of variety does not imply that one simply can take the results from different analyses and stick them together like children's building blocks in order to create a single edifice. (Coffey and Atkinson 1996:14)

Qualitative and quantitative approaches were used for the data analysis providing different points of view to the phenomenon. However, as Patton (2002) states, this difference does not mean that the data are invalid, rather that the methods have captured different things. In effect, this means that the understanding of the research area improves. Following abductive logic, the data analysis involved induction to discover patterns, themes and categories in the data as well as deduction where the data was analysed according to the existing theoretical conceptualisation. The analysis was conceptually ordered and it followed the research questions.

The data analysis phase can be divided into two phases: 1) conjoint analysis to generate attribute utilities in addition to cluster analysis that provides cross-case comparisons, and 2) qualitative analysis to generate classifications of the value dimensions. Additionally, a discussion on the analysis of the scales is included. These phases are discussed below.

2.3.5.1. Conjoint analysis

The data from the conjoint task were analysed using SPSS to derive utility estimates and importance values of each attribute and attribute level. No assumptions were made about the levels or the data in general, and the attribute levels were assumed to be categorical. These results were analysed on a disaggregate level, which meant that the results of each respondent were evaluated separately. Also the part-worth estimates for each factor were analysed separately. The magnitude and pattern of the part-worth estimates are assessed for practical relevance and correspondence to the theory-based relationships among levels.

The advantage of the conjoint task is its result in utility estimates of each of the dimensions on both aggregate and individual levels. It is possible to see how important each dimension (attribute) is in relation to the other dimensions and also see how much more value is provided by each level of the dimensions. If there is a small difference in the utilities of different levels of a dimension, the dimension is not perceived as important. However, if the variance of the utilities is large, the dimension is important.

Additionally, hierarchical (Ward method) and non-hierarchical (K-Means) clustering methods were used with SPSS to identify similarities in the perceptions of the value dimensions, i.e. similar part-worth estimates or importance value for the attributes. The resulting segments were then analysed with the background data with cross-tables and analyses of variance to identify possible explanations for the segments.

2.3.5.2. Qualitative analysis

The data analysis of qualitative data can be divided into two interrelated steps of analysis and interpretation (Patton 2002; Spiggle 1994). Analysing qualitative data involves structuring the data and organising it into patterns, categories and descriptive

units (Patton 2002). This step can be separated into six operations: categorisation, abstraction, comparison, dimensionalisation, integration and refutation (Spiggle 1994). Data interpretation involves bringing meanings and significance to the analysis by explaining the patterns and looking for relationships among the descriptive elements.

Data analysis begins in the data generation phase and continues after the data collection. This kind of concurrent data generation and interpretation is pointed out by Coffey and Atkinson (1996):

> The process of analysis should not be seen as a distinct stage of research; rather it is a reflexive activity that should inform data collection, writing, further data collection, and so forth. Analysis is not, then, the last phase of the research process. It should be seen as part of the research design and of the data collection. The research process, of which analysis is one aspect, is a cyclical one. (Coffey and Atkinson 1996:6)

The qualitative part of the data collection was based on interviews that were audio recorded and transcribed. The interview transcripts and notes made during the interview amounted to approximately 10 pages per respondent. The transcripts included the name, number identifying each respondent, dates for the interview, time for each study part, results from the ordering of the conjoint task, and short comments on the sorting of the conjoint profiles.

The interview data were coded and read tentatively to find general similarities and differences. They were subsequently analysed and reduced by following the open coding technique of Strauss and Corbin (1998) which has been argued to be especially appropriate for theory building. In this technique, related categories are compared and grouped to identify consistent similarities. Subcategories, i.e. "concepts that pertain to a category, giving it further clarification and specification" (Strauss and Corbin 1998:101) can also be identified:

> "Data are broken down into discrete incidents, ideas, or events, and acts and are then given a name that represents or stands for these. The name may be one placed on the objects by the analyst because of imagery or meaning they evoke when examined comparatively and in context, or the name may be taken from the words of respondents themselves. […] As we continue with our data analysis, if we come across another object, event, act, or happening that we identify through *comparative analysis* as sharing some common characteristics with an object or a happening, then we give it the same name, that is, place it into the same code." (Strauss and Corbin 1998:105, emphasis in original)

A variable-oriented approach (Miles and Huberman 1994) was used that was conceptual and theory-centred. The analysis was based on "variables and their interrelationships rather than cases" (Miles and Huberman 1994:174). In this study this meant that themes relating to the four value dimensions were identified and they cut across cases. In other words, the transcripts were content analysed using the value dimensions to form basic broad categories. According to Patton (2002) it involves reducing and sense-making the qualitative data to identify core consistencies and meanings. This usually means identifying descriptive findings in terms of patterns and categorising the patterns under appropriate categorical or topical themes. The theoretical model based on benefit and sacrifice of the four value dimensions was used as a tool for analysing the empirical data. Additionally, the means-end model depicted in Figure 3 in section 1.4.2 was used to structure perceptual attributes and concrete cues. Accordingly something the respondent said either directly or indirectly was developed to a concrete cue of the value dimension and then different cues were combined with perceptual attributes.

The respondents' own words were used to develop codes for the categories by conceptualising and abstracting the meaning of the words. The wording of respondents was used for most codes. Additionally, insight was taken from a literature review, where extant categories and codes were explored to find consistencies with the empirical data. The empirical data was re-read several times to identify and code excerpts of the transcripts to deepen the categories. The codes and re-codes were also modified to reflect the refined meaning of the categories. This refinement in the coding could be viewed as an iterative process to analyse the theoretical and empirical data on different levels of detail.

In practice, this meant that all items that related to the service's technical aspects, which described the result of the service, were categorised under "what". Items relating to the service's functional aspects described how the service was produced and delivered and they were grouped in the "how" category. The "when" category denoting when the service was produced and delivered was based on items relating to the service's temporal aspects. Items relating to where the service was produced and delivered was categorised under "where". Moreover, subdimensions that emerged from the empirical data were grouped into subcategories and related to one of the four value dimensions.

2.3.5.3. Additional analysis

The questionnaire and conjoint task produced descriptive data of the sample such as technology readiness, amount of and methods for payments, preference for self-service, and perceived time pressure. Cross-tables and descriptive statistics were developed with SPSS statistical analyses.

Technology readiness was measured by using the instructions developed by Parasuraman and Colby (2001) and, except for translations into Swedish and Finnish, the scale was used as such. This was acceptable considering that it is a tested scale and no changes or modifications were made. This meant that the points of five statements that indicated technology resistance (b, d, f, h and j) were subtracted from the sum of the five statements that indicated technology readiness (a, c, e, g and i). The scale points were summed to get a total score for each respondent. The scores were also used to group the respondents in technology readiness groups, and this was done according to the instructions in Parasuraman and Colby (2001). Consequently, five groups were used: 1) *highly techno-ready* with scores between 8 and 16, 2) *somewhat techno-ready* with score between 2 and 8, 3) *average* with scores between –4 and 2, 4) *somewhat techno-resistant* with scores between –8 and –4 and, 5) *highly techno-resistant* with scores between –16 and –8. This resulted in a technology readiness index.

Factor analysis (principal component analysis) was made to assess the two other scales and factor scores of each item were used in the analysis. The items in the time pressure scale were all loaded on one factor, where the items explained 66.9% of the variance. This scale was used as such. For the scale of attitude of self-service alternatives, the values of two statements were reversed, namely those statements that indicated a preference towards personal service. Four of the six items in the self-service scale were loaded on one factor, and explained 44.6% of the variance. They were thus used in subsequent analysis. The last two items did not load on self-service, and may have been related to security (self-service item 5) and flexibility (self-service item 6) and they were thus excluded from further analysis.

2.4. Summary

In this chapter the methodological underpinnings of the study were explored. The research approach in terms of the author's ontological and epistemological perspective was discussed. Also the development of the preliminary conceptualisation and the refinement of the conceptual framework was described. One issue in the research and writing process is especially important to note. This study may seem straightforward, starting from a pilot study and literature through a preliminary conceptual framework to an empirical study with the objective to create a conceptual model of customer perceived value. However, considering the iterative process between theoretical and empirical phases, the theoretical and empirical data have created the basis for the final customer perceived value model in a parallel manner. It means that the literature review and empirical study have evolved throughout this process in an abductive manner. However, for simplicity reasons, the steps were described as if they were separate phases in the research process. The next four chapters go into more detail of the research process and resulting findings used to describe the motivations and argumentation made in the development of the theoretical conceptualisation of customer perceived value.

3. LITERATURE REVIEW ON CUSTOMER PERCEIVED VALUE

In this chapter several issues related to the perceived value construct are presented. Although basically involving a management perspective, the service management literature is explored with an emphasis on the customer perspective.

The development of the value literature based on nine core streams of research (Payne and Holt 2001) can be used to position the literature review. The three first research streams were argued to emphasise key influences on customer value. The three following research streams involved more recent contributions, while the last three included newer developments. *Consumer values and consumer value*, where values were argued to be deeply held and enduring beliefs and value involved the value of a consumption event. The *augmented product concept* involves the value inherent in products and services. The *customer satisfaction and service quality* research stream is focused on perceptions of the value output, i.e. customers' reactions after purchase or service delivery. The *value chain* perspective on value involves the activities and business systems that are used to create competitive advantage for the firm. *Creating and delivering superior customer value* is emphasised in market orientation and the linkage between customer value and organisational profitability, performance, and competitive advantage. The *customer's value to the firm* is a perspective focused on the value of customers to the firm, i.e. customer value is seen as an output of instead of an input to value creation. *Customer-perceived value* involves research focused on the holistic measurement of customer perceived value. *Customer value and shareholder value* involves the perspective of shareholders and is concerned with maximising shareholder value through customer value. *Relationship value* is focused on perceptions on the relationship and involves long-term interactions between a company and its customers.

Aspects relevant in six research streams are discussed in this literature review. In this chapter, the focus is not on the value chain, the customer's value to the firm, and customer value and shareholder value because these research streams do not include the customer's perceptions. Rather in these perspectives the emphasis is on market orientation and how to create and deliver value to the customer, i.e. they include a relieving perspective on value, instead of an enabling perspective.

The literature review is based on the following three areas. 1) Value research focused on defining value 2) Service quality research based on identification and description of aspects that influence the perceptions of services, such as quality dimensions, e-quality and relationship quality, and 3) Research on issues related to service environment such as service delivery, accessibility and convenience show the relevance of temporal and spatial aspects influencing service evaluations. These three issues are discussed by first reviewing extant literature on each issue separately following with a short discussion of each subchapter and then concluding with a critical review on implications of existing theory for this study. A summary of the literature review concludes the chapter.

3.1. Perspectives on customer perceived value

In this subchapter different perspectives on customer perceived value are discussed. The traditional view on value is first presented, and then other perspectives are described.

3.1.1. Trade-off between benefit and sacrifice

There are three aspects in modelling customer perceived value (DeSarbo et al. 2001). First, although it is possible to integrate value with dimensions on a high level of abstraction, value is dependent on lower-level physical attributes of a service. The functional form is another aspect in describing and modelling customer perceived value. The third aspect concerns the heterogeneity of the customer in terms of differences in value perceptions. These three aspects are discussed in this section.

Value creation has been a popular research issue in consumer and industrial marketing research and the interest is equally extensive in academia and in the industry (Parasuraman 1997; Woodruff 1997). Academic research has built on defining the construct as well as on linking the value construct to other constructs such as loyalty, satisfaction and repurchase behaviour. Value has been given many definitions in the marketing literature (e.g. Holbrook 1994; Woodruff 1997; Zeithaml 1988) and touches upon many related concepts, such as quality, utility, benefits, relationships, satisfaction, and loyalty (Johnson and Gustafsson 2000; Liljander and Strandvik 1993; Parasuraman and Grewal 2000; Woodruff and Gardial 1996).

Several elements of value has been conceptualised; however, most of the models incorporate the same line of thinking. One of the traditional definitions of customer perceived value is the following:

> ”Perceived value is the consumer’s overall assessment of the utility of a product based on perceptions on what is received and what is given” (Zeithaml 1988:14)

Zeithaml (1988) summarised perceived value with four perspectives:

1. Value is low price
2. Value is whatever I want in a product
3. Value is the quality I get for the price I pay
4. Value is what I get for what I give

These different perspectives indicate varying levels of detail ranging from concrete abstracts such as price, or quality attributes, and the trade-off between quality and price to the trade-off between benefit and sacrifice.

Value can be seen as what is received in exchange for what is given (e.g. Monroe 1990; Porter 1980; Thaler 1985; Woodruff and Gardial 1996; Zeithaml 1988). More specifically, customer perceived value has been defined as the trade-off between a benefit such as quality and a sacrifice usually defined as price (Monroe 1990). Customer perceived value was later conceptualised with additional benefit and sacrifice components (e.g. Liljander and Strandvik 1993; Ravald and Grönroos 1996; Sweeney and Soutar 2001). Benefits involve some combination of physical attributes, service attributes, and technical support (Monroe 1990). Alternative conceptualisations of benefit include e.g. performance (Sweeney and Soutar 2001), monetary savings (Thaler 1985), or perceived benefits (Porter 1980) such as quality increase, convenience, or expansive benefits. Sacrifice involves tangible costs related to the service, such as purchase price, acquisition costs, transportation, repair, maintenance, as well as perceived costs such as risk of failure or poor performance (Monroe 1990). Value has thus been modelled as emerging from the service itself or from attributes related to intangible benefits such as perceptions and experience.

Looking at the functional form of customer perceived value, a general model can be developed, as illustrated in Figure 8. It is based on a function of benefit and sacrifice.

Value = f (benefit, sacrifice)

Figure 8: Value based on benefit and sacrifice

The functional form of customer perceived value has been researched more specifically. Cronin, Brady, Brand, Hightower and Shemwell (1997) tested the importance of service value in consumer decision-making processes and determined many conceptualisations and measurements of service value. They synthesised three models of service value, one as a general function of service value similar to the one depicted in Figure 8 but including service quality as benefit. The second model was a multiplicative model of service quality and service value with benefit as the numerator and sacrifice as the denominator. This was similar to the ratio or proportional specification where value was defined as quality at a unit price (Monroe 1990). Using information integration theory, the third, new proposition was service value as an additive rather than multiplicative function of service value consisting of service quality and sacrifice. In the empirical study, they showed that value is in fact additive. Sacrifice was operationalised as composite of perceived monetary price, perceived non-monetary price and perceived risk, while benefit was operationalised with the 10 SERVQUAL quality determinants. The results from the study suggested that customers integrate the benefit and sacrifice associated with the service in an additive manner. Similar findings have been reported in other studies (DeSarbo et al. 2001).

Grönroos (2000) described customer perceived value with three different equations. The first differentiated between value in episodes and relationships; this perspective is discussed further in subchapter 3.2. The other two equations included a separation into core and additional services:

$$\text{CPV1} = \frac{\text{Core solution + Additional services}}{\text{Price + Relationship cost}}$$

CPV2= Core value + or – Added value

Figure 9: Two equations of customer perceived value (Grönroos 2000:140)

In the first equation the benefits are separated into core and additional service, where core services include technical elements and additional services include functional elements. The second equation separates between core value and added value, where added value can be either positive or negative:

> "The interesting thing to observe is the fact that the added value component can be both positive and negative. If it is positive, for example because of quick delivery, attentive and supportive service employees or smoothly handled service recovery, it contributes favourably to total perceived value. However, if additional services cause unnecessary or unexpected relationship costs, the effect of the added value component is negative. This it is not an added value, or a negative added value." (Grönroos 2000:142)

Customer heterogeneity results in differences in value perceptions. Contrary to the utility perspective (e.g. Stigler 1950), value is something subjective and perceived, not objective (Zeithaml 1988). The relation of benefit and sacrifice must be perceived as more than reasonable in order for the service to be valuable. As such, the benefits of a service must exceed the sacrifice, otherwise the value of the service is negative

(Zeithaml 1988). The service is perceived as valuable where the benefits are higher than expected or where the sacrifice is less than the expectations. A service is valuable also when both the benefits are higher and the sacrifice is lower than expected. Value is related to some reference point that is perceived as important by the individual. The reference point differs depending on the individual and the usage situation.

Woodruff and Gardial (1996) have studied approaches to customer value and satisfaction and they defined customer perceived value in the following way:

> "Customer value is the customers' perception of what they want to happen in a specific use situation, with the help of a product and service offering, in order to accomplish a desired purpose or goal." (Woodruff and Gardial 1996:20)

Woodruff and Gardial (1996) also described customer value dimensions as particular elements in a product or service and/or the outcome of its use, something that is desired by customers. Woodruff (1997) later defined value as follows:

> Customer value is a customer's perceived preference for and evaluation of those product attributes, attribute performances, and consequences arising from use that facilitate (or block) achieving the customer's goals and purposes in use situations." (Woodruff 1997:142)

In other words, this definition entails the influence of desired and perceived perceptions, preferences and evaluations, and is linked to use situations and consequences of use. However, as a consequence, and as noted by Parasuraman (1997) this definition, although conceptually broad and extensive, involves problems relating to its operationalisation. Still this definition involves the relevance of value on different levels of abstraction, different contexts and different tasks.

3.1.2. Other perspectives on value

Devlin (1998) explored the value of retail financial services and described value in terms of a value-adding mix for services. Four determinants were argued to provide differentiation and consequently enable competitive advantage for the service provider. Three of the determinants were similar to the technical/functional quality model (Grönroos 1982) and involved differentiation based on *features and quality of core services*, i.e. similar to technical quality, and differentiation based on *functional or process service quality*, i.e. similar to functional quality. *Image and reputation* was a third variable that was similar to the perceived quality model. *Price* was the fourth determinant in the value-adding mix. Elements of the core service involve employee knowledge, employee skills, rate of return, and superiority of services vis-à-vis competitors. This study is interesting as it incorporates location as an element under the functional dimension. Other elements under the functional dimension concern employee interest and problem solving, willingness to adjust to demands, keeping promises, prompt service recovery, tangibles such as appearance, honesty and ethics, as well as trust. Image and reputation included positive image and excellent reputation. One limitation of this study was that it focused on the managerial judgements of the variables and consequently it does not offer insight on differences in customers' perceptions relative to the variables.

There is some more recent research that conceptualises service value with other factors than benefit and sacrifice. Parasuraman and Grewal (2000) synthesised earlier research

on value and identified four types of value. *Acquisition value* related to the benefits relative to the costs of acquiring a product or service whereas *transaction value* referred to the pleasure of getting a good deal. *In-use value* in turn denoted the utility derived from using the product or service. *Redemption value* involved the remaining benefit at the moment when the product is being replaced or disposed or terminated. Interestingly, all of these types of value can be seen as linked only to the buying process and not consumption or use.

Barnes (2001) has suggested thirteen forms of value, or benefits that customers may perceive as valuable. *Product-for-price* value is the basic source of value created by the offering. *Access* or convenience value represents the value of easy and convenient access of the offering created by opening hours, convenient locations and a variety of means to access the service. *Choice-based* value refers to the variety of options available to interact with the service provider. *Employee-based* value relates to the level and type of service received. *Information* value denotes the information available about choices and options. *Association* value relates to the pleasure and comfort that customers perceive when being associated with the service provider. *Enabling* value is the perceived value of the outcome of the product or service. *Relationship* value relates to the value created by having a relationship with a specific company. *Customer-unique* value is created when the customers perceive they are being treated as individuals. *Surprise* value denotes the value when the customer experiences something positive beyond the expectations. *Community* value refers to the contribution of the company to the local environment. *Memory* value is the value created by an experience that remains in the customer's memory. *Experience* value is closely related to memory value and refers to the value that is created when the customer is engaged in the service.

It seems that although extensive synthesis, the thirteen sources may overlap somewhat. For example, access value may be linked to choice-based value in that they both relate to options available for the customer. Also, some of the forms may in fact be an outcome of the other forms. For example, enabling value may be the result of choice-based value as a variety of choices may enable the value-creating activity. In this respect, the proposed synthesis of different forms of value may not be sufficient to classify value drivers of services.

Anckar and D'Incau (2002) have conceptualised value creation in mobile commerce by investigating consumer willingness to use a number of mobile services. They proposed two types of value: wireless value that is service independent and mobile value that is service dependent. Whereas the former referred to the value offered by the technology itself, the latter denoted the value from making use of the service. It was argued that the service dependent value was related to five settings. *Time-critical needs and arrangements* were characterised by the urgency of activities and were argued to typically arise from external events. *Spontaneous needs and decisions* were related to spontaneous rather than planned behaviour, and often result from an internally evoked need. *Entertainment needs* denoted the value of using the mobile service to fill time gaps or have fun. This could also be a result of a spontaneous need. *Efficiency and ambitions* referred to using mobile services to increase productivity. *Mobile-related needs* involved the value that resulted from the mobile technology itself, i.e. that could not be delivered by other media. Anckar and D'Incau measured the perceived value of a number of mobile services on these five elements and found that the spontaneous and time-critical needs were perceived as the most important. Entertainment and efficiency-

based needs were also valued, but to a lesser extent. The mobility-related needs ranked the lowest of all the elements.

Chen and Dubinsky (2003) proposed a conceptual model of perceived customer value in e-commerce and identified four factors influencing customer perceived value. The first factor was *valence of experience*, i.e. the customer's emotional or attitudinal state aroused by the pre-purchase online shopping experience. It was based on relevant information, ease-of-use of the web site, and customer service. The second factor was *perceived product quality* that was defined as the customer's perception about a product's overall excellence or superiority. It was based on valence of experience, the e-tailer's reputation, as well as price. *Perceived risk* was the third factor influencing perceived value and referred to the perception of uncertainty of the outcomes of the service. It was influenced by the e-tailer's reputation and product quality. *Product price* was the fourth factor influencing perceived value.

This model of customer perceived value is interesting because it considers factors directly related to e-commerce as well as indicates factors that are similar across shopping contexts. It provides a broader perspective on value than merely price and quality by including valence of experience and risk. However, one drawback is that it does not recognise the flexibility that is provided for customers in the technology context, which is attributable to the higher amount of customer participation.

3.1.3. Discussion

At face value, the benefit and sacrifice categorisation of value seems reasonable and sufficient. At the same time, there is an indication that value includes more than a narrow definition of benefit and sacrifice as service quality and price. For this study it is important to note that service value is a function of benefit and sacrifice, thus extending the concept beyond merely service quality and price. Rather, as is proposed in Chapter 4, the benefit and sacrifice components can include many different attributes.

Moreover, as the discussion implied, value perceptions may be seen as part of an integrated trade-off between benefit and sacrifice. In fact, taking on the perspective that value is formed of an additive model, it seems that benefit and sacrifice can be formed from the same attribute, either value adding or decreasing, rather than being separate benefit and sacrifice components. This issue is discussed further in Chapter 4 but it can be noted here that it is suggested that benefit and sacrifice are closely interconnected in the same attributes. These interconnected benefit and sacrifice components form the basis of value dimensions. However, following DeSarbo et al (2001), value perceptions may differ because of either differences in the composition of different value dimensions or because of differences in the relative importance of the value dimensions.

As was argued in this chapter, customer perceived value has dimensions that are more than merely benefit and sacrifice components. These sources of value may range from service-specific elements to interactional elements to contextual elements. In this respect, it seems that customer perceived value is more complex than merely a function of benefit and sacrifice. The next subchapter discusses other conceptualisations that can be found in existing service management literature that could further illustrate the customer's perceptions of value. Service quality is one important area of research that is used because of its interlinkage with perceived service value.

3.2. Service quality

Much of the research on service quality has focused on identifying elements that influence the perceived quality of a service. This subchapter describes the research on service quality by discussing process and outcome elements of the service act as dimensions of service quality. Also, other determinants that have been argued to influence service quality are discussed. This includes a discussion on e-service quality and relationship quality that are included in separate sections.

3.2.1. Process and outcome

Quality has been suggested to be a related construct (e.g. Rust and Oliver 1994) and forms a part of value (Liljander and Strandvik 1995). Dimensions that affect service quality can thus be seen to indirectly influence perceived value, and quality dimensions may be used to define perceived value. According to service quality definitions in the service management literature, quality is a perceived construct based on a comparison of experiences and expectations:

> ” … perceived quality of a given service will be the outcome of an evaluation process, where the consumer compares his expectations with the service he perceives he has got, i.e. he puts the perceived service against the expected service. The result of this process will be the perceived quality of the service” (Grönroos 1982:60)

Although not involving explicitly sacrifice, this definition of quality includes dimensions as sources of quality. Taking the starting point from quality, Grönroos’ (1982) perceived service quality model has defined quality as a function of technical and functional dimensions. This definition states that quality is based on what customers get out of the service, i.e. service outcome, and how the service is delivered to them, i.e. service process. It has been argued to outperform SERVQUAL, another extensively researched service quality model (Babakus and Boller 1992; Carman 1990; Mels et al. 1997) also in a banking context (Lassar et al. 2000).

Quality has been conceptualised as having process and outcome dimensions (e.g. Brady and Cronin Jr. 2001; Grönroos 1982; Lehtinen 1982; Lehtinen and Lehtinen 1991; Parasuraman et al. 1985; Rust and Oliver 1994). Donabedian (1980) divided quality into dimensions of technical and interpersonal quality. In a medical service context, he defined technical quality as the application of medical science and technology, and interpersonal quality as the social and psychological interaction between client and practitioner.

Grönroos (1982) used the same line of thinking in service management to conceptualise perceived service quality and introduced two dimensions as sources of quality. This model of perceived service quality describes “how customers perceive the “features” of a service” (Grönroos 2000:62). In this model, perceived service quality is seen as the outcome of an evaluation of the perceived service and the expected service. Customers make assessments of the service performance on two dimensions. A technical dimension based on service attributes, such as food in a restaurant, is defined as the outcome of the service:

> “… one quality dimension, called the *technical quality of the outcome* of the service production process. In service management literature the term “outcome quality” has also been used for this

> dimension. It is what the customer is left with, when the service production process and its buyer-seller interactions are over." (Grönroos 2000:63, emphasis in original)

A functional dimension involved in the service evaluation denotes that the customer is affected by the way the technical dimension in the service is delivered. For instance, the friendliness of the restaurant personnel affects the customer's perceptions of the functionality of the restaurant.

> "The customer will obviously also be influenced by the way in which the technical quality – the outcome or end result of the process – is transferred to him….. the customer is also influenced by *how* he receives the service and how he experiences the simultaneous production and consumption process. This is another quality dimension, which is closely related to hw the moments of truth of the service encounters themselves are taken care of and how the service provider functions. Therefore, this is called the *functional quality of the process*. In the literature, this dimension is also called "process quality"." (Grönroos 2000:63-64, emphasis in original)

The citation above indicates that the emphasis of the functional dimension is on the service process, and buyer-seller interactions in particular. However, also accessibility, customer-customer interactions, the appearance and behaviour of the personnel was included (Grönroos 2000), although it is often specified as being the result of the customer-employee interaction (Brady and Cronin Jr. 2001). This is discussed further in subchapter 4.2.

Accordingly, quality is not seen only as a result of what the customer receives, rather it is seen to include a technical dimension (what) and a functional dimension (how) in a service delivery. The functional dimension has been argued to be more multifaceted than the technical dimension as it incorporates subjective perceptions (Grönroos 1982). The effect of the technical and functional dimensions on perceived service quality has been suggested to be moderated by the image that the service provider has (Grönroos 1982). The corporate image, if positive, may increase the level of satisfaction or decrease the level of dissatisfaction and, if negative, may decrease the level of satisfaction and increase the level of dissatisfaction.

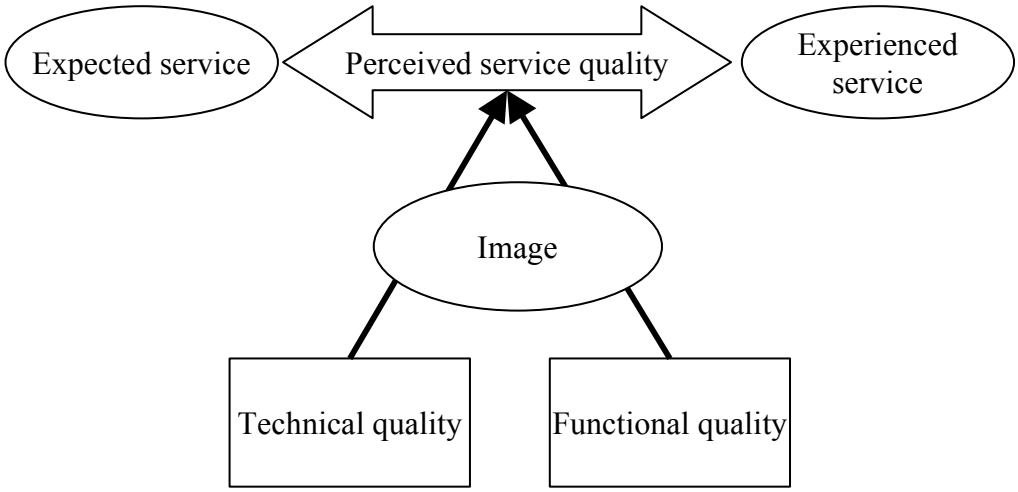

Figure 10: Perceived service quality model (Grönroos 1982)

Lehtinen (1982) categorised service quality with three determinants: interaction quality, technical quality, and institutional quality. These determinants are actually similar to technical dimension, functional dimension, and image. Interaction quality was described as dependent on the customer's interaction with the service contact person or physical

equipment. It is defined only when the customer participates in the service production process. The technical quality or the quality of the service denoted the quality of the physical resources and involves the physical support in the service production process. It referred to the raw material used when producing the service and the actual service production process. Lehtinen argued that the physical support is consumed during the service production process. Institutional quality denotes the customer's perception about the service provider and often involves the corporate image.

Similarly, Lehtinen and Lehtinen (1991) described three service quality determinants: physical, interactive, and corporate quality. The physical quality determinant denoted physical elements of the service and was separated into physical products and physical support. In this model, physical products are goods consumed during the service production process. Physical support on the other hand was separated into environment elements, such as the interior decorations and layout of the service facility, and instruments such as the equipment needed for the service delivery. Interactive quality refers to the elements in the interaction between the customer and the service organisation, such as interactive persons or interaction equipment. Corporate quality denoted the image or profile of the service organisation that can be argued to be relatively stable, at least compared to the physical and interactive quality.

Another perspective on service quality, a model developed by Parasuraman, Zeithaml and Berry (1985; 1988), has been both supported and criticised in existing research. This SERVQUAL model of service quality was based on an exploratory study focusing mainly on high contact services such as banking (Parasuraman et al. 1985). This obviously limited the emphasis on interpersonal aspects in the service. In the first version of the model, ten determinants were identified, i.e. reliability, responsiveness, competence, access, courtesy, communication, credibility, security, understanding/knowing the customer and tangibles. *Reliability* referred to the dependability and consistency of the service delivery, which means that the service was performed correctly. *Responsiveness* related to the willingness and readiness of the service employee to perform the service on time and whether the service was prompt and timely. *Competence* meant that the service personnel had the right knowledge and skills to perform the service. *Access* denoted the accessibility and ease of access and involved aspects such as telephone access, waiting time, convenient operation hours and convenient location that made the service accessible to customers. *Courtesy* involved the service personnel's attitudes and behaviour towards the customer. *Communication* meant that the service personnel used the same language as the customer to be able to listen to the customer. *Credibility* related to the trustworthiness and integrity of the service firm. *Security* denoted no or at least few risks and doubts related to the service. *Understanding/knowing* the customer involved an ambition to understand the customer's needs. *Tangibles* was described as the physical aspects of the service and can thus be seen as similar to the technical dimension the technical/functional quality model. It involved the service location such as physical facilities, equipment and physical representations of the service, as well as interpersonal aspects such as appearance of the personnel and other customers in the service facility.

The SERVQUAL model was later synthesised to encompass five determinants that affect the perceived and expected service (Parasuraman et al. 1988). Reliability, responsiveness, empathy, assurances and tangibles were argued to constitute the comparison for excellence in service made by the customer. This detailed model specifically denoted customer perceptions of the interaction in the service delivery.

Access was one of the determinants that did not remain distinct in the scale purifications and was thus combined in assurance and empathy together with communication, credibility, security, competence, courtesy and understanding/knowing customers. While the scale purification was needed to get distinct quality determinants that would be generalisable across industries one limitation of this scale was, as the authors also mention, that it may have resulted in a deletion of certain items that are relevant to some firms. This in turn may indicate that access that was deleted may in fact be more relevant to firms that are particularly influenced by convenient opening hours and location.

Carman's (1990) critical replication of the SERVQUAL scale showed that a determinant that is found to be important to customers is likely to be broken down into subdimensions. Access was suggested to be one such determinant because it was found to be a separate factor not appropriately combined in empathy. Convenience was a new factor that was discovered to be relevant. Access was distinct from convenience for some services, but was tentatively kept combined with convenience. This combination included location, parking, telephone access, access to manager, daily service, waiting time and prompt service. It was also recommended that access could be expanded if it was believed to be of specific importance.

3.2.2. Other service quality determinants

Armistead (1990) discussed strategies for service operations and introduced firm and soft dimensions that can be used to group service operations. These two broad determinants include three subdimensions each that are similar to the SERVQUAL determinants. The firm dimensions include *framework of time*, i.e. availability of the service package, responsiveness and waiting time, *fault freeness* in the service package, i.e. physical items and information and advice, and *flexibility*, i.e. service recovery and customisation. The soft dimensions include style, steering and safety. *Style* related to the way customers are treated, service employee attitudes, accessibility of personnel, and the ambience of the service environment. *Steering* denoted the degree of customer control, and *safety* involved trust, security, and confidentiality. Armistead also stated that these determinants could be either customer-catching criteria, i.e. aspects in the service that cause a customer to patronise one service provider rather than another, or competitive status criteria, i.e. those service aspects that must be present in order for the customer to even consider the service provider.

Johnston (1995) studied satisfying and dissatisfying determinants of service quality and categorised eighteen groups of quality determinants. By using a critical incident technique he found that there were seven determinants that accounted for 80% of the findings, indicating that there are some quality determinants that predominate over others. Many of the determinants could be grouped under the functional and process dimension. The main sources of satisfaction were intangible in nature, and included attentiveness, responsiveness, care, and friendliness. The sources of dissatisfaction were integrity, reliability, responsiveness, availability, and functionality, all either tangible and/or tangible in nature. It is interesting to note that availability is a major source of dissatisfaction when considering that it was defined to include a spatial element. It was defined as the availability of service facilities, staff and goods to the customer. However, although the aspect was described in more detail for the availability of staff and goods, the availability of service facilities was not explained. Responsiveness was

found to be a critical service quality determinant, because it is a source of both satisfaction and dissatisfaction. This is interesting, considering that this determinant included a time aspect and was defined as "speed and timeliness of service delivery. This included the speed of throughput and the ability of the service providers to respond promptly to customer requests, with minimal waiting and queuing time." (Johnston 1995:71). Of the 18 quality determinants, there were other determinants that involved spatial elements. Access denoted the physical approachability of service location and the ease of orientation in the service environment, but it was not found to be an important quality determinant. The other quality determinants were mainly related to the customer-service provider interaction or with tangible aspects of the service.

Dabholkar, Thorpe and Rentz (1996) studied service quality in retail stores and proposed a hierarchical conceptualisation of service quality. They identified five determinants of service quality, namely physical aspects, reliability, personal interaction, problem solving, and policy, and each determinant contained two subdimensions, except the last two determinants. On a broad level, the five determinants may be grouped under the technical and functional dimensions and/or the SERVQUAL determinants. *Physical aspects* that may be viewed as similar to the technical dimension (Grönroos 1982) or tangibles (Parasuraman et al. 1988) involve appearance of the physical facility and convenience in relation to the layout of the physical facility. *Reliability* is a determinant that has similarities with reliability in the SERVQUAL model and it was referred to as keeping promises, doing things right, and the availability of merchandise. *Personal interaction* is comparable with the functional dimension and relates to the confidence, courtesy and helpfulness of the service personnel. *Problem solving*, similar to responsiveness or functional quality, denoted the way returns, exchanges, and complaints were handled. *Policy* was argued to involve the store policy concerning opening hours, parking availability, and payment options. In some respects it can be interpreted as access found in the SERVQUAL model.

Gummesson's (1993) model of goods quality represents another view on quality. This model based on empirical data from a manufacturing company includes four determinants of customer perceived quality. The experiences and expectations of service as well as the image of the firm influence these determinants. *Design quality* denotes the design of the offering, such as drawings, specification, flowcharts, and service maps. *Production and delivery quality* denotes how well the offering is produced compared to the design. *Relational quality* denotes the perception of the service production process, indicating an interactional perspective. It is closely related to the functional quality dimension (Grönroos 2000). *Outcome quality* indicates short-term and long-term benefits of the offering. This determinant is related to the technical dimension (Grönroos 2000).

Grönroos (2000) summarised seven criteria of good perceived service quality and distinguished between elements relating to technical and functional dimensions. *Professionalism and skills* related to the technical dimension and denoted knowledge and skills of the service provider, employees, operational systems, and physical resources. Five elements related to the functional dimension. *Attitudes and behaviour* involved customers' perception of employee concern and interest in solving problems. *Accessibility and flexibility* denoted that the location, operating hours, employees, and operational systems were designed to provide easy access and adjustable service delivery. *Reliability and trustworthiness* related to the reliability of the service provider, employee, and systems. *Service recovery* involved the immediacy and activity in taking

action to control and repair errors in the service delivery. *Servicescape* was introduced as a functional element and it referred to the perceptions of the physical surrounding and environment of the service encounter. *Reputation and credibility* denoted image-related aspects and included the trust in the service provider and adequacy and performance of the service provider. This synthesis is interesting as two of the criteria bring forward the relevance of temporal and spatial elements, namely accessibility and flexibility and servicescape.

A recent contribution to the service quality literature is a study that developed a measure of bank service quality (Aldlaigan and Buttle 2002). This 21-item scale including four determinants is built on the technical/functional quality model. *Service system quality* denoting the service organisation as a system involves attributes related to both technical and functional performance at an organisational level. Technical performance includes quality of advice, flexibility, customised service solutions, promise fulfilment, employee empowerment, and customer updating on services. Functional performance includes listening to customers, ease of availability and accessibility, speed of response, and organisational appearance. Behavioural service quality denotes how the service is performed by the employees and involves functional elements such as the politeness, courtesy, friendliness, and helpfulness of employees. *Machine service quality* involves attributes related to the quality of machines and equipment, such as machine reliability and performance. *Service transactional accuracy* is the fourth quality determinant and focuses on the employee and system accuracy and involves the frequency of errors and mistakes in performing the service.

This scale is interesting as it does not include the SERVQUAL model but instead builds on the technical/functional quality model. However, it is possible to identify the SERVQUAL determinants in the scale; for example, the behavioural service quality dimension is similar to the responsiveness and empathy determinants in the SERVQUAL model. One strength of the model is its combination of different attributes into higher-level determinants. It makes the scale generalisable to a larger extent and does not limit it to specific service contexts. Also, it suggests that service quality evaluations occur on both organisational and transactional levels. One drawback of the scale is its focus on aspects in the service and service process that can be controlled by the service provider or service employee. In this respect it focuses on the service provider perspective of service quality.

3.2.3. E-service quality

Because of the recent emphasis on service management research, it is necessary to discuss research on the quality of e-service and other technology-based services. Current research has focused on e-services and modelled service quality (e.g. Janda et al. 2002; Zeithaml et al. 2000) and satisfaction (van Riel et al. 2001) for e-service contexts[8]. Technology-based services have also been studied from a quality perspective. At this point it is relevant to explore whether e-quality is a new perspective and what it contributes to service quality models.

[8] For a comprehensive review on research on e-service quality, see Zeithaml, Valarie A., A. Parasuraman, and Arvind Malhotra (2002), "Service quality delivery through web sites: a critical review of extant knowledge," Journal of the Academy of Marketing Science, 30 (4), 362-75.

At the outset it is necessary to define the boundaries for e-service quality. A broader definition of e-service quality than originally intended is used to denote the perceived quality of all technology-based self-services. Traditional service quality has focused on interpersonal service encounters, and the quality determinants are thus specific for interpersonal services. However, considering that interpersonal service encounters are decreasing in importance it has been necessary to define service quality for technology-based services. E-service quality is one such research area. Zeithaml, Parasuraman and Malhotra (2000) referred to traditional service quality as "the quality of all non-internet customer interactions and experiences with companies" (p.5). E-service quality was defined as "the extent to which a website facilitates efficient and effective shopping, purchasing and delivery" (p.11). Although e-service quality as such has been more frequently linked to the Internet, the same ideas can be used to understand the quality of technology-based services on a broader level. The rationale for this is that the same quality models have been used as building blocks for all kinds of service delivery contexts, such as technology-based self-services (Anselmsson 2001; Dabholkar 1996) and mobile service quality (Nordman and Liljander 2003). In this chapter, the quality of e-service, mobile services and technology-based services are discussed.

Zeithaml, Parasuraman and Malhotra (2000) developed a conceptual framework for understanding e-service quality and found 11 determinants of e-service quality. The determinants of e-service quality were similar to traditional quality and involved determinants originated from the SERVQUAL model, i.e. reliability, responsiveness, assurance/trust, security/privacy, and access, where access was one determinant included in the original 10-dimensional model. Flexibility, ease of navigation, efficiency, price knowledge, site aesthetics, and customisation/personalisation were new determinants added for e-service quality. In contrast, the definitions of the determinants were adapted to e-services. *Reliability* was defined as the technical functioning of the site and the accuracy of the service and involved attributes such as site running, order accuracy, bill accuracy, items in stock, account promises and on time order arrival. *Responsiveness* denoted the quick response and ability to get help in case of a problem or question. *Assurance/trust* related to the customer's confidence in dealing with the site and involved the site and product/service reputations as well as clear and truthful information. *Security/privacy* involved the customer's confidence in the service that the personal information is protected. *Access* was a factor originally included in the SERVQUAL model and was defined as the ability to get on the site quickly and to reach the company when needed. *Flexibility* involved the choice of ways to pay, ship, buy, search for and return items. *Ease of navigation* referred to the ability of the site to help customers find what they need without difficulty and involved good search engines and easy and quick manoeuvrability. *Efficiency* denotes that the site is easily used and structured and that it requires minimal input by the customer. *Price knowledge* is the customer's ability to determine shipping prices, total price and comparative prices during the shopping process. Site aesthetics relates to the appearance of the site and is analogous to the servicescape of traditional service delivery. Ease of navigation and efficiency may be seen as the only factor that are only applicable for services delivered via the internet while the other new factor could be used as determinants for traditional service quality as well.

In a more recent article, Zeithaml, Parasuraman and Malhotra (2002) reviewed extant research on e-service quality. In the synthesis of extant research, Zeithaml, Parasuraman and Malhotra concluded that e-service quality determinants acknowledged in research

include fulfilment, security/privacy, site design, efficiency, and ease of use. In the article and based on their own research, they also included a scale on e-service quality that summarises core online services. The determinants were efficiency, fulfilment, reliability, and privacy. *Efficiency* denoted the ability of customers to find the site, and effort related to using it. *Fulfilment* involved the accuracy of promises, having products on stock, and delivering them on time. *Reliability* referred to the technical functioning of the site. *Privacy* denoted the assurance that shopping data are not shared and that they are stored insecurely. They also noted that service recovery quality based on responsiveness, compensation and contact influence overall perceived quality.

A more exploratory study on e-service quality used the SERVQUAL determinants to compare purely online travel services to hybrid travel services that linked traditional travel agents and online booking (Kaynama and Black 2000). Although attempting to reconceptualise the quality determinants for e-service, the proposed e-qual determinants contained merely minor adaptations and resulted in a redefinition of the same determinants that appeared in SERVQUAL. Also, the study was highly explorative and did not specify and detail the reasoning behind the emergence of the determinants. However, it is interesting to note that the tangibles variable was extended to include more specifically the service environment.

In the study of Kaynama and Black (2000), one factor in SERVQUAL was separated into three, resulting in seven quality determinants. *Content and purpose* was derived from reliability and involved currency and accuracy. The tangibles variable was divided into three variables involving accessibility, navigation, and design and presentation. *Accessibility* was referred to as the good physical location of traditional interpersonal services and was stated to be just as important as physical location for traditional business. *Navigation* related to the ability to see the available content and move freely around the site. *Design and presentation* was suggested to facilitate meeting customers' expectations. *Responsiveness* was used as employed in the SERVQUAL model. *Background* was derived from assurance and related to the information about an online firm, such as security and descriptive information, which would inspire trust and confidence. *Personalisation and customisation* that were derived from empathy included knowing the customers in order to create an individualised service. Personalisation related to the ability to track customers' movements and decisions through interactions with the website. Customisation involved the ability for customers to make changes to the interface.

Similarly, Liljander et al (2002) studied customer satisfaction with e-services and explored e-service quality determinants. They derived the determinants from the SERVQUAL and e-qual models (Parasuraman et al. 1988; Zeithaml et al. 2000) but added the user interface proposed by Grönroos et al (2000). Five determinants were proposed: responsiveness, reliability, customisation/personalisation, assurance/trust, and user interface. The user interface was argued to replace the tangibility variable in SERVQUAL. Interestingly, Liljander et al (2002) tentatively included access under the user interface and hence did not consider it as a separate factor. They argued that access is related to both access to Internet and trouble-free connections as well as the awareness of the site. It could be argued that access to the internet site is in fact more important than the user interface because if users do not find their way to the site, then the functionality of the site is of lesser importance. In other words, it seems appropriate to exclude access from the tangible parts of the service offering.

Janda, Trocchia and Gwinner (2002) studied perceptions of internet retail service quality and suggested five factors that influence the perceived quality internet services. *Performance* related to the retailer's ability to meet the expectations concerning the physical order fulfilment. It was conceptualised as transaction efficiency and delivery fulfilment. *Access* denoted the retailer's ability to provide a variety of products from around the world. In other words, it did not involve either spatial or temporal access to the service site, and is thus more related to the technical dimension of the service. *Security* included the retailer's integrity concerning financial and privacy issues. *Sensation* involved the customer's ability to interact with the product and other customers during the shopping experience. *Information* as the last variable involved access to relevant information and the degree of trust in relation to the information, i.e. information quantity and credibility, respectively.

Santos (2003) conceptualised determinants of e-service quality through an exploratory research design and suggested that e-service quality has incubative and active elements. This model is very similar to other existing conceptualisations of e-service quality; however, some interesting ideas are brought forward. The incubative element included ease-of-use, appearance, linkage, structure and layout, and content in descending order of importance. *Ease-of-use* denoted the ease of external search and internal navigation and search within the site. *Linkage* was a new element and referred to the number and quality of links that the website offers. *Appearance* denoted the use of colours, images and animations as well as the size of the site, whereas *structure and layout* denoted the organisation and presentation of the content and information. *Content* in turn related to the presentation and layout of the factual information and functions. It seems that the appearance, structure and layout, and content may be somewhat similar to each and not totally distinct. The active element consisting of determinants that were maintained after the website was launched was related to reliability, efficiency, support, communication, security, and incentives. *Reliability* denoted the ability to perform the service accurately and consistently. *Efficiency* involved the speed of downloading, search, and navigation. *Support* referred to the technical help, guidelines and advice related to the service. *Communication* involved providing sufficient information and communication to customers. *Security* referred to the lack of danger, risk or doubt during the service process. *Incentives* denoted how the service encouraged customers to browse and use the service, such as rewards.

Keating, Rugimbana and Quazi (2003) explored the application of traditional service quality scales in an online context and found that there was a positive relationship between retail service quality and its determinants. They used the retail quality scale developed by Dabholkar et al (1996) and concluded that physical aspects, reliability and policy were the key drivers of retail service quality in an online context. Reliability was found to have the greatest impact on overall service quality and argued that site functions and support mechanisms were important to ensure reliability.

Wolfinbarger and Gilly (2003) analysed the quality of online retailing and developed an eTailQ-scale based on four factors. It was similar to SERVQUAL but involved more perceptions of the service provider as an entity than perceptions of the personnel as in the SERVQUAL model. *Fulfilment/reliability* denoted the accuracy of display and description of a product as well as the reliability of delivery. It differed from reliability in the SERVQUAL scale in the respect that where reliability in SERVQUAL referred to the consistency and dependability of performance, fulfilment/reliability denoted the accuracy of the performance. *Website design* was a new factor and included the website

usability, such as navigation, information search, order processing, personalisation and product selection. *Customer service* denoted the willingness to respond to customer inquiries. *Security/privacy* involved the security of transactions and privacy of information. Wolfinbarger and Gilly (2003) found that fulfilment/reliability and website design were the largest and most consistent predictors of quality. Security/privacy were not a significant predictor of quality, and customer service was only to some extent found related to quality.

Considering e-service quality from a broader perspective, then perceptions of technology-based services becomes relevant. Self-service technologies have been defined as "technological interfaces that enable customers to produce a service independent of direct service employee involvement" (Meuter et al. 2000:50). Dabholkar (1996; 2000; 1994) has studied technology-based self-services and suggested a number of different attributes that customers expect from technology-based self-service options, including speed of delivery, minimal human interaction, time savings, perceived control and privacy.

There are studies that have focused on the quality of technology-based self-service options and they show similar results. Dabholkar (1996) compared an attribute and an overall affect model by using five quality attributes. Enjoyment, control and ease of use were found to be significant for service quality, while speed of delivery and reliability had no effect. Similarly, Anselmsson (2001) created a model of customer perceived quality of technology-based self-services based on customer-specific and technology-specific determinants. Of the nine technology-specific characteristics that were used in the empirical study, seven attributes were significant for service quality. *Speed of delivery* concerned the availability of core services and time to perform the self-service. *Enjoyment* involved how interesting and pleasant the technology characteristics and service delivery process were. *Reliability* was a factor derived from the SERVQUAL model and related to the functionality and accuracy of the technology. *Ease of use* concerned the physical, cognitive and perceptual efforts demanded of the customer in respect to the customer's ability to use the system. *Physical appearance* referred to the appearance and maintenance of the system. *Personnel-based support* was similar to the responsiveness factor in SERVQUAL and concerned the friendliness and helpfulness of the service personnel. *Decisional control* related to the customer's ability to choose between self-service and personnel-based options.

While the e-service quality model developed by Zeithaml et al (2000) was mainly intended for online services, it was used as a starting point in a study on mobile service quality (Nordman and Liljander 2003). Based on an explorative qualitative study on consumers' perceptions of mobile services, ten determinants were proposed as determinants of m-service quality. Two determinants from the original e-service quality model were excluded (flexibility and efficiency) while two new determinants were added (content and ease of dialogue). *Content* was a new determinant for m-service quality and included utility and hedonic elements in the core service. Perceptual attitudes for affecting this factor were mobility, spontaneity and time sensitiveness. *Access* was a factor that included elements facilitating or complicating the service accessibility and it included configuration settings and dial-up speed. *Ease of navigation* involved perceptual attitudes that facilitated the use of the service, e.g. the structure of the site, labelling, search functions, and payment. *Ease of dialogue* was the other new determinant of mobile service quality and involved aspects that influence the consumer's activity in the service delivery. This factor included perceptions of length of

the text and input. *Aesthetics* was related to the ease of navigation and ease of dialogue determinants and described the perceptual attitudes of the layout. *Reliability* denoted the service functionality and involved site running and working links. The last four determinants - *personalisation*, *security/privacy, responsiveness* and *price knowledge* – were three determinants more or less directly employed from the original e-service quality model.

Meuter et al (2000) explored technology-based service encounters to identify sources of satisfaction and dissatisfaction of self-service technologies. They categorised self-service technologies based on the purpose of the service, i.e. customer service, transactions or self-help, and technology interface, i.e. telephone/interactive voice response, online/internet, interactive kiosks, and video/CD. The findings indicated that there were three major sources of satisfaction, i.e. that the SST *solved intensified need*, was *better than the alternative* and that it *did its job*. Better than the alternative was further broken down into *ease of use*, *avoidance of service personnel*, *time saving*, *when wanted*, *where wanted*, and *money savings*. The sources of dissatisfaction related mostly to technology and involved technology failure, process failure, poor design, technology design problem, service design problem, and customer-driven failure.

3.2.4. Relationship quality

In this subchapter an overview of relationship quality is presented. Value and quality can be seen on a continuum of episode-based and relationship-based elements where the former denotes evaluations of different episodes, service encounters or interactions, and the latter denotes evaluations of the relationship with a specific service provider (Liljander and Strandvik 1995). Service quality based on cumulative episodes can be found inbetween these opposites. This is frequently seen as relationship-based, but does not involve the exact same meaning. In this subchapter the relationship-based perspective on quality and value is discussed. This thesis emphasises value from an episode perspective, but considering that relationships are inherent in services (Grönroos 2000) or that services are inherent relationships (Holmlund 1997) relationship quality and value can thus provide insights into how to conceptualise customer perceived value of services. It is merely used to pinpoint aspects in value perceptions that may be useful for the conceptualisation in this thesis.

Liljander and Strandvik (1995) explored the nature of customer relationships in services and developed a conceptualisation that described the linkage between perceived service quality, customer satisfaction, and relationship characteristics. This relationship quality model distinguished between episode value and relationship value. Episode value was conceptualised as episode quality compared to episode sacrifice, whereas relationship value denoted all the benefits and sacrifice across episodes. Liljander and Strandvik argued that even though episode value was perceived as negative, relationship value could be positive if the accumulative experience of episode benefits were positive.

Ravald and Grönroos (1996) were one of the first to explore the value concept in a relationship-marketing context by stating that value perceptions include the value of having a relationship, i.e. value of the commitment from both parties. In this respect, the relationship itself was considered to influence the total value perceived. They proposed that value is not a function of only the core and supporting services; rather that elements in the relationship affect the perceived value. Hence, the total value was seen as a

function of the benefits from the episode and relationship, and the sacrifice from the episode and relationship. Following Monroe (1990) they included in perceived sacrifice all the costs associated with a purchase, i.e. purchase price, acquisition costs, transportation, installation, order handling, repairs and maintenance, and risk of failure or poor performance. Benefit was seen to include physical attributes, service attributes, and technical support, as well as quality. The value of the relationship included safety, credibility, and continuity, but there was no formal definition of episode and relationship value.

Holmlund (1997) explored perceived relationship quality by synthesising the domains and dimensions of quality in an industrial marketing context. Her perceived service quality model of business relationships explicitly combines process and outcome elements with different types of content based on technical, social and economic dimensions. The main argument in this study was that the functional dimension has outcome elements and that the technical dimension has process elements. The domain was suggested to represent the arena of the value creation process whereas a dimension was said to refer to the content of service quality. Contrary to traditional views (Grönroos 2000) Holmlund therefore characterised the technical dimension as more than merely outcome-related and the functional dimension as more than process-related. In other words, the technical dimension can also be related to process elements and the functional dimension can include outcome elements.

The technical dimension was defined as the core of the offering consisting of goods and services or a bundle of products that form a complete system or a project. Its process domain defined where the offering is composed and included design, production, inventory handling, delivery, maintenance and recovery. Each composition process was characterised by reliability, innovation, use of competence, speed, use of physical resources, flexibility and security. The outcome domain of the technical dimension included reliability, innovation, conformity, aesthetics and endurability. The social dimension related to the social interaction on an individual and company level. Its process domain involved the process taking place over time in the relationship in respect to appeal, trust, acquaintance, respect, congeniality and pleasure. The outcome domain denoted the result of the interaction in terms of appeal, trust, acquaintance, congeniality and pleasure at the individual level. At the company level it related to inter-firm cohesion, attraction and trust. The economic dimension concerning the economic benefit and costs related to pricing, costing and productivity at the process domain. The outcome domain related to the results of economic processes in terms of relationship benefits such as competitive price level, volume, profit margin, productivity enhancement, and latent relationship rewards. Relationship costs involved direct relationship costs, indirect relationship costs and latent relationship costs.

Similar to Liljander and Strandvik (1993; 1995), Keating, Rugimbana and Quazi (2003) explored the difference between service quality and relationship quality and found that the constructs were closely related, but statistically distinct. They also argued that service quality might be a conceptual antecedent to relationship quality. However, it was necessary to remove the service quality factors of personal interaction and problem solving in order to differentiate between the constructs. The study also showed that a relationship quality scale developed for an offline context was applicable in an online context and indicated that trust is the best predictor of global relationship quality in the online context.

3.2.5. Discussion

This subchapter discussed conceptualisations of service quality with a perspective on process and outcome elements. SERVQUAL and a technical/functional model were discussed as the two principal models that have dominated the service quality literature. While the process and outcome dimensions of service quality included aspects in direct relation to the service act, they did not explicitly consider surrounding elements in the service delivery. It may be argued that the functional dimension includes issues related to the service environment, but the service environment has been included as a separate quality dimension. Also, the service environment has been extensively researched and it indicates the importance of the service environment. In the following subchapter the role of the service environment in service delivery is explored.

In this subchapter the perceived quality of e-services was also discussed. Models of e-quality were presented and contrasted with traditional models of service quality. It was necessary to analyse e-quality models because they potentially impact the service environment. In many respects the contribution of the e-service quality models is the explicit specification of the quality determinants for an e-service context. However, although the context of e-services places new challenges for service delivery, it seemed that the determinants of e-quality are similar to the traditional models. Many of the factors may also be applicable for traditional interpersonal service and vice versa. For example, Zeithaml, Parasuraman and Malhotra (2002) found that many of the traditional service quality determinants also apply to e-service quality. The difference between traditional service quality and e-service quality was argued to be in the perceptual attributes related to the determinants of quality, rather than in the determinants themselves. Also, the study by Keating, Rugimbana and Quazi (2003) indicated that service quality and relationship quality models developed for an offline context may be applicable in an online context as well.

Moreover, it appears that similar determinants describe perceptions of different technology-based services. For example, it has been noted that many of the attributes that motivate or deter the use of self-services motivated or deterred the use of technology-based self-services (Dabholkar et al. 2003). In this respect, it seems that the perceived quality determinants may not be different depending on the service delivery method, i.e. that the technology does not influence the perceptions. Instead it may be that the service is the differentiating factor.

The more detail the quality models are given, the larger the differences between the services. Should one move up into a higher abstraction level, then the proposed determinants would easily be grouped under the three service determinants proposed for interpersonal services, i.e. process quality, outcome quality, and environment quality. Taking for example the Zeithaml et al (2000) model of e-service quality as an example, all determinants may be moved to one (or more) of the three determinants. Reliability, security/privacy, price knowledge and site aesthetics would fit under technical quality. Responsiveness, flexibility, efficiency, assurance/trust and customisation/ personalisation are suitable under the functional dimension. Ease of navigation, site aesthetics and access are applicable for the environmental quality element. In fact, as Zeithaml, Parasuraman and Malhotra (2002) claim, it is not necessarily the determinants that differ between traditional interpersonal services and technology-based services; it is the perceptual attributes related to the determinants that tend to differ.

One limitation of the e-service quality models is their lack of focus on the surrounding context in which the service is evaluated. Surely, aspects concerning the direct service context are included, such as elements relating to navigation, ease of use and efficiency. However, these aspects more closely relate to the direct service, and not the environment in which they are delivered. Many of the determinants involve the physical elements in the service, such as its structure and layout.

Relationship quality and value were also discussed in this subchapter. The existing research on relationship quality indicates that there is a relationship between service quality and relationship quality. In other words, it appears that service quality is an antecedent to relationship quality, and thus determinants of service quality and relationship quality are related. Relationship quality has also been argued to provide a dynamic approach to perceived service quality (Grönroos 2000). Relationship quality involves a longer time frame, whereas service quality is evaluated in episodes. However as a result, for this study, the relationship quality literature does not provide additional insight into the conceptualisation of perceived service value. The focus of this study is not to conceptualise the process of perceived value, i.e. it does not include a dynamic perspective. Instead, building on service quality that appears on an episode-based level, this study incorporates a static perspective on perceived service value.

Yet some aspects found in research in relationship quality are noteworthy for this study. One issue is the fact that relationship value is interconnected with relationship quality. Another issue is the domain and dimension approach by Holmlund (1997) which offers a method for categorising the service quality dimensions into domain elements of process and outcome. These aspects are important for the development of the customer perceived value model and are explored further in subsequent chapters. Moreover, the relationship value literature incorporates perceived sacrifice more explicitly and does not merely focus on the benefit component.

Quality models are critically reviewed at the end of this chapter in order to distinguish elements that can be used in creating the customer perceived value model. However, looking at the development in the quality literature and service management literature in general, a broader view has emerged that involves the service environment. The service environment may be seen as part of the functional dimension, but because it has been argued to be an important part of the perceived service quality, it has been included as a separate dimension. This is discussed in the following subchapter; however, it can be noted at the outset that there is a tendency of involving the service environment in service evaluations. In fact, it is also implicitly involved in the service quality models already described.

3.3. Service environment

Because it has been argued that customer-provider interactions and the physical interaction with the environment affect service quality it is necessary to explicitly emphasise the service environment in existing service management research. This subchapter describes the research on the service environment that has been acknowledged in service quality models (Brady and Cronin Jr. 2001; 1982; Lehtinen and Lehtinen 1991; Rust and Oliver 1994) and in other service management models (e.g. Baker 1987; Bitner 1992). It begins with a review service quality research to present determinants of environmental quality. Then follows a discussion on the role of

environmental variables in service delivery to indicate the relevance of contextual determinants in service evaluations. Accessibility is another issue that is argued to be relevant in service design and is also often important for value perceptions. Convenience is the fourth issue that is suggested to influence the service delivery and relates to customers' perceptions of the ease and flexibility of service delivery. The subchapter concludes with some reflections on the role of the environment in value perceptions.

3.3.1. Environmental quality

In addition to process and outcome elements, service quality has been argued to involve a third element, namely the service environment (e.g. Donabedian 1980; Lehtinen 1982; Lehtinen and Lehtinen 1991; Rust and Oliver 1994). Donabedian (1980) was one of the first to include the service environment in service quality. In his study on medical services he suggested that amenities, i.e. tangible elements of the service such as the waiting room, are a third variable in the quality of medical care.

Lehtinen (1982) suggested that the physical resources of the service production system influences the service process. He distinguished between physical support, i.e. physical setting and equipment, and the physical product, i.e. the material in the service delivery process consumed by the customer. The physical setting was argued to include for example the facility where the service was delivered. Later on Lehtinen and Lehtinen (1991) grouped the physical support into environment elements, such as interior, decorations and layout of the service facility, and instruments such as the equipment needed for the service delivery.

Rust and Oliver (1994) synthesised a three-component model of service quality that contains the service product, the service delivery and the service environment. In this model, the importance of service delivery and the service environment in the quality perceptions are emphasised. The service product denoted service features and specifications. The service environment involved the internal environment relating to issues of marketing orientation, service organisation, customer generation and retention as well as internal marketing. The external environment in turn related to the atmospherics or servicescape suggested by Bitner (1992) such as the influence of ambience, space, and function on customer and employee beliefs, attitudes, and performance. The service delivery denoted the needed roles and expectations on the service performance.

Brady and Cronin (2001) concurred with Rust and Oliver and proposed a hierarchical service quality model based on three determinants. Through their qualitative and quantitative studies they identified service quality as a function of interaction quality, environmental quality and outcome quality. Each of the determinants included three subdimensions that specified the quality perceptions. Interaction quality denoted functional elements in the service process and was based on attitudes, behaviour and expertise. It was mainly seen as a result of interpersonal interactions. Outcome quality was similar to the technical dimension and included waiting time, tangibles and valence. The quality of the physical environment involved three subdimensions: ambient conditions, design, and social factors. Interestingly, this conceptualisation included the SERVQUAL factors as modifiers of the quality subdimensions, i.e. they denoted how the subdimensions are assessed. However, only reliability, responsiveness and empathy

were retained; assurance did not remain a distinct factor while tangibles were included as a subdimension of quality.

Other research more directly related the servicescape as a factor of service quality. For example, Strandvik (1994) studied tolerance zones in perceived service quality and categorised attributes for restaurant service into four groups. Food and menu involving taste and look as well as variation were two groups that were direct applications of the outcome dimension of a restaurant service. Servicescape was a category that denoted the tangible service environment and included atmosphere, size, lightning and smell. The fourth group related to interaction directly operationalised as the functional dimension and involved personal service such as speed, friendliness and flexibility.

Similarly, Liljander's (1995) study on comparison standards in perceived service quality established three broad categories for service quality. The attributes in the categories were developed for a restaurant setting and involved food-related attributes, personnel-related attributes and servicescape attributes. Following Grönroos (1982) and Lehtinen (1982) this conceptualisation involved both process and outcome elements of service quality. Interestingly, of all 21 service quality attributes the bulk was servicescape related (11), which implies specific attention to the service environment. In comparison, personnel- and food-related categories involved each five attributes. The food-related attributes were seen as the outcome dimensions and included variation in the food, size of the serving, as well as the taste and look of the food. The personnel-related attributes focusing on process elements involved skills, willingness, and friendliness. Servicescape attributes included aspects related to the personnel, such as dress, or to other customers, such as a mixture of customers and other customers' behaviour. It also referred to the service facility such as décor and lightning, volume, cleanliness, and the functionality of furniture and facility.

There is also research focusing on the role of the service environment in the service delivery. The service environment has been suggested to be a powerful form of evidence affecting customer perceptions of services (Shostack 1985). It has frequently been defined as the physical facilities where the service is delivered or other elements influencing the interaction between the customer and the service provider (Baker 1987; Bitner 1992; Wener 1985). In the service management literature, Baker (1987) classified environmental variables from a consumer perspective such as ambient, design and social factors and raised the question of conscious and unconscious factors affecting customers' emotional states. Ambient factors included background factors that the customer is not necessarily consciously aware of but may be alerted when they are missing or cause inconvenience. Design factors were divided into aesthetic and functional factors and refer to the interior or exterior elements of the service facility. Social factors denoted the people, both customers and service personnel, in the service environment.

It has been suggested that the service environment can have features that vary in the way that they are perceptible and conscious for the customer. Baker (1987) concluded that the ambient factors of the environment are background variables that the customer is not consciously aware of, such as temperature and scent. These factors are taken for granted and not thought of if they perform at a satisfying level. Design factors are more conscious and more easily evaluated as they specifically concern aesthetic and functional aspects of the environment.

Similarly, Wener (1985) who studied environmental psychology of service encounters concluded that there are several levels of analysis in which research may understand the effect of the environment on the service encounter. The most detailed level was argued to be the human factors or ergonomics of the encounter, which involves temperature, lightning, noise, furniture that affect customer's responses to the setting. Social ecology, such as interpersonal distances, seating, individual control, was the second - a broader environmental factor that was suggested to affect the service encounter. The meaning of the setting was stated to occur on the broadest level and involved the way expectations for behaviour are learned, such as orientation and finding one's way in a facility, and the cues or symbolic elements of a setting.

Bitner (1992) introduced the servicescape construct and suggested that it influences the interaction between customer and employee. She concluded that the perception of the service environment varies depending on the situation in which the service is assessed. The servicescape was categorised with three environmental variables: ambient conditions, space/function and signs, symbols and artefacts. Ambient conditions were elements both within and beyond the company control such as temperature, air quality, noise, music, and odour. Space/function related more specifically to functional aspects of the service facility, e.g. layout, equipment, and furnishings. Signs, symbols and artefacts could be seen to involve the design of the servicescape such as signage, personal artefacts, style of décor. The last two categories may be seen as controllable by the service provider.

In a more recent contribution with the objective of exploring the theoretical and practical issues of the service environment, Bitner (2000) extended the servicescape construct and included a social element. The servicescape was defined as "the immediate physical and social environment surrounding a service experience, transaction or event" (p. 38). Moreover, the servicescape was argued to play four roles: 1) a package that conveys the external image of the service, 2) a facilitator that enhances of inhibits the efficient flow of activities, 3) a socialiser that conveys the expected roles, behaviours and relationships, and 4) a differentiator that differentiates the firm from its competitors. Interestingly, Bitner noted the dynamism of the service environment and the influence of the customers in moulding the servicescape. It was pointed out that the environment is not given; rather it is perceived by the customer and hence co-constructed by the inhabitants in the environment.

Correspondingly, Turley and Milliman (2000) synthesised the research on environmental cues and found five different atmospheric variables. It was noted that the variables have received varying attention in empirical studies. Research on *external variables* involving e.g. storefront, entrances, display windows, surrounding area and parking is limited. Conversely, *general interior variables* such as lightning, scents and sound, temperature and cleanliness, are included in many studies. The third atmospheric category, *layout and design*, denoted store layout such as space allocation, product groupings, and department locations. *Point-of-purchase and decoration* related to interior displays and denotes product displays, posters, signs, cards and wall decorations. *Human variables* was the last atmospheric variable and incorporated customer and employee characteristics and aspects that affect the perception of the store atmosphere such as crowding and employee uniforms.

Czepiel, Solomon, Surprenant and Gutman (1985) analysed the service encounter on a broad level and showed that customers' perception of service encounters is influenced

by service characteristics, production realities, provider characteristics and provider behaviour. The service characters and production realities create the prerequisites for good service while provider characteristics and behaviour create the experiences of the service encounter. While the provider characteristics and behaviour are beyond the scope of this study, the service characters and production realities may provide interesting issues on the impact of time and location on customer perceived value.

The production realities are elements that affect the customer's expectations and behaviour as well as the provider's expectations (Czepiel et al. 1985). *Time* was suggested to be one factor of the production reality and involved the duration and frequency of the encounter. Another factor relates to whether the *technology* base used to deliver the service is mechanical or electronic. Also, the participation and involvement of the firm in the production process and whether the service delivery is human or mechanical relates to the technology element of the production realities. The *location* of the service delivery involves whether the service is delivered at the customer's site or at the firm's location. The service *content* involves the physical, cognitive or emotional component of the service. *Complexity* refers to whether the service is physically or mentally complex or simple. The degree of *formalisation* involves the extent to which the service is flexible to suit the needs of the customer or situation. The *consumption unit* refers to whether the service is consumed in groups or individually. From the production realities, the first three factors may be interpreted as related to the service delivery, i.e. the process, while the latter four can be linked more specifically to the technical elements of the service.

Interestingly, at least one study has pointed to the importance of a flexible service environment. Rowley and Slack (1999) explored consumer perceptions of timelessness and placelessness by analysing the service environment in airport departure lounges. This highly explorative study focused on analysing and characterising the service environment by exploring service attributes such as the servicescape, range of retail outlets, marketing messages and customer experience. Rowley and Slack defined the place as a subjective perception of the interaction between the individual and the world. They also suggested that the sense of place and time is interrelated. Unfortunately, this study mostly focused on the customer as a receiver and perceiver of the environment, i.e. indicating that the service environment is not controllable by the customer.

3.3.2. Service delivery

Several service delivery conceptualisations have been proposed showing different roles of the customer in the service delivery. The service is not delivered only in an interaction between the customer and the service provider, but can also involve customer interaction with a service provider through intermediaries or technology. This affects the perceptions of the service in many respects and, depending on the interaction, the time and location may vary.

Lovelock (1983) was one of the first to include the location of service delivery in service research by showing differences in services performed at the client's site or services delivered at the provider's location. He classified service delivery according to the nature of interaction between customer and service provider and the availability of service outlets. The customer-employee interaction was defined as the customer going to the service organisation, the service organisation coming to the customer, and

interaction at arm's length. The difference between the interaction was in the distance between the customer and the service provider. The service outlet availability was categorised according to whether the service was delivered at a single site or multiple site.

Gummesson (1993) conceptualised the role of the customer and the site in the service/goods production. Eleven different situations were identified and can be interpreted and synthesised in the following way:

1. Manufacturing model where the offering is mainly produced in the factory by the firm and the customer enters when the offering is finished. The customer has little control over the production process.
2. Service production model where the service is produced at the service provider's facilities. The customer enters the service facility and thus may influence the process.
3. Service production at customer's site model may be an alternative to the service production at the service provider's facility.
4. Service arena model where the service provider is more passive and only creates the arena for service delivery. Interaction mostly occurs between customers or with the physical environment or system.
5. Service at distance model where the service is delivered via information-conveying media. Little physical interaction between the customer and service provider occurs as both parties are at they own sites.
6. Service via intermediaries model where the customer interacts directly with intermediaries and the service delivery occurs at the intermediary's site.
7. Third-party delivery model where the service is delivered at a third-party site and the customer interacts with a third party in addition to the original service provider.
8. Several sites and parties model where the service is delivered at many sites that are usually not controlled by either the customer or the service provider.
9. The model of service at a distance with no interaction between the service provider and the customer. The service provider interacts with a third party and the customer is not involved.
10. Service production with no interaction model where the service provider has little or no direct contact with people.
11. Hybrid production model where the above-mentioned situations are mixed.

The different service delivery models were suggested to have implications on service quality. Service quality may be controlled through influencing customers, employees, the physical environment or the system. A synthesis on Gummesson's (1993) ideas on the different situations how quality can be controlled is presented in Table 7.

Table 7: Role of service delivery in service quality

Service delivery model	**Control quality by influencing**			
	Customers	***Employees***	***Physical environment***	***System***
Manufacturing model	Mostly not possible	Good	Good	Good
Service provider's site	Limited	Good	Good	Good
Customer's site	Limited	Limited	None/limited	Good
Service arena	Limited	Good	Good	Good
Service at distance	Limited	Good	Good	Good
Service via intermediaries	Limited	Limited	Limited	Good
Third party delivery	Limited	Good/limited	Limited	Limited
Several sites and parties	Limited	Good	Sometimes none	Limited
Service at distance, no interaction	Some/not relevant	Very limited	None	Good
No interaction	Some/not relevant	Good	Limited	Good
Hybrid production	Varied	Varied	Varied	Varied

This conceptualisation suggests that the customer, employees and physical environment influence the service delivery on different levels. It also means that the service delivery occurs in other than interpersonal interactions between the service provider and the customer. This results in varying distances between the customer and the service provider. The larger the distance from the service provider, the smaller the service provider's possibility to control service quality through influencing either customers or the physical environment. Also the influence of employees may decrease. This is relevant for service delivered at customer's site and service delivered via intermediaries. The system is argued to be controllable in all situations except the hybrid production.

The proposed service delivery situations may appear distinct but may in fact be intertwined. For example, considering service delivery at customer's site, then the service may also simultaneously be delivered at a distance through technology. This means that although some elements can be used to control quality for one situation, e.g. the physical environment for service delivery at distance, in practice, it may be next to impossible if the service at distance occurs at customer's site.

Shostack (1985) explored the nature of service encounters and identified three types of services. The remote encounter was argued to occur without human interaction with the service provider, such as through mail or machine. The indirect personal encounter in turn denoted verbal but no face-to-face interaction. The direct personal encounter referred to direct human interaction. The remote encounter was argued to be the easiest to control because it is based on a physical object, such as a letter.

Dabholkar (1994) classified technology-based service delivery according to three aspects, based on by whom, where and how the service is delivered. The first aspect related to *who* delivers the service. It was defined as person-to-person and involved the service employee that used technology to deliver the service. Alternatively, in person-to-technology delivery, the customer delivers the service by using technology, which is the case of self-service options. The second aspect related to the location *where* the

service was delivered, which was defined as the customer's home or place of work or the service provider's sites. It was argued that the location of service delivery is likely to influence which factors are important in service evaluations. The third aspect related to *how* the service is delivered in terms of physical distance or proximity, i.e. by direct or indirect contact.

This classification is interesting as it turns the attention towards the location and subject of service delivery. However, two issues require further discussion. Looking at first interaction, it emphasises the customer's input in the service delivery by involving self-service options. Moreover, the location is defined as stationary, i.e. the location is assumed to be either at the customer's site or the service provider's site. However, considering the mobile technology apparent in the current business environment, it may be important to include fewer stationary locations, such as a customer interacting with a service provider on the street or on the move. In this respect, the location is less fixed and the service delivery can occur at various location where the mobile technology functions.

Customer participation in service delivery has been conceptualised with three levels (Bitner et al. 1997). With *low* customer participation the customer is only required to be present during the service delivery. In *moderate* customer participation the customer input in the service delivery customises the standard service. In the *highest* level of customer participation the customer co-creates the service product together with the service provider. Bitner et al (1997) also proposed three customer roles in service experiences where the customer is viewed as either a productive resource, as a contributor to quality, value and satisfaction and as a competitor to the service organisation. When considering technology-based self-service options then the low level of customer participation is not directly applicable. In fact, it is expected of the customer to contribute to the service delivery and perform some of the tasks traditionally performed by the service employee. Conversely, the moderate and high levels of customer participation are especially relevant for technology-based self-services.

3.3.3. Accessibility

Service models have pointed to the importance of accessibility in terms of temporal and spatial functionality. Research points to the importance of access to the service environment that facilitates the purchase and consumption of services, such as accessibility (Grönroos 1978), ease of initiation (Donabedian 1980), ease of access (Parasuraman et al. 1985; Yale and Venkatesh 1986) and ease of orientation (Dabholkar et al. 1996). Other research emphasised the physical distance (Kaufman and Lane 1996) or proximity of location (Yale and Venkatesh 1986) and number of service sites (Lovelock 1983), which shows that accessibility is important in the perceptions of services. Accessibility to services is discussed in this section.

Resources affecting service accessibility have been suggested to be a bearer of the service (Grönroos 1978). Introduced originally as a substitute for distribution, accessibility was argued to include human resources, machines, offices, buildings, and other physical entities. It was argued that the service provider can manage these intra-corporate elements of the service and that they enable quick and convenient access to the service. In other words, accessibility was seen as something that the service provider

can maintain full control over. However, it is stated that consumers are active participants in shaping the service offering and the result is that "consumers influence the accessibility of a service" (Grönroos 1978:596). In other words, it is acknowledged that customers may in fact affect the accessibility of the service through their actions.

Grönroos (1979) concretised the service offering with three elements: the core service, the accessibility system, and interactive communication with the market. While the core service accounted for the basic service idea, the reason for being on the market, the accessibility system and interactive communication reflected the service delivery factors, i.e. the resources that concretise the abstract business idea in the form of a concrete offering. In this respect, Grönroos stated that the accessibility system forms part of a contextual part of the service offering. In other words, while the core offering is the primary resource creating value for the customer, the accessibility systems forms the secondary source of value.

Grönroos (1979) separated between two broad categories of accessibility resources and distinguished them from distribution resources. The internal accessibility resources were argued to be within the service provider's control while the external resources were seen as beyond the direct control of the service provider. These accessibility resources form the service provider's accessibility system and consist of six broad types:

- Personal resources
- Equipment, facilities and transportation
- Machines and automates
- Documents and other physical resources
- Other accessibility-enabling resources
- Opening hours and timetables

The first five accessibility types are spatial factors while the sixth group consists of temporal factors. Unfortunately, there is no discussion about *how* the firm can manipulate the factors to serve customers. And more importantly, there is no acknowledgement of how customers perceive them and whether it is possible for customers to influence them. Grönroos (1979) merely mentions that a third party such as sales agents and intermediaries controls the external accessibility resources.

In the augmented service-offering model, Grönroos (2000) included accessibility as a functional dimension that added value to the basic service package together with customer participation and interactions. Accessibility was further broken down to site accessibility, customer ease of use of physical resources, frontline personnel's contribution to accessibility, and ease of customer participation. Site accessibility included ease of access through convenient location and office hours. Customer ease of use of physical resources on the other hand involved the attractiveness and condition of the interior and exterior site. Frontline personnel's contribution to accessibility concerned the activities of the personnel, e.g. skills, response time, and professionalism. Ease of customer participation related more specifically to the service provider's formal policies and procedures, such as forms and instructions.

Gummesson (1992) who studied quality determinants for service organisation argued for the importance of accessibility. According to his classification, accessibility included reception hours, signage, telephone service, visits, written confirmation,

inspection, processing time, and language and information. Geographical location was also included as an accessibility factor.

The more the customer participates and contributes to the service, the more important it is that the service site is accessible. While frontline personnel may easily influence interpersonal services, self-services or services with much customer participation are more influenced by customers. This means that frontline personnel have less chance to contribute to accessibility for self-services, which makes other factors that affect customer activities in the service process, such as site accessibility and ease of use of physical resources, more crucial. In this respect it seems that temporal and spatial access may need to be brought forward as separate dimensions and not merely be included in the functional dimension. This suggestion will be further discussed in Chapter 4 where the theoretical conceptualisation is presented.

3.3.4. Convenience

Convenience is frequently connected with a time and economic aspect. Traditionally, research on time has been related to time allocations (e.g. Hendrix et al. 1979), time shortage (e.g. Darian and Cohen 1995), time availability (e.g. Kaufman and Lane 1996), and time orientations (e.g. Bergadaa 1990; Settle et al. 1978). Other research has emphasised buying and opening hours (e.g. Kaufman and Lane 1996), punctuality (e.g. Taylor 1994) and speed of delivery (Anselmsson 2001; Jun and Cai 2001; Zeithaml et al. 2000). For example, Kaufman and Lane (1996) studied retail shopping and found that shoppers aim at maximising shopping time and prefer to shop at times convenient to the individual shopper. Robinson and Nicosia (1991) found that how time-tasks are organised is more important for the output on productivity than the amount of time expended on the activity. They also concluded that those that can organise their activities better end up using their time more effectively and thus can engage in more activities. Yale and Venkatesh (1986) reviewed the empirical and theoretical research on convenience and linked it to time constraints. They stated that because consumers are time constrained they are more likely to use convenience products.

However, Yale and Venkatesh (1986) noted that time constraints are not the only reason why consumer seek convenience. They suggested that convenience as a unidimensional construct based on a time and economic variable is too ambiguous and stated that convenience is related to product level and the consumption behaviour level characteristics of the consumer. Accordingly, convenience was proposed to be a function of spatial, psychological, sociological, philosophical and situational variables. Now, the psychological, sociological and philosophical may be seen to be closely linked to consumer characteristics such as values, attitudes, personality, roles, reference groups and culture. The spatial variable in turn is related to the temporal and economic variable and refers to proximity in location or in time. The situational variable relates to usage and purchase situations.

Yale and Venkatesh (1986) concluded by suggesting six classes of convenience: time utilisation, handiness, appropriateness, portability, accessibility, and avoidance of unpleasantness. *Time utilisation* refers to time savings or time-buying utility, while *handiness* denotes effort-saving capability. *Appropriateness* refers to the offering's suitability to specific needs. *Portability* and *accessibility* were argued to be somewhat related as the former referred to ability to consume the offering in a desired location,

and the latter to proximity of location, availability when desired, and flexibility in service delivery. *Avoidance of unpleasantness* was said to relate to the ability to forego an unpleasant activity.

Brown (1990) studied convenience in a service marketing context and conceptualised it with five factors. Interestingly, according to this conceptualisation, time saving is not seen as a separate factor of convenience but is a consequence of a convenient service. *Time convenience* related to customers' perception of the most convenient time for service delivery and does thus not involve time savings. *Place convenience* denoted the place where the service is delivered. *Acquisition convenience* involved customers' easiness of receiving the service. *Use convenience* related to the ease of use of the service, while *execution convenience* denoted the convenience of having someone else provide the service. Brown argued that convenience is a function of all the four first factors and the ultimate convenient service is available continuously and everywhere and would require no effort to acquire or use. Likewise, Zhu, Wymer and Chen (2002) defined convenience in terms of "generous number of accessible service delivery points that are available when customers need them" (p. 71).

Convenience has been suggested to result from consumers' perceptions of time and effort in relation to an offering, namely decision, access, transaction, benefit and postbenefit convenience (Berry et al. 2002). Interestingly, all these types of convenience focus on time and effort, thus de-emphasising the influence of the spatial dimension on convenience. *Decision convenience* related to the time and effort in deciding to obtain an offering, and it was suggested to be more important when selecting labour-intensive services. *Access convenience* related to the time and effort needed to initiate service delivery. It was argued that because of the need to synchronise the service with available time and effort, access convenience is more important for the consumption of inseparable services. It is also viewed as especially critical for services that require customer participation because customers must be present at the right time and place. *Transaction convenience* related to the perceived expenditures of time and effort to effect a transaction. The time and effort costs were proposed to be larger for transaction convenience than for decision or access convenience. *Benefit convenience* related to the perceived time and effort expenditures to experience the core benefits of a service. It was suggested to be more critical to perceived overall convenience than decision, access or transaction convenience, but less important for services with high hedonic value. *Postbenefit convenience* denoted the perceived time and effort expenditures in relation to reinitiating contact with the service provider after the benefit stage of the service.

Also, Peterson and Balasubramanian (2002) suggested that time studied from a consumer perspective should focus more on it as a resource to simultaneously achieving multiple objectives, rather than merely as a resource that is minimised in a shopping process. They reflected on retailing in the 21st century and argued that consumers are increasingly demanding convenience in the form of easily accessible stores, i.e. *geographic convenience*, and reduced time spent searching for and purchasing products, i.e. *time convenience*. They concluded that two of the interesting research issues in retailing are time and location. Accordingly, location may be studied either in terms of the role of space, consumer location, or store location. Looking more closely at consumer location, there is a need for a shift in focus from pulling customers to a fixed location to mobile customers that can be targeted outside their fixed locations. They pointed out that the store is no longer fixed to a physical location, but can more specifically be positioned to the customer's location. Thus, location can be seen as

providing new tools for competitive advantage: “Space is back with a vengeance in this scenario, offering new and exciting means for differentiation.” (Peterson and Balasubramanian 2002:14).

Time and location convenience seem to be especially important due to technology-based self-service options. Balasubramanian et al (2002) argued that although time and location are intertwined in the context of economic activity, mobile technology can relax both the independent and mutual constraints of time and location for many activities. An activity is temporally flexible when it is not limited to a fixed time and spatially flexible when it can occur from a wide range of locations. Optimally an activity could occur anytime and anywhere but not all activities gain flexibility at both levels.

Convenience as a construct has been argued to be an important research issue, yet it seems under-explored. The benefit of convenience has not been measured explicitly, and most studies have only attempted to define it (e.g. Berry et al. 2002; Brown 1990). Dabholkar, Bobbitt and Lee (2003) studied the reasons for adopting self-scanning checkouts and found that convenience was one factor often mentioned by respondents, in addition to control, reliability, ease of use and enjoyment. However, because convenience was not specifically measured they could not say whether it was a separate construct or whether it overlaps with speed and ease of use.

3.3.5. Discussion

This subchapter offered insight into research on the service environment, and it included a review on research on environmental quality, service delivery, accessibility, and convenience. In this section, the findings are discussed on a more general level and linked to the specific focus of this study.

One conclusion that can be drawn from this section is that although research on the service environment considers many elements of the service delivery, it appears that the focus is on elements in the service delivery that can be controlled by the service provider. For example, Bitner’s (2000) research on the servicescape shows that the focus is on the built environment that can be controlled by the service provider. In this respect, a focus is lacking on other environmental variables that cannot be controlled by the service provider, such as the perceived time and location of the service delivery. Interestingly enough Bitner (2000) calls for research on the effect of the servicescape on quality perceptions and service evaluations, which actually points to a need for extending the focus on the environment to include aspects in the service environment that cannot be controlled.

Looking at technology-based self-services, it seems that the three service delivery models proposed by Gummesson (1993) are relevant. Service delivery arena, the service delivered at customer’s site, and service delivered at distance are interesting because they may be relevant for all technology-based self-services in varying degrees. This complicates the influence of the service provider on the perceived quality, as the service is no longer in the direct control of the service provider. In many cases, the customer delivers the service using a technology device such as a computer or mobile phone without even interacting with the service employee. In this respect, the perceptions of the service are only controllable by influencing the technology system that enables the

service delivery. This results in a service delivery more or less on the customer's conditions.

The different models of service quality and service delivery imply that there are both temporal and spatial differences in services. For example, remote service delivery involves temporal and/or spatial distances between the service provider and customer. This means that the service environment involves not only the servicescape but also temporal and spatial differences. The study by Czepiel et al (1985) indicated that technology, time and location are important elements in the production realities. Considering the aim of this study, it seems relevant to analyse further the perceptions of these production realities and investigate how they influence value perceptions.

Moreover, as the discussion on accessibility indicated, access may relate to temporal and spatial elements of the service delivery and deserves acknowledgement; however, the limitation of this factor is its multidimensionality. For example, existing service quality models have related it to aspects such as product variety, physical location, and delivery settings.

3.4. Summary and critical review

In this chapter relevant theories and models have been discussed to create the frames for the customer perceived value model that is presented in the next chapter. Two basic ideas were presented. First, it was argued that the value construct needs to be broadened to include dimensions in addition to benefit and sacrifice components. Secondly, it was proposed that two dimensions besides traditional dimensions may be used to extend the value construct and thus involve the service environment from a customer perspective.

The chapter was divided into three different parts. First, the literature review included a discussion of existing service management research by analysing the traditional trade-off perspective on value evaluations. Customer perceived value has been defined as a trade-off between benefit and sacrifice. Secondly, quality perspectives were presented to introduce the main perceived quality models that have influenced this study. Looking at service quality literature, value can be seen as a function of technical and functional elements. A presentation on e-service quality models was included to introduce the influence of technology on service evaluations and to point to the importance of temporal and spatial elements in service delivery. This subchapter also included a discussion on relationship quality to contrast transactional value taken in this study from a relationship perspective. Including in the service quality definition is the influence from the service environment, which introduces the relevance of time and location. Thus, thirdly, this chapter additionally discussed the relevance of time and location in customer perceptions in existing theory by presenting existing research on the service environment. This involved a discussion on environmental quality, service delivery, accessibility and convenience. This details more specifically the research on temporal and spatial elements in service delivery.

Service value, service quality and service environment are three issues in the literature review that can be seen to direct the way customer perceived value can be reconceptualised, as well as to indicate aspects that are lacking in existing research. First service value research is discussed; this is followed by a review on quality models; and a review on service environment concludes the section.

In the literature review the question about the level of abstraction of value assessments was raised and it points to a need to reconceptualise customer perceived value. Traditionally, value assessments have been conceptualised as a trade-off between benefits and sacrifice, i.e. what is received in relation to what is given (Zeithaml 1988). More recent studies have suggested that value assessments are additive trade-offs making the benefit and sacrifice integrated (Cronin et al. 1997; Ostrom and Iacobucci 1995). Depending on the level of abstraction the concept of value is more than a clear-cut ratio between benefits and sacrifice and may involve an intertwined combination of benefits and sacrifice. The same elements that provide a benefit can be a sacrifice, depending on the situation, and especially when viewing sacrifice beyond price. The offering can be seen as containing elements of benefit and sacrifice. In the light of this, for example, the process dimension could be defined as customer input in the service delivery, which in fact can be perceived as both positive and negative. If customers perceive it as a positive thing to be able to influence the service delivery and value their control of the process, customer input can be seen as a benefit. Conversely, other customers who only see the expected and required effort in the service process would probably perceive the input as a sacrifice. In this respect, it seems that the benefit and sacrifice separation is not sufficient, and that additional sources of value need to be incorporated.

As a result, because of the interdependence of value and quality, service quality dimensions were discussed as sources of value. Two recognised models were presented, the technical/functional quality and SERVQUAL. It can be argued that the technical/functional quality model is superior to the SERVQUAL model for a number of reasons. Although extensively used, the SERVQUAL quality model has received a lot of criticism since its development. Buttle (1996) provided a comprehensive review and critique of the SERVQUAL scale by discussing both theoretical and operational problems. These issues are summarised in Table 8, and some of them are discussed in more detail:

Table 8: Critiques on SERVQUAL (adapted from Buttle 1996)

Theoretical	Operational
Paradigmatic objections	Expectations
Gaps model	Item composition
Process orientation	Moments of truth
Dimensionality	Polarity
	Two administrations
	Variance extracted

SERVQUAL has not been proved consistent across industries and contexts (e.g. Babakus and Boller 1992; Carman 1990; Cronin and Taylor 1992). Recently, in a meta-analysis of service quality research, the replicability of the SERVQUAL determinants has been shown to be limited (Brown et al. 2002). Carman's (1990) replication of the SERVQUAL scale offered only some support for the reliability and validity of the determinants and concluded that the scale may need substantial customisation to a specific setting. Carman's study suggests that while the quality determinants are not necessarily generic it may be imperative to add items for new factors if they seem important to a specific service setting. Moreover, there has been found insufficient support on the relationship between the SERVQUAL constructs to satisfaction (Johnson et al. 2001).

This affects the generalisability of SERVQUAL for service contexts and types of service. Recently, it has been found that modified versions of the SERVQUAL instrument offer better results (Brown et al. 2002). Carman (1990) found that there might be a need to measure quality determinants derived from the SERVQUAL scale separately for different functions. This meant that banking services need separate quality measurements for mortgage loans, consumer loans or transactions tellers. Similarly, Babakus and Boller (1992) found that the determinants may be dependent on the type of the service. For example, it has been argued that the SERVQUAL model is concentrated on the interpersonal nature of service, which makes it less applicable for technology-based self-services (Liljander et al. 2002). Also, the technical/functional quality model in turn has been shown to outperform the SERVQUAL determinants particularly when customers are actively involved in service delivery such as in banking services (Lassar et al. 2000).

In contrast, it has been argued that the technical/functional model is valid on a more general level than the SERVQUAL model. While the former is based on global elements to describe service evaluations, the latter uses service encounter characteristics. The technical/functional model functions on a high abstraction level, which make it highly generalisable and appropriate for many different services.

In fact, there is support for a two-dimensional factor structure of service quality. For example, Mels, Boshoff and Nel (1997) found support for a two-dimensional quality model. In a study on the factor structure of SERVQUAL, they concluded that SERVQUAL can be conceptualised with two determinants similar to the technical and functional quality model. Mels et al proposed extrinsic quality that was defined by the tangible aspects of service delivery and intrinsic quality that was a function of interaction aspects of the service delivery.

However, none of the models are without limitations. Neither the technical/functional model nor the SERVQUAL measure the relative difference between the determinants, which has been argued to be important. For example, Carman (1990) found that while expectations and perceptions are crucial in overall quality, there is a need to recognise that the importance of each determinant also affects the perceived overall quality. Additionally, the importance of the determinants was suggested to be homogenous on an individual level, which implied that mean importance weights might be more accurate for calculating the overall quality of a specific service. Ostrom and Iacobucci (1995) measured the importance of the attributes and found that although all attributes were perceived as important, the relative importance varied depending on the service context and industry.

Many of the determinants in the SERVQUAL model involve mainly the functional aspects of the service process but can be seen to include temporal and spatial elements as well. For example, a time aspect is included in the reliability and responsiveness determinants as the purpose is to deliver the service promptly (responsiveness) or at the scheduled time (reliability). Access and tangibles may involve time and location as they create the appropriate temporal and spatial bases for the service to be delivered, such as physical facilities (tangibles) or convenient opening hours and location (access). However, it is interesting to note that the determinants are all seen as elements that the service provider can control and manipulate. The exception is the influence that other customers may have on the service delivery. This means that the customer is not seen to be able to influence time and location.

However, it seems that the content of the quality determinants may need to be extended, especially considering the role of technology in the service. As a result of the shift in focus in service delivery from interpersonal interactions between the service provider towards indirect and even remote interactions, the functional dimension of service evaluations needs to be reconsidered. Although the functional dimension in the original technical/functional quality model denoted how the process functions and is perceived (Grönroos 1982), it is frequently seen as the function of the customer-employee interactions, with some exceptions (e.g. Lehtinen 1982; Lehtinen and Lehtinen 1991). However, considering the existence of many different self-service technologies and technology-based self-services, the service encounter may in fact occur without explicit interaction between the service provider and the customer. Service delivery can occur in indirect customer-employee interactions (e.g. Bitner 1992; Dabholkar 1994; Gummesson 1992; Lehtinen 1982). This means that modelling the service delivery as only involving direct customer-employee interactions seems insufficient. In this respect it seems relevant to extend the functional dimension so that it also includes other sorts of interactions than interpersonal. In fact, where the service delivery is often shifted towards the customer, the level of activity and input of the customer in the service delivery may be even more influential than the interaction with the service provider.

The third relevant issue in the literature review related to the role of the service environment in service delivery. Time and location of service delivery need explicit attention. The service environment was argued to be an important but secondary element in service delivery. Service management literature considers environmental aspects of service delivery and there are references to the place of value, but existing research only implicitly implies that the temporal and spatial factors affect quality. Time and location are often considered as part of a static service environment, as external factors in the value creation processes rather than value dimensions. As such, time and location are not factors in the offering, but in the servicescape. Focus is frequently on tangible and durable elements in the environment such as tangibles and ambiance rather than on more momentary elements such as the time and location of service delivery. However, these aspects are often outside the control of the customer and are seen as elements that the service provider can control and influence.

One limitation of existing research arises from its emphasis on the marketing mix and buyer behaviour paradigms. These schools of thought are based on the noninteractive perspective that focuses on influence activities of one actor on other actors (Sheth et al. 1988). This means that the physical environment is perceived as a fixed element in the service delivery that can be manipulated by the service provider, and the customer has no or little ability to affect it. But this line of research does not specify how the situation would enhance the understanding of how the value is formed in the minds of customers.

In fact, existing research has suggested that there is a need to add dimensions that may more specifically describe value in a specific service setting (e.g. Carman 1990) and in this respect the inclusion of time and location as value dimensions seems relevant. The literature review on service management research showed that temporal and spatial considerations are acknowledged. As discussed further in subchapter 4.2 and as shown in APPENDIX 9 existing service management models may be separated into four dimensions. It shows that existing research addresses time and location only on a very detailed level. This implies that existing service conceptualisations assume that the time and location in which the service delivery occurs is stable and beyond the scope of the service design.

Consequently, there seem to be a need for studying the value construct from an explicit focus on the customer perspective. It seems necessary to consider the active role of the empowered customer, which may make it difficult for the service provider to influence value perceptions to the same degree as before. A proposed reconceptualisation is based on service value and quality models. The value and quality approaches function on a high level of abstraction but offer a complementing perspective. Both approaches are equally relevant but provide different perspectives. It seems appropriate to complement the perspectives and thus integrate them to describe value perceptions. Additionally, two new dimensions including time and location are proposed to extend the value construct. The integration of the value and quality models is further extended and defined in the following chapter where the theoretical conceptualisation is developed. The resulting conceptualisation involves expanding the scope and defining the content of value dimensions. It also involves measuring the relative importance of each dimension to provide additional information on value perceptions. The following chapter proposes a broadened perspective on customer perceived value that in the first place redefines the existing scope of value assessments and in the second place expands the scope of value assessments. Then, in order to describe the scope of value assessments, the content of the value dimensions is explored.

4. CREATING THE CUSTOMER PERCEIVED VALUE MODEL

This chapter develops the conceptual model of customer perceived value with a focus on temporal and spatial value dimensions. This conceptualisation broadens the perspective on perceived value by considering the total perspective of the value creation process from a customer point of view. Three areas influence the development of the customer perceived value model, i.e. the literature review, the pilot study, and the empirical results as depicted in Figure 11. The theoretical framework created the foundation for the pilot study and the empirical study. It established the relevant tools to identify important dimensions in value and direct the focus of the study. The pilot study and the empirical results created and refined the tools to describe the value dimensions and thus deepened the customer perceived value model.

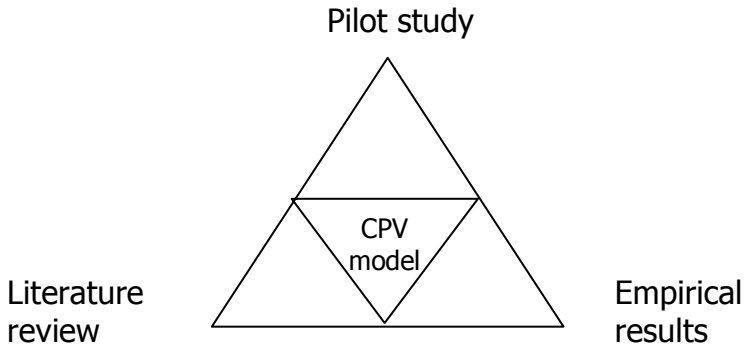

Figure 11: Elements influencing the customer perceived value model

The customer perceived value model is developed and described in this chapter. The scope of value is defined by integrating existing conceptualisations into value dimensions. The content of the value dimensions is also established by discussing how the dimensions have been addressed in extant research. The chapter concludes with a conceptualisation of customer perceived value.

This subchapter presents the development of the customer perceived value model, which describes value creation from a customer perspective. First the scope of value assessments is introduced and the point of departure is taken from the value dimensions. Also the time and location of value creation is elaborated. This results in a proposition of four value dimensions. Then the content of the value dimensions is discussed. Finally, the customer perceived value model is conceptualised and discussed.

4.1. Defining the scope of value dimensions

This subchapter broadens the scope on value assessments by first redefining the existing scope. This is done by combining benefit and sacrifice value components with technical and functional dimensions. The next step is to extend the existing scope. This involves a discussion on temporal and spatial value, and these new dimensions are also separated into benefit and sacrifice elements. The result is a synthesis of four value dimensions based on benefit and sacrifice value components. The scope of value hence denotes the value dimensions, which customers perceive as increasing or decreasing the perceived value.

4.1.1. Redefining the existing scope

The scope on value can be redefined on two dimensions. First, it is proposed that the benefit and sacrifice components of value are based on a continuum ranging from abstract to concrete levels. Secondly, earlier conceptualisations have modelled value as containing two separate components: benefit and sacrifice. This conceptualisation is used as a starting point. However, previous research has also suggested that the benefit and sacrifice components may be intertwined. As a consequence, it is argued that the benefit and sacrifice may in some contexts be one component ranging from value-adding to value -decreasing nuances.

4.1.1.1. Continuum of value components

Many conceptualisations in service management literature appear relevant to describe the different levels of abstraction of value. The value components may be interconnected and form a continuum. Ojasalo (2001; 1999) studied quality dynamics in professional services and found that different expectations are a central part of quality dynamics, namely fuzzy, explicit-implicit, unrealistic-realistic expectations. These expectations can be seen from the perspective of value perceptions. *Fuzzy expectation* is the unclear understanding of the value in an offering. The customers are not sure of what they want and thus the value perceptions are quite fuzzy. In contrast, *precise expectation* is the opposite to fuzzy expectation. *Implicit expectation* denotes that the service taken is self-evident and is not actively and consciously thought of. *Explicit expectation* on the other hand refers to precise and conscious assumptions or wishes relating to the service. However, although the customer is aware of the explicit value, the need for it is not explicitly expressed. Where fuzzy value involves imprecise and unclear perceptions and implicit value encompasses unconscious perceptions, explicit value relate to clear and conscious perceptions. *Unrealistic expectation* refers to expectations that are impossible or highly unlikely for any service provider to fulfil. *Realistic expectation* involves expectations that are likely to be met.

Using Ojasalo's conceptualisation of expectations to describe value illustrates that benefit and sacrifice are multifaceted and complex. Building on this idea of expectations, different value perceptions can be identified. Value can be seen as a continuum of explicit and implicit elements, realistic and unrealistic elements, as well as precise and fuzzy elements. The implicit/unrealistic/fuzzy elements denote that value is individual and based on internal value perceptions rather than tangible and rational "truths". The explicit/realistic/precise elements constitute external elements of value, such that may be expressed or even measurable. Existing research on value can be divided based on a continuum as depicted in Figure 12 and more closely categorised in APPENDIX 6. Some attributes can be placed more to either the right or the left such as monetary benefits or reliability, whereas other are more relative, such as contextual benefits.

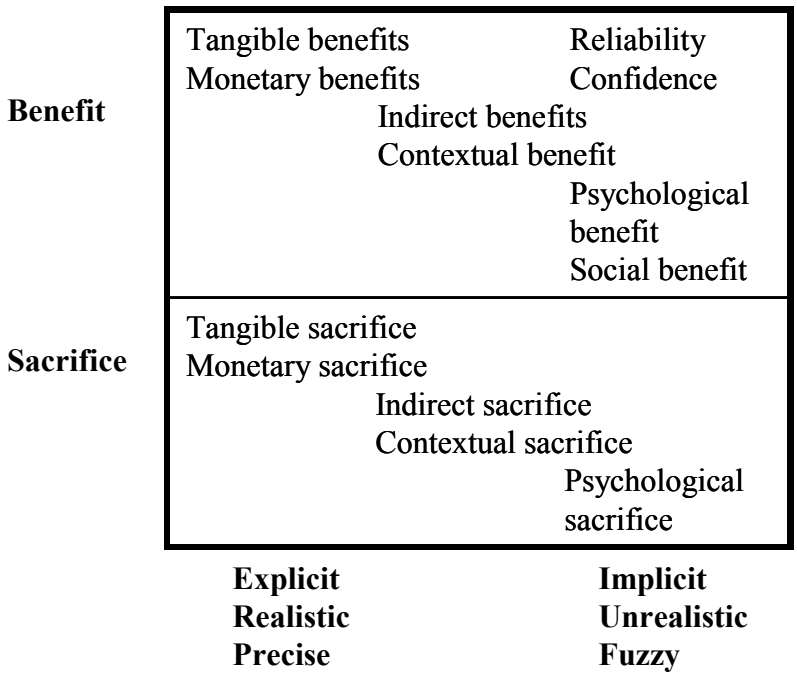

Figure 12: Value continuum

Viewing value based on the continuum illustrated above turns the attention towards the interconnectedness of some of the elements within the benefit and sacrifice. This implies that the conceptualisation based on benefit and sacrifice may need further specification. For example, the separation between psychological benefits and reliability is not that clear because they appear on different levels of detail. Some elements may be sub-elements of each other, such as monetary sacrifice, which may be subordinate to tangible sacrifice.

4.1.1.2. Interconnection of benefit and sacrifice

In many respects, the division into separate benefit and sacrifice components may be ambiguous. Monroe (1990) suggested that price is used both as an indication of sacrifice as well as of benefit. This means that price is also used to evaluate perceived quality. Consequently, increasing price does not necessarily only increase the perceived sacrifice, but it may also increase the perceived benefits. This implies that benefit and sacrifice are actually interconnected components of perceived value.

Moreover, as was argued in the literature review, value assessments are actually not clear-cut and rational trade-off as could be imagined; rather, the evaluation of benefits and sacrifice seem to occur simultaneously in an additive manner (Cronin et al. 1997). This implies that the benefits and sacrifice are intertwined and, as such, separate evaluations of benefits and sacrifice may not be possible. For example, the successful execution of Internet payment transactions demands quite a lot of input from the customer and this is only achieved at the expense of increased sacrifice in terms of time and energy. Thus, a functioning Internet service (benefit) is directly linked to customer effort (sacrifice). Consequently, rather than separating value in benefit and sacrifice, different value dimensions based on perceptions of both benefit and sacrifice create a more comprehensive view of the customer's value perceptions (see Figure 13).

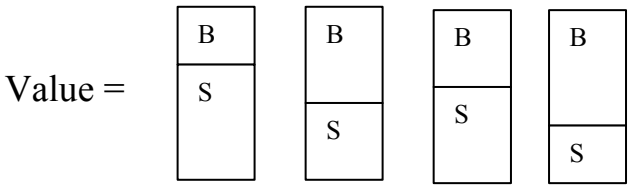

Figure 13: Value dimensions as combinations of benefit and sacrifice

When focusing on the value dimensions it seems reasonable to expect that the different combinations of benefit and sacrifice differ in their importance. The reason for this is that the benefit and sacrifice components are perceived differently. For example, one customer may perceive the benefit of being able to perform the service act as larger than the sacrifice involved to perform it. On the other hand, the benefit of an extensive service concept may feel less important because the service entails high costs. Consequently, the ability to impact the service is more valuable than an extensive service concept.

However, defining value based on combinations of benefits and sacrifice does not sufficiently describe the sources of value. For example, benefits range from monetary savings to perceived psychological benefits but they are not specifically connected to some specific element in the service. Even the division into fuzzy, implicit and explicit value elements does not explicate the sources of value. It focuses on the customer's perceptions and shows a difference in the level of abstraction. When considering the specific dimensions that could more specifically describe the sources of value, the process and outcome framework has been proposed to be useful.

4.1.2. Expanding the scope

According to findings from existing research it seems that the technical and functional model may work as a frame of reference for defining the dimensions of value because the starting point of this study is the Nordic School of Thought. For example, Holmlund (1997) used this perspective when investigating and defining quality in business relationships. She concluded that this perspective has been used for quality models in the interaction and network approach, in service management, and in the production-oriented view of manufactured goods.

In the model, technical and functional value-adding elements link closely to the service and the service process. However, in comparison to traditional service quality models, it is proposed that the technical and functional elements that have been used to operationalise benefit can also form the basis for conceptualising sacrifice (see Figure 14). As discussed previously, because the benefit is interrelated with the sacrifice, technical and functional elements have also sacrifice components. This is different from previous research that has conceptualised only the benefit component (frequently defined as quality) in the value trade-offs with technical and functional elements (Grönroos 1982). However, because of the interdependence of benefit and sacrifice, and because benefits can be conceptualised with technical and functional elements, sacrifice can also be conceptualised with the same dimensions.

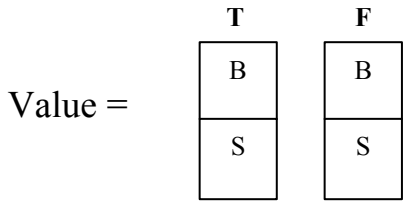

Figure 14: Technical and functional value dimensions

Although quality is a related to the value construct, it does not involve sacrifice. In this thesis the argument is that the same elements that conceptualise benefit, e.g. quality dimensions, can be used to define sacrifice. Recent discussions about service quality, value and satisfaction in the service management and marketing literature have suggested that the focus should have originally been on service features (Grönroos 2001), which are in fact more closely linked to the attributes of the service rather than the quality or performance of the service. If taking this perspective, where the dimensions originally conceptualised as characteristics of quality (for example technical and functional dimensions) are in fact dimensions of a perceived service, then the dimensions can be seen as attributes used in assessing the value of services. As such, the quality dimensions, or to be more correct the service dimensions, are used by customers in the trade-off between benefit and sacrifice.

However, in the literature review it was argued that temporal and spatial elements may be important in value perceptions. For example, the technical and functional elements of a service can provide a different kind of value depending on the customer's time frame and location. It would involve a preference towards such offerings where the service delivery is not bound by time and location. In other words, time and location may provide additional value to the technical and functional elements. However, the emphasis in the service management literature is on the context as fixed and manageable by the service provider and thus time and location have not been conceptualised as value dimensions. Moreover, it seems that research does not explicitly explore the relative importance of time and space in value perceptions. By emphasising the perceptions of contextual elements time and location are considered as external elements that are not directly linked to the value creation processes. Defining time and location as value dimensions rather than being included implicitly in the process, outcome and service environment broaden the value construct. This implies that customers perceive value in an offering that allows them to do activities and make decisions independently of temporal and spatial limitations. The fact that existing research implicitly addresses time and location points to the need to consider the time and location of service delivery as internal elements in the value creation process.

4.1.2.1. Four value dimensions

As mentioned, in earlier service quality models technical and functional elements have been argued to influence service value. It has also been suggested that the service environment play an important role. In this thesis it is suggested that these technical and functional dimensions, as well as temporal and spatial dimensions relating to the service environment, form the content of customer perceived value. The value dimensions are used to group the content of the service evaluations. They can further be split down into different components that represent the trade-off between different service elements.

These components in turn can be grouped into benefit and sacrifice depending on whether they add or decrease the perceived value of a service.

Accordingly, value is a function of four value dimensions on two levels as illustrated in Figure 15: the first level is concerned with the service process and outcome on technical (what) and functional dimensions (how). The second level is related to consumer latitude on the spatial (where) and temporal dimensions (when).

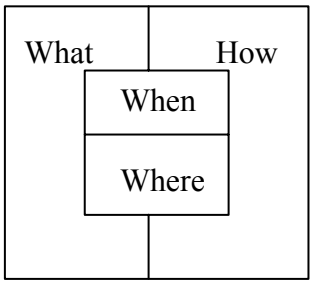

Figure 15: Relationship between the four value dimensions

Value perceptions are based on four intertwined dimensions. These four dimensions answer *why* the customer perceives something as valuable. The two traditional technical and functional value dimensions form the fundamental part of each offering and relate to customers' perception of the service (see Figure 15). The offering would be of little value without them. However, these dimensions vary depending on the context in which they are perceived. Hence, two other dimensions that surround the fundamental dimensions affect perceptions, namely temporal and spatial dimensions, and involve customers' flexibility in relation to the service process. The value added in these two dimensions is dependent on the possibilities and limitations enabled by technology.

It is proposed that differences in value perceptions are dependent on the service outcome, the service process, and the time and location. This entails perceptions of benefit and sacrifice through the dimensions of technical, functional, temporal and spatial value. In Figure 16, the four value dimensions are illustrated (represented by the letters T, F, T and S) to include benefit (B) and sacrifice (S) components.

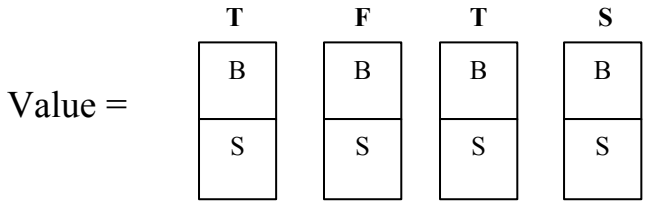

Figure 16: Four value dimensions

Now, based on the discussion above, the value dimensions seem to be relevant for the service context in focus in this study. However, there is a need for investigating the relative importance of the value dimensions. Parasuraman, Berry and Zeithaml (1991), by suggesting different importances of service attributes, incorporated a direct measure of the relative importance of each service dimension to estimate the overall service quality. This will be explored in more detail in the empirical study.

4.2. Defining the content of value dimensions

In this subchapter the content of the value dimensions is discussed by linking the value dimensions with existing service quality research. The content of value denotes the aspects in each of the value dimensions that directly or indirectly affect the perceived value. Service quality research is mostly explored because of its linkage with perceived value; however, some other models involving service evaluations are also used. First, a synthesis of the relevant quality models is presented, followed by a separate elaboration of the connection with the models to each of the value dimensions.

Table 9 provides a general overview on existing quality models in relation to the proposed customer perceived value model. The extended synthesis on the quality models used can be found in APPENDIX 9. The table illustrates that existing research mainly focuses on the technical and functional dimensions. Little attention has been given to temporal and spatial elements of value assessments. Moreover, the sacrifice part has not been acknowledged in existing service quality models. However, it is suggested that these issues are important when focusing on value creation from a customer perspective rather than considering the construct from a service management perspective.

Table 9: Service quality models compared to the perceived value framework

	Benefit	**Sacrifice**
Technical dimension involving attributes related to the core service	Technical quality, Tangibles, Physical quality, Service product, Physical aspects, Reliability, Credibility, Security, Reliability, Policy, Security/privacy, Design quality, Site aesthetics, Physical appearance, User interface, Appearance, Structure and layout, Image, institutional quality, corporate quality, Access, Price knowledge, Information, Linkage, Economic quality	Purchase price, Acquisition costs, Economic quality
Functional dimension involving attributes related to interactive aspects in the service delivery process	Functional quality, Interactive quality, Responsiveness, Communication, Understanding, Courtesy, Empathy, Assurance, Assurance/trust, Competence, Personal interaction, Social factors, Delivery quality, Production quality, Relational quality, Customisation/ personalisation, Flexibility, Service delivery, Performance, Efficiency, Decisional control, Personnel-based support, Support, Ease of use, Enjoyment, Sensation	Transportation costs, Installation costs, Order handling, Relationship sacrifice
Temporal dimension involving attributes related to the time of the service delivery	Access, Delivery quality, Speed of delivery	
Spatial dimension involving attributes related to the location of the service delivery	Access, Ambient factors, Design factors, Tangibles, Physical quality, Service environment, Physical aspects, Ease of navigation, Site aesthetics, Physical appearance	Transportation costs

It seems that the main focus is on the technical and functional dimensions, leaving the temporal and spatial dimensions more open. Also, the sacrifice part of the value dimensions has not received equal attention in existing research. Many different concepts and constructs have been used to depict similar aspects in service evaluations. Moreover, the focus on temporal and spatial dimensions is on aspects in the service and service delivery that the service provider can control. This means that, from a customer's perspective, there are aspects in the service delivery in the customer's control, which in existing service management research remains underexplored.

In the following chapter where the CPV model is deepened, the content of the value dimensions is described and linked to existing theories and conceptualisations. The

models acknowledged in Table 9 are further elaborated and the logic behind linking the attributes to the CPV model is described. However, at this point, it is appropriate to discuss the value dimensions and how they can be seen from the perspective of earlier research. The rest of this section is devoted to defining the value dimensions on a general level. Illustrative examples of the value dimensions are also given to show how they may be used to describe services.

Technical dimension

The technical dimension has been defined as the outcome of the service (Grönroos 1982) and as the core offering (Holmlund 1997). Technical quality has been argued to involve the quality of the physical resources (Lehtinen 1982). In this respect, compared to the functional dimension, the technical dimensions can be seen to involve objectively perceived attributes. Also, because it involves the core service, it may be seen as denoting fixed elements in the service. Consequently, under this dimension, elements from existing quality models relating directly to the core service may be grouped.

Functional dimension

The functional dimension is traditionally seen to involve aspects related to the service process or the customer-service provider interaction. Functional quality has been argued to involve the appearance and behaviour of the service employee, interactions with and influence of other customers, as well as the activities of the customer (Grönroos 1982). It can be related to interactive quality that has been argued to depend on the interaction between the customer and the service employee and is thus a result of the social system (Lehtinen 1982). However, although the focus is frequently on the customer-service provider interactions, the role of the customer and other types of interactions have become even more crucial. The technology-based self-services that have been researched extensively often enable the service process to be performed by the customer independently of direct interaction with the service provider. In this respect, aspects relating to the activities of the customer in the service delivery process and interactions with either the service provider or technology interface connected enabling the service process may be characterised as functional elements. This is also consistent with the definition of the functional dimension as process-based that includes different kinds of interactions. In comparison to the technical dimension, which involves passive elements, the functional dimension refers to active elements of the service. Also, where the technical dimension may be seen to relate to fixed elements in the service, the functional dimension refers more to variable elements.

Temporal dimension

The temporal dimension is new in service management models; however, some indications on its definition can be found. Few quality models have acknowledged temporal aspects, and those models that did incorporate it involve it more implicitly. However, there are some interesting issues that can be identified. The temporal dimension includes attributes relating to the temporal aspects in the service delivery. The approach by Brown (1990) of convenience indicates that the temporal dimension does not include time savings. Rather it denotes aspects in the service delivery that relate to the ability to influence the temporal dimension. The temporal dimension may result in time savings but is not a function of it. Liljander and Strandvik (1995) identified different bonds between customers and service providers and found that time

bonds referring to suitable business hours and a flexible appointment system influence the relationship.

Spatial dimension

It seems that aspects related to the spatial dimension compared to the temporal dimension is somewhat more recognised in existing quality models. This is probably a result of the research in the servicescape where spatial aspects have been conceptualised. It is also worth mentioning that service firm location decisions have been researched extensively (Schmenner 2000; 1994). Dabholkar (1994) included a spatial dimension in her classification of technology-based self-services. In this classification, the service can be delivered at the customer's site or place of work, or at the service site. Detailed characteristics of the place of service delivery were not included. However, the spatial dimension can be seen to be linked to the service environment (Lehtinen 1982; Lehtinen and Lehtinen 1991), tangibles (Parasuraman et al. 1985), or physical appearance (Anselmsson 2001). The study by Liljander and Strandvik (1995) on customer-service provider bonds gives another perspective on the spatial dimension. Geographical bonds are related to the spatial dimension as it denotes the customer limitations to purchase the service from other service providers because of the distance and/or lack of transportation. This conceptualisation can also be used to summarise aspects related to the spatial dimension and to broaden the focus on spatial aspects.

Illustrative examples

In this subsection three illustrative examples of the value dimensions are given. The examples are presented to show how the value dimensions can be used to describe services. Three different service contexts are chosen to indicate the variance of the value dimensions. However, even though the services differ in technology-related content, they still offer insight into the flexibility of time and location of service delivery.

Hairdressing service is the first example as synthesised inTable 10. It is a traditional interpersonal service that is not technology-based. The technical dimension – the core service and the outcome – is a haircut. It can include a specific bundle, such as wash and cut, but may involve a higher cost for finishing. The functional dimension – the service process or how the service is delivered – is the responsibility of the service employee. It is the service employee that washes, cuts, and finishes the hair cut. The temporal dimension – the flexibility in time – is somewhat fixed, because input is dependent on the service provider. However, service delivery can occur whenever during opening hours depending on availability. Alternatively service delivery can be at an appointment that can be before or after opening hours if possible. The spatial dimension – spatial flexibility – describes spatial aspects of the service delivery. In this example, service delivery can occur at the service site, or alternatively at the customer's home if the service provider does house calls.

Table 10: Practical examples of the value dimensions

	What	How	When	Where
Example 1	Hair cut	Service provider performs, customer participates	During opening hours, at appointment	At service site, at customer's home
Example 2	Travel service	Customer alone/or with service provider	24/7, during call centre hours	Where computer availability
Example 3	Bill payment	Arena by service provider, customer performs	Not linked to opening hours	At place of choice

Online travel booking is used as the second example of illustrating the possible use of the value dimensions. It is a technology-based self-service dependent on an internet-connected computer. The technical dimension involves for example a travel reservation on a website where the customer can search for information and book a flight. The customer may perform the service act independently, i.e. book the flight through the web site. The service delivery is temporally flexible if the customer performs the service act independently. The service is delivered at a fixed location that is linked to a computer with Internet connection, i.e. it can be at home, at work, or at a public place such as a library or Internet cafe.

A third example is another technology-based self-service, however differing from the previous example in the respect that it is delivered via a portable device such as a mobile phone. One example of such as service is a mobile banking service, e.g. bill payment service. In this service technical dimension is represented by the electronic bill payment designed to fit the screen on the mobile phone. The service provider provides arena but the customer performs the service act independently. The temporal dimension is flexible considering that the service delivery is not linked to opening hours. The service is also spatially flexible as the service delivery occurs via a technology device that is portable. However, information about the bill may be required, thus somewhat limiting the possibility for service delivery at any location. The service delivery is equally temporally flexible like the previous example; however, considering that the place of service delivery is more spatially flexible then on the whole the service is more flexible.

4.3. Summary and discussion

The literature review showed the relevance of time and location in value perceptions in addition to outcome and process elements of the service delivery. This chapter has deepened this line of thinking by describing a framework for exploring and measuring customer perceived value. This was done in two steps. First, it was proposed that value can be defined as the function of benefit and sacrifice of value dimensions. In other words, value can be viewed from two perspectives that are simultaneously occurring – the trade-off between benefit and sacrifice components and the trade-off between different value dimensions. As was discussed, there is an implicit combination of benefit and sacrifice in the assessments of the value, which means that the traditional separation of value in benefit and sacrifice is unnecessary. In other words, it is proposed that it is necessary to regard the value dimensions holistically in terms of value-

increasing and -decreasing elements rather than focusing on separating between benefit and sacrifice.

Moreover, this chapter expanded the scope of value by including time and location as value dimensions. It provides a broader theoretical framework to customer perceived value than a conceptualisation based on technical and functional value dimensions. The literature implicitly points to time and location of the evaluation, but they have not been included as explicit value dimensions. However, considering the participation of customers in the value creation process and increased time and location flexibility, it is argued that in customer perceived value conceptualisations it is essential to explicitly include temporal and spatial dimensions. Thus, customer perceived value may be conceptualised as technical, functional, temporal and spatial dimensions consisting of both benefit and sacrifice. Accordingly, time and location become integral parts of the offering rather than being only contextual elements of the offering.

Consequently, to summarise, customer perceived value was conceptualised as a function of the benefit and sacrifice of technical, functional, temporal and spatial dimensions, as depicted in Figure 17. Accordingly, customer perceived value is a *subjective* trade-off between benefit and sacrifice of four value dimensions.

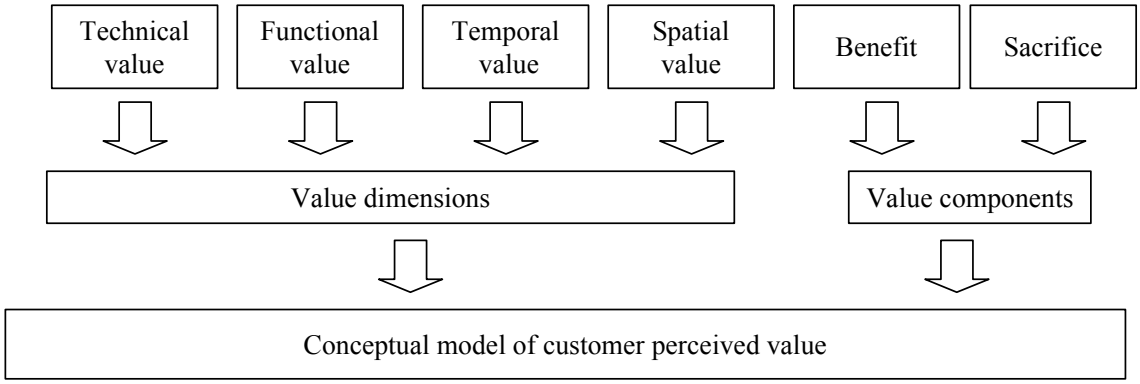

Figure 17: Conceptual framework of customer perceived value

Hence, it is argued that value assessments can be measured on different levels of perception: on value level, on dimension level, and on component level, see Figure 18.

Value	Customer perceived value							
Dimension	Technical		Functional		Temporal		Spatial	
Component	Benefit	Sacrifice	Benefit	Sacrifice	Benefit	Sacrifice	Benefit	Sacrifice

Figure 18: Three levels of perceived value

The second part of this chapter provided an introduction on the content of the value dimensions. The value dimensions were linked to existing service quality literature, as well as to research in service management in general. Using existing literature as a starting point, attributes from earlier quality models were related and assigned to the value dimensions by separating the value dimensions into benefit and sacrifice components. This analysis of the existing theory in comparison with the proposed customer perceived value model resulted in two main findings. Firstly, it was found that there is little attention given to sacrifice elements in the value dimensions. This is perhaps expected, considering that quality models that are focused on the benefit were

reviewed. However, as found by some authors (Holmlund 1997; Monroe 1990) there are also negative aspects related to perceived quality; still usually the sacrifice is related to economic cost. Secondly, the discussion showed that there seems to be insufficient attention to benefit and sacrifice components for the temporal and spatial dimensions. It was possible to find evidence on the relevance of time and location as value dimensions in extant service management models. However, although elements in existing models could be placed under the temporal and/or spatial dimensions, they did not explicitly denote time and location. Rather, the elements could only indirectly be interpreted to involve temporal and spatial elements.

In the following chapter the customer perceived value model is deepened through the empirical study. Empirical findings from the conjoint task are used to explore the scope of the value dimensions whereas findings from the qualitative part are used to develop the content of the value dimension. The focus is on understanding the role of benefit and sacrifice in all the value dimensions, as well on describing the temporal and spatial dimensions. In other words, the customer perceived value level is explored by analysing the dimension and component levels separately.

5. DEEPENING THE CPV MODEL

This chapter presents the empirical findings organised along the research objectives set up for the study. To reiterate, the overall objective of this study was to *develop a framework for understanding and analysing customer perceived value by explicitly including a temporal and spatial perspective.*

Following a theoretical review, a conceptual framework was developed for the study, which defined customer perceived value in terms of four dimensions – technical, functional, temporal and spatial – and two components – benefit and sacrifice. This chapter deepens this theoretical conceptualisation developed in the previous chapter by describing the findings from the empirical study.

Data from the study are used to provide a detailed description and illustration of the elements in the model. However, as is described, it is assumed that the value assessments are based on holistic perceptions that can be separated into dimensions and components when measuring specific reference points such as specific services. An additional literature review creates support for the empirical findings. This results in a deeper understanding of the temporal and spatial dimensions and extends the understanding of the technical and functional dimensions. The research questions are used as a tool for structuring the analysis. First the scope of the value assessments is discussed by identifying the relative importance of each of the value dimensions. Data from the conjoint analysis is used for this phase. Then the content of the value dimensions is presented using transcripts from the interviews. A summary of the empirical study concludes the chapter.

5.1. Scope of the value dimensions

This subchapter describes the scope of the perceptions of the value dimensions by presenting the relative importance of each of the value dimensions as well as discussing differences in the perceptions of the value dimensions. The findings originate from the conjoint task and illustrate the data on an aggregate level. The value dimensions were described according to pre-determined categories derived from existing theory [9]. They were the following:

- What - technical value: possibility to choose different service options.
- How - functional dimension: input in the service delivery.
- When - temporal dimension: ability to choose the time of service delivery
- Where - spatial dimension: ability to choose the location of service delivery

5.1.1. Relative importance of the value dimensions

The scope of the value dimensions was explored by analysing the relative importance of the value dimensions and the trade-offs among the value dimensions. These issues were explored through two conjoint studies in a pilot study and a main study. The findings from the pilot study are described first, followed by the results of the main study.

[9] The design and operationalisation of the conjoint task was described in detail in section 2.3.2.

The pilot study improved the pre-understanding by showing that the attributes were perceived as important. The results on aggregate level provided valuable information on the importance of each of the dimension. The findings from the pilot study indicated that the two new dimensions, the temporal and spatial dimensions, were perceived as the most important dimensions. In fact, the new dimensions were perceived as more important than the traditional dimensions. This was supported by the interviews.

More specifically, as depicted in Figure 19, the most important attribute was the place of service delivery with 33 % of the averaged importances. The second most important attribute was the temporal dimension, i.e. the time of service delivery, which received an averaged importance of 29 %. The functional dimension operationalised as customer input had an averaged importance of 23 %. This attribute showed that the respondents prefer to perform the service themselves, or at least be present to participate. The attribute that was perceived as the least important was the technical dimension; a more flexible service was perceived as more value adding. The validity measures of Pearson's R (0.998) and Kendall's Tau (significance 0.944) indicate that the results are statistically significant.

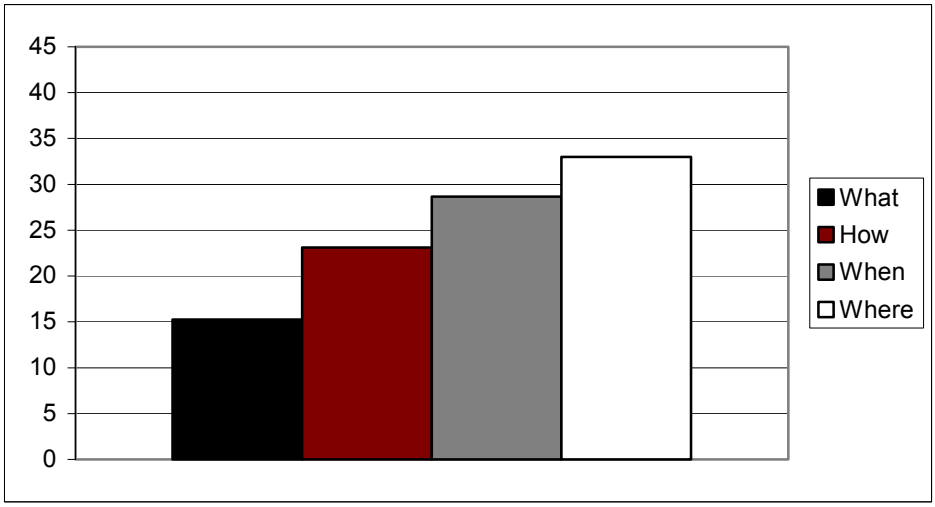

Figure 19: Relative importance of the value dimensions (pilot study)

All dimensions worked well and the levels were perceived as relevant. Looking at the utility of the levels (see APPENDIX 5), it seems that the respondents did not separate between "service delivery at homeground" or "service delivery anywhere" indicated by similar utility estimates. This may mean that the respondents did not differentiate between the place of service delivery, as long as it was at a place of their own choice. The level relating to the temporal dimensions operationalised as "whenever" received higher utility than the "office hour", which was expected. However, it did not indicate how much flexibility in the time of service delivery the respondents wanted, so for the main study the focus needed to be on the level of temporal flexibility. The level operationalised as "no own input" received the lowest utility estimate, indicating that the respondents felt that they wanted to have some influence in the service delivery.

The objective with the pilot study was to explore the relative importance of each value dimension in order to confirm the existence of time and location as value dimensions. The findings from the pilot study suggested that the technical and functional dimensions that are traditionally argued as important value dimensions are actually not equally

important. This is not surprising considering that existing literature has concluded that the functional dimension is more important than the technical dimension (Grönroos 2000). However, more interestingly, the temporal and spatial dimensions actually seemed to be even more value adding than the functional dimension. This points to the relevance of the two new dimensions to describing customer perceived value, i.e. the temporal and spatial value dimensions.

The objective with the main study was to further refine the proposed framework and deepen the understanding of the value dimensions. The importance and utility of the value dimensions based on the main study are depicted in Table 11. On an aggregate level, the findings on the right in the table show that time is the most important attribute as the average importance is 40.07% of 100%. Interestingly it received almost half of all the importance weight. The spatial dimension follows as the second important attribute with an average importance of 27.87% that is almost half of the importance weight of the temporal dimension. The technical and functional dimensions received almost similar importance weights indicating that the respondents did not distinguish between the dimensions and on aggregate level perceived them as equally important.

Table 11: Importance and utility of the value dimensions (main study)

	Averaged importance	**Utility**
Technical dimension	16.07%	
More services		.6036
Same services		.2613
Fewer services		-.8649
Functional dimension	15.99%	
More input		-.5225
Same input		.2072
Less input		.3153
Temporal dimension	40.07%	
More time freedom		1.1532
Same time freedom		.6757
Less time freedom		-2.3604
Spatial dimension	27.87%	
More place freedom		1.1532
Same place freedom		.4054
Less place freedom		-1.5586

The level utilities summarised in Table 11 provide a more detailed description of how the dimensions are perceived. Figure 20 shows the part worths of the levels graphically where the different scale points range from level 1 (“less than”) through level 2 (“same as”) to level 3 (more than”).[10] The most important aspect in the figure is the form of the level part worths.

[10] For simplicity, in the analysis, the results for the functional dimension are reversed.

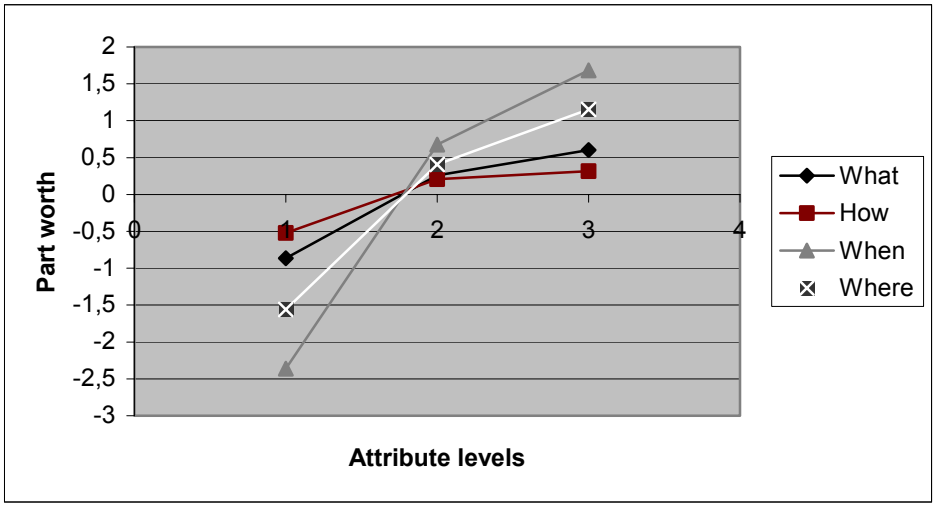

Figure 20: Attribute level part worth

Interestingly, none of the attributes have a linear form of the attribute level part worths. The form of the level part worths resembles in fact the curves of hygiene factors. A Characteristic of hygiene factors is that higher levels do not provide additional utility or value (Herzberg 1968). In fact, it may indicate that the respondents are satisfied with the current level, and an improved level does not offer much more value, whereas a lower level is perceived as very negative. This is particularly true for the temporal (when) and spatial (where) dimensions indicating that they are perceived to be highly critical.

If the attribute part worths were linear they would be perceived as performance attributes, where additional improvements in the performance creates additional value. It seems that the functional dimension (how) is the closest to being linear. Also the technical dimension (what) seems to be somewhat near linearity, at least compared to the temporal and spatial dimensions. However, considering that the difference between the highest and the lowest points is small, their importance is not critical.

The accuracy of the conjoint analysis results can be measured on individual and aggregate levels. The validity measures in Table 12 indicate that the findings on the predictive accuracy of the four value dimensions are statistically significant on both levels. Correlations between actual and predicted ranks are measured with Pearson's R (0.000) and Kendall's Tau (significance 0.0001). In other words, the conjoint task can be seen as successful in predicting different respondents' perceptions of the importance of the value dimensions. However, the holdout sample, i.e. the profiles used to predict the preference of a new set of stimuli, showed lower validity when compared to the actual responses. The significances ranged from 0.0586 for thirteen respondents, through 0.1103 for one respondent to 0.500 for one respondent. Kendall's Tau for the holdout cards was 0.3008, which was the result for 22 respondents. This is however considered sufficient in a conjoint task (Hair et al. 1998).

Table 12: Validity of the conjoint analysis

		Significance
Pearson's R	1.000	.0000
Kendall's tau	1.000	.0001
Kendall's tau for holdouts	-.333	.3008

5.1.2. Differences in the perceptions of the value dimensions

This section explores differences in how the value dimensions were perceived. It describes how different respondents viewed the value dimensions in the chosen setting of technology-based self-service options. Three segments that were derived from the empirical data relating to the conjoint task are presented and discussed.

5.1.2.1. Customer segments

In this subsection the segments that were operationalised from the data material is presented. Three segments are identified and discussed. First follows a discussion on findings from a hierarchical cluster analysis and then the segments resulting from a K-means cluster analysis are discussed. Thereafter the segments are described on a general level.

A hierarchical cluster analysis of the utilities from the conjoint task identifies how the respondents may be linked together, see APPENDIX 10. It depicts possible groups of respondents as depicted by the dendrogram that indicates the hierarchical cluster memberships for each respondent. By using the Ward method it is possible to identify at least four segments. It shows that respondent number 24 is different from the other respondents as the respondent is linked to the second group based on nine respondents. It implies that respondent nr 24 may be deviant from the others. In the hierarchical cluster analysis the segments are based on nine, nine, one, and eighteen respondents, respectively.

The dendrogram indicated that the respondents may roughly be grouped into four segments. A K-Means cluster analysis by assuming four clusters indicates the same. It shows that there seem to be three segments and one respondent (nr 24) in a fourth segment. However, by excluding respondent nr 24 but assuming only three segments indicates that there are three segments with identical segment membership as the three first clusters in the first cluster analysis. Number 24 does not influence cluster membership, as the clusters remain the same. In the cluster analysis with 36 respondents, three segments could be identified with seven, twelve and seventeen respondents respectively.

Comparing the cluster analysis based on the Ward method and the K-means cluster indicates the consistency in the segments. Although the number of respondents in the clusters analyses differs, the cluster membership is roughly similar. For example, it seems that the first segment in the Ward method with nine respondents corresponds roughly to the segment numbered 2 (in APPENDIX 11) that includes twelve respondents in the K-means cluster analysis. Respondents numbered 8, 15, and 17 are missing in the segment based on the Ward method. Correspondingly, the last segment in APPENDIX 10 includes eighteen respondents, while respondent numbered 19 according to the K-means clustering is included in segment 1 with seven respondents.

The table below identifies the attribute importance and level utilities for the different segments. It shows the relative differences between the segments and the different preferences of the attributes. For example, segment 3 is significantly different from segments 1 and 2 for the level “more services”, i.e. the highest level in the technical dimension, indicating that this segment values the technical dimension. Also, segment 1

seems to value the functional dimension, which can be interpreted from the relatively higher levels of differences in the functional dimension compared to the other two segments. The third segment, segment 2, is different from the other two segments in the respect that it does not value either the technical or the functional dimension; instead the temporal and spatial dimensions seem to be important. In fact, compared to the other segments, this segment has the largest differences between the highest and the lowest attribute levels for the temporal and spatial dimensions.

Table 13: Descriptives of attribute importance and level utilities for the segments

		Segment 1	**Segment 2**	**Segment 3**
Segment size		7	12	17
Technical dimension				
Relative importance		12	9	23
Utility	More	0.2857	0.1944	1.0392
	Same	0.3333	0.1111	0.3725
	Less	-0.619	-0.3056	-0.8889
Functional dimension				
Relative importance		34	10	11
Utility	More	-1.9048	-0.3056	-0.0392
	Same	0.1905	-0.0278	0.451
	Less	1.7143	0.3333	-0.4118
Temporal dimension				
Relative importance		31	52	37
Utility	More	1.3333	2.4167	1.3333
	Same	0.6667	0.2778	1.0196
	Less	-2.0000	-2.6944	-2.3529
Spatial dimension				
Relative importance		23	28	29
Utility	More	1.0000	1.3611	1.1961
	Same	0.4286	0.1389	0.6667
	Less	-1.4286	-1.5000	-1.8627

An analysis of variance describes of the difference in the attribute importance between the segments (see APPENDIX 12). It indicates significant differences in the attribute importances for all dimensions except the spatial dimension. In other words, it seems that the segments perceive the spatial dimension similarly. To explore where the differences in the perceptions originate from an analysis of variance for the differences in the attribute levels is conducted. The analysis of variance on the three clusters for the attribute levels is summarised in APPENDIX 13.[11] It indicates that there are significant differences between the level utilities. The table also indicates that there are three levels where the respondents are not significantly different: level 2 for the technical dimension

[11] This analysis of variance should only be interpreted descriptively considering that the segments were created to maximise the differences among the cases. Moreover, because there are three segments and the variance analysis does not compare the segments pairwise, it indicates only that there are two segments that are significantly different. In other words, there can be two segments that are similar and one segment that differs from the two other segments.

(0.355), levels 3 and 1 for the spatial dimension (0.379 and 0.130, respectively). The rest of the levels seem to be significantly different for the segments.

Considering that there seem to exist differences in the attribute importances and level utilities, it is necessary to make more detailed analyses of the segments. This is done in the next section, where the differences between the segments are analysed and discussed.

5.1.2.2. Differences between the customer segments

Table 13 above indicates that there are differences in the perceptions of the value dimensions for the segments. In this section the four attributes, i.e. the four value dimensions, are analysed separately by depicting the level utilities for the three segments.

The technical dimension was not perceived as important for segments 1 and 2, indicated by the small differences between the utilities of the different levels. Although the differences between the levels are not significant, some directive conclusions can be made. It seemed that segment 1 perceived that an improvement in service options (level 3) created almost the same value as maintaining the service options (level 2). Segment 2 perceived some differences between the different levels where more options created marginally more value than the same amount of services options that in turn created marginally more value than fewer services options. Segment 3 was a clear service-oriented group as there are large differences between the levels. Although not totally linear, the differences between the level part worths are large, resulting in a steep inclination. The difference in the utility between the levels was large. In other words, the technical dimension is perceived as important for segment 3.

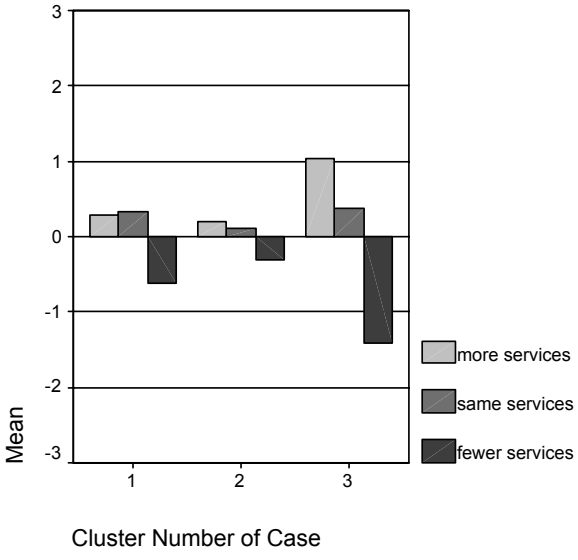

Figure 21: Difference in technical value

Segment 1 is interesting when looking at the functional dimension in Figure 22 as it has large differences in the utilities of the levels. The inclination angle is steep, i.e. the difference between the levels is large, indicating the criticality and importance of this dimension for segment 1. More input (level 3) is perceived considerably negatively than less input (level 1). Segments 2 and 3 do not show significant differences between the

attribute levels, indicating that the functional dimension is of less importance. Although the differences between the level utilities are small, some conclusions can be made. It seems that segment 2 has the same pattern on the levels, i.e. that less input creates more value than more input. In contrast, segment 3 perceives more value with the same input as currently, whereas less input is perceived as creating the least value.

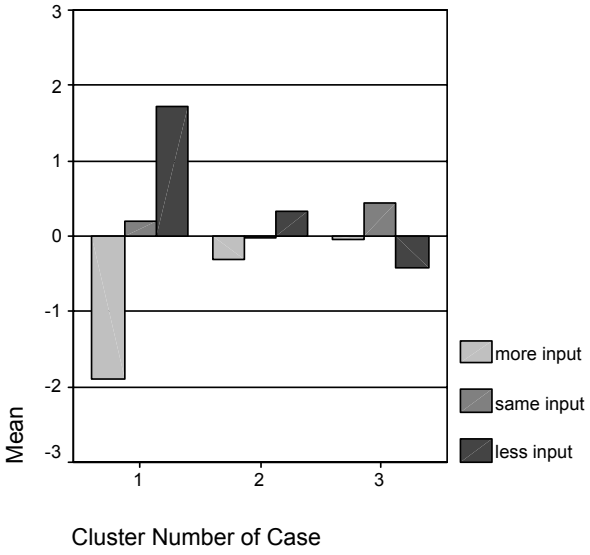

Figure 22: Difference in functional value

The temporal dimension illustrated in Figure 23 was apparently important for every segment and there were large differences in the level utilities. Segment 2 had the largest differences between the levels. This is interesting considering the low utility estimates for the technical and functional dimension for this segment. It indicates that this segment values time more than service or input. The relative difference between the levels for this segment is larger than for the rest of the segments, indicating that segment 1 perceives this dimension to be a motivating factor while the other segments perceived it as hygiene. Looking at segment 3, the relative utility of levels two and three (same time freedom and more time freedom) is almost the same, indicating a strong tendency to being a hygiene factor. In other words, while this segment expects to be temporally flexible with at least the same time freedom, more time freedom does not provide significantly more value compared to the current situation.

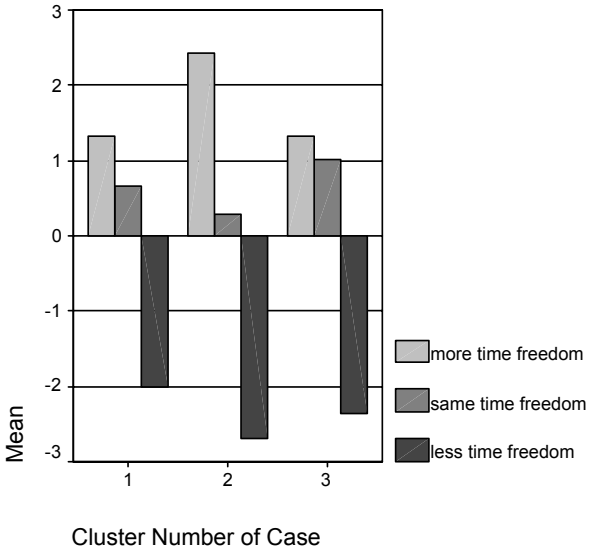

Figure 23: Difference in temporal value

Figure 24 shows that all segments have large differences between the attribute levels, indicating the importance of this attribute. Interestingly, segment 2 has similar utility functions compared to the temporal dimension, with large differences for the attribute levels. Again this dimension is the most important for this segment compared to the other two segments indicated by the large differences between the different levels. The utility function for segment 3 is again similar for levels 2 and 3 (same location freedom and more location freedom), indicating that a higher level does not provide much additional value.

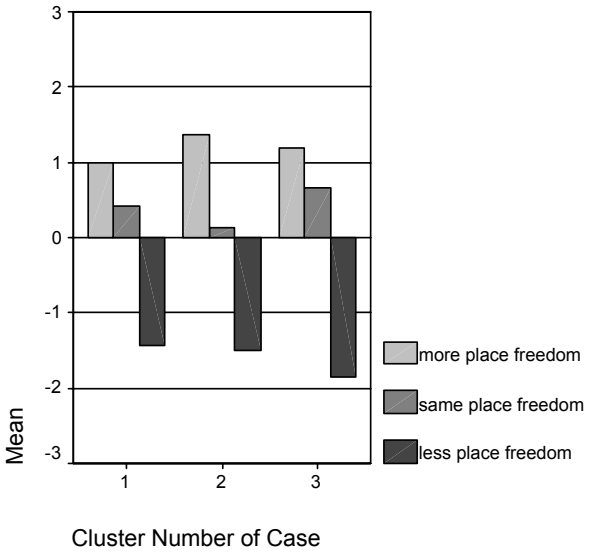

Figure 24: Difference in spatial value

As a result of these differences in the perceptions of the different value dimensions and their attributes, it is possible to identify three segments of respondents with different value profiles, see Figure 25. The *functional segment* (segment 1) with seven respondents values the functional dimension. It prefers the ability to influence the input in the service process and wants to reduce the effort in the service process. The third segment, a *temporal and spatial segment* (segment 2) with twelve respondents prefers

the temporal and spatial dimensions and does not place any importance on the technical and functional dimensions. It wants to make the service process efficient by improving the ability to choose the time and location of service delivery. The *technical segment* (segment 3) involving seventeen respondents shows a high preference for the service outcome, i.e. in this case the ability to choose different service options.

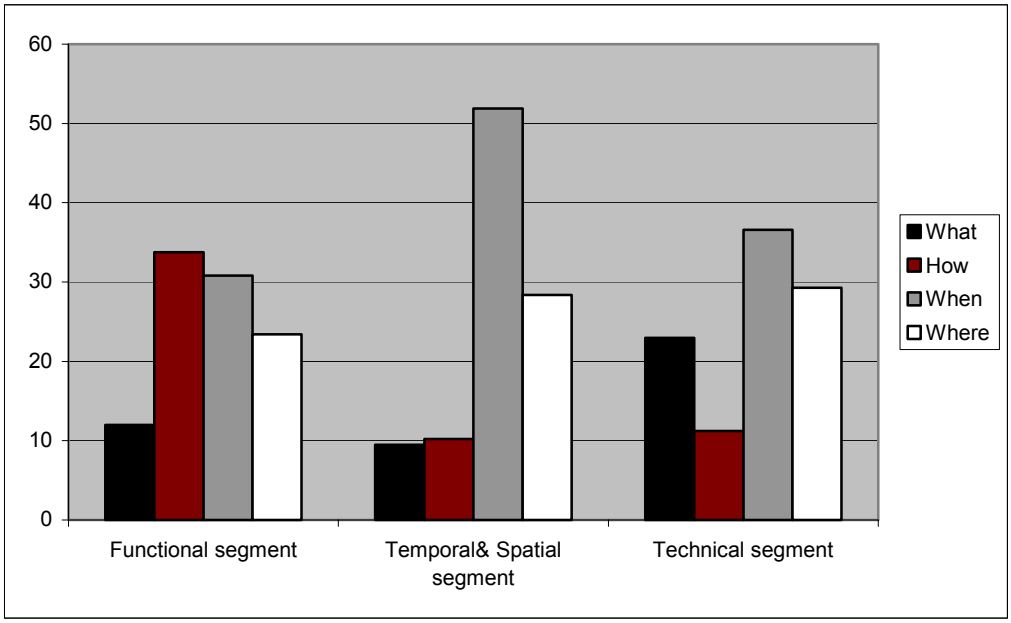

Figure 25: Segments with different value profiles

The background variables can be used to explore whether they can explain the differences in perceptions of the value dimensions between the variable. The table below (Table 14) illustrates an analysis of variance between the segments. The scales used to identify the technology readiness, preferences towards self-services and perceived time press are included, in addition to age. However, as the table shows, there are no significant differences between the segments. It indicates that it is not possible to explain the differences in the perceptions of the value dimensions with the background information. This means that the differences in the perceptions of the value dimensions are explained by other factors than demographics or perceptions of technology, self-service and time. The difference between the segments in the number of persons in the household is not significant either.

Table 14: Analysis if variance of background data

	Mean square	**Significance**
TRI		.201
Between groups	20.783	
Within groups	12.346	
Self-service		.833
Between groups	.193	
Within groups	1.049	
Time press		.580
Between groups	1.266	
Within groups	1.406	
Age		.606
Between groups	3.631	
Within groups	7.136	
Persons in household		.221
Between groups	1.092	
Within groups	.691	

Some background data is possible to explore by using crosstables to describe the differences between the variables for the segments. Looking at other background variables such as number of payments, gender, marital status, employment status, student, and TRI groups, differences between the segments are explained only by number of payments (Table 15). It seems that the technical segment is represented in a large majority of respondents that perform the smallest number of payments each month, i.e. 0-4 payments. In contrast, the functional segment represents the largest proportion of respondents that perform the highest number of payments, i.e. 9-12 payments. Also a large percentage of respondents relating to the temporal and spatial segment had many payments. This indicates that the larger the number of payments, the more the respondents want to make their activities efficient by either reducing their input or improving the flexibility of time and location.

TRI is measured again by using the groups developed for the TR scale. The Pearson's Chi Square indicates that the differences are not significant, which was already concluded with the analysis of variance described in the previous table. Gender differences between the segments are not significant, even though that it is closest to significance than the rest of the demographical data.

Table 15: Differences in other demographical data

	Pearson Chi-Square Significance
Number of payments	.018
Gender	.071
Marital status	.789
Employment status	.364
Student	.262
TRI groups	.503

5.1.2.3. Summary

A cluster analysis was done based on the utility differences for the attributes. One respondent was removed from the cluster analysis, due to a deviant utility pattern. The analysis of the conjoint task utilities for 36 respondents provides three different segments. One segment, segment 3, with seventeen respondents values the technical dimension but for this segment increasing this dimension does not provide as much value as decreasing it. The temporal and spatial dimensions are perceived as hygiene at least compared to the other segments. This group actually does not receive more value in more temporal and spatial freedom but seems to prefer the current amount of temporal and spatial flexibility.

Another segment, segment 1, with seven respondents values the input in the service. The less input required, the more utility is created. The technical dimension is not relevant, although it seems that more service options provide little more value than maintaining or decreasing the service options. The temporal and spatial dimensions are also important.

The third segment, segment 2, was a segment that valued temporal and spatial freedom, and it did not place any importance on the other two dimensions. This segment, which contained twelve respondents, valued time as the most important dimension, but the spatial dimension was also high. These two dimensions were the highest for this segment compared to the other two segments.

The findings indicated two groups that have the same motivations, the need to improve the efficiency of the service, but different part worth estimates. One explanation for the difference is the number of payments that the respondents perform, where the technical dimension seemed to have a smaller number than the functional and temporal and spatial dimension. Some respondents value more strongly the temporal and spatial dimensions while another group values the functional dimension. However, the means to achieve this is smaller input in the service process for the latter group whereas the former group achieves this through better influence on the time and location of service delivery. However, the importance of the value dimensions may evolve over time, because it seems as if the group that currently perceives smaller input as the most important variable has previously valued better ability to choose the time and location of service delivery. This was concluded when looking at the qualitative explanations and reasoning concerning the value dimensions.

5.1.3. Segments compared to existing understanding

Linking the segments based on differences in the perceptions of the value dimensions to retailing research, it is possible to see similarities with extant customer segments based on store choice behaviour.

Baker et al (2002) studied the influence of multiple store environment cues on perceived value and patronage intentions and found five different store choice criteria. These criteria were suggested to influence merchandise value perceptions and ultimately purchase intentions and word-of-mouth. They were the following:

- Interpersonal service quality perceptions
- Merchandise quality perceptions¨
- Monetary price perceptions
- Time/effort cost perceptions
- Psychic cost perceptions

Comparing these different store choice criteria with the findings on the different customer segments from this study, it is apparent that there are similarities although some overlap exist. The technical segment can be compared with the merchandise quality perceptions and monetary price perceptions. This is attributable to the fact that this dimension was operationalised as involving the core service. Although the operationalisation did not involve price, as is discussed in section 5.2.1 concerning the content of the technical dimension, price is a factor of the technical dimension.

The functional dimension in turn is included in both the interpersonal service quality perceptions and the time/effort cost perceptions. This dimension was operationalised as the customer's input in the service delivery, meaning both the effort placed in the service as well as the amount of interaction with the service provider. In this respect, there are similarities with the interpersonal service quality and time/effort cost perceptions. However, the time/effort cost perceptions may also be included in the temporal dimension. In fact, it seems that the time/effort costs is emphasised on the price of time, indicating the importance of time. The findings of Baker et al (2002) do not provide support for the spatial dimension but it may be included in the time/effort cost criteria. This would seem reasonable, considering that the findings from this study indicated the existence of a segment that values both the temporal and the spatial dimension.

Birtwistle et al (1998) explored customer decision-making in fashion retailing and measured four attributes that were used in decision making. Using a conjoint analysis approach based on price, product selection, staff, and product quality, they found six different segments of customers:

- Service-oriented segment that values the helpfulness and friendliness of the service staff
- Value for money segment that prefers product quality and low prices
- Quality oriented segment that can pay extra to receive high quality
- Selection value segment that values the overall range of products
- Price conscious segment that valued low price
- Choice and quality conscious that value range and quality of products

There seem to be some overlap between the segments as the differences between the preferences for the four attributes are not always apparent. When comparing these six segments with the three segments proposed in this study, it seems that only the technical and functional segments are represented. This is due to the fact that the attributes chosen to describe the six segments refer to technical, i.e. price, product range, and quality, and functional, i.e. staff, elements of the service. The result is that the technical segment can be directly linked to five of the six segments, whereas the functional segment is related mostly to the service-oriented segment. However, considering the context in which the study was made, i.e. fashion retailing, it can be assumed that technical and functional elements are the most relevant aspects in a service.

McDonald (1994) examined the role of personal characteristics in time spent shopping and proposed a three-segment time perception typology. The *routine managers* are specialised in time management through daily routine activities preferring efficient organisations and a moderate sense of purpose. The *aimless wanderers* have the smallest sense of purpose, are the least organised and routine oriented, and use the highest amount of time shopping. The *purposeful organisers* have the strongest sense of purpose in the daily life and are routine-oriented and effective organisers that accomplish goals and complete tasks. They spend the least amount of time shopping. These segments may be compared with the segments based on the findings from this study, and similarities are possible to find.

Compared to the segments found in this study it seems that the functional segment valuing minimal input in the service process is similar to the purposeful organisers, with the goal to make efficient routine activities in order to have time for more purposeful and enjoyable activities. The aimless wanderers are the least similar to the segments proposed in this study. It has some similarities with the technical dimension that, although it values time and location, prefers the variety of service options. This variety results in an overflow of different alternatives complicating the actual service process and decision process. In this respect, it has similarities with the aimless wanderers in the respect that this segment does not necessarily know what they want, and that is why they want the choice and the ability to select between alternatives. The temporal and spatial dimension has similarities with the routine managers that although they want to perform the service efficiently do not reflect on the service process as much as the functional dimension. Similar to the routine managers, the temporal and spatial dimension, prefer efficient organisation with a moderate sense of goal-directed behaviour.

Barzak, Ellen and Pilling (1999) used a means-end approach to understand how different customer segments value and use technology-based banking services. They found four motivational clusters including security consciousness, maximising activities, instant gratification and hassle avoiders. The identified segments differed in their financial motivations, i.e. the way they managed their money. Although the current study did not include money management, it is possible to see some similarities with the segments. The *security conscious* segment was argued to be the most systematic in their money management and is thus similar to the functional segment proposed in this study that valued little effort in the service process. Similarities also concerned the consciousness of security that was noted by the functional segment. The functional segment is also similar to the segment that aimed at maximising its money in the sense that it tried to optimise activities and thus save time and money. However, the functional segment differed from the maximiser segment because the motivation was not in the first place to save money; rather it was to make activities more efficient which then resulted in time and monetary savings. The *instant gratification* and *hassle avoiders* segments although not directly applicable to the segments proposed based on the findings from this study, have some similarities with the technical segment. Individuals in these groups tend to focus on different types of activities and thus be more unsystematic than the rest of the segments. This is similar to the technical segment that prefers different types of services to have the possibility to choose, but as a result the service delivery process may become more complex and time consuming. The temporal and spatial segment proposed in this study was not represented in the four

segments, because the focus in the Barzak et al study was on technical and functional elements.

5.1.4. Discussion

In this subchapter the findings from the conjoint task were analysed and discussed. First, the attribute importances were presented. Then a cluster analysis was conducted to contrast the level utilities for the different respondents. In this section, the results are discussed more broadly, and implications are presented.

The relative importance of the value dimensions was explored indicating several differences in the perceptions. Differences in the relative importance of the value dimensions indicate that the respondents perceive the value dimensions differently. This is attributable to the fact that the dimensions play different roles for different people.

The findings from the conjoint study revealed that the temporal and spatial dimensions are more important than the technical and functional dimensions. In other words, flexibility in time and place is more important than the service scope and the input in the service delivery. Time was perceived as the most important dimension. One potential explanation for this is that it is currently possible to perform the service whenever convenient and customers are not willing to give up this flexibility. Place will potentially be an even more important dimension in the future because it is the next important dimensions after time. This is interesting considering that the respondents have not tried service delivery that is not fixed to a specific location, i.e. through mobile devices, and consequently this dimension is linked only to performance expectations.

As was discussed, the technical and functional dimensions were perceived as performance factors, because the perceived utility was almost linear. It means that improving the performance of the attribute may result in improved satisfaction. However, the importance of the technical and functional dimensions was lower than the temporal and spatial dimensions. Conversely, the temporal and spatial dimensions were perceived as hygiene factors. It indicates that lower levels of temporal and spatial flexibility than the current situation is perceived as highly negative, while higher levels do not provide much additional value. In other words, the sacrifice would be larger with reduced performance of the temporal and spatial dimensions, compared to reduced performance of the technical and functional dimensions. A practical implication of this is that temporal and spatial dimensions have to be perceived as acceptable because even minor decreases in the performance may result in a large reduction of the perceived value.

The results from the conjoint analysis indicated significant resemblance to past research on the relationship between and development of variables in consumer behaviour. Mersha and Adlakha (1992) suggested that the absence of some attributes may lead to perceptions of poor quality. However, they also showed that the presence of the same attributes may not necessarily be important variables for good quality. This is consistent with the findings of the temporal and spatial dimensions, where minor decreases in the performance can cause high negative value, while similar increases in the performance may not necessarily create any additional value.

The empirical findings from this study support Strandvik's (1994) conclusion about the shape of the quality function. Strandvik suggested that service quality is not linear, rather asymmetric. In other words, the performance below the tolerance zone is perceived as more critical than the perceived benefit of performing over expectations. This means that it is easier to create negative value by falling below the normal level than it is to create satisfaction by extending beyond the normal level. After reaching a satisfying minimum, an improvement in the service will not create much additional value.

This is similar to the arguments on hygiene and critical dimensions (Herzberg 1968). Hygiene dimensions are factors that customers do not notice until they do not reach the required minimum level. The criticality of these dimensions is made explicit when they do not perform according to expectations. Then they become crucial elements that affect the perceived value. In contrast, if the performance falls short on a hygiene factor, the perceived negative value will be critical. This implies that the hygiene dimensions can actually be even more imperative than critical dimensions. Critical dimensions are more obvious value drivers to customers, as additional improvements in the dimensions create additional value. In contrast, hygiene dimensions are more implicit, as they are noticed only when they do not function as wanted. The negative reaction will thus be greater because consumers have taken it for granted that they work.

The utilities of the temporal and spatial dimensions are similar to the electromagnetic hysteresis model. Galloway (1999) compared models of influences on consumer behaviour with an electromagnetic hysteresis model and found similarities in the models. It was suggested that in accordance with previous research, service quality conforms to the order-winning/qualifying model and would thus correspond to the hysteresis model. The hysteresis model was argued to involve a non-linear relationship between an applied variable and a response variable. In this model the response variable would become saturated, and the relationship between the two variables would be predictable and consistent, yet non-reversible. More specifically, the model entailed that the value of a characteristic is a function of the relative magnitude of that factor, which will evolve from order-winning to qualifying. The order-winning/qualifier model is similar to the satisfier/dissatisfier model (Johnston 1995). Whereas order-winning criteria provide a competitive advantage, and increasing its level would improve this, improving the qualifying criteria will not provide additional value and the value curve will thus become near saturated. In other words, the relationship between the attractiveness and the magnitude of the criteria is not linear. A degree of tolerance, or indifference to variation would be expected, which would be narrower as the criteria becomes more saturated.

In Galloway's (1999) model, sensitivity to a criterion will be in the early stages low, and its impact will be primarily positive. As the importance of the criterion increases, saturation will begin because of the development of the criterion. The result of this is that underperformance will be perceived negatively. Once the saturation is consistently achieved, the criterion becomes a qualifier criterion, improvement in the criterion does not provide additional value but a deterioration of the criteria will result in a loss of competitive advantage. It was also argued that if a criterion falls below the level of indifference, a recovery would require much more improvement than the loss that had occurred. Considering the utilities from the conjoin task, it may be argued that the temporal and spatial dimensions have reached this point.

Moreover, following findings in past research, it seems that the importance of the dimensions evolve and that their influence on the perceived value may be both negative and positive, depending on the characteristic of the dimension. The temporal and spatial dimensions may be seen as dissatisfiers or qualifying criteria, while the technical and functional dimensions may be interpreted as satisfiers or order-winning criteria. In other words, lower levels of the temporal and spatial dimensions reduce significantly the perceived value, while higher levels do not provide much additional value. However, considering that there will be almost no zone of tolerance, their influence on the perceived value is high. In contrast, satisfiers, which in this study were the technical and functional dimensions, have been argued to involve low levels of sensitivity indicating that they are either unimportant or in the early stage of the life cycle. In line with Galloway's (1999) conclusions, considering the characteristics of the dimensions, effort should be devoted to maintaining the temporal and spatial dimensions. The technical and functional dimensions should be monitored to identify possibilities to develop new attributes.

The difference in the value dimension importance between different segments is interesting when considering that a relatively homogeneous group of respondents was chosen for the study. It indicates that the value dimensions are not directly explained by traditional methods, such as demographics or perceptions of technology, self-service and time. Also, it is interesting to note the relatively high number of respondents in the technical and functional segments, when considering that it could be assumed that the respondents would prefer the temporal and spatial dimensions because of their high usage of Internet services. In the next subchapter the content of the value dimensions is explored to describe what the value dimensions include. In the following subchapter, different value functions are identified, indicating possible reasons for differences in the perceptions.

5.2. Content of the value dimensions

This subchapter is devoted to exploring the four value dimensions on a more detailed level and to describing the content of the dimensions. It is based on findings from the qualitative part of the empirical study and a second literature review. The objective with investigating the content of the value dimensions is to explore the underlying reasons for the perceived differences concerning the value dimensions. The data analysis was described in subsection 2.3.5.2.

First, the value dimensions are discussed on a general level. The procedure for describing the content is the same for all the value dimensions. The content of the value dimensions evolved through abductive logic where the theoretical models and empirical findings have been contrasted and combined to form logically consistent categories. Where the preliminary theoretical conceptualisation accounted for the primary tool for categorising the dimensions in benefit and sacrifice components, the empirical data and additional literature review broadened and deepened the content of each value dimension by identifying and specifying attributes relating to the benefit and sacrifice components. In practice this meant that the components were analysed and categorised according to the respondent's perceptions and the categories were supported by the categories found in existing research. This meant that some new categories that were not included in existing service management models could also be found.

Then secondly follows a more specific presentation on the empirical explications of the content of the value dimensions. This analysis is divided into two parts involving categories relating to first benefit and then sacrifice. Subcategories based on interview excerpts and quotations were used to illustrate the meaning of each category. The categories and their empirical explanations are not presented in any particular order of significance. The empirical explanations are marked with 3-4 numbers, where the first two numbers from the right indicate the number of the code and the last 1-2 numbers from the right indicate the respondent number. In the section where the benefit and sacrifice are described, the excerpts for the empirical explanations of the attributes are not presented in any particular order of importance.

For simplicity, the content of the value dimensions is presented so that the value dimensions are first described with different categories, then the relevant theoretical support is discussed, and finally more detailed empirical explanations describing the categories in each benefit and sacrifice components are analysed separately. The order of presenting the dimensions does not reflect any special order of importance. The theoretical models used in the literature review and referred to in the text are synthesised in APPENDIX 9. Additionally, insight is taken from service management literature if insufficient explanation is found in the empirical data.

5.2.1. Technical value dimension

In this section different perspectives on the technical dimension are discussed from a customer perspective. Service quality models as well as other conceptualisations in relation to service management are presented. In the end of this section the approach taken on the technical dimension is discussed, based on additional insight from the empirical study. Following abductive logic, the content of the technical dimension was developed using insight from both the theoretical framework and the empirical study. The technical dimension was split into benefit and sacrifice components to reflect both value-adding and value-decreasing elements in the service evaluations.

The definition of technical dimension used in this study denotes attributes related to the offering in addition to the end result of the service process. This is in line with Holmlund (1997) who refers to the technical dimension as the core offering. Traditionally the technical dimension had been defined as the relatively objective result of the service process (Grönroos 1982). But combining it with Holmlund's logic means that attributes that relate to the core offering and the technical aspects of the offering can be categorised under the technical dimension.

In this study, the technical dimension represented issues related to the offering, which are at the core of the service process. It relates to technical elements in the service that affect the perceptions of the service. Value is thus based on the outcome of the service act. As such, the service provider creates value by providing value-adding service characteristics. This dimension identifies *what* the outcome of the service interaction is. In many respects, the technical dimension denotes aspects in the service offering that can be more or less objectively evaluated. The focus was on value-enhancing and value-decreasing components in the offering. Based on the findings from the empirical study, issues concerning service design and security dominated the technical benefit. For the technical sacrifice, the findings indicated that aspects relating to the service package,

risk and tangibles were critical. It involves three benefit components and four sacrifice components as illustrated in Table 16.

Table 16: The technical dimension of customer perceived value

Technical dimension	
Benefit	Sacrifice
Cost efficiency	Cost
Design	Package
Trustworthiness	Risk
	Tangibles

Table 17 deepens the CPV model by illustrating the application of the technical value dimension with the empirical data. The first column groups the benefit and sacrifice components, representing the value-enhancing and value-decreasing aspects in the technical value dimension. The second column contains attributes that through the theoretical analysis were concluded to represent the benefit and sacrifice components. The third column includes elements in the empirical data that described the content of the technical dimension. The elements found in the empirical data are marked with numbers that refer to the interview excerpts. Through the empirical study, the content of the attributes was further deepened with 11 benefit elements and 15 sacrifice elements. The study revealed that aspects related to service design and trustworthiness dominated the technical benefit component, while issues concerning cost, risk and tangibles dominated the technical sacrifice component. The next two sections describe more specifically the empirical explanations of the benefit and sacrifice components.

Table 17: Summary of the technical value dimension

Technical dimension		
Component	*Attributes*	*Empirical explanation*
Benefit	Cost efficiency	Cheap [10, 16, 24]
		Monetary saving [6, 10, 11, 15, 20, 22, 30]
	Design	Automated [3, 4, 7, 17, 18, 19, 24, 27, 28, 34]
		Fit for need [9, 20, 21, 28, 33, 34]
		Observability [3, 5, 6, 8, 10, 11, 12, 17, 19, 21, 22, 24, 33, 34, 36, 37]
		Real-time information [1, 3, 5, 8, 15, 17, 21, 22, 24, 28, 29, 32, 33, 34]
		Unobtrusive [22]
	Trustworthiness	Dependability [5, 7, 16, 21, 22]
		Functionality [8, 12, 22, 23, 34, 36]
		Security [1, 3, 6, 8, 15, 20, 21, 24, 25, 26, 34, 36, 37]
		Trusted provider [3, 9, 10, 17]
Sacrifice	Cost	Price complexity [5, 18, 28]
		Price increase [5, 7]
		Self-service cost [5, 7, 16, 25, 26]
		Supporting service cost [32, 33]
		System cost [11, 22]
	Package	Advertisement [25]
		General information [5, 23, 32, 33]
		Lack of convergence [8, 12, 13, 23, 29, 32]
		Standardisation [2, 5, 6, 10, 12, 13, 18, 19, 20, 24, 33]
	Risk	Data secrecy [10, 12, 16, 20, 21, 26, 27, 31,
		Ignorance [29]
		Uncertainty [12, 26, 29, 31, 32]
	Tangibles	Intangibility [3, 4, 5, 6, 11, 12, 13, 15, 16, 20, 21, 26, 31, 33, 37,
		Passwords and codes [5, 16, 29, 34]
		Perishability [6, 16]

The technical value dimension is described in more detail in the following two sections, where the benefit and sacrifice components are illustrated with excerpts separately. As mentioned, the empirical explanations of the attributes are not presented in any order of significance.

5.2.1.1. Technical benefit

The empirical findings supported the proposed four attributes that illustrate the benefit component of technical value. In this section, the technical benefits are discussed and illustrative excerpts from the interviews are given.

Cost efficiency

Cost efficiency is one obvious technical benefit and denoted a perception of a fair price level. Many of the respondents mentioned this attribute but it did not seem that price was one of the most important reasons for using this kind of self-service option because not everyone mentioned it. So there seem to be many other more important reasons for using technology-based self-services than price. Cost efficiency involved both the

cheapness, i.e. that the price was perceived as fair, and the *monetary saving* in comparison to other alternatives. Monetary saving has been argued in earlier research to be an important factor affecting consumer choice (Thaler 1985). Costs have also been acknowledged as an economic quality dimension in terms of cost reduction (Holmlund 1997). Money savings have also been found to be a source of satisfaction in self-service technologies (Meuter et al. 2000).

> It is cheap. (Cheap, 1005, 1617)

> I think that the cost for the service is not big. Everything costs. If I went to the bank I would have to go outside in minus 20 degrees. It is also a cost. I think that it is bigger than having to pay and enter the account number myself. (Monetary saving, 603)It is cheaper than to go to the bank. (Monetary saving, 1004)

Design

Design denoted the characteristics of the service and was described as automated, fit for needs, observable, real-time, and unobtrusive. It was one of the attributes that were mentioned by most respondents. Considering that so many design elements were found under the benefit component indicates that the service was perceived positively. Some of the elements in this attribute are clearer, such as *real-time information*, i.e. updated information about the service, and *unobtrusive*, i.e. the discreteness of the service. However, there are some issues that require more explanations. The fact that the service was automated and fit for needs may seem contradictory, as automation often indicates some form of standardisation whereas customisation involves personalisation. However, where *automisation* involved the elements in the service that the customer was able to automate, such as saving recurring bills, *fit for needs* concerned elements in the service that were customised by the service provider, such as the language of the service system. *Observability* is one interesting aspect that actually separates technology-based services from traditional interpersonal services. It involves the ability for the customer to follow the service process and thus be able to get more tangible evidence of the service outcome.

> If I want to I can go and check backwards in time what I have paid…. rather than waiting for a statement of account once a month. (Real-time information, 101)

> At the same time you get a lot of information from the pages….In the mail you get the same information much later. (Real-time information, 301)

> You can always go in and check your accounts, go backward and forward and check what you have paid and when. (Real-time information, 814)

> I think that there is a lot of information about their products, which is good if you wanted to read. I think it is good. But I think that at least when I pay, they do not try to push any products on you. This is on other parts of the web page, not directly linked with the payment. (Unobtrusive, 2217)

> It is good to be able to save recurring bills…. so that I do not have to enter the information every time. (Automated, 317)

> What I like about my bank is that it sees me as a Swedish-speaking customer when I logon. In other banks that I have used I have to choose myself and then it always gives Finnish as the first alternative. And then if I am in a hurry I click through and then it comes in Finnish. It is okay in Finnish, but when I am used to all the terms in Swedish, it is lousy that it is in Finnish. (Fit for need, 2107)

> In my opinion there is everything you need. Considering that you mainly pay the bills. It could probably be developed but right now I do not know what. I think it is extensive, I am satisfied. (Fit for need, 3413)

> It is convenient because you can see if you have many accounts, all your accounts. It is totally different from an ATM, where you cannot see, or if you go to a bank then you have to ask for the information. (Observability, 1908)

Design has been noted in earlier research to be an important factor managing the evidence of the service: "The management of service evidence goes beyond what is commonly thought of as "packaging". It extends to the control and design of all tangible evidence that the consumer might associate with the service" (Shostack 1981:223). It has been acknowledged as a technical quality dimension (Holmlund 1997) and denotes the design of a service so that it performs the needed functions. It has been conceptualised as design quality (Baker 1987; Gummesson 1993), physical appearance (Anselmsson 2001; Santos 2003), user interface (Liljander et al. 2002), site aesthetics (Zeithaml et al. 2000), structure and layout (Santos 2003). Contrary to its label, access as conceptualised by Janda et al (2002) is related to the technical dimension as it involves the service provider's ability to provide a variety of products. Interestingly, the empirical findings did not involve service appearance or aesthetics. It seems that the tangible aspects of the service were relevant only to the extent that they facilitated the service delivery, i.e. improved efficiency. The concept of tangibles is discussed in more detail in the section on technical sacrifice.

Trustworthiness

Trustworthiness related to the reliability of both the service and the service provider and denoted the consistency of the service. It involved the dependability, functionality and security of the service as well as trust in the service provider The distinction between *dependability* and *functionality* is that where the former refers to the proper functioning of the service, such as system consistency and functioning, the latter denotes the stability of the service, such as assurance that the service has been delivered. *Security* on the other hand is dependent on the proper functioning of the system, in addition to tangible elements in the service design, such as security codes, that communicate a secure feeling to the customer. The *trust* in the provider referred to the longevity of the relationships and the existence of physical facilities to maintain and support a trusted image.

> I put the bill in the system with a due date, but then I don't login to check that it has been paid and what bills are unpaid. Then I trust it. (Dependability, 701)

> I can say that it has always functioned. It is very seldom that there are problems that you cannot get through. So I have thought that it is reliable and easy to use and so on, so I think it is very good in every way. (Functionality, 2307)

> I think that it gives a secure image that you have a customer id and two types of codes. This means that nobody else can get them there. And you have many codes. (Security, 306)

> Some bills that are large cannot be paid on the internet, because there is a limit….. And I think it is okay to have them so that you do not make a mistake. (Security, 805)

> I trust that my information is equally safe at the machine or bank. Anybody could enter the bank's systems as well and get the information from there. I do not perceive it as riskier, they have secured it well. At least I have such a perception that they secure the information well, so that no outsider can access it. (Trusted provider, 1722)

Aspects that denote more subjective elements such as reliability (Anselmsson 2001; Dabholkar 1996; Dabholkar et al. 1996; Liljander et al. 2002; Parasuraman et al. 1985; Parasuraman et al. 1988; Santos 2003; Zeithaml et al. 2000) are seen as related to the technical dimension because they are an outcome of the service rather than the service process. For example, reliability has been conceptualised as a technical quality dimension (Holmlund 1997) and described as the dependability and functionality of service delivery (Parasuraman et al. 1985; Parasuraman et al. 1988). Research has noted security as an important factor especially in e-service quality (e.g. Janda et al. 2002; Zeithaml et al. 2000) and has been included in quality models as e.g. credibility (Parasuraman et al. 1985), security (Parasuraman et al. 1985) and security/privacy (Zeithaml et al. 2000). It often denotes the perceived functionality and integrity related to the service system and the service provider. Safety including trust, security and confidentiality was also included as a customer service dimension influencing service operations (Armistead 1990).

5.2.1.2. Technical sacrifice

The empirical study resulted in four attributes that described the sacrifice component of technical value. They are discussed separately and illustrated with excerpts. Table 19 deleted (content moved to subsections).

Cost

Cost denoted monetary expenditures, but also involved the perceived unfairness of the expenditure. It involved system cost, supporting service cost, self-service cost, price increase, and price complexity. *System cost* and *supporting service cost* were two direct monetary expenditures that were identified, where the former referred to costs resulting from using the system, and supporting service costs to costs relating to technical assistance. *Self-service cost* denoted the linkage between doing the service process as a self-service and monetary expenditure and it involved the direct cost for the self-service. This cost, although somewhat more subjectively measurable than the other two as it involved the perceived unfairness of having to perform the service but still having to pay for it, was included in this category because it can be objectively measured with the direct cost for the service. *Price increase* was one element and included both perceived and actual price increases. *Price complexity* was another factor and referred to the lack of knowledge on how the service costs are measured and shifted to the customer.

> I do not think that I would use the Internet at home that much that it would be profitable to have it only to pay bills. (System costs, 2206)
>
> It's bad that you cannot get technical support for free. (Supporting service costs, 3304)
>
> They charge me for not having to do their job any longer, and I think it is wrong. They charge me for a service that they do not have to do. The machines count automatically, and it goes via automated machines. (Self-service costs, 2611)
>
> In the beginning they said that if I do it myself it is cheaper….. So now I do it myself and still they increase the prices. (Price increase, 505)
>
> I know that they probably have costs, I do not know high how or for what. (Price complexity, 506)

> The pricing of the services is something that I checked a few times but it is something that I do not want to bother myself with. It is like caring about changing a phone number to get free calling time. It is totally unnecessary; I have other things to think about. I saw the pricing list and it is quite clear, but it is as interesting as reading about pricing on mobile phone services or insurance. It is so complicated, so neither my friends nor me care about it. You pay what you pay. (Price complexity, 2815)

Cost is an obvious technical sacrifice and refers to both indirect and direct costs related to using the service. Cost has been acknowledged as purchase price (Zeithaml 1988) and acquisition costs (Monroe 1990). Economic quality has been acknowledged as a sacrifice component and defined as direct relationship costs (Holmlund 1997). Perceived cost has not been considered a separate attribute but can be seen to be related to indirect and implicit costs not directly relating to the real costs of using the service. For example, indirect and latent relationship costs have been considered as factors relating to economic quality (Holmlund 1997). It has not been included as a separate attribute but has been mentioned in quality models. It can be seen as related to price knowledge (Zeithaml et al. 2000). Financial risk referring to monetary loss or unexpected costs (Lovelock 2001), can be seen to be related to perceived costs.

Package

The design of the service was mentioned as a sacrifice, which supports the discussion of technical benefit that design is important for technology-based self-services. Design was included in technical sacrifice as package, because it addresses the importance of an appropriate service bundle. Package differs from design in the respect that where design relates to positive features in the service, package denotes negative aspects in the service. It involved both the content, as described as advertisements and general information, and scope, as described as standardisation, overdimensioned solution, and lack of convergence. The findings indicated that customers require more specified content and want to avoid a selling-centred service. *Standardisation* referred to the respondents' need for a customised and less extensive service. *Lack of convergence* involved a linkage between alternative service options and it was seen as negative if the service did not function similarly between different service delivery options. In this respect it seems important to design the different service delivery systems so that the service outcome is similar irrespective of the service delivery method. *Advertisement* denoted the perceived sacrifice of stumbling on information that was not directly linked to the service use. *General information* included the perceived lack of more concrete information about the service.

> If there was a possibility that it would become personal, so that I personally would have access to fewer services. So that I would have more possibilities to pay any time, compared to somebody else. Because now when there are so many services, they are for everybody. (Standardisation, 2413)

> Quite often the bank sends [information] and then you must contact them, like the information the bank sent recently. It would be easy on the net. (Lack of convergence, 1301)

> I think that the information that the bank produces about investments is not on the Internet. Either it is not there at all or then it takes much longer than if you went to the bank to get it. (Lack of convergence, 2317)

> I come to the first page and then there are often some advertisements, but I ignore them and go directly to pay. (Advertisement, 2502)

> The thing that is missing is more practical information. Most often there is information about the product but then nothing more specific. (General information, 3208)

In the literature, package or service bundle has not been noted as a sacrifice. It has been related to service design aspects on a more general level. For example, in a service offering model the service package has been argued to include the main service and auxiliary services (Grönroos 2000). It has been argued that flexibility in terms of changing the mix of service packages and the introducing of new service packages influences service operations (Armistead 1990). The service bundle can be seen as negative if it is not perceived as appropriate for specific needs. For example, linkage has been found to be a factor in service quality (Santos 2003) and can be seen to be related to the empirical explanation "lack of convergence". It refers to the service as insufficiently linking different parts of the service.

Risk

Risk related to the concern for the outcome of the service and it involved data secrecy, uncertainty, and ignorance. The distinction between the three attributes is that *data secrecy* refers to the existence of the information and that an external party may get access to the information. In comparison, *uncertainty* refers to not being able to be certain of the outcome of the service. *Ignorance* denoted the risk related to the respondents' own activities and lack of knowledge and differed from the other two in the respect that it was self-inflicted.

> Thieves are very innovative… they may manage to get the information about peoples' codes…. (Data secrecy, 1218)

> Because stuff is saved in the computer's memory I was against using these codes. (Data secrecy, 2104)

> There is always a risk that the account information disappears. (Data secrecy, 2617)

> I don't know what to protect me from, but I can imagine that if you are very uncautious there is something that you may need to protect yourself from. (Uncertainty, 1216)

> Then I was so lazy that I did not bother to read about bank things on the net. But I do not know, perhaps it would be good that somebody explained when you decide to open the Internet service. It is quite stupid that you use something that you do not understand, because still it concerns money. You should know how it works. (Ignorance, 2917)

Risk is an obvious sacrifice component in relation to self-services (Bateson 1985b) and involves aspects related to uncertainty and intrusion on privacy. It is different from security in the respect that it does not necessarily need to be a real privacy problem; rather it is the perceived risk of intrusion. In other words, where security problems may be managed, aspects relating to risk are something that is perceived to exist although managed. Functional risk relating to unsatisfactory performance outcomes (Lovelock 2001) is one type of risk found in research that can be related to the empirical findings on risk in this study.

Tangibles

Tangibles denoted the physical elements in the service as well as the effect of the physical elements on its perceived value. It involved intangibility, passwords and codes, and perishability. Even though intangibility and perishability may be seen as design

elements, they are included under this attribute because they refer to the lack of physical elements that would improve the service outcome. *Intangibility* involved lack of physical evidence of the service process, such as formal receipts, whereas *perishability* denoted that the elements of the service process did not remain accessible and available for an indefinite time, e.g. that account occurrences were not accessible for more than three months. *Passwords and codes* refer to physical elements of the service that are needed in order to be able to execute the service process, such as identification numbers.

> I can save it electronically, or then I can print it if needed. But the paper does not function the same way when you do not get the same evidence that the bill is paid. Nothing real. (Intangibility, 1228)

> Then you can order a statement of account on the net, but I think that it is good to get it at home. Because I check what I have bought and so on…. It is more concrete to get it at home. (Intangibility, 1515)

> The service shows information a certain period backwards, I do not know how long, but you cannot go backwards as far as you like. If I want to check something from the beginning of the year I cannot get it from the service. (Perishability, 607)

> I think that because there are codes and I do not even remember my account number… it's restrictive. (Passwords and codes, 511)

> There are so many problems with the passwords… When you change them you must have so and so many numbers totally different. (Passwords and codes, 1611)

Looking at service quality models, there are some models that explicitly denote the service outcome, such as technical quality (Holmlund 1997; Lehtinen 1982), physical quality (Lehtinen and Lehtinen 1991), tangibles (Parasuraman et al. 1985; Parasuraman et al. 1988), physical attributes (Monroe 1990), or service product (Rust and Oliver 1994). Production quality referring to the successful production of a product according to specifications (Gummesson 1993) also denotes the service outcome. Tangibles has been traditionally seen as a quality determinant (Parasuraman et al. 1985; Parasuraman et al. 1988) but may also be seen as a sacrifice when considering physical risk such as damage to possessions (Lovelock 2001). However, the meaning of the tangibles attribute in this study differs from its original application as it refers more to the physical aspects of the service rather than the physical aspects of the personnel or facilities.

5.2.1.3. Discussion

In this section the empirical results on the technical dimension were discussed and the empirical explanation on technical benefit and sacrifice were presented. An additional literature review was also conducted to validate the attributes relating to the benefit and sacrifice components. The empirical attributes were used to group attributes in earlier models. The technical value dimension was described with three benefit attributes – design, cost efficiency, trustworthiness – and four sacrifice attributes – cost, package, risk, and tangibles.

While there seemed to be consistent findings in the empirical and theoretical data on the attributes, there were also some interesting results. First, there were attributes that in earlier models have been conceptualised as benefit, but which in this study were found to be sacrifice. Tangibles is one example of an attribute that was found to be a sacrifice,

although it has been earlier referred to as a benefit in quality models. This attribute was also specified so that its meaning converged from the original application. In other words, it involved physical aspects of the service rather than physical aspects of the personnel or facilities. Furthermore, there were also some attributes that had both benefit and sacrifice elements. Design was one such attribute that was split into two: one labelled as design and seen as a benefit, the other labelled package and seen as a sacrifice. Secondly, there were some attributes that have not been found to be relevant in the benefit and/or sacrifice components, such as image or policy. However, they may be linked to the technical benefit component under the attribute trustworthiness that deals with issues relating to the perceived trustworthiness of the service provider and service.

5.2.2. Functional value dimension

This section includes a discussion on different approaches on the functional dimension from a customer perspective. This subchapter follows the same structure as the discussion of the empirical results of the technical value dimension, i.e. first an overall presentation of the findings on the functional dimension and then a detailed discussion of the benefit and sacrifice of the functional dimension. The starting point is a presentation of the functional dimension that evolves from the combined insights from theory and the empirical study. Service quality models as well as other conceptualisations in relation to service management are discussed that support the empirical findings. In this section the content of the benefit and sacrifice components of the functional value dimension is presented.

Attributes relating to the service delivery process are categorised under the functional dimension. Grönroos (1982) defined the functional dimension as more subjective in nature compared to the technical dimension. In contrast to the traditional approach in the service management literature where it is seen as a result of the service being produced in interaction with customers, the functional dimension as used in this study refers to the customer's own activities in the service delivery process. This study focuses on the customer's active role in the service delivery process, and thus it seems reasonable that the functional aspects arise more frequently from the customers perceptions on their own input in the service delivery than from the interaction with the service employee. It may also be seen as interactions with the service system, for example a technological interface. In this respect, the traditional focus on the social interaction, service encounter, or moment-of-truth is not applied.

The process-specific dimension involves more abstract variables of the service than the service-specific elements. It consists of functional elements of the service process, such as the level of customer input. The customer mainly creates value by interacting directly or indirectly with the service provider. This dimension defines how the customer perceives the process *how* the service interaction occurs. It involves aspects related to the service process, which is based on different types of interactions with the service provider. It is imperative to note that the focus in the study was elements relating to the customer's activities, because of the high customer involvement and participation in the service delivery. Thus value-enhancing and value-decreasing components concerning the customer's activities in relation to the service process were included under the functional dimension. It involves four benefit components and four sacrifice components as summarised in Table 18.

Table 18: The functional dimension of customer perceived value

Functional dimension	
Benefit	Sacrifice
Assistance	Dependence
Control	Effort
Ease of use	Responsibility
Self-delivery	Routinisation

Table 19 depicts the theoretical description of the functional value dimension by a division of the attributes in benefit and sacrifice components. The benefit and sacrifice components were theoretically broadened with attributes that through the empirical data were deepened with several elements. These elements, marked with numbers from interview excerpts, are based on the empirical explanations.

The functional value dimension was theoretically defined with 8 categories as depicted in Table 19. The functional dimension was empirically described with a total of 25 elements, of which 14 related to the benefit component and 11 related to the sacrifice component. In the findings from the study, aspects relating to customer control and service delivery dominated the functional benefit. For the functional sacrifice, the findings revealed that issues relating to the customer's effort in the service delivery and the routinisation of the service process were vital.

Table 19: Summary of the functional value dimension

Functional dimension		
Component	*Attributes*	*Empirical explanation*
Benefit	Assistance	Responsiveness [1, 3, 6, 36]
		Technical support [15,20, 21, 29, 34]
	Control	Process control [1, 9, 10, 13, 32]
		Self-control [8, 9, 10, 16, 18, 20, 22, 23, 24, 28, 29, 31, 32, 33, 34, 35, 36]
	Ease of use	Clarity [3, 5, 10, 21, 23, 25, 36, 37]
		Habit [17, 21, 28, 32, 34]
		Instructions [28]
		Simplicity [1, 3, 9, 12, 17, 20, 22, 23, 32, 36]
		Visual [5, 6, 15, 22]
	Self-delivery	Enjoyment [32]
		Flexibility [11, 13, 15, 19, 23, 26, 27, 28]
		No direct interaction [8, 9, 12, 23, 25, 28, 32, 36]
		No worrying [1, 8, 16, 18, 22, 26, 34, 37]
		Self-service [1, 3, 4, 5, 10, 11, 13, 15, 17, 19, 21, 22, 23, 28, 29, 30, 31, 34]
Sacrifice	Dependence	Initiative [4, 8, 9, 13, 16, 17, 23, 32, 37]
		Competence [7, 12, 27, 30, 32]
		Service recovery [9, 29]
	Effort	Initial effort [5, 12, 21, 31]
		Manual entry [4, 7, 8, 9, 10, 11, 12, 18, 19, 21, 25, 30, 31, 37]
		Mental effort [3, 5, 6, 10, 26, 27, 23, 28, 31]
	Responsibility	Accuracy [7, 8, 19]
		Self-reliance [6, 8, 12, 13]
	Routinisation	Computerisation [9, 13, 16, 26, 28, 36]
		Loss of control [5, 7, 8, 18, 26, 28]
		Technical execution [7, 8, 23, 25, 32]

The benefit and sacrifice components are elaborated in more detail in the next two sections. The presentation follows the same order as in the table above.

5.2.2.1. Functional benefit

The empirical study resulted in four proposed attributes that described the benefit component of functional value. In fact, it seemed that the functional benefit was one important element in technology-based self-services, as each attribute was related to many subelements.

Assistance

Because the service process was performed mostly by the customer and the service provider only had a minor role in it, it was not perceived appropriate to call this attribute customer service. Hence assistance was perceived as a more correct term. It involved technical support and responsiveness. *Technical support* denoted the creation and maintenance of a service arena that enables the service process performed by the customer. It involved regular and automatic updates in the service, such as codes and

passwords, and maintenance of the service infrastructure. *Responsiveness* concerned the actions from the service provider to respond to problems and involved the promptness of answering emails and online questions, customised answers, and the ability to get support for the service process. Whereas technical support involved the service provider's actions taken to ensure a functioning service arena, i.e. only indirect support, responsiveness involved the input from the service personnel to facilitate the service delivery, i.e. direct support. However, it is important to note that responsiveness was not perceived as critical, because most respondents felt that they did not need any support from the service provider, at least not for more than unexpected problems.

> I think that they create the possibility and maintain the system. In that way they serve the clients. But it is not that direct, more indirect, perhaps it is better. (Technical support, 2914)

> You can contact… the customer service. I do not know to whom it goes but they respond very quickly, if not the same day at least the next day. (Responsiveness, 611)

Physical appearance (Anselmsson 2001) has been defined as the maintenance of the service infrastructure. It differs from responsiveness in the respect that it is technology-related, rather than person-based. It has been argued that customers want to avoid direct interaction with service personnel. For example, avoidance of service personnel has been found to be a source of satisfaction in self-service contexts (Meuter et al. 2000). Responsiveness is factor from the SERVQUAL model (Parasuraman et al. 1985; Parasuraman et al. 1988) and is related to the direct support and input from the service provider. Responsiveness was developed for traditional interpersonal services where the service employee was expected to be attentive towards and interested in the needs of the customer. Although technology-based services are self-services there is still a need for responsiveness from the service provider. It has been used in service quality models developed for an e-service context (Kaynama and Black 2000; Liljander et al. 2002; Zeithaml et al. 2000). It can also be seen to be related to understanding, courtesy and empathy (Parasuraman et al. 1985; Parasuraman et al. 1988).

Control

Control denoted the customer's ability to influence the service process and was related to self-control and process control. *Self-control* is a result of observability found under the technical benefit, but differs from it in the respect that it includes the active role of the customer to follow the service process. In comparison, observability was more a service-design-related element that is a prerequisite for the customer to follow the service process, but it did not indicate whether the customer actually was active. Thus, self-control refers to the ability to actively control the service outcome through following the service process. *Process control* refers to all the routines and processes available to check whether the service process has gone correctly. It is related to service recovery, a traditional quality element, but differs in the respect that service recovery is performed by the service provider, while process control is performed by the customer.

> I have better control. When I withdraw money from my account I do not have to check my balance because I have a clear picture in my head… because I have entered the information. (Self-control, 1002)

> You have a feeling that you have better control over the situation when you can see for yourself. (Self-control, 2910)

> If it has not gone correctly you can check with all the systems that the bank has. (Process control, 109)

In a technology-based self-service context, control has been referred to as the influence that customers have in differentiating and choosing between different service delivery options such as self-service and personnel-based options (Anselmsson 2001). This definition is similar to the definition based on the empirical findings in the current study. In general, control has been found in earlier research to be one important variable affecting service evaluations and it may be related to cognitive, decisional or behavioural control (Bateson 1985a). Control as used in the empirical study related to all types of control. Observability and routines facilitate behavioural control, awareness enables cognitive and decisional control, and process control and self-control refers to behavioural control. Steering has been argued to be a customer service element of service operations and denoted the degree of customer control in relation to the service (Armistead 1990). In recent research there is also a suggestion that customer power may influence service quality (Keating et al. 2003) indicating that customer control is relevant.

Ease of use

Ease of use denoted the easiness of service performance and involved both the prerequisites of the service, i.e. clarity, instructions, simplicity and visual appearance, as well as the requirements of the customer, i.e. habit. Clarity and simplicity are interconnected but not mutually exclusive, because the service process can be clear but difficult or simple but unclear. *Clarity* referred to being able to orientate within the service in a clear way, while *simplicity* concerned how easy it was to learn the process. *Habit* was related to this and it involved the technical knowledge of the user. It denoted the routines habits that were perceived to facilitate the service process. *Instructions* denoted the information about the service process. The *visual* aspect in the service design also facilitated the service process, and was thus coded under the ease of use attribute. It was related to observability but involved more the effect on the service delivery process.

> I think it is rather clear; everyone could use it, independently of age or how accustomed one is to using it. (Clarity, 311)

> It is really easy. There are not that many mouse clicks to get it done. I think that they have done it so user friendly as possible, I am satisfied. (Simplicity, 3213)

> You learn the system quite quickly. Of course the first time you log on you think that aha it is a new bank, and that this was this and that was that, and where can I find the accounts and where can I find receipts and where do I find the transactions and so on. But then once you are accustomed to it is quite easy. (Habit, 2111)

> There were clear instructions, it was nothing special. (Instructions, 2810)

> The net appeals to me more now, it is visual and you can see the whole bill at once… It is somehow visual to see the bill on the screen and it feels that you have done it correctly, entered everything correctly…. I am more a visual person, so if I see it on the screen I know that it is correct. (Visual, 1518)

Ease of use could have been categorised under the delivery attribute but considering that it has been found to be a critical aspect in past research it was included as a separate attribute. It has been included in many quality models, especially those related to e-

service quality (Anselmsson 2001; Dabholkar 1996), and relates to how easy it is for customers to perform their task in the service delivery. Ease of use has been found to drive customer satisfaction of self-service technologies (Meuter et al. 2000). The efficiency of the service, i.e. that the site is easily used and structured (Zeithaml et al. 2000), may also be related to the ease of use. Ease of use is an important variable for technology-based self-services that require the customer to participate in the service delivery.

Self-delivery

Self-delivery is an obvious attribute in technology-based services especially because the service process is performed by the customer. Delivery involves process-related aspects and denotes the nature of the delivery process, i.e. enjoyment, lack of worrying, flexibility, lack of physical interaction, and self-service. *Enjoyment* was perceived as a benefit because the self-service process was perceived as enjoyable and interesting in itself. Many of the respondents also mentioned *lack of worrying* about the outcome of the service as one of the benefits. *Flexibility* related to aspects that made the bill payment adaptable to specific needs and denoted the ability to influence the way the service process was performed. *Physical interaction* with the service provider was seen as unnecessary because the offering was not perceived as a simple thing where no service was needed. This was related to the issue of self-service that was perceived as a positive thing. *Self-service* denoted the benefit of being able to perform the service process independently and having the freedom to do it according to own routines. It involved not having to explain and express what is needed to the service personnel, e.g. getting only the needed receipts of the service process.

> I think it is quite nice to go into the web bank. I think it is amusing, not just useful…. It is interesting to go and see what you have there. And then I like to use the different functions; it is nice to navigate there. (Enjoyment, 3210)
>
> I do not have to think of the bills, only once a month. Or not even once. You notice at some point in the beginning of the month that the bills have been paid… (No worrying, 1802)
>
> I have many accounts, not everything at one, and then I want to transfer money back and fro. The salary comes to one account and the travel expenses to another, then you can play a little with it. (Flexibility, 2805)
>
> I do not like to call a firm, I do not like to go somewhere, especially when you have to wait and explain what you want done…. It is somehow so personal, I like to be relatively anonymous, that there is nobody checking, watching and asking. (No direct interaction, 2208)
>
> I want to do it myself and then I know I do it correctly. The bank personnel have probably paid many more bills than I and do it probably as good as I do, at least, if not better. But on a personal level it is still a stranger for me, I trust myself more than her. (Self-service, 411)

Service delivery has been extensively researched and conceptualised as including varying input from the customer and service provider (e.g. Goodwin and Radford 1993; Kelley et al. 1990) as was discussed in more detail in section 3.3.2. Flexibility involving the choice of ways to pay, ship, buy, search for and return items (Zeithaml et al. 2000) can be seen as a functional aspect because it involves different options in the service delivery process. Similarly, performance involves meeting the expectations concerning the physical order fulfilment conceptualised as transaction efficiency and delivery fulfilment (Janda et al. 2002) and can be seen as a functional aspect in the service process. Interestingly, service delivery has also been acknowledged as a technical

quality dimension with process-related elements (Holmlund 1997). However, in this study it can be concluded that delivery is more related to functional aspects than technical aspects.

5.2.2.2. Functional sacrifice

Similar to the benefit component, the sacrifice component of functional value can be illustrated with descriptive excerpts for four attributes.

Dependence

Dependence related to the necessity for external competence and referred to initiative, service recovery, and competence. Dependence differs from assistance in the respect that where the service provider is responsive to customer needs, the customer may perceive the reliance on service provider input as negative. *Initiative* refers to the need for the customer to be active and take initiative to get support. In comparison, *competence* denotes that the service provider holds some specific piece of information that is needed, but that the customer does not get access to. *Service recovery* involved the correction of potential errors in the service process and was seen as a sacrifice because the service recovery was perceived as complex. Respondents noted that it was difficult to understand the nature of the service recovery and noted difficulty in knowing complaint times and implications of errors.

> I do not need service when paying bills, I do not need it for that. But then when considering loans I want customer service. So that I can discuss different options and stuff. (Initiative, 909)

> I think it is easier to clear it with a person first, and get more easily the information directly by asking. (Initiative, 1302)

> It takes longer to study every single detail, how to do it on the internet, it takes much longer than walking to the bank….. I do not have to learn how it is done. I only want it to be done. I probably take the fastest way here and I think that it is much faster to walk to the bank when I have my ways nearby, than to sit down and study the information. Because it happens so seldom that I do not need to get a routine for it. (Competence, 1225)

> Sometimes I think about what if something happened…. Sometimes I think about what if you have made a mistake, how do you contact the bank, or can they correct it directly…. I do not know, I do not have that much information about how the technical things work. (Service recovery, 2905)

Dependence has been argued to influence the perceptions of self-services (Bateson 1985b) and may be seen as related to responsiveness. It refers to the need for input from the service provider. Shopping confidence was argued to be one factor that described personal needs in relationship customer typologies indicating that guidance and reassurance is needed from the service employee if the customer lacks confidence (Reynolds and Beatty 1999). Service recovery has been argued to be an important issue for services, and may be especially challenging in technology-based services. For example, it has been argued that complaining is perceived as difficult in both technology-based and interpersonal service encounters, which contradicts the view that technology-based service encounters may facilitate complaining behaviour (Snellman and Vihtkari 2003). It may be seen as a sacrifice when considering the high level of customer participation and lack of direct contact with the service provider. Holmlund (1997) found recovery to be a technical attribute with process-related elements, while

Grönroos (2000) described service recovery as one of the functional criteria for good perceived service quality.

Effort

Effort denoted the customer input in the service process and was proposed as a main element in the functional dimension of technology-based services. It concerned the physical activity needed to perform the service, i.e. initial effort and manual entry. It was also related to the psychological effort, i.e. mental effort. *Initial effort* referred to the necessary effort in the pre-process, such as login on to the system, whereas *manual entry* related to the effort in relation to the actual service process, such as entering financial information. *Mental effort* concerned the mental processing needed when deciding to perform the service and when actually doing it as well as the effort needed to see that the outcome of the service process is correct.

> It takes time to log in. Okay, for security reasons, and then you have to keep the passwords at different places. Then it takes time to sit down, open the computer, have all the papers ready. That is why when I am there, I think that it goes at the same pace to pay all that there are. (Initial effort, 2101)
>
> I do a lot, it is much work to go through and enter all the codes and everything. (Manual entry, 1112)
>
> With a bill you go to the bank and only sign it and give it to the bank personnel who pays it. But now I must copy the bill onto the Internet. In this way I do more for the actual payment. (Manual entry, 1221)
>
> If there are long reference numbers than you stop to check if it goes correctly. I always check twice. That is probably why I do not copy bills, because I always want to see that it goes there. So that I do not accidentally enter something wrong. (Mental effort, 2610)

Effort has been noted as an important variable in service delivery where customer participation is high and is an obvious variable related to the input from the customer (Bateson 1985b). It may be seen as opposite to the ease of use and ease of navigation and efficiency in the e-service quality model (Zeithaml et al. 2000), and contains the customer's precision and mental effort related to performing the service. It has been argued that motivational effort, i.e. the amount of effort an individual spends in the performance of an activity, and direction, i.e. the appropriateness of the specific activity into which that effort is directed, influence the satisfaction of a service in the context where the customers function as partial employees (Kelley et al. 1990). However, effort has not been shown to be an attribute influencing the perceived value of a service, but considering that satisfaction is a behavioural outcome of perceived value, then it is appropriate to expect that effort is an attribute in perceived value. Efficiency, i.e. minimal input by the customer, has been noted as important in e-services (Zeithaml et al. 2000).

Responsibility

Responsibility denoted the weight on the customer in relation to the outcome of the service and it involved accuracy and self-reliance. *Accuracy* involves the precision of input needed in the service process and the burden of responsibility on the customer to see to it that the outcome is correct. *Self-reliance* referred to dependence on one's own skills and knowledge to perform the service process. Responsibility can be seen as

related to both effort and dependence in the respect that it refers to the responsibility of the service process and the service outcome expected of the customer.

> Especially nowadays when everything goes via the account number so if you have it wrong…. even though you have the right recipient…. it is all your responsibility. (Accuracy, 706)

> It is my responsibility to enter the information correctly. There is nobody checking it for me. If I went to the bank and paid I could transfer the responsibility on them and it would be their fault if something went wrong. (Self-reliance, 616)

Customer responsibility for service outcomes has been discussed in past studies. It has been argued that customers are contributors to quality, satisfaction, and value (Bitner et al. 1997) and customers may perceive that they are responsible for the outcome of the service. It has been found that although customers produce the service themselves, they do not take the responsibility for the service failure (Meuter et al. 2000).

Routinisation

Routinisation denoted the monotonous nature of the service process and involved computerisation, loss of control, and technical execution. While technical execution is an aspect related to the service process, loss of control and computerisation can be seen as outcomes of the service process. *Technical execution* denoted the perceptions of the service process as a routine transaction with little variation. *Computerisation* referred to the lack of human interaction and a shift towards electronisation and technology-dominated environments. It is an attribute at the other extreme of no physical interaction found as a functional benefit and referred to the perceived need for some kind of interaction with the service employee. It was mentioned that personal service is better for some issues and that the self-service machines are unreliable and difficult in comparison to personal service. *Loss of control*, a related aspect, involves the perceived inconvenience of using technology to perform activities as it may decrease the input in the service process and thus reduce the level of control.

> It is technical, it performs this technical thing, takes my money from the account and puts it in this fund or then I receive shares for it. There is not that much information about investments, you have to know it before you subscribe to the shares. Then a person who does not know as much about shares would benefit by going to the bank. I do not know what kind of advice he would get, but probably better than no advice at all. (Technical execution, 2313)

> You cannot talk with the desk personnel…. When everything is being done over the Internet, sure it is convenient and efficient, but must everything be so efficient, I ask myself, must everything be done via a computer. (Computerisation, 1619)

> The danger is that it is too easy. You lose control over it. You say that it is good and it is easy and then you enter it. I think that I once paid a bill two times. It says something about how easily one takes it. (Loss of control, 819)

Routinisation referred to the lack of variation in the service process when the service delivery is perceived as only a technical execution. It has not been noted in earlier quality models but is important considering the increased level of self-service delivery through technology interfaces. This makes the service delivery more standardised (Quinn 1996) and thus more monotonous if performed frequently. In terms of the social aspect of the service, it has been argued that the emergence of automated retailing systems may be associated with a perceived depersonalisation of the retail transaction (Forman and Sriram 1991). Some customers may still want some personal service, and

personal service may thus be especially critical for self-service options with not much human interaction. It has been argued that social factors and interaction are necessary for customer satisfaction (Mittal and Lassar 1996) and in this respect this finding is interesting as social factors are seen as a sacrifice. However, bearing in mind that favourable attitudes toward employees may decrease the use of self-service technologies (Curran et al. 2003) it is reasonable to conclude that customers who prefer to use self-service technologies may in fact perceive social factors as negative.

5.2.2.3. Discussion

In this section the empirical findings on the functional dimension were discussed and the empirical explanation on functional benefit and sacrifice were described. The findings on the functional dimension showed both consistency with past research and new insight into benefit and sacrifice components. In this section four benefit attributes and four sacrifice attributes were identified. Control, ease of use, and assistance have been shown to be service quality attributes. However, delivery has not been included in past research as a separate dimension, rather it can be seen as an outcome or determinant of the other determinants. The sacrifice attributes in turn have not been referred to in the service quality or value literature; however, they have been argued to influence service evaluation either directly or indirectly. The findings in this study represented by "routinisation", i.e. the lack of personal interaction and instead technical execution, indicated that it negatively affected perceived value. The other functional sacrifice attributes – effort, dependence, and responsibility – may be seen as referred to as indirectly influencing service evaluations in the service management literature.

5.2.3. Temporal value dimension

Similar to the previous two chapters, in this section the temporal dimension is discussed to present the relevant perspective for this study. Service quality conceptualisations and service management involving the service environment form the theoretical starting point. Additional insight is taken from the empirical study to present the temporal dimension as used in this study.

This study has investigated customer perceived value with a holistic focus on value creation from a customer perspective. This focus has warranted a suggestion that time is an important dimension affecting perceived value. The empirical findings in the quantitative part of the study supported this proposition and have offered further aspects that deepen the understanding of the content of the temporal dimension. The theoretical analysis pointed to only few sacrifice components in the temporal dimension, but the empirical explanations were more detailed. This section includes a discussion on the content of the benefit and sacrifice components of the temporal value dimension.

The time-specific dimension contains the value of receiving the service in different time frames. It relates to temporal elements that affect the perceived value. Value is based on the specific time of the service process and is created by the customer by interaction with the service infrastructure. This dimension identifies how the customer perceives the moment *when* the service interaction occurs. It involves two benefit components and two sacrifice components as indicated in Table 20.

Table 20: The temporal dimension of customer perceived value

Temporal dimension	
Benefit	Sacrifice
Temporal flexibility	Temporal restrictions
Time allocation	Time spending

Table 21 illustrates the content of the temporal value dimension with a corresponding structure as the technical and functional dimensions. The benefit and sacrifice components in the first column offer a valid categorisation of the attributes in the second column, while the attributes are empirically explained in the third column. Empirical statements used to define the attributes are marked with numbers from the interview excerpts.

The empirical results of the content of the temporal value dimension are discussed in more detail in the following two sub-sections. The benefit of the temporal value dimension related mainly to issues of time flexibility and allocation of time. In fact, it seemed that the temporal flexibility and ability to choose the time of the service process were perceived as valuable by almost all of the respondents. This is not directly attributable to the choice of the reference service, because the respondents mentioned that they wanted flexibility in their activities in general not merely in relation to banking activities. The sacrifice component concerned issues that hindered the wanted temporal focus, with roles and temporal restrictions as the main value-decreasing attributes. Relatively few respondents perceived the role of time, temporal restriction and time spending as negative compared to the perceptions of the roles. However, these attributes were deemed as important when considering the nature of the service in question, i.e. a technology-based self-service.

Table 21: Summary of the temporal value dimension

Temporal dimension		
Component	*Attribute*	*Empirical explanation*
Benefit	Temporal flexibility	Choice [2, 4, 5, 6, 8, 9, 10, 11, 15, 17, 18, 19, 21, 22, 23, 24, 25, 26, 27, 28, 29, 31, 32, 33, 34, 35, 36, 37]
		Immediacy [1, 3, 6, 7, 22, 24, 25, 30, 32, 34]
		Opening hours [7, 11, 15, 16, 17, 31, 32]
		Spontaneity [3, 8, 10, 12, 17, 20, 22, 27, 28, 31, 32, 34, 35, 37]
	Time allocation	Enjoyment [12]
		Focus [10, 13, 15, 20, 26, 32, 36]
		Little information [7, 10, 19, 34, 37]
		Routine [12, 21, 26, 29, 37]
		Optimisation [1, 3, 5, 6, 12, 17, 20, 28, 33, 36]
		Simultaneity [7, 17, 18, 30, 32]
		Speed of delivery [4, 6, 7, 13, 15, 16, 17, 18, 36, 34, 36]
		Time saving [4, 23, 30]
Sacrifice	Temporal restrictions	Boundaries [21]
		Process disruptions [33]
		Timetables [17]
	Time spending	Disruption [9, 22, 27, 33, 36]
		Mix of roles [6, 8, 9, 10, 15, 36]
		Role of time [37]
		Scarcity [27]
		Temporal inefficiency [31]
		Time spent on service delivery [26]

The temporal benefit and sacrifice are described in more detail in the following two sections. The order of presentation of the attributes is the same as in the table above.

5.2.3.1. Temporal benefit

The benefit component of temporal value has been described with four attributes. Excerpts from the empirical study are used to illustrate the nature of the attributes.

Temporal flexibility

Temporal flexibility involved the customer's latitude in performing the service at a convenient time. It included more objectively measurable access, i.e. opening hours, and more perceived access, i.e. the perceived choice of time of service delivery as well as the spontaneity and immediacy aspect of time. *Opening hours* denoted the customer's temporal approachability to the service and it involved the convenience of opening hours that some respondents mentioned was important. But it was mainly contrasted against the opening hours of other service delivery alternatives, such as ATMs and bank branch offices, and in this respect it was noted that the opening hours of the internet bank is very convenient. While choice referred to timing and the ability to choose the time of service delivery, *immediacy* denoted the ability to perform the activity directly. Often *choice* involved the need to be prospective in the timing of the activities. In comparison, *spontaneity* denoted the ability to be highly unplanned and unstructured in the banking activities.

> It is so convenient to be at home. It is around the clock, when it is appropriate for you. It is 24 hours a day that it functions. (Opening hours, 1102)
>
> Frequently I enter the information immediately when I receive a bill, I do not wait until the due date, I enter it immediately. If it is not a larger bill that needs checking that there is money I usually enter it directly and then forget it. (Immediacy, 2201)
>
> I think I have paid one day early. But I want it to go immediately when I pay. So that I can see how it has changed on the account. I usually pay it so that it goes directly from my account. (Immediacy, 2404)
>
> I can do it whenever I want to. I am not bound to the bank's opening and closing hours. (Choice, 205)
>
> Then I can time when I pay the bills, as long as I pay it in advance. It would perhaps require more organisation if I went to the bank. (Choice, 914)
>
> I am very impulsive and rather forgetful, it is important to be able to pay…. when I remember. (Spontaneity, 1022)

Temporal flexibility is an aspect that relates to the temporal latitude discussed by Hendrix et al (1979). Temporal latitude was argued to be the result of flexibility in activities and it was conceptualised as a continuum ranging from complete latitude, through some latitude to no latitude. The ability to perform the service anytime has been found to be a source of satisfaction for self-service technologies (Meuter et al. 2000) indicating that temporal flexibility may be perceived as a benefit. Accessibility was discussed in section 3.3.3 and it was argued that it includes temporal aspects. Access has explicitly been included in service quality models, and recently it was conceptualised for e-services as the ability to get on the site quickly and to reach the company when needed (Zeithaml 2000). Holmlund and Kock (1996) found that access and short opening hours in particular was the main quality problem in retail banking.

Time allocation

Time allocation was a second temporal benefit and involved the perceptions of the time allocated to the service delivery. It involved enjoyment, focus, little information, optimisation, routines, simultaneity, speed of delivery and time saving. *Enjoyment* denoted that if a service delivery is perceived as enjoyable, at least compared to its alternative, then the time needed to perform the activity is not perceived as a waste. In other words, if an activity can be made as enjoyable as possible, then the time allocated to it is perceived as positive. While enjoyment also was a factor in functional benefit, there is a difference between the enjoyment in temporal benefit as it involves the perception of the time used, not the activity. *Focus* referred to the ability to take the necessary time needed to perform the service process. Many respondents mentioned that they were able to concentrate and focus better when they were able to time the service delivery according to own needs. *Optimisation*, related to the flow of activities, referred to the allocation of needed activities so that the time used is optimised. *Flow* denotes the smooth flow of the service process that results in better service performance. It involves the ability to concentrate and focus on the activity. *Simultaneity* concerned the ability to time the service process so that parallel activities were possible, for example surfing on the web simultaneously when paying bills. *Time saving* could be seen as a result of the speed of delivery, but it concerned the perceived smoothness of the service delivery, which minimised the expended time. In this respect it differs from optimisation that concerns more specifically the time efficiency than the smoothness. *Routines* involved

aspects that facilitated the service process such as automatic and routine actions as well as the habits of the customer. *Speed of delivery* was a general term that involved the benefit of a flexible and convenient service delivery, e.g. not having to put so much time on the service delivery. This is linked to the *amount of information required*, as some respondents noted that the information needed in the service, such as account numbers and reference numbers, was small, which decreased the time expended in the service process. Much of the necessary information could be retrieved from the database and hence was not needed to enter again.

> I can use the time that I put on life administration for something considerably more important. And more enjoyable and agreeable. Not waste time on such infrastructural things. (Enjoyment, 1208)
>
> I can sit in peace and quiet as long as I want, I can go through everything. (Focus, 3221)
>
> I would probably have time [to make it to the bank] if I fit it in the calendar; you only need to make time in your schedule. But it is much better when you can adapt this rather… It gives time to other things. (Optimisation, 1715)
>
> So that it is not a project in itself to go and pay, rather it goes with something else. When you are at work and anyway log on, then you can go to and fro to Nordea's website and pay your bills. (Simultaneity, 716)
>
> It takes about 15 minutes to walk to the bank: if there is a queue I must queue and then walk back, so in the worst case it takes an hour. From my chair it takes about 30 seconds and then it is done. And because I do not think I need advice it is okay. You save time. (Time saving, 2310)
>
> It is fast. I can check the information automatically, both reference and account numbers, so I only enter them. (Routine, 1209)
>
> I can say to my friends at home to pay 50 bucks to my account. Then it comes almost directly to the account. Then I can use the money from there and the night continues… It is the speediness of the money transfer. (Speed of delivery, 2613)
>
> It is in every sense nice and convenient when you can save the bills and only have to enter the amount…. I always use it, only click, when it is the same. There is always one extra each month but the most frequent are saved. (Little information, 1902)

Time allocation has been noted as an important variable in consumer behaviour (Robinson and Nicosia 1991) and may be seen as related to the ability to optimise and focus the time on certain activities. Speed of delivery has been directly referred to in earlier quality models. Speed of delivery has been found to be an important service quality determinant (Anselmsson 2001; Dabholkar 1996; Jun and Cai 2001; Zeithaml et al. 2000). Dabholkar (1996) included the concept as a determinant in technology-based self-services and Anselmsson (2001) used it as a technology-specific determinant of service quality.

5.2.3.2. Temporal sacrifice

The literature review on service quality models did not include temporal sacrifice. However, aspects relating to temporal sacrifice could be identified in other service management models. Through the empirical study the two attributes that described the sacrifice component of spatial value were supported as indicated with the examples from the interview excerpts.

Temporal restriction

Temporal restriction denoted external limitations set by time and it involved boundaries, process disruptions and timetables. *Boundaries* were related to temporal restrictions in the service design that resulted in problems in the service delivery, e.g. that the service, if not used for some time, closed by itself. *Process disruptions* in turn concerned the regular updates that were performed on the service and it was noted that although updates are performed at night time it disrupts the service process. *Timetables* referred to restrictions in the surrounding service environment, such as time restrictions to use computers at public places.

> It noticed that especially with my bank, I have not noticed it with other banks, that if I have the page open too long it throws me out. That is why I have noticed that it is better to think before than to sit there and think because then it throws you out and you have to log on again. (Boundaries, 2114)

> Sometimes, at night there are updates being done when I pay. (Process disruptions, 3312)

> At the library they have a time limit, you can use it only for 10 minutes….. At least in Tölö, you have time pressure and if you have many bills then you must do it quickly. And this is not good if you must check thoroughly that you have entered everything correctly, the account numbers and all. (Timetables, 1702)

Temporal restrictions can be related to the timing of the service process. Optimally the timing is perceived as appropriate but it can be seen as a sacrifice if there are disruptions in the service delivery or if there are timetables that restrict the consumption or usage. Time constraints have been found to influence perceptions of quality and monetary sacrifice (Suri and Monroe 2003).

Time spending

Time spending referred to the time needed for the service process and involved temporal inefficiency, time spent on service delivery, scarcity of time, mix of roles, and disruptions. Additionally, roles included the role of time. *Temporal inefficiency* was the opposite of optimisation found as a temporal benefit and denoted the perceived inefficiency because the service process takes time away from other activities. The respondents also felt that *time spent on service delivery* was time spent away from other things. This is different from personal service where the bank personnel perform the activity, and the interaction and the service delivery are perceived as a nuisance. In contrast, for self-services with no personal interaction, the time spent on the service delivery is perceived as more crucial. *Temporal scarcity* denotes the problem of having many activities that are intertwined so that the service process gets forgotten or not done. It differs from mix of roles that denotes the reluctance to do activities at certain times, whereas scarcity involves the inability to do activities at certain times due to lack of time. *Mix of roles* was related to the interconnectedness of private and professional life, where the banking services interfered with either role. *Disruption* on the other hand denoted the interruptions that the banking activity caused in everyday life. *Role of time* is a related aspect and denotes general opinions about how the time is experienced. It referred to the perception of time in terms of a reduced meaning of time. In other words, because it was possible to choose the time of service delivery more flexibly then the choice of time was perceived as less crucial.

> I have a feeling that now when I am at home working I do not have work hours. So then when I sit in front of the computer it feels like I am working and when I do something else it feels like it is away from the work time. (Temporal inefficiency, 3124)
>
> There is a question of how important the increase in leisure time is. I think that it is kind of contradictory in that respect that if I need service I can search the thing on the net, but then I use my time on it. (Time spent in service delivery, 2608)
>
> I have tried, I have noticed that when I have a bill with a due date I put it in the bag in the morning, go to work and when I return home it is still there. Then I pay at home. It is probably half a year since I paid at work. It is so complicated, you have your hands full and then forget it. (Scarcity, 2703)
>
> It is like all home contacts and work at home, it takes away from your leisure time. You mix it with your leisure time. That is why I would prefer it to be limited. (Mix of roles, 822)
>
> I usually pay between 5 and 7 p.m., which means that my daughter is awake. And then I do not have time to do so much, so I go to the computer and pay…. She is very interested to jump in my lap directly, probably because we sit so much in front of the computer. But it goes quite well if I let her do something. Some entertainment, then there is no big problems.... It depends on whether her mother is at home or not. If it is just the two of us then it is difficult. Then she gets too little attention and that is not fun. Then she has to sit in my lap. And then I try to do something but she hits the keyboard and that is not so successful. A little bit of surfing is okay, but not something that requires much concentration. (Disruption, 2705)
>
> One bad thing is that you forget. If you had a specific time when you have to pay then you would probably remember more easily. (Role of time, 3718)

Time spending has been included in service management research in terms of waiting and use. Temporal risk referring to risk of wasting time, and consequences of delays (Lovelock 2001) can be seen as a temporal sacrifice. Moreover, delays have been argued to influence service evaluations (Taylor 1994) and may result in inefficient time spending. Time spending can be a sacrifice especially when considering the shortage of time (Darian and Cohen 1995). It can be related to scarcity, i.e. not having enough time or inefficiency in time use. According to Robinson and Nicosia (1991), time is experienced through the activities performed in interaction with goods and it was argued that time is allocated to groups of activities. Hence it can be assumed that if the time intended for one activity is necessary to use for another activity, then it can be perceived as a sacrifice. The role of time has not been discussed in service quality literature but, considering the increasing focus on waiting times, delays, and speed of delivery etc. it seems reasonable to expect that the influence of time in service evaluations increases, and that the role of time becomes increasingly critical. Time as a concept has been studied extensively and it has been argued that there is a need to understand the relativistic nature of time and whether the content in activities is a better measurement of time (Davies 1994).

5.2.3.3. Discussion

In this section the empirical results on the temporal dimension were discussed and the empirical explanation on temporal benefit and sacrifice were presented. As with the technical and functional value dimensions, it was possible to find both theoretical support for the empirical findings and find new insights into past understanding on factors that positively or negatively influence the perceived value of a service. Two benefit attributes and two sacrifice attributes were identified. Time allocation and

temporal flexibility were identified as benefit components. Temporal restrictions and time spending represented the temporal sacrifice attributes. Although the benefit attributes are not directly referred to as attributes influencing service value in existing research, they have been discussed in past research in service management and thus can be argued to be factors in perceived value. The temporal sacrifice attributes have not been acknowledged in the service quality literature, but have been argued to influence consumer behaviour.

5.2.4. Spatial value dimension

As with the temporal dimension, the theoretical review and discussion on the customer perceived value model indicated that it was motivated to include a spatial dimension. The spatial dimension is discussed in this section. Findings on the spatial dimension are presented by presenting findings from the empirical study and drawing support from service quality models as well as service delivery models. The section concludes with a presentation of the content of the spatial dimension by describing empirical explanations for the benefit and sacrifice components. One important contribution of this subchapter is that the empirical study deepened the understanding of the spatial sacrifice that previously has received relatively little attention in existing research.

The spatial dimension used in this study emphasises spatial elements in the service delivery. It involves attributes that facilitate the service delivery. Hence, it does not denote only the tangible elements in the service environment or the servicescape, but it also refers to the perceived support from the spatial environment in the service delivery. In this section describing the spatial value dimension the content of the benefit and sacrifice components are presented.

The spatial dimension is based on the value of receiving the service in different locations and it relates to spatial elements in the service process that affect the perceived value. Value is based on the location of the service process and is created by the customer in the interaction with the service infrastructure. Accordingly, this dimension identifies how the customer perceives the location *where* the service interaction occurs. The spatial dimension involves three benefit components and three sacrifice components (Table 22).

Table 22: The spatial dimension of customer perceived value

Spatial dimension	
Benefit	Sacrifice
Physical appearance	Physical interface
Private space	Spatial inconvenience
Spatial flexibility	Spatial restrictions

Table 23 summarises the content of the spatial value dimension. Similar to the content of the other value dimension, it contains attributes grouped according to the benefit and sacrifice components. The empirical analysis further deepened the content of the spatial dimension with empirical explanations describing each of the attributes. The empirical explanations are based on statements in the interview transcripts and are referred to with numbers linking each of the statements to one or more attributes.

The content of the spatial value dimension was empirically described with 12 elements for the benefit component and 10 elements for the sacrifice component. The empirical findings relating to the benefit of the spatial value dimension involved access issues as well as tangible and intangible aspects in the location. The spatial sacrifice component concerned both perceived and actual spatial sacrifice such as inconvenience and restrictions. The empirical findings showed that access and the customer's site were critical for the spatial benefit. Perceived distance and spatial restrictions dominated in the spatial sacrifice. Comparing the number of different attributes and empirical explanations in addition to the number of respondents that have noted them, it appears that the spatial dimension is perceived as more critical than the temporal dimension.

Table 23: Summary of the spatial value dimension

Spatial dimension		
Component	*Attribute*	*Empirical explanation*
Benefit	Physical appearance	Fit for purpose [16]
		Freshness [32]
		Organisation [2, 3, 5, 9, 16, 24, 27, 30, 34]
		Own adaptation [32]
	Private space	Exchange of ideas [36]
		Privacy [5, 6, 7, 10, 11, 12, 13, 16, 21, 30, 31, 32, 36]
		Safety [13, 24, 30]
		Tranquillity [5, 7, 11, 13, 15, 20, 32, 37]
	Spatial flexibility	Choice [5, 6, 9, 1322, 26, 33, 34, 36, 37]
		Combined sites [2, 3, 7, 8, 9, 11, 15, 17, 18, 20, 22, 25, 27, 29, 32, 34, 37]
		Multiple sites [6, 7, 8, 15, 17, 21, 22, 24, 25, 28, 30, 35, 36]
		Proximity [1, 3, 4, 5, 7, 11, 12, 17, 20, 27, 28, 30, 31, 32, 34, 37]
Sacrifice	Physical interface	Concentration [27]
		Intrusion [3, 5, 10, 21, 31, 34]
		Public display [4, 5, 6, 12, 13, 29, 30]
	Spatial inconvenience	Boundaries [5, 8, 12, 13]
		Inconvenience [7, 16, 25, 37]
		Planning [5, 10, 34]
		Tangibles [5, 10, 12, 13, 19, 20, 22, 23, 29, 31, 37]
	Spatial restrictions	Access [15, 16, 22]
		Production disruptions [33]
		Production prerequisites [4, 5, 9, 13, 18, 20, 21, 22, 29, 30, 31, 33, 34, 36, 37]

The next two subsections go into more detail into the benefit and sacrifice components of spatial value. The presentation follows the same order as in the table above.

5.2.4.1. Spatial benefit

In the previous chapter, the benefit component of spatial value was described with three attributes. The main aspects of every attribute are summarised with interview excerpts.

Physical appearance

Physical appearance denoted the perceived functionality of and tangible elements in the service location and involved fit for purpose, freshness, organisation, and own adaptation. *Freshness* related to the physical appearance of the tangible elements in the machines. *Organisation* involved how the physical location facilitated an organised and controlled service delivery. *Fit for purpose* indicated that tangible elements in the service support a flexible service location, for example that passwords and codes are written on a small and convenient piece of paper. *Own adaptation* denoted that aspects in the service location can be influenced by the customer, such as the brightness of a computer.

> The ATMs are in bad condition, with the large use, it is nicer to be at home at your own computer. (Freshness, 3222)

> If you sit on your chair in your office, the probability to be more organised is bigger than when you are out somewhere. (Organisation, 322)

> I always have them next to the computer, in a pile. I keep them there and then they remind me. (Organisation, 1903)

> Then I have a card with codes that I can carry with me all the time…… It is good. Especially when they changed the code system. They updated it one and a half years ago. You do not have to carry a paper list and cross over [the code numbers] every time. (Fit for purpose, 1606)

> At the ATMs that I have used, sometimes in the summer it has been so sunny that you cannot see the screen so clearly. I have never had this kind of problem at home. (Own adaptation, 3223)

Physical appearance can be seen as related to tangibles in the SERVQUAL model (Parasuraman et al. 1985; Parasuraman et al. 1988) but can also involve the outcome of an aesthetically appropriate physical place. The application of physical aspects differs from the tangibles attribute found in technical sacrifice in the respect that physical aspects refer to the physical facilities, while tangibles involve the physical service.

Private space

Private space denoted the service site as a personal location. It was not restricted to the customer's home, and could be any place of choice where service delivery was possible, such as at work or at school. It was related to perceptions about the appropriateness of the place of service delivery and included exchange of ideas, privacy, security, and tranquillity. *Exchange of ideas* denoted the ability to interact with other people during the service delivery. It did not, however, involve other customers in the traditional sense, where the service delivery occurs at a public place or at the service provider's site. Because the service process occurs at the customer's private space, then the interaction with other people is frequently voluntary, unlike interactions with other, unfamiliar customers. That is why the interaction was perceived as positive. *Privacy* referred to the perception of a private space enabled by service delivery at a customer's place where interaction with other people could be limited or influenced. It could be seen as related to both *safety* and *tranquillity*, where the former refers to the feeling of security created by the customer's own private place and the latter to the peace and quiet created in one's own place.

> Because we have a joint economy so if there are questions or there is something jointly we can discuss. (Exchange of ideas, 3612)

> I would not do banking things at a public place. I want to keep it to myself. I see the place issue as a private space. (Privacy, 1027)But I want to do it invisibly from the rest of the world. (Privacy, 1028)It is more private. It feels safer to do it at home. Nobody stands over your shoulder. (Privacy, 1105)

> Even though I think that it is safe to pay on the Internet I think that it is safer at home. Especially because there is no risk in case it does not erase, because it is erased from the computer's memory, but in case it did not, if there was something wrong with the bank's system. Then it is not that bad if it happens at home because then nobody else can see what is there. But at school it is not like that, I do not want anybody else to be able to go in to my accounts. (Safety, 2403)

> There are big differences [between internet and ATM] because it is quite hectic to pay with an ATM where there can be other customers breathing down your neck…. Then you must be quite fast if there are other people standing in queue, so you do not have time to think so much. It is a factor why I do it at home, I can sit there in peace and quiet. (Tranquillity, 3218)

Private space can be linked to customer's site that is a variable that has been discussed by Dabholkar (1994) as a place where the service is delivered. However, this attribute differs from Dabholkar's categorisation in the respect that where Dabholkar's concept involves the actual place of service delivery, i.e. the ability to access the service at home or work, in this study it means that the perceived location of service delivery is seen as being familiar. In other words, even though the service delivery does not occur at home or work, the location may be perceived as it would be.

Spatial flexibility

Spatial flexibility referred to how the service location facilitates the service delivery and the spatial approachability to the service. Similar to the temporal flexibility, it denoted the latitude in performing the service at various locations and it involved the choice of where the service process was to occur. It included the number, i.e. multiple sites, and location of service sites, i.e. combined sites and proximity as well as the perceived choice of locations. Most respondents mentioned *multiple sites* and indicated that because the Internet is a ubiquitous service delivery it can occur almost anywhere. The sites most frequently used were home, work, school, and library. Similarly, because other activities are performed at these places, it is easy to combine the site with banking activities. *Combined sites* denoted the use of one site for many activities. For example, many said that because they go to work every day it is easy to do their banking activity there where they are the whole day. *Proximity* was a third aspect positively influencing access and denoted the distance between the service site and the current location. If the location was perceived as close by it was easier to access, and compared to the locations of ATMs and bank branch offices, the computer was perceived as very convenient. *Choice* referred to the perceived choice of alternative service locations. It may be seen as related to how many service sites there are available, but includes the fact that there may be many service delivery locations available but still customers may perceive that they do not have a choice in where the service process occurs.

> I usually [pay the bills] at school and I live near the library, and have the possibility to use the service there. And then I often pay the bills at my parents' place, they have Internet access. But I do not have it at home, because I have not needed it because I am here at school every day. And I have always access to the Internet. (Multiple sites, 1701)

> When I surf on the Internet or read e-mail I remember that I have bills to pay and then I pay them. (Combined sites, 206)

> I like to work a lot with the computer with other projects so it goes there quite rapidly with other things. So to have to leave home to do all extra errands takes a lot of time irrespective of if you take the bus or car to the bank. (Combined sites, 2002)
>
> Then to go to the bank is less convenient than to go from the sofa to the computer. (Proximity, 3111)
>
> It is near. (Proximity, 3117)
>
> To do it at home, it is a big plus that I do not have to go anywhere. I have a rather long way to a branch office, it is not close, then it would be so and so to go to an office. It uses time and energy. (Proximity, 3225)
>
> In the evenings I do not want to go anywhere just to pay the bills. Then it is a choice to do it at home. (Choice, 531)
>
> I prefer to go to the office to pay than to start the day here in the morning and pay with my eyes crossed. (Choice, 626)

Following the discussion in the literature review it is evident that spatial flexibility is an important variable. Spatial flexibility as used in this study may be seen as related to internal accessibility resources within the service provider's control (Grönroos 1979). Spatial flexibility is similar to temporal flexibility and denotes the ability to choose the place of service delivery. The ability to perform the service at different places has been found to be a source of satisfaction for self-service technologies (Meuter et al. 2000).

5.2.4.2. Spatial sacrifice

As with temporal sacrifice, service quality models have not previously identified issues relating to spatial sacrifice. With a broader focus on a service management model, three attributes that described the sacrifice component of spatial value could be identified. Through the empirical study they could be supported and the main issues of every attribute are summarised with interview excerpts.

Physical place

Physical place is an attribute related to the presence and effect of other customers in the physical service environment. It denotes the service location as a public place or one intruding on privacy and involved aspects such as concentration, intrusion, and public display. *Concentration* denoted the effect of the place on the service outcome. For example, it was mentioned that at the place of service delivery there may be persons or things disturbing the service delivery. Intrusion and public display were related aspects. *Intrusion* referred to the physical place as a factor facilitating interference from other people, e.g. that people may access private data from the cache memory of public computers. *Public display* in turn involved the presence of other people during the service delivery, where they might follow the service process and take advantage of the situation. Public display differs from intrusion in that people get access unintentionally, whereas intrusion means that other people may actively try to access.

> At home there is always the risk that someone comes and disturbs you, you do not have 100% concentration on what you are doing. That is how you make a mistake, so I usually check what I have filled in. (Concentration, 2710)

> I have been afraid that if I log on to the bank at a public computer…. the next person may steal all my information. It is possible. So it is a security issue where I pay. (Intrusion, 1031)

> To clean up the temporary Internet files at the school where I was, it could take hours to sit there and delete all the files. I did not want to do it often, that is why I prefer to do it at home where there is nobody else using my computer. Then the probability that someone can access the information is minimal. But if I do it at work where there are others linked to the network, I feel the probability is larger that someone can access my information. (Intrusion, 2105)

> It feels unpleasant to have your whole banking history on public display… (Public display, 1215)

> Everyone can see there, it is such an open place and not so private. There are always people around your computer. So that they do not know what million-dollar fortune you have. (Public display, 1315)

Physical place refers to the possibility of other customers being present or influencing the service process, an area that has been studied extensively. Physical place may be seen as referring to the tangibles attribute used in the SERVQUAL model (Parasuraman et al. 1985; Parasuraman et al. 1988) because it involves aspects in the spatial environment. However, it differs from tangibles in the respect that rather than involving physical aspects of the service environment and personnel, it denotes the perceived functionality of the spatial environment. In some respects, this attribute is also related to security and privacy issues that have been argued to influence service evaluations (Zeithaml et al. 2000) but involves more specifically the perceived privacy of the service location, rather than the perceived privacy of the service design. In other words, where Zeithaml et al (Zeithaml et al. 2000) argued that the service must be designed to be secure and private, the attribute in this study refers to the physical place as supporting the perceived privacy of the service delivery. However, the physical place may not always be objectively assessed, which is relevant for internal accessibility resources (Grönroos 1979). Instead, physical place is an attribute not always possible to manipulate or control, because the service delivery may involve so many different locations.

Spatial inconvenience

Spatial inconvenience denoted the perceived effort and distance related to the place of service delivery. It was related to experienced rather than actual distances in the service location and involved boundaries, inconvenience, planning, and tangibles. *Boundaries* related to the perceived complexity of physical access, such as logging on or connecting to the service system. It also involved the perceived boundaries set by elements in the service location, such as cost differences between different location alternatives. It differs from the same attribute in temporal sacrifice in the respect that it involves perceived boundaries, while temporal boundaries denoted actual and more objective restrictions in time. *Inconvenience* denoted the perceived hassle related to the service location on a general level. *Planning* in turn involved the perceived distance related to having to plan where the service delivery occurs. *Tangibles* denoted the spatial restrictions caused by tangible elements in the service, which might be more perceived inconveniences than actual inconvenience.

> I am not a person who sits at a computer at home so much because I sit at the computer at work. It is not very natural simultaneously when I surf to pay because I do not sit at the computer. So I have to make an extra effort. (Boundaries, 532)

> I changed the contract so that now if I pay at an ATM at my bank there is an extra cost, the use of the net is included in the monthly service charge, but not the use of ATMs. (Boundaries, 1310)

> I have used it at school sometimes when the computer was broken. But as long as I have Internet connection at home it think I will do it at home, because all the bills are at home. And there is the route from the bills to the computer the shortest. Then at work I would probably not have time, and at school, well. If I had to, I would probably do it. Because I have the computer at home, it is much more convenient than to go to school and do it. (Inconvenience, 2512)

> I usually open the bills at home, throw in the codes in the envelope and then the codes are with me some days. But I must plan it. (Planning, 1029)

> I think that it is complicated to physically get somewhere and plan it. (Planning, 1030)

> Because I do not remember my customer number by heart and I have all my codes and other things at home and I do not carry them along, I pay at home. (Tangibles, 538)

> I think that it is inconvenient to carry along everything and at the same time to watch out that you do not tear up or lose the bills. (Tangibles, 540)

Perceived distance may be seen as the opposite to convenience discussed by Brown (1990) and Yale and Venkatesh (1986), where the customer does not perceive the place as distant even though it is not the case. It also relates to the tangible aspects needed in the service process that may be seen as complicating the service delivery. The tangible parts of the service may influence the flexibility of the service location in such a way that the service process is perceived as complex. For example, passwords and codes may not be suitable to carry along, and hence, the distance to service delivery is perceived as long when one has to wait until one reaches the place where the codes are.

Spatial restrictions

Spatial restrictions is similar to temporal restriction in the respect that it involves limitations that restrict the preferred behaviour. It denoted limitations in accessing the service location and included equipment or technology needed in the service process or access to required elements in the service process. Three empirical explanations were identified for this attribute - access to the service, production disruptions, and production requirements. *Access* related to restrictions in the service that prevented proper service delivery. It is a spatial sacrifice because it is not necessarily a restriction in the service itself, rather it is a limitation in the service as a result of the chosen service location. This occurs for example when it is not possible to get access to specific accounts via the internet, but the service employee at the bank branch office would be able to access the account and perform the activity. *Production disruptions* referred to interruptions in the service process, such as popups and advertisements that complicate and lengthen the service process. *Production requirements* concerned necessary tangible elements that were needed for the service delivery to take place at the wanted location, such as Internet connections and computer setups.

> If you have a savings account, then you do not get internet codes for it, you cannot get in [to the internet bank] and I do not have a bank card either. There is no other way to do it than do it there [at the bank], and it does not cost anything. (Access, 1512)

> If we had everything in one and the same account, I would not have to pay it there [at the bank] either, I would have ordered the receipt. But I had no access to the account via Internet. (Access, 1602)

> There are many popups and advertisements that disturb the way to the bank. Even though the bank's homepage does not contain many advertisements it is a long journey to the bank. (Production disruptions, 3311)

> It would be easiest if I had Internet at home but I do not need it at home, that is why I have not fixed it. If I had Internet I would probably do it at home so that I would not need to carry along the bills and then carry them back and file them at home. Then I would do it at home. (Production requirements, 409)

Spatial restrictions differs from the previous attribute – physical place – in the respect that it refers to the ability to access the service location. In contrast, physical place referred to the functionality of the service location. Spatial restrictions also differs from the first spatial sacrifice, perceived distance, because it relates to actual and objectively perceived limitations in the service location, where perceived distance is more a subjective perception.

5.2.4.3. Discussion

In this section the empirical findings on the spatial dimension were analysed and the empirical explanation on attributes relating to spatial benefit and sacrifice were described. Three benefit attributes and three sacrifice attributes were identified for the spatial value dimension. Physical aspects, private space and spatial flexibility represented benefit attributes, while perceived distance, physical place, and spatial restrictions were found to be sacrifice attributes. The benefit attributes found for the spatial dimension were somewhat similar to the benefit attribute found for the temporal dimension. Flexibility and restrictions were similar to the temporal dimension. However, spatial flexibility was not perceived to be as important as temporal flexibility. Interestingly, it appeared that the respondents were satisfied with only a few alternative locations, and that when the choice was made, they did not feel a need to have more alternatives. Apparently, it was sufficient to know that there were many alternative locations, but the choice between the locations was not important.

5.2.5. Discussion on the content of the value dimensions

Each of the value dimensions involves several subdimensions separated into benefit and sacrifice components. A synthesis of each value dimensions separated into benefit and sacrifice components follows below:

Technical value dimension: benefit and sacrifice of the core service:

- *Cost efficiency* - fair price level, including cheapness and monetary saving (benefit)
- *Design* – the characteristics of the service meaning that the service was perceived as automated, fit for need, observable, real-time, and unobtrusive (benefit)
- *Trustworthiness* – the reliability of the service and service provider involving dependability, functionality, and security of the service as well as trust in the service provider (benefit)
- *Cost* – the monetary expenditures for the service involving system cost for the use of system and supporting service cost, i.e. cost for technology support. Self-service cost was another monetary expenditure that involved the direct cost for

the self-service. Additionally, it included the perceived fairness of price increase and the perceived pricing complexity (Sacrifice)

- *Package* – the content and scope of the service bundle including advertisements, general information, standardisation, and lack of convergence (Sacrifice)
- *Risk* – the concern for the outcome of the service including data secrecy, uncertainty, and ignorance (Sacrifice)
- *Tangibles* – the physical elements in the service as well as the effect of the physical elements on the service including intangibility, passwords and codes, and perishability (Sacrifice)

Functional value dimension: benefit and sacrifice in the service process relating to interaction with the service provider or technology interface:

- *Assistance*– creation and maintenance of a service arena that enables the service process and the actions from the service provider including responsiveness and technical support (Benefit)
- *Control* – the customer's ability to influence the service process including process control and self-control (Benefit)
- *Ease of use* – easiness of service delivery involving both prerequisites of the service, i.e. clarity, instructions, simplicity and visual appearance, as well as the requirements of the customer, i.e. habit (Benefit)
- *Self-delivery* – the nature of the service delivery process including enjoyment, lack of worrying, flexibility, lack of direct interaction, and self-service (Benefit)
- *Effort* – the customer's input in the service process including both physical effort, i.e. initial effort and manual entry, and psychological effort, i.e. mental effort (Sacrifice)
- *Dependence* – the necessity for external competence in the service process including competence, initiative, and service recovery (Sacrifice)
- *Responsibility* – the weight on the customer in relation to the outcome of the service and it involved accuracy and self-reliance (Sacrifice)
- *Routinisation* – the monotonous nature of the service process and it entailed computerisation, loss of control and technical execution (Sacrifice)

Temporal value dimension: benefit and sacrifice in the service process relating to the timing of the service:

- *Temporal flexibility* – the latitude in performing the service at various moments in time and the temporal approachability to the service including opening hours and the perceived choice of time of service delivery as well as the spontaneity and immediacy in the time of the service delivery (Benefit)
- *Time allocation* – the efficiency of the time allocated to the service delivery involving enjoyment, focus, little information, routines, optimisation, simultaneity, speed of delivery, and time saving (Benefit)
- *Temporal restrictions* – the external limitations set by time including boundaries, process disruptions, and timetables (Sacrifice)
- *Time spending* – the time needed for the service process and effect of the timing of the tasks associated with the service delivery. It involved temporal inefficiency, time spent on service delivery, scarcity of time, mix of roles, and disruptions. It also included the role of time, i.e. the opinion associated with how the time is experienced in service delivery (Sacrifice)

Spatial value dimension: benefit and sacrifice in the service process relating to the service location:

- *Physical appearance* – the perceived functionality of and tangible elements in the service location and involved fit for purpose, freshness, organisation, and own adaptation (Benefit)
- *Private space* – the appropriateness of the place of service delivery and included exchange of ideas, privacy, safety, and tranquillity (Benefit)
- *Spatial flexibility* – the latitude in performing the service at various locations and spatial approachability to the service involving both the number and location of the service site, i.e. multiple sites, combined sites and proximity as well as the perceived choice of location for service delivery (Benefit)
- *Physical interface* – the presence and effect of other customers and the physical service environment, including the concentration, intrusion, and public display (Sacrifice)
- *Spatial inconvenience*– the effort related to the place of service delivery, including boundaries, inconvenience, planning and tangibles (Sacrifice)
- *Spatial restrictions* – the limitations in accessing the service location because of lack of equipment or technology for the service process. It included access to the service, production disruptions and production requirements (Sacrifice)

A conclusion could be made that there is a linkage between the benefit and sacrifice components for each of the dimensions. This suggests that customer perceived value may not be separated into benefit and sacrifice components, but rather that some of the benefit and sacrifice components form an integrated whole. Some of the value determinants may have both benefit and sacrifice components; for example, cost efficiency found as a technical benefit may be linked to cost found as a technical sacrifice. Similarly, temporal flexibility found as a temporal benefit may have a counterpart in temporal restrictions found under temporal sacrifice. However, it does not seem relevant to combine the subdimensions and place them on opposite sides of a continuum. It was not possible to find counterparts for all of the subdimensions, indicating that not all subdimensions have both benefit and sacrifice characteristics. Research has found that quality determinants are not necessarily both satisfying or dissatisfying. Johnston (1995) classified satisfiers and dissatisfiers of service quality and found that the sources of dissatisfaction are not automatically the opposite to the sources of satisfaction. The determinants associated with dissatisfaction are significantly different from those that create satisfaction. However, there were only four exclusive determinants of satisfaction or dissatisfaction indicating that the determinants can be either a source of satisfaction or dissatisfaction. This implies that there are also separate subdimensions that create either satisfaction or dissatisfaction and that it may be necessary to differentiate between the determinants as either benefit of sacrifice.

Accordingly, in the next phase of the data analysis of the content of the value dimensions, an investigation into the interlinkage and connection between the different attributes is conducted. The shape of the value function is discussed and it is argued that there exist different types of value functions for the attributes. In a refined conceptualisation of perceived value dimensions it is argued that the value function of the attributes is based on three different shapes. It is suggested that factors influencing perceived value range on a continuum of benefit and sacrifice move from neutral to

benefit or sacrifice, or alternatively shift from sacrifice/benefit through benefit/sacrifice back to sacrifice/benefit.

5.3. Describing customer perceived value

In this subchapter the value dimensions are discussed by exploring the value functions of the different benefit and sacrifice components. The value dimensions are lifted to a higher level of abstraction with the objective of developing an instrument that can capture and measure the perceived value of each dimension. First the interlinkage of the benefit and sacrifice components is discussed for each value dimension, then follows an exploration of the different value functions.

5.3.1. Interlinkage of benefit and sacrifice

In this section the benefit and sacrifice components are explored separately for the value dimensions. It is shown that some of the benefit and sacrifice components are uniquely either value increasing or decreasing, meaning that they need to be kept separate. It is also shown that several of the categories for the value dimensions have both value-increasing and value-decreasing elements and thus for these categories it is not beneficial to separate between benefit and sacrifice. Viewing these categories on a more abstract level, they seem to describe the same phenomenon, from either a value-increasing or value-decreasing perspective. These categories form different pairs of a new category that conceptualises the phenomenon. In other words, improving the performance of one benefit component may result in a reduction of the corresponding sacrifice component or vice versa.

The process of re-categorising and abstracting the components of each of the value dimensions is the following. The components are re-evaluated by comparing the categories without separating benefit and sacrifice. If similar characteristics are identified within existing categories, then the categories are combined and included as a new category. If new similarities are found, then the category is maintained as a separate component. The findings of this process are discussed next.

5.3.1.1. Technical dimension

The technical dimension involved three benefit components and four sacrifice components (section 5.2.1). It is possible to see three categories where one element in the pair represents value-increasing features, and the other represents value decreasing, i.e. core service, price, and image, see Figure 26. These categories involving pairs of attributes are design-package, cost efficiency-cost, and trustworthiness-risk. Tangibles represent the only category that is uniquely only a sacrifice.

		Core service	Price	Image	Tangibles
Benefit	**Design**	✓			
	Cost efficiency		✓		
	Trustworthiness			✓	
Sacrifice	*Cost*		✓		
	Package	✓			
	Risk			✓	
	Tangibles				✓

Figure 26: Content of technical value

Design and package represent two views on the *core service*, where design denotes that the service is customised according to needs, whereas package involves that the service is either too standard or too customised. They are interconnected as developing a customised design (increasing the benefit) resulting in a reduced effect on the package and vice versa. For example, if the customer is provided real-time information (benefit) then the amount of general information is reduced. Similarly, if the service is automated too much (benefit) then it may be perceived as too standardised (sacrifice).

The next pair denoting *price* involves cost efficiency and cost, where the former indicates value increasing in that the lower the price the higher the savings. The latter indicates that the higher the cost, the higher the sacrifice. These are interconnected when considering that if a price is increased, the cost efficiency is reduced, and if the cost efficiency is to be improved, the cost must be reduced. The third pair, involving *image* of both the service provider and service, is represented by trustworthiness as a value-increasing element and risk as a value-decreasing element. They are interconnected when considering that improving the trustworthiness of either the service provider or the service results in a reduction in the risk. For example, if the security (benefit) is improved, then the risk of data secrecy (sacrifice) is reduced. *Tangibles* is distinct from the three new categories where it is uniquely a sacrifice. It has only sacrifice elements, i.e. the physical parts of the service such as passwords and codes are perceived as negative.

5.3.1.2. Functional dimension

The functional dimension involved four benefit components and four sacrifice components, see section 5.2.2. These components can be grouped into four pairs, each representing value-increasing and value-decreasing characteristics. The identified pairs were customer input, impact, process, and company input, as summarised in Figure 27.

		Customer input	Impact	Process	Company input
Benefit	**Assistance**				✓
	Control		✓		
	Ease-of-use			✓	
	Self-service	✓			
Sacrifice	*Effort*	✓			
	Dependence				✓
	Responsibility		✓		
	Routinisation			✓	

Figure 27: Content of functional value

Customer input resulted from combining self-delivery and effort, which can be combined when taking into account that the more the customer performs the service independently of input from the company (benefit), the larger the effort is (sacrifice). *Impact* is a result of control and responsibility, which are interconnected in the respect that the larger the control the customers have, the more responsibility they are required to take for the outcome of the service. For example, if it is possible to control that the process occurs correctly (benefit), then customers have to rely on themselves to make sure that the outcome is satisfactory (sacrifice).

Process is a third pair and is represented by ease of use and routinisation. These two categories can be integrated when considering that the easier the service is to use, the more routine the service process becomes. If for example, the service becomes a habit, i.e. highly easy to use (benefit), then it may also be perceived as technical execution, i.e. highly routinised (sacrifice). The fourth new category denotes *company input* and involves assistance and dependence. They are linked in the respect that optimally the service provider needs to support the service delivery for example with technical assistance, but resulting in the customers not being able independently to perform the service delivery. For example, the more technical support such as updates (benefit) that is provided, the more dependent the customer becomes on the service provider.

5.3.1.3. Temporal dimension

As discussed in section 5.2.3, the temporal dimension was represented by two benefit components and two sacrifice components. When abstracting them, several components may be combined to form new categories that involve value-increasing and -decreasing elements. The categories identified are time use and temporal latitude and are depicted in Figure 28.

		Time use	Temporal latitude
Benefit	**Temporal flexibility**		✓
	Time allocation	✓	
Sacrifice	*Temporal restriction*	✓	
	Time spending		✓

Figure 28: Content of temporal value

Time use involved time allocation and time spending and denoted that the time used for service-related activities may be perceived as either value increasing or decreasing. It is value increasing for example when the tasks associated with service delivery may be conducted quickly, focused, and swiftly (benefit), but perceived as value decreasing for example when roles are interfered, i.e. the time used for the service delivery interrupts or complicates other activities (sacrifice). These are interconnected when considering for example that when the service delivery is focused (benefit), i.e. that deliberation is put into the service process, then the time spent on service delivery increases (sacrifice). *Temporal latitude* is another category and it involves temporal flexibility and temporal restrictions. In addition to the obvious connection in the names of the attributes, flexibility and restriction are linked when considering that when the temporal flexibility is increased, temporal restrictions are reduced. For example, if opening hours are improved, e.g. the time when the service is available for each session (benefit), then the timetables (sacrifice) are improved.

5.3.1.4. Spatial dimension

In section 5.2.4 it was shown that the spatial dimension involved three benefit components and three sacrifice components. These can further be abstracted to four categories, represented by two categories with value-increasing and -decreasing characteristics, and one uniquely benefit and one uniquely sacrifice. The new categories are called spatial latitude, space, appearance, and spatial inconvenience. They are depicted in Figure 29.

		Space	Spatial latitude	Appearance	Spatial inconvenience
Benefit	**Physical appearance**			✓	
	Private space	✓			
	Spatial flexibility		✓		
Sacrifice	*Physical interface*	✓			
	Spatial inconvenience				✓
	Spatial restrictions		✓		

Figure 29: Content of spatial value

Spatial latitude resulted from combining spatial flexibility and spatial restrictions. The rationale is the same as for temporal latitude. For example, if customers perceive their choice of service sites as large, then the production prerequisites may be perceived as more convenient. *Space* is another category that is represented by private space and physical interface and denotes that the place of service delivery is perceived as appropriate and private. They are interconnected in the sense that the more private the service location (benefit), the smaller the risk for intrusion or public display (sacrifice). *Physical appearance* was uniquely a benefit category, where the physical aspects of the service location were perceived as positive. However, although not found in the empirical findings, it is reasonable to expect that it may have a sacrifice element when considering that the service location is not always fit for purpose and fresh or enabling own adaptation and organisation. *Spatial inconvenience* was identified as uniquely a sacrifice and it involved perceptions of the location that cannot be expressed objectively such as perceived boundaries, planning needed, and inconvenience related to tangibles.

5.3.2. Value functions

When comparing the categories of each of the value dimensions, it is possible to identify similarities. It seems that there may exist a pattern in the relationship between the value-increasing (benefit) and value-decreasing (sacrifice) elements of the categories. These patterns are not dependent on the value dimensions.

Five different value functions may be identified and are discussed next. Based on the empirical findings, it seems that there may be two basic types of value functions. One type is based on a combination of benefit and sacrifice where the attribute or category creating value can have either value-increasing or value-decreasing elements. In other words, the value function is based on a continuum of benefit and sacrifice. Between the value-increasing and value-decreasing extremes on the continuum is a neutral or indifferent zone. The other type of value functions is based on only value-increasing or value-decreasing elements. These two types can further be separated into three and two different types respectively.

5.3.2.1. Benefit and sacrifice combined

When looking at the attributes where benefit and sacrifice are combined, two patterns emerge as depicted in Figure 30. One type is linear whereas the other type of pattern is curvilinear. The value function seems to shift between benefit and sacrifice, starting from either benefit or sacrifice. Based on the findings, the curvilinear pattern can start from either benefit or sacrifice, whereas the linear type starts from benefit. However, although not found in the empirical material, it is reasonable to expect that the linear value function type also may start from sacrifice.

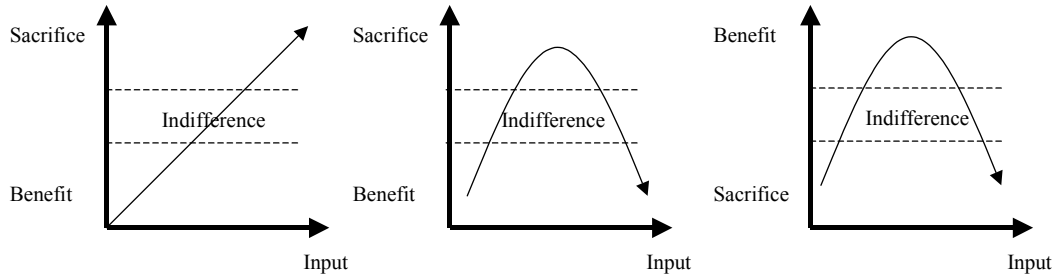

Figure 30: Value functions based on combinations of benefit and sacrifice

The curvilinear value function pattern ranges between benefit and sacrifice and then back to benefit, or vice versa. An example of this is the service design attribute found under the technical dimension. It can first be seen as a sacrifice if the service is not customised according to the customer's preferences or needs, i.e. the service is perceived as too standard (sacrifice). If it is modified according to preferences, or if customers can adapt the service by themselves, then the service design may be seen as value adding, i.e. a benefit. However, if the service adapted too much, to the point that the design becomes overdimensioned, then it can be perceived as value decreasing again (sacrifice). This can occur for example if the service has many different service elements and becomes too complicated to use. Then the service design shifts from being value increasing to being value decreasing. Similar patterns can be identified for the process attribute found under the functional dimension where a complex process (sacrifice) can be made easier to execute (benefit) but if too much automated it can then be perceived as too routinised. In other words looking at the shifts in the attribute, the curvilinear value function pattern is asymmetric to the point that it becomes anti-ideal, i.e. a reversed U-form.

The linear value function pattern ranges between benefit and sacrifice. It does not necessarily have to be exactly linear, as the attribute can have more value-increasing elements than value-decreasing elements, i.e. benefits are dominating, or vice versa. An example of a linear pattern of benefit and sacrifice is customer input found under the functional dimension. Customer input ranges between self-delivery and effort, where the possibility to independently perform the service is perceived as a benefit, while it simultaneously is a sacrifice as effort is required. Depending on whether the effort is perceived as too much, then the end result is negative, whereas if the benefit of self-delivery is perceived as outweighing this sacrifice, then the end result is positive. The impact attribute based on control (benefit) and responsibility (sacrifice) found as a functional attribute or the use attribute based on time allocation and time spending found under the temporal dimensions are other examples of this linear pattern of the combination of benefit and sacrifice.

5.3.2.2. Benefit and sacrifice separated

The value function for some of attributes is based uniquely on either value-increasing or value-decreasing elements. In this respect, these types can be described as based on a continuum of neutral and benefit or sacrifice, see Figure 31. The customer can perceive an attribute as either value increasing (benefit) or be indifferent to it. Similarly, a negative attribute can be perceived as highly value decreasing (sacrifice) or neutral. The distinguishing aspect of attributes that have this kind of value function pattern is that they start from neutral and can be either highly positive (benefit) or negative (sacrifice).

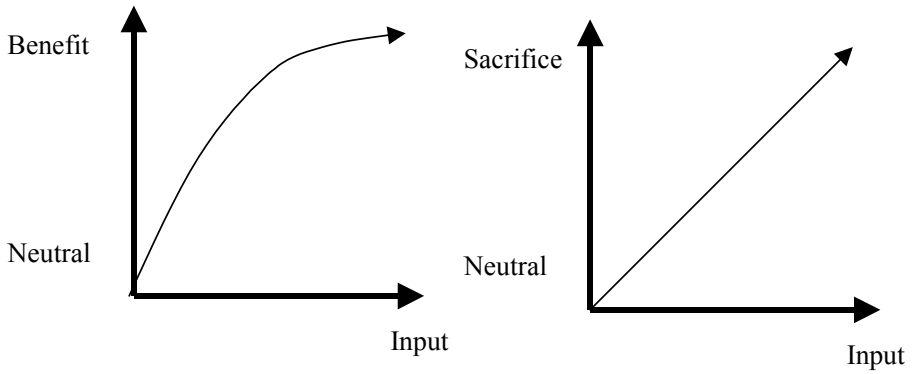

Figure 31: Value functions on based benefit and sacrifice separately

However, the value function pattern can be either linear or asymmetric depending on whether they are a benefit or a sacrifice. The angle of inclination can vary for both types. It can be expected that customers are either neutral to a sacrifice attribute or increasingly negative to them, i.e. that the value function is linear. One example of this is the spatial inconvenience found under the spatial dimension. Some customers may not see any inconvenience in the place of service delivery, whereas other perceive all the planning, inconvenience, the tangibles needed, and the boundaries as increasingly unpleasant. In this respect as the perceived distance of the place of service delivery accentuates, the service becomes more and more value decreasing. In contrast, it can be expected that benefits, although at first becoming increasingly more value adding at some point stabilise and stagnate. This frequently happens when the attribute becomes hygiene and something that is expected.

One example of an attribute that is uniquely a benefit and that may have this value function pattern is physical appearance found under the spatial dimension. Some customers may not notice the physical location at all, i.e. it is a neutral attribute, whereas other customers may perceive it as value adding when physical location is fit for purpose, fresh and adaptable, and then the physical appearance becomes a benefit. However, it is value increasing only up to a point, and then new improvements do not create additional value. For example, if the service location is perceived as fresh, the perceived benefit is gradually less effective the more the freshness is improved.

5.3.3. Discussion

The empirical findings indicated that there is an interlinkage between the different elements in each of the value dimensions. This interlinkage was then further developed and different value functions were proposed that may be used to effectively describe the relationship between the elements. However, it is worth noting that the value functions

have not been validated in the empirical research, rather they can be seen as a conclusion of the data analysis. Thus, and as will be discussed in the last chapter, future research needs to find support and evidence of the pattern between the elements, and the proposed value functions.

One conclusion of the attributes that are uniquely either benefit or sacrifice is that they are potentially only moderately efficient in creating or reducing value. One explanation is that it seems that these attributes are not that important for the respondents. In contrast, aspects that are more reflected upon and are perceived as important usually have many different facets, i.e. they have both benefit and sacrifice elements. Additionally, although not found in the empirical data, it is possible that these categories may be perceived as being a combination of benefit and sacrifice. Further research needs to establish this.

5.4. Summary of the empirical findings

In this chapter the theoretical conceptualisation was empirically broadened and deepened. This was done in two simultaneous phases. Through the conjoint task the relative importance of the value dimensions was explored to find evidence for the a priori assumption about the scope of value assessment. Through interview excerpts from the empirical study it was illustrated how the value dimensions are perceived. This was done in order to elaborate the content of the value dimensions. The findings from the conjoint task and the interview questions supported each other, and both methods pointed to the importance of time and location as value dimensions.

The investigation of the scope of the value assessments as presented above indicated clearly the relevance of time and location in customers' value perceptions. The study revealed that the time and location of service delivery in fact influence service evaluations and are perceived as important value dimensions. Consequently, in addition to previous findings, there are even more important dimensions in service evaluations than the technical elements of the service outcome and the functional elements of the service process.

The qualitative part of the study provided an insight into the content of the value dimensions. The empirical results on the dimensions were discussed and the empirical explanations on the benefit and sacrifice components were presented. A secondary literature review was also conducted to substantiate the attributes relating to the benefit and sacrifice components. The empirical attributes were used to group attributes in earlier models. While there seemed to be consistent findings in the empirical and theoretical data on the attributes, there were also some interesting paradoxes. The findings clearly offered support to the theoretical attributes for each value dimension that were proposed according to existing conceptualisations in previous research. However, within the value dimensions there were subdimensions in existing models that were not supported by the empirical findings in the present study. One example is image and institutional quality that have been argued to be important in quality evaluations (Grönroos 1982; Lehtinen 1982; Lehtinen and Lehtinen 1991). A reason for this may be that the respondents did not compare a service provider against another but rather evaluated a specific service provider. Another reason may be that different attributes appear depending on the service. Alternatively, different attributes appear important for customers compared to non-customers.

There were also additional subdimensions that did not have theoretical support in quality models; however, support was found in other service management models. Many of the subdimensions related to the temporal and spatial dimensions that have not been conceptualised as value dimensions in extant models. Examples of these new subdimensions are access, time allocation, and temporal flexibility that were found as temporal benefit. These subdimensions were thus proposed to be new attributes relevant in the value dimensions.

Moreover, there were attributes that in earlier models have been conceptualised as benefit, but which in this study were found to be sacrifice. One example of this is tangibles that were found to be a technical sacrifice, although it has been earlier referred to as a benefit in quality models. The empirical findings thus pointed to the interconnection between the benefit and sacrifice components. It seemed that one element that provided value could also be seen as negative, depending on the perspective. For example, many respondents noted the ability to perform the service act themselves as self-service, but still perceived it as negative in that they had to enter all the necessary information. In other words, the benefit and sacrifice components seemed to range on a continuum of value-increasing and value-decreasing extremes. Five types of value function patterns were identified: three that were based on a combination of benefit and sacrifice and two that were uniquely benefit or sacrifice. The value functions were linear, curvilinear or anti-ideal. The theoretical and empirical contributions are discussed in more detail in the following chapter where the study is evaluated on a more general level.

6. SUMMARY AND DISCUSSION

In this final chapter of the thesis the contribution of the study is discussed. The chapter is divided into six subchapters. First, the research process is reviewed by summarising the study. Then an instrument for measuring the perceived service value is proposed and discussed. Thirdly, the theoretical contributions of the study are presented by discussing the theoretical framework from a wider perspective than in the previous chapter. In the fourth subchapter the study is critically evaluated. This includes a review on the strengths and the limitations of the study on conceptual and empirical levels. This is followed by suggestions for future research, and particular attention is given to temporal and spatial considerations in future research on customer perceived value. The chapter concludes with a discussion of the managerial implications of the thesis.

6.1. Summary of the study

The starting point for this study was to use theoretical structures and empirical studies to broaden and deepen the conceptualisation of customer perceived value. The main contribution of this study is the development of a theoretical framework for understanding customer perceived value. Consistent with the research questions set up for this study, customer perceived value has been reconceptualised in two ways: 1) redefining and broadening the scope, and 2) deepening the content. These two issues are discussed in the following two sections. The value dimensions and their content are defined in order to be confident that the value dimensions are distinct and that the attributes or determinants explaining their content are clear and precise. Also, a reflection on the CPV model in the light of past conceptualisations is made.

6.1.1. Scope on customer perceived value

The scope of customer perceived value was redefined and broadened by combining value and quality models. This was the result of a literature review and a pilot study. In this section the redefinition of the scope is first discussed, followed by an elaboration on the process of broadening the scope.

Using an existing conceptualisation of value based on benefit and sacrifice trade-offs, it was argued that the benefit and sacrifice components may range between explicit and implicit elements and that they even may be interconnected. This called for expanding the existing scope to include dimensions that describe the source of value. As a result, in the next phase, it was concluded that the existing conceptualisation of value based on benefit and sacrifice trade-offs could be redefined by involving a service quality perspective. Hence, dimensions relating to the outcome and process elements of the service were integrated from a service quality model. In other words, by integrating the value model and quality model, it was argued that the technical and functional dimensions included benefit and sacrifice components.

In the next phase it was proposed that the value scope could be broadened to include temporal and spatial dimensions that would complement the existing two dimensions. A literature review was conducted and it was concluded that time and location have been argued to influence service evaluation; however, they have not been modelled as

explicit value dimensions. Based on the findings from the literature review it seemed accurate to describe value as resulting from the specific time and location of service delivery, rather than only measuring value as a trade-off between benefit and sacrifice of technical and functional elements. Also, the pilot study that was conducted to evaluate the relative importance of the proposed value dimensions pointed to the relevance and importance of time and location in service evaluations.

Consequently, to sum up, by combining the service value and quality models a new conceptual model could be developed. It was based on an argument that customer perceived value could be conceptualised to include value dimensions and value components. By building on a service quality model, value dimensions were introduced: technical, functional, temporal and spatial dimensions. Also, by using a value model it was argued that the dimensions include benefit and sacrifice components. In other words, four value dimensions were proposed, all of which were suggested to include benefit and sacrifice components, see Figure 32. This provided a framework that considered the total evaluation of the service including the core of the service in what is received and how it is received, surrounded by the context of time and place in which it is received. These dimensions formed the total service offering. The resulting theoretical framework is illustrated in the following figure:

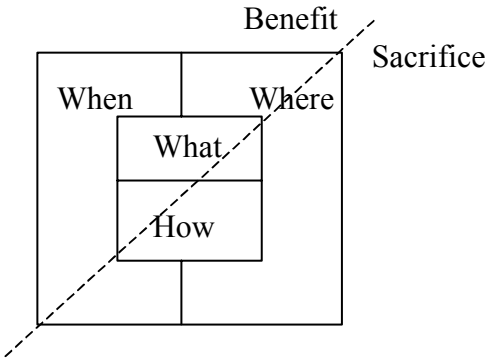

Figure 32: Basic theoretical model of customer perceived value

At this point, based on the findings from the theoretical and empirical analysis, it is possible to define customer perceived value:

> "Customer perceived value is the perceived outcome of the trade-off of the set of technical, functional, temporal and spatial benefit and sacrifice components."

This definition has two central ideas that reconceptualises the view on customer perceived value. First, customer perceived value is based on four dimensions. Secondly, benefit and sacrifice are not necessarily possible to separate; rather they are perceived as integrated, resulting in both value-increasing and value-decreasing elements.

This basic theoretical model of customer perceived value was the basis for the empirical study. The aim with the empirical study was to show how the conceptual framework could be measured in practice and to deepen the understanding of the framework. In the quantitative part of the empirical study, a conjoint task was conducted to illustrate the perceptions of the value dimensions represented by the relative importance of each of the value dimensions. In this phase, the division into benefit and sacrifice was not made because the objective was to get an overall representation on the relevance of each

dimension. In the empirical study, a technology-based service was used to investigate the validity and reliability of this conceptualisation by measuring the relative importance of these dimensions. The value dimensions were described according to pre-determined categories derived from existing theory. They were the following:

- What - technical value: possibility to choose different service options.
- How - functional dimension: input in the service delivery.
- When - temporal dimension: ability to choose the time of service delivery
- Where - spatial dimension: ability to choose the location of service delivery

The attribute levels did not involve a separation of benefit and sacrifice; rather the dimensions were seen as a bundle of benefit and sacrifice components. The levels were operationalised as "more than", "the same as", and "less than" compared to the current service that the respondent is using. For example for the temporal dimension it meant that more temporal flexibility than the current service denoted benefit, whereas less temporal flexibility than the current service represented sacrifice. The level "same as" represented a normal service, i.e. a service level that the respondent was currently using. Because of this, the hypothesis was that the utility for the dimensions would be linear.

The findings from the conjoint study revealed that the temporal and spatial dimensions are perceived as more important than the technical and functional dimensions. In other words, flexibility in time and place was seem as more important than service options and input in the service delivery. Time was perceived as the most important dimension. As was discussed, the technical and functional dimensions were perceived as performance factors, where better performance creates more value. However, their influence on customer perceived value was lower than the temporal and spatial dimensions because their importance was lower. Conversely, the temporal and spatial dimensions were perceived as hygiene factors. It indicates that lower levels of temporal and spatial flexibility than the current situation are perceived as highly negative, while higher levels do not provide much additional value. In other words, the sacrifice would be larger with reduced levels in the temporal and spatial dimensions, compared to reduced levels in the technical and functional dimensions. Considering this, it seems more important to maintain a satisfactory level of temporal and spatial dimensions than increasing the levels of the technical and functional dimensions.

In the next step, this basic theoretical conceptualisation of customer perceived value was further explored empirically to deepen the understanding of its content and characteristics. The aim was to explore the content of the benefit and sacrifice components of each value dimension. This is discussed in the next section.

6.1.2. Content of customer perceived value

The content of the value dimensions was deepened by combining theoretical structures and empirical findings. In practice this meant that an empirical study was conducted and the findings were compared to existing service management models to substantiate the findings. This improved the validity of the derived categories.

Although seemingly separate from the first part of the empirical study, the investigation of the content of the value dimensions was conducted simultaneously with the scope of the value dimensions. This phase involved exploring the content of value empirically

and theoretically and finding attributes that related to each of the value dimensions. In other words, the characteristics of the dimensions were investigated by identifying the benefit and sacrifice components for each value dimension. This qualitative part of the study resulted in several interesting findings. Each value dimension was divided into benefit and sacrifice components, and the components were furthermore separated into 3-4 subdimensions. The findings showed that only a few subdimensions that related to the temporal and spatial dimensions were initially found, whereas more subdimensions were identified that related to the technical and functional dimensions. However, the findings on the temporal and spatial dimensions indicate that these dimensions entail a broad area of different attributes. There were many relevant subdimensions under the benefit and sacrifice components of all the dimensions that substantiated the identified subdimensions. For example, the dimensions included much more than opening hours or geographical location, which have earlier been discussed as accessibility resources. Linking this to the fact that when the scope of the value dimensions was measured, these two dimensions scored the highest in the importance levels. This strengthens the argument to conceptualise the temporal and spatial dimensions as separate value dimensions. It indicates that the temporal and spatial dimensions are in fact critical for customer perceived value and should thus be separated into separate value dimensions as proposed in the CPV model.

Moreover, the investigation on the content of the value dimension indicated that the benefit and sacrifice components were linked. When looking at the benefit and sacrifice components on a more abstract level, it was possible to combine some of the subdimensions so that they formed an integrated category. Some of the attributes were uniquely either benefit or sacrifice and these attributes were kept separate. Furthermore, in addition to a combination of benefit and sacrifice, the findings indicated that there were several different value function patterns. Asymmetric and anti-ideal value function patterns were identified in addition to linear patterns.

To synthesise the findings on the content of customer perceived value the value dimensions are defined. This is done to illustrate the distinctness of the value dimensions and the clarity and precision of the attributes or determinants that explain their content. Based on the discussion in section 5.2.5, the value dimensions can be defined in the following way, see Table 24:

Table 24: Definition of the value dimensions

Technical dimension involving the core service in terms of service characteristics, price, image, and tangibles
Functional dimension involving interactive aspects in the service delivery process in terms of customer input, company input, impact, and process characteristics
Temporal dimension involving the time of the service delivery in terms of time use and time latitude
Spatial dimension involving the location of the service delivery in terms of space characteristics, spatial latitude, appearance, and spatial inconvenience

The identified content of the value dimensions is similar to existing research on banking services, thus giving further validation to the proposed categories. There are a number of different characteristics of technology-based banking services that affect the

evaluation and use of such services and they often concern convenience and flexibility (e.g. Barzak et al. 1999; Daniel 1999; Joseph et al. 1999; Jun and Cai 2001; Karjaluoto 2002a; 2002b; Lockett and Littler 1997; Marr and Prendergast 1993; Zhu et al. 2002). For example, Karjaluoto's (2002b) study on selection criteria for bill payments included speed, security, trustworthiness, ease of use, price and distance. Daniel (1999) asked banking executives to estimate service features that customers value and concluded that customers mainly seek convenience, increased choice of bank access, improved control over banking activities, ease of use, speed and security.

Now looking at the content of the value dimensions it seems that convenience and flexibility are the driving factors for the respondents. As was discussed, flexibility in the temporal and spatial dimensions facilitates service delivery and thus creates convenience, but also the technical and functional dimension may be seen to create convenience. In fact, each of the value dimensions in different ways enable convenience, flexibility and choice. Concerning the technical dimension, the driving factor was a basic core service. A simple service is comprehensible which facilitates the performance and service delivery. As such, a standardised service provided value in the sense that it enables convenience. This results in a preference to have fewer opportunities to influence or improve the service scope.

Flexibility and convenience in the functional dimensions related to the simplicity and standardisation of the service delivery. For example, functional value is delivered via the possibility to perform the service independently of the service provider. The fact that customers can perform the service process independently from the service provider is for some customers a value-adding element in itself. Benefits of performing the service by themselves involve monetary savings in addition to time savings. Some respondents noted the difference in the cost of the self-service and the interpersonal service. The service at the branch office was not perceived to be worth the sacrifice due to the direct cost and the inconvenience that it brought along. The respondents felt that they could do the service better themselves than pay for someone to do it.

To take another example, functional value related to the amount of effort and input needed to perform the service. This input in the service can be divided into two parts. The first part is the input necessary for the service delivery to be performed (pre-service) while the other part is the actual service delivery (actual service). The input in the pre-service part is more extensive for traditional interpersonal bank services than for technology-based services. For example for bank branch services it includes the walk to the bank, the waiting time service, and the walk from the bank. For Internet bank services it includes opening the bank portal, inserting the security codes, and logging on to the network. Obviously, both forms of input are not without effort, but considering the relative time needed for accessing the bank service, the technology-based service is more efficient. Then again, looking at the actual service delivery, i.e. paying the bill, then the customer's input in the service may be smaller for payments at the branch office. When paying the bill at the branch office, the bank personnel performs a larger part of the activity, e.g. fills in the details on the computer and prints out the receipt. The customer merely facilitates the service by providing the necessary information that most often is pre-printed on the bill. In comparison, bill payments via Internet require the customer to fill in every detail of the payment, such as account number, recipient name and amount. This part may in fact be more time consuming than when paying at the branch office.

In the next section, the CPV model based on four value dimensions is reviewed in the light of past conceptualisations to illustrate its influence on existing theory.

6.1.3. The CPV model in the light of past conceptualisations

Looking at service quality models, it is apparent that temporal and spatial elements have been acknowledged. In Chapter 3 a literature review was conducted and different aspects on temporal and spatial dimensions were discussed. Additionally, a review on quality and value models was conducted to explore the dimensions of value in past research. Past service quality research was critically analysed in subchapter 3.4 and it was shown that current conceptualisations need to be extended and deepened. As was shown inTable 9 in Chapter 4.2, different service quality models have mostly indirectly been conceptualised with temporal and spatial dimensions. Many of the models involve the servicescape, but do not specify or differentiate between different temporal and spatial aspects in the service. Consequently, because the service quality models have been reviewed in-depth in previous chapters, it can be concluded at this point that from a service quality perspective the proposed theoretical conceptualisation in this study is motivated.

The theoretical model was developed as a result of an empirical study and a literature review. This new conceptualisation of customer perceived value needs to be evaluated in the light of past conceptualisations. New models always compete with past conceptualisations, and it should not be an end in itself to create a new model. Rather, the new model needs to provide some additional insight not previously incorporated; at the same time as it must be thoroughly supported in past conceptualisations. Consequently, it is essential to explore how existing models could function within the proposed dimensions and components. In this section the CPV model can be evaluated by reviewing existing service classifications to see whether they incorporate the four value dimensions. This results in a deeper understanding of how the CPV model functions in relation to previous service categorisations. This is also needed in order to illustrate that the CPV may be used as a model for service classifications. Two important classifications that are introduced by Lovelock (1983) and Dabholkar (1994) are presented and analysed from the perspective of the CPV model. Additionally, a more recent contribution proposed by Balasubramanian et al (2002) is discussed.

Interestingly, it was not always possible to find similarities between the proposed value dimensions and categories conceptualised in earlier models. There are a number of reasons for this. For example, the empirical study may have been conducted in an extreme context, although it is unlikely when considering that the empirical context of technology-based self-services used for this study has been used in other similar studies (e.g. Dabholkar 1996; Meuter et al. 2000; Zeithaml et al. 2002). Another more likely alternative is that the variation of the analysed perceptions did not involve all the attributes in existing models.

Lovelock (1983) was one of the first to provide an extensive service classification and it was based on five different two-dimensional matrices. The *nature of the service act* involved the tangibility of actions, i.e. intangible or tangible actions, and recipient of the service act, i.e. people or things. This scheme thus described whether the customer must be mentally or physically present. The *relationship with customers* was based on the nature of service delivery, i.e. continuous or discrete delivery, and type of relationship,

i.e. membership or informal relationship. This scheme illustrated the nature of the relationship. The third scheme referred to *customisation of the service delivery* and involved service employee judgement in meeting customer needs and level of service customisation. The fourth classification scheme represented the *nature of demand* and included the level of supply constraints and level of demand fluctuations over time. It may be seen to relate to temporal considerations; however, it only illustrates how often the service is needed or delivered, and can thus be compared to discrete or continuous transactions. The fifth scheme described the *method of service delivery* and included the nature of the interaction and the availability of service outlets. This scheme can be seen as a combination of functional and spatial elements. The interaction, linked to functional elements, denoted that the customer goes to the service organisation, the service organisation comes to the customer, or the service is delivered at arm's length. The outlet availability referred to single sites or multiple sites and can thus be seen as more closely related to the location of service delivery.

The five classification schemes proposed by Lovelock (1983) that were used to describe services could be synthesised in the CPV model to illustrate them in one single model. In other words, the CPV model could be used to group the variables in Lovelock's model. This would however entail a modification of some of the variables used in Lovelock's model, as the basics for them are different. The service categorisation may be seen to be related to the technical and functional dimensions in the respect that for example the nature of the service act involves technical aspects and the recipient of the service and service delivery refer to functional aspects. The spatial dimension is included in the outlet availability. The temporal dimension seems to be the least acknowledged and needs to be broadened from only depicting the length of the relationship or the nature of the service delivery.

Dabholkar (1994) categorised technology-based service delivery along three elements according to by whom, where, and how the service is delivered. This service categorisation explicitly included the service location. The first element relating to *who* delivers the service was defined as person-to-person and involved the service employee that used technology to deliver the service. Alternatively, in person-to-technology delivery, the customer delivers the service by using technology, which is the case of self-service options. It was argued that the location of service delivery is likely to influence which factors are important in service evaluations. Accordingly, the second element denoting the location *where* the service is delivered was defined as the customer's home or place of work or the service provider's sites. It was also noted that service delivery locations could be grouped together as neutral sites. The third element related to *how* the service is delivered in terms of physical distance or proximity, i.e. by direct or indirect contact.

This service delivery categorisation may be seen to include two of the dimensions of the proposed CPV model. The location of service delivery, i.e. where the service is delivered, is directly transferable to the spatial dimension. The functional dimension in the CPV model may be seen as a combination of how the service is delivered and who delivers the service. The functional dimension in the CPV model was defined as the process related to the service delivery, and it was argued that the customer performs some, if not all, parts of the service, which is included in the person-to-technology part of who delivers the service. Also, because the customer performs some parts of the service independently of the service provider, it entails indirect contact with the service

provider. In other words, how the service is delivered as discussed in Dabholkar's (1994) model is linked to the functional dimension of the CPV model.

One drawback of Dabholkar's (1994) service classification is its lack of attention to technical parts of the service. Because its focus is on the service delivery, it does not include aspects relating the core service. Furthermore, and more importantly, another critical issue is its lack of attention to temporal elements in the service delivery. When considering that the service location is included in the classification, and that the service is delivered mostly by technology, temporal aspects may influence the service delivery. It is evident that Dabholkar's (1994) classification is relevant and a good starting point, because of its focus on spatial and functional aspects. However, because of its lack of focus on temporal and technical elements, it is not as broad as the proposed CPV model.

In this thesis the focus has been on high levels of abstraction, rather than specific perceptual attributes. The proposed four value dimensions and their subdimensions are also represented in the conceptual framework developed for e-service quality based on a means-end model approach (Zeithaml et al. 2000). The eleven quality determinants in the e-service quality model can be divided into the four dimensions and thus provide a comprehensive view on the benefits. As was depicted in Table 9 where service quality models were synthesised, reliability, security/privacy, price knowledge and site aesthetics may be seen to represent technical benefits, and responsiveness, flexibility, efficiency, assurance/trust, and customisation/ personalisation may represent functional benefit. Access may be seen as involving temporal benefit whereas ease of navigation and site aesthetics may entail spatial benefit. In other words, the proposed CPV model complements the e-service quality model in the respect that it furthers the understanding of the sacrifice and provides a broader view on service evaluations. It provides a basis for grouping different quality determinants.

A more recent classification incorporates explicitly temporal and spatial issues. Balasubramanian et al (2002) explored the implications of mobile technology for markets and marketing and developed a taxonomy of m-commerce applications. The taxonomy was based on three levels according to the extent to which the application is location sensitive, time critical, and controlled by the user or the provider. In this taxonomy, the location sensitivity may be interpreted to relate to the spatial dimension proposed in this study, and time criticality may be seen to refer to the temporal dimension. User control may also be linked to the CPV model proposed in this study, by relating it to the functional dimension. However, a technical dimension referring to the core service was not included in this taxonomy.

In conclusion, it seems that although the dimensions in the CPV model may be linked to past service conceptualisations, it gives a deeper understanding of customer perceptions compared to service quality models and service classifications. Further research should test the relevance of the model.

6.2. Measuring service value

In this subchapter it is suggested how the empirical findings can be operationalised in a quantitative study. An instrument for measuring the perceived value of services is proposed. This instrument is based on a holistic perspective on customer perceived value and includes temporal and spatial dimensions. The empirical findings on the four

value dimension (D1-D4) can be operationalised with 17 items (I1-I17), each item referring to the categories in the value dimensions.

D1: Technical dimension (items 1-5) – characteristics of the core service and service provider involving aspects related to service characteristics, price, tangibles, and image
D2: Functional dimension (items 6-10) – input and outcome of the service process involving aspect related to customer input, impact, process, and company input
D3: Temporal dimension (items 11-13) – timing of the service delivery involving aspects related to time use and temporal latitude
D4: Spatial dimension (items 14-17) – place of the service delivery involving aspects related to spatial latitude, space, appearance, and spatial inconvenience

Based on the definitions and the content of the value dimensions, the following items for each of the dimensions can be identified. The item is written with capital letters, and the type of item, i.e. benefit or sacrifice, is also mentioned.

I1: The service design of XYZ fits my needs (SERVICE CHARACTERISTICS) (B+S)
I2: The price of the service of XYZ is acceptable (PRICE) (B+S)
I3: The trustworthiness of XYZ is high (IMAGE) (B+S)
I4: The dependability of XYZ service is high (IMAGE) (B+S)
I5: The service of XYZ is tangible and manageable (TANGIBLES) (S)
I6: I can use the XYZ service independently and effortlessly (CUSTOMER INPUT) (B+S)
I7: XYZ provides a service process that is possible to control (IMPACT) (B+S)
I8: XYZ takes responsibility of the service process and outcome (IMPACT) (B+S)
I9: The service is easy and motivating to use (PROCESS) (B+S)
I10: If needed, I can get assistance easily from XYZ (COMPANY INPUT) (B+S)
I11: The time spent using the service is efficient (USE) (B+S)
I12: It is possible to influence the timing of the service delivery (TEMPORAL LATITUDE) (B+S)
I13: The time of the service delivery is flexible (TEMPORAL LATITUDE) (B+S)
I14: The place of service delivery feels appropriate and private (SPACE) (B+S)
I15: It is possible to influence the location of service delivery (SPATIAL LATITUDE) (B+S)
I16: The service location works well for service delivery (APPEARANCE) (B)
I17: The inconvenience related to accessing the service location is small (INCONVENIENCE) (S)

This scale can be used to measure each of the value dimensions and thus develop quantifiable information on how customers perceive each of the value dimensions. Following the SERVQUAL instrument (Parasuraman et al. 1985; Parasuraman et al. 1988), it is possible to use a seven-place bipolar Likert- scale labelled “Strongly Agree” and “Strongly Disagree” to measure the perceptions.

Strongly agree						Strongly disagree
+3	+2	+1	0	-3	-2	-1

Also, to measure whether the relevance of the particular attribute, a second scale can be used where the end points are labelled “Very important” and “Very unimportant”.

Very important						Very unimportant
7	6	5	4	3	2	1

The items are all worded positively indicating that the more the respondent agrees, the more the item is perceived as a benefit. Similarly, the more the respondent disagrees with the statement, the more the item is perceived as a sacrifice. The items that are conceptualised as uniquely either a benefit or a sacrifice can be measured with the same scale when considering that their nature as only value increasing or decreasing has not been validated. As such, by using both end points of benefit (strongly agree) and sacrifice (strongly disagree) it is possible to measure whether these items, i.e. I5, I16, and I17, are perceived as benefit or sacrifice.

The result of the measurement scale is a sum of the perceived value of different services. It is possible to measure a service on each dimension, by summing the items separately for each dimension. Also, by using different services as reference point it is possible to see how the perceptions of them vary on the items. For example, the respondent may evaluate each item for the same service delivered with different channels, such as a traditional interpersonal service, an online service, and a mobile service. In this way it is possible to get profiles for different services, e.g. temporal latitude for the traditional interpersonal service may be perceived as sacrifice, whereas the same item may be perceived as benefit for the online and mobile alternatives, as depicted in Figure 33. Similar profiles are possible when comparing different customers or when the same respondent is evaluating one service in different points in time, i.e. a dynamic perspective on the dimensions.

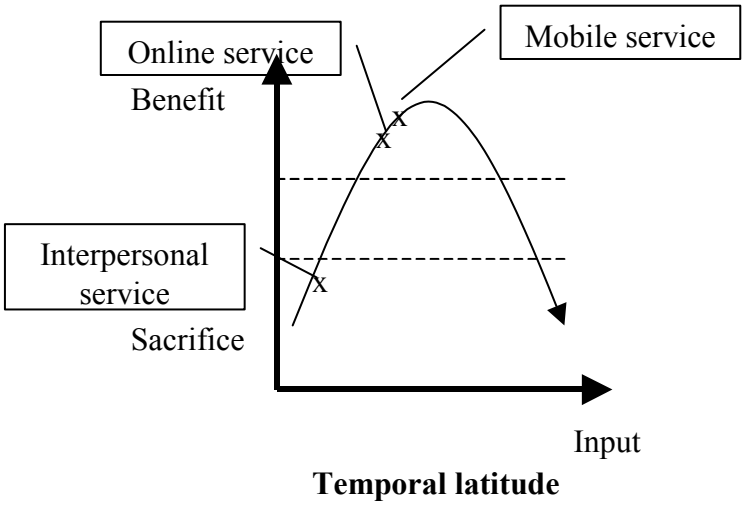

Figure 33: Different perceptions of temporal latitude

It is evident that this measurement instrument needs to be validated in further research. However, because it is based on the empirical findings from this study and the content of the value dimensions it can be argued to be a potentially useful method for measuring customer perceived value. As such it represents one theoretical and empirical contribution of this study. In the following subchapter, the main theoretical contributions of the CPV model and the whole study are discussed, followed by a critical review of the study as well as suggestions for further research and managerial implications.

6.3. Theoretical contribution

It has been argued in this thesis that a reconceptualisation of the value construct is needed because of the shift in research focus from value delivered to the customer to value created by the customer. Value needs to be conceptualised as a holistic and abstract construct that incorporates dimensions perceived as important from a customer perspective and not merely as based on dimensions controllable by the service provider. The proposed customer perceived value model includes a number of aspects that are not explicitly found in existing research. This subchapter synthesises the main theoretical contributions of the proposed model that were found based on the pilot study, literature review and empirical findings.

On a broad level, one main theoretical contribution can be identified. The starting point of the study was that service providers cannot control and manipulate all the elements in the value creation process, and the resulting theoretical framework incorporates the customer perspective of customer perceived value. In other words, the main theoretical contribution is the resulting framework and language for describing the perceived value from a customer perspective in the service management area. The scope of customer perceived value was measured by deriving the perceived importance of the value dimension, and the content of the value dimensions was explored by identifying subdimensions to each value dimension. The framework was created in an abductive manner where theoretical and empirical elements were combined.

The research questions are used to direct the discussion of the theoretical contribution on a more specific level. To reiterate, two broad research questions were raised for this study. The first research question related to the perceived importance of the proposed four value dimensions and involved the scope of the value dimensions. The following presentation of the theoretical contribution is based on the research questions put up for this study.

1. The objective of the first research question was to **widen the scope of customer perceived value**. By contrasting the four proposed value dimensions, it related to the trade-off between the value dimensions and the importance of time and location in comparison to the outcome and process. Based on this research question the following theoretical contributions can be identified.

    a) The customer perceived value model extended the scope to include two new dimensions in addition to the traditional two dimensions. It incorporated four value dimensions to describe the reality in which value is created through different services, service processes and service delivery times and locations, and thus it illustrates the value creation process from a customer perspective. Services have traditionally been designed to have attractive technical features that are delivered to the customer in a wanted way (Grönroos 1982). The surrounding servicescape (Bitner 1992) has been seen as a contextual element and thus an external variable in the service. In contrast, when the customer can perform value-creating activities independently of temporal and spatial limitations, time and location were proposed to be potential value drivers. In other words, the time and location in which this service process occurs could be value adding and thus a crucial part of the offering.

b) Another contribution of the current study is its focus on measuring the perceived value of the temporal and spatial dimensions and relating them to the traditional value dimensions. As Bitner (2000) has argued there is a need to measure the servicescape, and this study has attempted to do that by measuring the time and location of service delivery. Time and location were shown to be value dimensions equal to the technical and functional dimensions and they were accordingly seen as important variables in the service. In other words, time and place were not seen as external dimensions that create the service context; rather time and location are value dimensions, in addition to the technical dimension and the functional dimension. Hence, value is related to some specific offering (technical value dimension), created in a wanted way (functional value dimension) and that is perceived as relevant in a specific time (temporal value dimension) and location (spatial value dimension). An implication of this is that value is not limited to the service itself, but also a broader perspective is taken that incorporates factors internal and external to the service.

c) In fact, looking at the trade-offs among the value dimensions, the empirical findings support theoretical proposition that time and location are more important than the technical and functional aspects traditionally considered imperative for services. In this respect, the temporal and spatial dimensions are equal to the technical and functional dimensions and it can be concluded that temporal and spatial dimensions are relevant in service value.

d) On a more detailed level, the study pointed to the curvilinearity of the value dimensions. This is consistent with the findings of Zeithaml et al (2002). The findings in this study indicated that the value dimensions are not represented by a linear utility function. The technical and functional dimensions appeared to be close to linearity, whereas the temporal and spatial dimensions were not linear. The findings showed that traditional value dimensions of technical and functional elements were perceived as expected factors while two new dimensions have become important value-adding factors. The findings also indicated that there are dimensions that are value adding as such, but that improving the performance level does not necessarily provide additional value. In a trade-off situation these dimensions are preferred but if they are offered more extensively than needed or expected customers may in fact even view it as over-delivery. As such, the dimensions may destroy the perceived value because customers feel that they are paying for something that they do not want.

e) The study also contributes to the existing research on customer perceived value in that it shows that even in the narrow context where the study was conducted, the relative importance of the value dimensions differed. This is attributable to the fact that it was possible to find segments of customers that value different elements in the service. Three segments were identified showing that although all segments value the temporal and spatial elements in a service, there were also customers that valued the technical and/or functional dimensions. Interestingly, one segment only values the temporal and spatial dimensions, and did not give any attention to the other two dimensions. As such, it can be concluded that all four value dimensions are

relevant but they are not as relevant to the same extent for all customers. The relevance of the value dimensions in different contexts and for different services and customers is discussed in subchapter 6.4.

f) This study also contributes to the research on technology-based self-services by showing the perceived value of technology-based self-services. Previous research has linked value and technology (e.g. Parasuraman and Grewal 2000), on-line services and quality (e.g. O'Neill et al. 2001; Zeithaml et al. 2000) and self-service technologies and satisfaction (Meuter et al. 2000) or quality (Anselmsson 2001; Dabholkar 1996). However, research on the perceived value of technology-based self-services is less extensive.

2. The second research question related to the **content of the value dimensions** and it involved identifying attributes that related to the benefit and sacrifice components of each value dimension. Explicit attention was placed on specifying time and location as value dimensions.

a) One contribution of this study is the integration of benefit and sacrifice components with value dimensions. This is a result of conceptualising the theoretical framework by combining value and quality literature. The conceptualisation included a redefined view on the value construct by its integration of two streams of research. It was built on ideas from the benefit/sacrifice trade-off value model (Zeithaml 1988) and the technical/functional quality model (Grönroos 1982). In doing this, it was proposed that customer perceived value is based on assessments of the benefit and sacrifice of the value dimensions.

b) Another theoretical contribution related to the definition of the value dimensions. In this study the nature of the technical and functional quality model and the dimensions involved were modified. The scope of the two traditional dimensions was expanded to include benefit and sacrifice components. Also, the content of the dimensions was deepened to involve different subdimensions or attributes that describe the benefit and sacrifice components in a particular setting. These subdimensions can be explored and measured in further research to substantiate and validate their existence and robustness in different services, contexts, and customer segments. For example, functional value was redefined for a technology-based service context. The functional dimension of the offering has frequently been conceptualised as the interaction between the customer and the service provider, or as other types of interactions such as customer interactions with technology interfaces. It has been assumed that if the interaction functions well, i.e. that there is little friction between the service provider and the customer, the customer will perceive the service process as satisfactory. However, because technology-based services often involve other than interpersonal interaction, it was suggested that the functional value is also dependent on the input from the customer. The input from the customer was argued to be imperative, as the level of input may vary. Accordingly, the functional dimension in this study was operationalised as the customer input in the service delivery. This was motivated considering the focus on self-service options, where feelings of an appropriate amount of participation are

needed in order to induce positive value perceptions. In this respect, the functional dimension was broadened to include both direct and indirect interaction between the customer and service provider. The empirical study supported this choice, as the findings showed that not all customers favour interpersonal service alternatives. In fact, there was a rather high number of customers that do not want to interact with the service provider at all. In this respect, it seems that being able to perform the service independently will actually create value for these customers.

c) Another contribution is the deeper understanding of temporal and spatial dimension of perceived service value. By using time and location as value dimensions, this study lifted time and location to a higher level of abstraction than has been used in earlier research. Earlier research has defined time and location on a detailed level with concepts such as opening hours and store locations. This study differs in this respect as it placed time and location on the same level as the technical and functional dimension. Temporal value denoted the value-adding effect of the time of the service delivery. Spatial value is like temporal value created by the customer by the specific choice of location of the service process.

d) The findings also showed the breadth of the content of the temporal and spatial dimensions. Contrary to many service management models that have included temporal and/or spatial access as relevant elements (e.g. Grönroos 1978; Zhu et al. 2002), this study suggested a broader focus on the dimensions than merely access or availability. Many subdimensions were found to be attributable to the temporal and spatial dimensions, indicating the versatility of the dimensions. Broadly interpreted, this would indicate that the situation relative to the time and location of the service delivery may create value. The practical consequence of this is discussed in the managerial implications.

e) More specifically, using technology-based self-service as a unit of analysis in the empirical study, the content of the value dimensions was based on customer perceptions of elements that create value. The resulting contribution is an identification of attributes that describe each of the value dimensions. This describes why there are differences in the perceived importance of the value dimensions. By exploring the content of the value dimensions, the findings from the empirical study could be substantiated by the literature review.

f) The choice to integrate value and quality conceptualisations resulted in another theoretical contribution that related to the nature of the value dimensions. The framework extended the content of the value construct also by illustrating value increasing and decreasing components that occur simultaneously in the value assessments. This advances the understanding on value destroyers (Grönroos 2000). The findings resulted in a representation of benefit and sacrifice components of each value dimension indicating the interdependence and simultaneity of a trade-off of what is given in return for what is received. Several different attributes that related to each value dimension were elaborated by separating the value dimensions into benefit

and sacrifice components. One interesting conclusion is that although benefit and sacrifice may theoretically be separated into distinct attributes, the perceptions of them seem to occur simultaneously. This means that one attribute may have both value-increasing and value-decreasing elements, ranging on a continuum between benefit and sacrifice. In other words, this study indicated that it may not be possible to make separate trade-offs between benefit and sacrifice. This is an interesting path for future research, where the interdependence of benefit and sacrifice may be explored and measured.

g) Linked to this combination of benefit and sacrifice is the different value function pattern that was identified. The findings indicated that there existed curvilinear and anti-ideal value functions in addition to linear value functions. The anti-ideal pattern is the most interesting as it indicates that the attributes that are perceived as benefit or sacrifice can shift between either extremes of the continuum and that improving input does not necessarily create more value; rather it can be overdimensioned and thus be value decreasing. In between the benefit and sacrifice parts of the extreme is a neutral or indifferent zone where the attribute is perceived as neither value increasing nor value decreasing.

To sum, these issues have some important implications on research and on understanding on theoretical conceptualisations:

- Broadening and re-evaluation of customer perceived value models

The most important contribution of this research question is the fact that the scope of customer perceived value is broadened to include four dimensions. The implication of this is that existing service management models on customer perceived value are broadened and re-evaluated. The resulting theoretical conceptualisation provides insight into how customer perceived value can be conceptualised. Past theoretical conceptualisations in service management, for example the many service quality models, have not acknowledged the perspective of technical, functional, temporal, and spatial dimensions. There are service quality models that have considered perceived quality from a technical and functional perspective, combined with insight on the service environment; however, these models have not involved the explicit influence of temporal and spatial elements.

- Reconceptualisation of service quality models

Moreover, considering that customer perceived value can be conceptualised with four dimensions, each of which include both benefit and sacrifice elements, then service quality models can also be reconceptualised. Acknowledging the interdependence of service value and service quality, the same line of thinking can be used for service quality models. In other words, it is argued that service quality can be conceptualised with four dimensions: technical benefit, functional benefit, temporal benefit, and spatial benefit.

6.4. Critical evaluation of the study

In this subchapter the study is evaluated from a holistic perspective and the focus is on the operationalisation of the study. It includes a critical evaluation of the study from a theoretical and empirical perspective. Issues that are discussed relate to the choice of relevant theoretical models, the choice of empirical setting, the choice of service, and the choice of respondents. Also, the research process is reflected upon. Alternative approaches to all these issues are presented and compared to the choices made. First follows a discussion on the advantages of the study design.

6.4.1. Advantages of the research design

In this study, qualitative and quantitative techniques were combined in a parallel manner to deepen the understanding on the value dimensions with interviews and to measure the relative importance of the dimensions with conjoint analysis. In this subchapter the contribution of combining a conjoint task and interview questions are investigated. There are advantages of using mixed-method model design for studying perceived value and they are mainly attributable to the triangulation of the results, i.e. the results are more valid if the studied phenomenon is visible through different methods. Whereas the qualitative part of the study provides depth to the phenomenon, the quantitative part demonstrates in quantitative terms how the perceptions differ among the respondents.

Interviews were used to explain why the dimensions are important. One noteworthy aspect is that the interview was semistructured and did not specifically ask the respondent to evaluate the perceived importance of the value dimensions. In fact, many of the issues regarding the perceived relevance of time and location were raised from the respondent without the explicit stimulus from the interviewer. The respondent felt that it was important enough to raise the issue of time and location, and this indicates that time and location are in fact perceived as important.

Alternative approaches to exploring the research questions involve a critical incident technique. A critical incident technique has been used broadly to investigate consumer perceptions and behaviour (e.g. Johnston 1995; Roos 1998; Voima 2001) and quality in a banking context (e.g. Olsen 1992). It is a technique where either positive or negative incidents (or both) are used to elicit positive and negative perceptions of a service. It could have been used to obtain attributes relating to the benefit and sacrifice components, where positive critical incidents draw out perceptions of benefits and negative critical incidents draw out perceptions of sacrifice. However, a drawback with the critical incident technique is its focus on extreme cases without including the importance or the frequency of the incident. In this respect, using semistructured interviews that allowed the respondent to freely express different aspects in the service enabled a more realistic service evaluation.

The interview supported all results from the conjoint task. It was interesting to note that both techniques provided similar findings, although they started from different points of perspective. They provided a broader view on the phenomenon than either of the techniques could have separately established. The methods complemented each other and thus offered insight into the research question. In the next subchapter the study is

critically reviewed to show alternative paths and evaluate the strength of the current study.

6.4.2. General criticism

The study can be critically evaluated on a general level by looking at how the aim with the study was explored theoretically and empirically. In this study the focus was on depth rather than width, i.e. the objective was not generalisation in its traditional meaning where large amounts of empirical data are used to verify hypothesis. Rather the aim with this study was conceptual in nature to use analytical tools, theoretical models and empirical findings to deepen the knowledge about a specific phenomenon. In other words, the phenomenon was explored in a specific context in order to describe its structure and nature. In this respect, the abductive approach of moving between theoretical and empirical reasoning was aimed at creating a comprehensive understanding about the nature of customer perceived value. For this reason, a very narrow and specified approach is more than appropriate. Implications and evaluations of the research approach are discussed below.

The most critical issue in this study is the applicability of the value dimensions on a broader scale than the specific context of technology-based self-services involved in this study. The empirical study was based on one specific service context: online bill payment services. One drawback of this is that the specific empirical findings on the content of the value dimensions may not be expected to be directly transferable on a larger scale than this specific context. In contrast, the measurement instrument may be used on a broader scale, when considering its general and abstract perspective on the content of the value dimensions. It is a task for further research to explore how the perceptions of the value dimensions vary in different contexts. The perceived importance of the value dimensions is expected vary in different contexts, for different services, and for different customers. This is attributable to the findings in extant research where the value concept is dynamic because its magnitude and attributes change (Parasuraman 1997) and the value dimensions may change across customer segments and over time (Woodruff 1997). However, although the *degree* of the relative importance of the value dimensions may vary, the *existence* of the value dimensions as such is not questionable for different kinds of contexts, because of the abstract nature of the dimensions. This is motivated considering the starting point in an abstract service quality model that has been argued to be valid in many contexts.

6.4.3. Review on a conceptual level

On a conceptual level, this study involves several critical issues. The study has built on the technical and functional quality model and this choice of model has obviously implications for the findings. As discussed in the literature review, two fundamental quality models have been proposed: the technical and functional model and the SERVQUAL model. The SERVQUAL model could have been used, offering a totally different starting point and consequently providing different results. However, considering the theoretical orientation underlying all the choices made for this study, the technical and functional model was deemed more appropriate. Also, because the technical and functional model has not been used in previous research to explore self-

service technologies, while the SERVQUAL has been used extensively, the choice seemed motivated to offer new insight into technology-based self-services.

Moreover, the comprehensive conceptual framework developed for e-service quality (Zeithaml et al. 2000) could have been used as a starting point. However, considering its resemblance to the SERVQUAL model and the fact that the technical/functional model has been argued to be valid on a more general level than the SERVQUAL model, it seemed relevant to start from a more abstract model and move to a greater level of detail. Also, the current technology infusion relevant in the service environment that influences the service outcome, service process, and service delivery makes it appropriate to use an expanded model of the technical and functional quality model.

6.4.4. Review of the research design

Looking at the empirical study as a whole, a critical issue concerns the choice of respondents. The respondents that were chosen were all young and well educated or persons that use Internet frequently to pay their bills. This can be assumed to impact the overall relevance of time and location. For example, young persons usually have limited time at their disposal, with activities ranging from work, family and hobbies that take up the bulk of their time. Also, persons that use Internet or other technology-based service (as opposed to interpersonal service) may perceive other motivations than personal service, such as possibility to impact the service delivery. As such, it was important that the respondents perceived these services as being independent of time and place and that they created value to them. This is consistent with findings from past research that has found that the technology readiness is high among young online customers (Colby and Parasuraman 2003). In other words, the findings may be more positive for these respondents and they merely represent how the value of time and location can optimally be perceived. However, one benefit of using this type of respondents is that it provides additional depth in the perceptions of time and location.

Looking critically at the quantitative part of the study, then the number of respondents may seem low. Usually the number of respondents for a quantitative study is at least 100 respondents; this study was based on the perceptions of 37 respondents. However, considering the aim with this study the number of respondents was deemed sufficient. The objective with the study was not to statistically confirm the importance of each value dimension; rather the conjoint task was used to indicate whether the proposed dimensions are in fact perceived as important. This is justified in a grounded explorative type of study where the aim is to find new aspects in a phenomenon. In this respect, when the resulting utilities for the value dimensions were so apparent, there was no need to get statistical significance. Also, the aim of the study was twofold: to analyse the relative importance of the value dimensions and to explore the content of the value dimensions. This meant that the quantitative study was complemented with a qualitative study. The findings from the qualitative study supported the findings from the quantitative study. Accordingly, the empirical study was deemed as having a sufficient theoretical and empirical foundation.

The number of respondents was also perceived as sufficient for the qualitative part of the study. Where the aim of the study was to explore a phenomenon and find new aspects in it, the number of respondents is dependent on the saturation of the empirical findings. When consistent codes and categories are perceived as abundant and no new

categories emerge as new respondents are interviewed, then the data collection can be argued to be sufficient. In this study, when 30 respondents had been interviewed the categories seemed robust and little new aspects emerged. Still an additional seven respondents were interviewed in order to make sure that different aspects had not been overlooked. Following the findings of Griffin and Hauser (1993) this seemed a motivated conclusion. Consequently, for the qualitative part of the study the number of respondents was also perceived as justified.

The design of the conjoint task also affects the results of the study. Critical issues involve 1) the potential correlation between the attributes, 2) the different levels of abstraction for the attributes, 3) the use of a reference service, 4) and the design of the holdout profiles.

Firstly, a critical issue resulting from the choice of a theoretical starting point is the interaction effects that potentially occur between the technical and functional dimensions. It has been argued in previous research that there may be interaction between the dimensions and that the separation between them is thus not possible (Gummesson 1993). However, if there exists an interaction, it can be seen to exist on a highly abstract level where the dimensions cannot be separated. But when moving on to a more detailed and less abstract level, then the dimensions can presumably be separated and form distinct dimensions. Considering that this study is based on a focused unit of analysis, i.e. the perception of technology-based self-services, then it seems reasonable to expect that the dimensions may be separated and exist individually.

Additionally, another aspect in the theoretical conceptualisation is the existence of the temporal and spatial dimensions as separate dimensions. It may be argued that the functional dimension could incorporate temporal and spatial elements, especially when considering that the service process has temporal and spatial aspects. However, the starting point is that although time and location may be found under the service process, the influence of temporal and spatial elements on value perceptions were assumed to be so crucial that they needed to be separate dimensions. Originally, the functional dimension can also be seen to have emerged from the technical dimension, because it was proposed to be so important that it was not sufficiently in focus. Similarly, the temporal and spatial dimensions can be seen to origin from the functional dimension but need to be separated because of their evident importance. Also, existing research has not explicitly defined the functional dimension as having temporal and spatial elements. In fact, it has been argued that the service environment defined as "where" would form a third dimension in addition to the technical and functional dimension:

> "Rust and Oliver discussed the need for explicitly recognizing the physical environment of the service encounter as a third dimension. Thus, the *where* of the service quality perception would be added to the *what* and *how*. In the perceived service quality model of the service processes include the environment of the process, and thus the *functional quality* perception is influences by elements of the physical environment. The *where* aspect is considered to be part of the *how* dimension, which is logical because of the perception of the process is clearly dependent on the context of the process…. However, as a way of increasing the clarity of the model, a distinction between "how" and "where" could very well be made. Hence, a third dimension (not counting image) would be introduced in the model." (Grönroos 2000:65, emphasis in original)

Secondly, and related to this, is the levels of abstraction of the attributes. It may be possible that the attributes were operationalised on a different level of abstraction, where the technical and functional dimensions were more abstract whereas the temporal

and spatial dimensions were more concrete. This is attributable to the fact that the technical and functional dimensions may be more multifaceted than the temporal and spatial dimensions: for example, that they include different aspects of the core service and the process. However, considering the findings from the qualitative part of the study, which indicated that the temporal and spatial dimensions include many subdimensions, it seems reasonable to except that these dimensions also involve an abstract and multifaceted trade-off between different aspects. In this respect, it is not obvious whether the level of abstraction in fact is different for the dimensions. Consequently, it seems that the evaluation of all of the attributes occurs on a more implicit and unconscious level, thus indicating comparable level of abstraction.

Thirdly, the decision to anchor the attributes levels and profiles to a reference service raised one important issue. The conjoint task with the relative articulation of the attribute levels may have been difficult for the respondents to perform. It may have been difficult for the respondents to imagine the situation. It was possible that the respondents had different perceptions and feelings about the services that they were currently using and this would result in diverging reference points. Another alternative would have been to anchor the conjoint task in some fixed reference point that was consistent across respondents, for example a hypothetical scenario. This would however have meant that some respondents would probably not be familiar with the reference point. They would have had to evaluate the conjoint profiles on a hypothetical basis, which may not measure the actual utility of the profiles. It was assumed that this latter alternative involved a more complex reference point. Hence, by anchoring the evaluations in an experienced service, the respondents have a concrete and consistent, although not necessarily comparable, frame of reference and the results would presumably be more valid. Considering that the reference service was something that they were used to, i.e. the online banking service that they currently were using, makes the task easier. Although this may have resulted in varying starting points and evaluations for the respondents, it was assumed a better alternative than having the respondents evaluate a hypothetical and unfamiliar service. This method has been used in previous conjoint studies as well (DeSarbo et al. 1994; Liljander and Strandvik 1993; Strandvik 1994).

Fourthly, the design of the holdout profiles may also be the subject of critical evaluation. The design of the holdout profiles was used to evaluate the validity of the conjoint task. Different level combinations of the technical, functional, and spatial dimensions were used. The temporal dimension was the only dimension that was not varied in the three holdout profiles and it may have influenced the results. However, the profiles were chosen randomly by the statistical program and thus resulted in reliable holdout profiles.

Additionally, another aspect in the design of the conjoint task relates to the placement of the holdout profiles. The three profiles were placed in the end after the last actual profile. This may have influenced the validity of the results as the respondents may have become tired and sloppy at the end of the task. This could explain the relatively low explanation level of the holdout profiles.

6.4.5. Review of the chosen empirical context

Empirically, several critical issues that evolve from the choice of empirical context are relevant for this study. Banking services were chosen as the unit of analysis for the empirical study according to their variation in forms in terms of the different value dimensions. They are information based which, because they contain almost exclusively intangible information-based content, can be delivered almost independently on time and place limitations. Because of the choice of service, the empirical setting may have resulted in an emphasis on the temporal and spatial dimension. The importance of time and location presumably varies for services that require much input from the service provider, for example knowledge-intensive services such as loan applications. For these services the customer may trade-off temporal and/or spatial flexibility in order to get more advice. These types of services are thus less time and location critical and may be perceived as less important from a temporal and spatial perspective.

However, the unit of analysis could have been chosen from other industries and service contexts as well, such as medical services or retail services that require much input from the service provider and a large range of products. However, banking services were assumed to be especially interesting for a number of reasons mainly because they vary both in either content and context. Banking services can be delivered in many different channels based on a continuum ranging from face-to-face to technology-based interactions, which impacts all the value dimensions. Looking at the technical dimension, the banking service can be a standardised service such as a bill payment or a customised service such as a loan application. The functional dimension can vary according to the level of customer participation, where the customer can be totally inactive, as is the case for traditional face-to-face branch office services. When delivered via technology they are often defined as self-service options. These self-service options are at the other extreme, such as the case of Internet banking services where the customer performs the service independently.

Presumably time and location are important for other services than banking services. For example, the chosen service might have as well been a traditional interpersonal service that requires the presence of both the customer and the service personnel, for example a hairdressing service. The presence of different service delivery options impacts the time and location of the service delivery and removes the boundaries set by opening hours or location of service sites. Optimally, for example hairdressing services could be categorised by varying the levels of the value dimensions. However, compared to banking services, even though potentially equally flexible in terms of the value dimensions, this would result in more hypothetical situations. For example, it is possible to have hairdressing services that are not bound by opening hours. It could be assumed that the hairdresser would be available for the customer at all hours and would make house calls. Logically thinking it would not probably be economically profitable and thus not realistic. In contrast for services that can be delivered without the participation of the service employee, then the service delivery would be more cost efficient. In this respect, to evaluate different operationalisations of the value dimensions, a technology-based self-service was appropriate because it provided insight into the extreme of value created through temporal and spatial dimensions. However, the findings concerning the relative importance of time and location cannot directly be applied for all sorts of services, e.g. those services that have a physical part that has to be physically delivered and hence more difficult to be temporally and spatially flexible. In this respect, as is

discussed in more detail in the next subchapter, future research may need to evaluate the relative importance of each of the dimensions in different service contexts.

The findings are applicable to services that have similar characteristics to banking services, i.e. that they are based mostly on information, that they are quite simple, and may even become routine transactions. In this study, with is focus on online bill payments, the objective has been to explore routine service situations. In other words, the studied services with service delivery were those that occur if not frequently then at least regularly. This means that non-routine situations such as critical incidents have not been accounted for. In fact, these non-routine situations can be interesting to broaden the understanding of perceived quality (Lewis 1993), and especially sacrifice elements if focusing on negative critical incidents. Also, considering the continued increase in the use of different online services (Colby and Parasuraman 2003) it is important to evaluate the importance of the value dimensions in different routine and non-routine transactions.

6.5. Suggestions for future research

In this subchapter, theoretical and empirical issues for future research are suggested. The theoretical issues relate to the applicability, measurement and verification of the proposed model. Empirical issues refer to the applicability of the conceptualisation in other contexts as a tool to compare and contrast services and customers. Issues relating to theoretical areas of future research are discussed next.

- Description of the value dimensions

A future research issue is the definition of the value dimensions. This is needed on two dimensions. The traditional dimensions, i.e. the technical and functional dimensions, need to be redefined so that they correctly incorporate challenges from the technology environment and the empowered customer. Also, the new proposed dimensions, i.e. the temporal and spatial dimensions, need to be described and validated so that they can be used across contexts and services. For example, the nature of the functional dimension is an interesting aspect to be explored further. When considering the technology developments, the service delivery process has changed. Traditionally, the service process has been focused on the customer-service provider interaction. However, especially with technology-based self-services, but also for other more traditional services, technology forms an important part of the service process. Technology has improved the possibilities for the customer to participate in the service delivery. Often the customer participates in the service delivery or even performs the service act without the input of the service provider (Parasuraman 1997; Woodruff 1997). In this respect, it seems necessary to explore how the nature of the functional dimension has evolved and whether it in fact should be conceptualised as more than merely the customer-provider interaction, such as the customer's input in the service delivery as was proposed in this study.

- Difference in relative importance of value dimensions in various contexts

This study has increased the understanding of the relevance and importance of the value dimensions. The purpose was not to describe and classify services, such as banking services, but rather to explore the phenomenon, i.e. the value concept. As a result it was

also possible to demonstrate that different value dimensions are important for different customers. For example, the technical dimension is important for one customer, while the temporal dimension is important for another. While this study has explored the characteristics of the value dimensions and thus established an understanding on possible reasons for differences in the perceived importance of the value dimensions, future research could delve more thoroughly into the perceptions associated with each value dimension. Future research could explicitly explore the reasons for the difference and the customer characteristics that make the dimensions relevant for the services. As mentioned, this involves an exploration into the relative importance of each value dimension in different contexts and for different services.

- Subdimensions in different contexts

Moreover, the relative attention required for respective subdimension needs to be explored. The findings from the quantitative part of the study indicated the relative importance of each of the four value dimensions, where time and location were perceived as the most important dimensions. However, the importance of each of the subdimensions may be divided more diversely among the four benefit components and four sacrifice components. It can be measured on a five-point Likert-scale with which respondents are asked to rate the importance and the relevance of the attributes in addition to the importance and relevance of the value dimensions. This is possible because the model is created as a general framework. It would result in a scale of the dimensions and thus enable a simple method to measure the importance of the value dimensions and their components. In addition to the ability to measure the differences in the perceptions of one service, this would then also enable the measurement and comparison of the value of different services.

- Applicability of the value dimensions for other related concepts

Another issue for future research is to explore the applicability of the proposed model for other related concepts. Acknowledging the interdependence of service value and service quality, it was proposed that the same line of thinking can be used for service quality models. Considering that customer perceived value can be conceptualised with four dimensions separated into benefit and sacrifice components, then service quality models could also be reconceptualised. In other words, it was argued that service quality can be conceptualised with four dimensions: technical benefit, functional benefit, temporal benefit, and spatial benefit. Future research needs to explore whether this in fact is accurate.

- Dynamism in value dimensions

It would also be interesting to explore whether the perceptions of the value dimensions change in time, for different relationships and/or for different services. As discussed, customer perceived value is dynamic in nature (Parasuraman 1997; Woodruff 1997). Time and location are currently important and obviously value adding. One reason may be the charm of novelty. But maybe in the future, when time and place are everyday issues in many services, time and location will become aspects that are expected and required. This may mean that new dimensions become relevant. Alternatively, the relative importance of the technical and or functional dimensions increases.

- Applicability of the instrument for measuring customer perceived value

The discussion on the theoretical framework and empirical findings was concluded with a suggestion on a measurement instrument for customer perceived value. Although this instrument was based on both theoretical and empirical findings, it is necessary to validate and substantiate the instrument. For example, by using the proposed instrument it is possible to identify whether the value functions have such patterns that were proposed. Also, by using different service contexts the application of the instrument can be supported.

- Applicability of the CPV model with a relationship-based focus

The theoretical framework proposed in this study was developed as an episode-based model (Liljander and Strandvik 1995), where the value dimensions were expected to create value in single episodes. Considering the current emphasis in marketing on relationships it seems relevant to explore whether the suggested framework works in a relationship perspective. Future research needs to investigate the extent the value dimensions vary between episodes and relationships. Are the same dimensions relevant and what is the relative importance of the value dimensions in a relationship context? Will the temporal and spatial dimensions create value also in long-term customer-provider relationships? Is there a need for a relationship-based model where the emphasis is on other, new dimensions? For example, future research could focus on the influence of customer involvement and commitment on the perceived importance of the value dimensions. It can be assumed that time and location is perceived as important if customers are not involved in the offering or committed to the relationship.

- Customer processes and situations

Existing service management literature has acknowledged time from a consumption and availability perspective. By measuring the importance of the temporal dimension in service this study has shown that customers value the ability to make decisions independently of time considerations. Following that use situations influence customer perceived value (Woodruff and Gardial 1996) future research could focus on identifying which activities and situations are perceived as more appropriate than others for a temporally flexible service delivery. For example, it would be interesting to identify when there needs to be temporally flexible self-service options and when interpersonal services that traditionally are more time constrained are more appropriate. The same applies for the technical, functional and spatial dimensions.

- Influence of customer participation

Another interesting area of future research is the influence of customer participation in the service process. This study suggested that the customer's involvement (or lack thereof) in the value creation process can add or decrease the value created. This supports the suggestions by Ennew and Binks (1999) who found that participative behaviour from the customer results in higher quality of service. In this respect, the question is not *whether* the customers with their input can potentially create more value. Rather the imperative question is *how much* value added is created in this temporally and spatially flexible environment enabled by technology. Because customers can be responsible for the value-creation process, and may lack for example the needed knowledge to create value, they may consequently also destroy the possibilities for

value and thus create negative value. For example, sitting at home off bank office hours and paying bills via Internet does not allow for service process failures and there is insufficient knowledge of the process close at hand. Future research needs to explore and measure the extent to which the involvement and willingness to be involved influences the perceived relative importance of the value dimensions.

Empirically, the results of this study indicated possible areas of future research. Issues relating to directions for future research concerning empirical issues are discussed below.

- Complexity of services

This study on the customer perceived value in the banking industry focused on payment services. These information-based services tend to be relatively basic and clear for the customer. The service is simple; it is satisfactory when the bill gets paid. In this respect it would be interesting to see how the conceptual framework based on increased value of time and location functions with more complicated offerings. Would the same structure with time and place provide the most value when considering for example advice and customised information? Time and location are presumably less important for services that require much input from the service provider, for example knowledge-intensive services such as loan applications, where the customer may trade-off temporal and/or spatial flexibility in order to get more advice. These services are more based on the traditional value dimensions where the interaction with a service provider may be imperative. These types of services are thus less time and location critical and may be perceived as less important from a temporal and spatial perspective. In contrast, the functional value dimensions would probably become important and in this respect it is interesting to explore the relative importance of the different value dimensions.

- Applicability in different industries

Moreover, it would be interesting to investigate the perceived importance of time and location in other industries than banking services. For example, retailing literature suggest that the location and opening hours are important attributes that attract customers. Future research could thus explore whether research focused on manufactured goods, or services e.g. services with physical part also requires new conceptualisations and operationalisations. This could also include a comparison of different types of services to understand which services are particularly temporally and spatially important. It would result in some sort of service classification based on the relevance of each of the value dimensions.

- Applicability in interpersonal services

Technology-based offerings are particularly well suited for providing temporal and spatial flexibility because they can be produced inexpensively and efficiently. Bitner (2001) suggested that customers would demand the same outcomes from technology-based offerings as from traditional interpersonal services. Analogous to this is that customers will start to demand the same outcomes from interpersonal services as for technology-based offerings. This means that customers will start to value temporal and spatial flexibility from traditional services as well. Hence, another direction for future research is to measure the importance of time and location in traditional interpersonal services.

- Multiple delivery channels

This study explored the value of online bill payment services, which means that the focus was on the Internet as a service delivery channel. Customers will not necessarily shift all their banking activities to one channel, the internet, but rather they might use different channels in a parallel manner, for example the internet for bill payments and the branch office for loan advice. The situation will probably change in the future, and future research needs to explore how the use of multiple delivery channels will affect value perceptions.

- Comparison of technology-based services and interpersonal services

Future research could focus on comparing traditional interpersonal services with technology-based services. The study showed that there may be a need to reconfigure the traditional separation between interpersonal services and technology-based services as personal vs. non-personal service. In some respect, interpersonal services are not always personal, and technology-based services do not necessarily mean non-personal. Contact with bank personnel cannot be seen as being personalised because customers interact with different people every time they deal with bank personnel. Even when a personal advisor has been appointed, the number of customers that are linked to one advisor is so large that it may be difficult to have detailed knowledge about everyone. Technology facilitates this in some respect as it enables the service personnel to have updated information about the current state of the customer's banking affairs. In this respect technology-based services can be more customised and personal than interpersonal services as they can be linked to all previous activities that the customer has had with the specific firm. For example, outgoing payments are directly visible and the current state of all loans can be easily checked. This can actually compensate the experience that the personal bank personnel have had with specific customers. And considering the future where for example video-conferencing can compensate direct face-to-face contact, technology-based services can actually be a substitute to traditional interpersonal services that occur at a bank.

6.6. Managerial implications

The purpose with this study was to develop a framework for understanding customer perceived value from a temporal and spatial point of perspective. The focus in this study was on depth rather than breadth, signifying that the objective was to use analytical tools, theoretical models and empirical findings to deepen the knowledge about a specific phenomenon. In other words, the empirical context was used to see how the phenomenon could be operationalised. However, this does not mean that the findings of this study are limited only to the specific empirical context. Rather, because the phenomenon and its elements are supported by earlier models and thus can be seen as robust, it can be applied in different contexts and for different services and customers. Only the character of the phenomenon, i.e. the degree of the relative importance of the value dimensions, varies depending on the empirical focus.

Based on the theoretical and empirical findings as well as the conclusions discussed in this chapter it is evident that time and location are important value drivers from a customer perspective. At this point it is essential to acknowledge the main practical consequence of the findings. Specifically, in addition to showing the importance of time

and location, this study has pointed to the need for recognising temporal and spatial dimensions as value drivers more holistically. As is discussed later in this subchapter, this involves a broad focus on time and location. Using the value dimensions as a framework for understanding customer perceptions, it is possible to manage and improve customer perceived value. Managerial and practical implications of the findings are discussed in this subchapter.

- Time and location important in service design

The empirical study confirmed the a priori assumption that time and location are important dimension in customer perceived value. As explained and discussed, time and place are not only background conditions that exist below the level of awareness, which would mean that they are not that important in behaviour. Rather, the literature review as well as the empirical study have both shown that time and location are in fact at the forefront of the attention span of customers. This means that it is no longer sufficient to only focus on the process and outcome aspects of service delivery, but that service management must put considerable attention on temporal and spatial elements in service delivery. For example, now that bank office hours have been shortened while the possibilities for self-service banking offerings are improved, customers seem to be more attentive and value the ability to conduct banking activities independently of temporal boundaries. The study showed that the respondents actually prefer time independence to more extensive service options. This means that time decisions occur at a conscious level, and are not only taken for granted.

The importance of time and location in customers' value perceptions has one major managerial implication. The findings indicate that time and location can give a competitive edge in service design. In other words, using time and location as service design elements may differentiate the service and create additional value for customers. Even though the findings of this study may be service or channel dependent, it is important to note the possible influence of the situation of time and place on service value. Empirically the main finding was that customers are seeking convenience in their banking activities through the temporal and spatial dimensions of the banking service. Traditionally services have been differentiated through their technical and functional variables, i.e. through their service attributes or the process attributes. Even though the relative importance may differ, by showing that time and location are important value dimensions, it was argued in this thesis that customers perceive time and location as value adding in addition to the process and outcome of the service. In this respect, temporal and spatial aspects need to be considered as service design elements so that a sufficient amount of attention is given to them and the unnecessary focus on the service outcome and service process that have traditionally been seen as important can be avoided.

- Important to maintain temporal and spatial dimensions

Considering the characteristics of the dimensions, effort should be devoted to maintaining the temporal and spatial dimensions. The technical and functional dimensions should be monitored to identify possibilities to develop new attributes. The findings from the study indicated that the technical and functional dimensions were not perceived as critical factors because, although the perceived utility was almost linear, their importance was lower than the temporal and spatial dimensions. Conversely, the temporal and spatial dimensions were perceived as hygiene factors. It indicates that

lower levels of temporal and spatial flexibility than the current situation are perceived as highly negative, while higher levels do not provide much additional value. In other words, the sacrifice would be larger with reduced levels in the temporal and spatial dimensions, compared to reduced levels in the technical and functional dimensions.

- Breadth in temporal and spatial dimensions

When considering that technology offers temporal and/or spatial access rather easily, all service providers may after a while use temporal and spatial dimensions to differentiate their services. This means that the dimensions may not offer a sufficiently competitive advantage. As a result, in order to create a service that is perceived as value adding by the customers, it is necessary to efficiently take use of the temporal and spatial dimensions. In other words, it is important to know how and what aspects in the temporal and spatial dimensions are relevant for customers. It is easy to think that the main benefits of technology, i.e. creating a service that is available to the customer whenever and wherever wanted, are the only way to create value in the temporal and spatial dimensions. This is attributable to the suggestions in past research. Considering that customer access in time and location may be easily created through different technology interfaces, such as 24/7-access in a mobile phone, benefits achieved from temporal and spatial access may not necessarily be a competitive advantage in the long run. Optimally, the customer have unlimited access to the service. It means that other aspects of the temporal and spatial dimensions, such as the subdimensions derived from this study need to be acknowledged. In the literature review it was shown that time and location aspects have frequently been stated to involve access and availability in time and space. Temporal and spatial access was also one element of the temporal and spatial dimensions. The temporal and spatial dimensions need to be explored and measured to identify new value-adding elements than access that has traditionally been seen as important. For example, the temporal dimension involves aspects related to the timing of different customer activities as represented by the temporal benefit of time allocation or temporal sacrifice of roles. Similarly, the spatial dimension involved spatial benefit of for example flexibility and spatial sacrifice of physical aspects. This indicates that broadening the focus of the temporal and spatial dimensions from merely temporal and spatial access to other elements may in fact provide additional value.

- Aspects sometimes beyond managerial control

Also, by arguing that time and location are, or at least can be seen as, value dimensions equal to outcome and process elements of the service, the current study has pointed out the necessity to focus on elements in the service that cannot be directly controllable by the service provider such as time and location. This means that it is necessary to imagine the customer's point of perspective, and create an understanding of different needs that may be important to fulfil. In other words, it involves a broader perspective than providing value with the four proposed dimensions, and also constantly seeking new opportunities to create value for customers. This results in a focus on creating an enabling arena for value creation where customers can initiate and perform the service act at their own convenience. Hence, the traditional relieving perspective on service delivery, where the service provider creates value for the customer, is of lesser interest.

- Different value functions used to segment customers

Another important practical implication of the theoretical conceptualisation is that the value dimensions offer insight into segmenting customers. This study showed that the value functions for different respondents vary. In other words, it may be necessary to emphasise the dimensions in the service in different ways for different types of customers. This involves a segmentation of current and prospective customers where, depending on the perceived importance of the value dimension, different customer segments can be established. This improves the possibility that the customers will perceive the service as value adding. The findings from the study indicated that even though a relatively homogeneous group of people was investigated, differences in the perceptions were relevant. It indicates that the value dimensions provide a tool for exploring individual differences that are not explained by demographics. Rather than categorising customers across demographics or services, it may be effective to classify customers on their perceptions of the value dimensions. This in turn would enable a more precise service development. In line with Swait and Sweeney (2000) who proposed a segmenting model based on customers' value orientations, the relative importance of each value dimension provides a basis for contrasting customers. Hence, by assessing the relative importance of the value dimensions, different segments can be identified, described, and ultimately targeted. In practice, this means that depending on whether customers value the temporal and spatial dimensions they may be offered time and location flexibility. In contrast, for customers that value core service attributes, such as a number of different service alternatives, then the technical dimension may be accentuated in the service design.

This study showed that in the same way as there are customers that value the technical dimensions over the functional dimension, i.e. prefer the outcome over the process, there are some customers that value time and/or location of service delivery over the technical and functional dimensions. The preference for different value dimensions may be used to target customers. In general, the findings from this study indicated that there were two groups of respondents. One group did not want to give up a satisfactory level of the different value dimensions, e.g. some value the fact that they were able to access the banking service at many different locations. In contrast, the other group value issues that they still did not have. So for this second group it was not important that they were able to access the service independently of spatial restriction, instead and perhaps because of this, they valued other things in the service, for example lesser input or more service options. So the findings indicated that whereas group one values the situation today, i.e. maintaining the present situation, group two values the situation possible tomorrow, i.e. improving the present situation.

- Instrument to measure customer perceived value

As a conclusion to the empirical study, it was suggested how to operationalise the findings in a quantitative study. This resulted in an instrument that includes temporal and spatial dimensions in addition to technical and functional dimensions and thus can be seen to measure customer perceived value holistically. It can be assumed that this instrument, although still needed to be validated in future research, can be used to describe the perceived value of different elements in a service. As such, it can be used to map current and future demand. The value dimensions and their subdimensions can be used to measure the perceived value of specific offerings. Based on the findings on the content of the value dimensions it was possible to create several categories of attributes

that are either combinations of benefit and sacrifice or uniquely benefit or sacrifice. These categories were discussed and defined in an instrument that enables the measurement of customer perceived value. This instrument is based on a scale of statements of different elements of the value dimensions that can be used to explore customer perceptions. By having customers compare them between competing offerings, different value profiles can be created. These profiles are based on different ratings of the dimensions and subdimensions in reference to either competing offerings, or future offerings.

- Value dimensions to classify and categorise services

The value dimensions can also be used to categorise different services or service contexts. Accordingly, by knowing the relative importance of the different value dimensions in each service, the service provider can communicate the services correctly to the customers. This categorisation is important because services have a different weight on the value dimensions. Simpler services, such as standardised services, can be more time and location sensitive because they can be delivered without human input. It can be assumed that customers make a trade-off between high end and customised services and customised contexts. Complex services, such as loan services that require expertise, may not be time and location sensitive because they require human input from the service personnel. In this respect, they are probably more process-intense and thus based on the functional dimension. This is consistent with the findings of Devlin (1998) who found that location and access provide more value to simple financial services compared to more complex services.

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APPENDIX 1: Interview guide

1. **Questionnaire**
   Background information

2. **Interview questions before conjoint task**

   General questions on payment process
   How do you normally pay your bills? (Internet, bank branch office, ATM, mobile)
   Describe how you pay your bills.
   What kind of payment service do you use?
   How large do you perceive your own input in the service delivery? How much do you do and how much does the bank do?
   When does this occur?
   Where does this occur?

   Questions about payment methods

   Why do you pay your bills the way that you do?
   What advantages do you find with your payment method?
   What disadvantages do you find with your payment method?

3. **Conjoint task**
   Rank ordering of conjoint profiles

4. **Questions after conjoint task**

   Importance of the value dimensions
   Why did you arrange the service profiles in this manner?
   What is the most important dimension in the service? (Service options, input, time, location)
   What kind of compromises did you have to do?
   How important is the time when you pay the bill?
   How important is the location where you pay the bill?
   Which is more important, that you can pay you bill when you want or where you want?
   Which is more important, that you get personal service or that you can choose the time and place of service delivery?
   How important is it that you can pay the bill yourself?
   How important is it that you can control the service process?

APPENDIX 2: Questionnaire

Background information

Female ☐ Male ☐

Your age: _____ years

Marital status (tick one alternative)

Single ☐ Cohabitation ☐ Divorced ☐ Married ☐

Household size: _____ persons

Education: _____

Employment status (tick one alternative)

Employed/Self-employed ☐ Unemployed ☐ Keeping a house ☐

Are you a student?

Yes ☐ No ☐

Number of payments per month on average (tick one alternative)

0-4 ☐ 5-8 ☐ 9-12 ☐ 13 or more ☐

Of which recurring bills _____

What is the primary method that you use for paying bills? (Tick <u>one</u> alternative)

☐ Visiting the branch office
☐ Using an ATM
☐ Using the Internet
☐ Direct debit
☐ Using a mobile phone
☐ Using a fixed phone line

Do you use other methods for paying bills? (Tick the alternatives that are relevant)

☐ Visiting the branch office
☐ Using an ATM
☐ Using the Internet
☐ Direct debit
☐ Using a mobile phone
☐ Using a fixed phone line

Indicate whether you “strongly agree”, “somewhat agree”, are “neutral”, “somewhat disagree”, or “strongly disagree” with the following 10 statements. Circle your answer!

Strongly agree	Somewhat agree	Neutral	Somewhat disagree	Strongly disagree
5	4	3	2	1

I can usually figure out new hi-tech products and services without help from others.
New technology is often too complicated to be useful.
I like the idea of doing business via computers because you are not limited to regular business hours.
When I get technical support from a provider of a hi-tech product or service, I sometimes feel as if I’m being taken advantage of by someone who knows more than I do.
Technology gives people more control of their daily lives.
I do not consider it safe giving out a credit card number over a computer.
In general, I am among the first in my circle of friends to acquire new technology when it appears.
I do not feel confident doing business with a place that can only be reached online.
Technology makes me more efficient in my occupation.
If you provide information to a machine or over the Internet, you can never be sure if it really gets to the right place.
I seem to be busier than most people I know
Usually there is so much to do that I wish I had more time.
I usually find myself pressed for time.
I prefer dealing with bank personnel
I enjoy talking with bank personnel.
I prefer dealing with machines rather than people.
Self-service alternatives are more pleasant than interpersonal services.
I feel confident using electronic banking methods for accessing my money
I prefer temporal and spatial flexibility over personal service

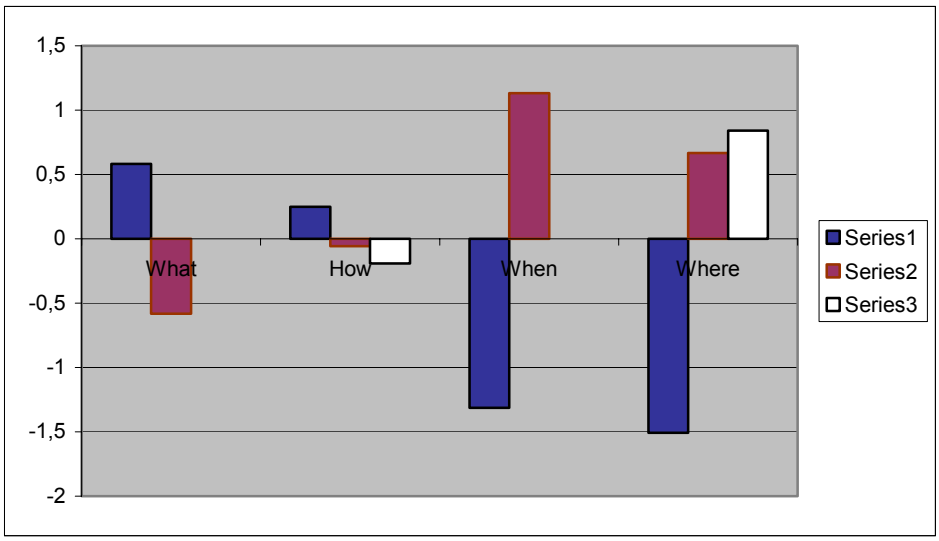
APPENDIX 3: Profiles used in the pilot study

Profile	What	How	When	Where
1	Flexible	Equal input	Office hours	Public place
2	Flexible	No customer input	Office hours	Homeground
3	Not flexible	Self-service	Office hours	Homeground
4	Not flexible	No customer input	Whenever	Public place
5	Not flexible	Equal input	Office hours	Wherever
6	Flexible	No customer input	Office hours	Wherever
7	Flexible	Self-service	Office hours	Public place
8	Flexible	Self-service	Whenever	Wherever
9	Flexible	Equal input	Whenever	Homeground

APPENDIX 4: Example of a profile used in the pilot study

Profile 1
All parts in the payments are flexible (e.g. free due dates) The bank and you perform approximately equal amount of the service The payment occurs during office hours The contact with the bank is on a fixed public place (e.g. bank, ATM)

APPENDIX 5: Level utilities from the pilot study



APPENDIX 6: Examples of the benefit/sacrifice components of value

Emphasis	Content	References	Illustrative findings
Benefit	Monetary benefit	Thaler (1985) Grönroos (1988)	Monetary savings Cost reductions
	Tangible benefit	PZB (1988) Monroe (1990)	Tangibles Physical attributes
	Reliability	PZB (1985) PZB (1985)	Reliability Credibility
	Social benefit	PZB (1985; 1988) PZB (1985) PZB (1985) PZB (1988)	Empathy Courtesy Understanding Attention
	Psychological benefit	Zeithaml (1988) Grönroos (2000)	Subjective value Psychological benefits
	Confidence	PZB (1988) PZB (1985) PZB (1985) Zeithaml, Parasuraman & Malhotra (2000)	Responsiveness Security Competence Assurance/trust
	Contextual benefit	Yale & Venkatesh (1986); Berry, Seiders and Grewal (2002) Brown (1990) Bitner (1992)	Convenience Aesthetics
	Indirect benefit	Ravald & Grönroos (1996) Liljander & Strandvik (1995)	Relationship benefit Indirect relationship benefit
Sacrifice	Monetary sacrifice	Monroe (1990) Zeithaml (1988); Monroe (1990) Lovelock (2001)	Purchase price Acquisition costs Operating costs
	Tangible sacrifice	Lovelock (2001) Lovelock (2001) Grönroos (2000)	Functional risk Physical effort Direct relationship costs
	Contextual sacrifice	Lovelock (2001)	Temporal risk Social risk
	Indirect sacrifice	Ravald & Grönroos (1996) Lovelock (2001) Sweeney, Soutar & Johnson, (1999) Holmlund (1997)	Relationship sacrifice Incidental expenses Risk of failure and poor performance Indirect relationship costs
	Psychological sacrifice	Zeithaml (1988) Lovelock (2001) Lovelock (2001) Holmlund (1997); Ravald & Grönroos (1996) Grönroos (2000)	Perceived non-monetary price Psychological risk Sensory risk Latent relationship costs Psychological costs

APPENDIX 7: Temporal considerations in existing research

Dimension	Reference	Illustrative finding
Availability	Hendrix, Kinnear & Taylor (1979) Kaufman & Lane (1996) Darian & Cohen (1995) Settle, Alreck & Glasheen (1978), Bergadaa (1990)	Time allocation Total time available Time shift Time orientation
Opening hours	PZB (1988), Kaufman & Lane (1996)	Convenient business hours
Punctuality	Brady & Cronin (2001); Taylor (1994); Ekinci (2001)	Delay Waiting time
Speed	Anselmsson (2001); Dabholkar, (1994); Holmlund (1997); Ekinci (2001); Karjaluoto (2002a); Zeithaml, Parasuraman & Malhotra (2000)	Speed of delivery, speed, speed of execution
Responsiveness	PZB (1985)	Promptness, readiness
Access	Zeithaml, Parasuraman & Malhotra (2000)	Reach the company when needed

APPENDIX 8: Spatial considerations in existing research

Dimension	Reference	Illustrative finding
Use situation	Srivastava, Shocker & Day (1978)	Away - home
Service environment	Donabedian (1980); Baker (1987) Bitner (1992); Rust & Oliver (1994); Brady & Cronin (2001) Lehtinen & Lehtinen (1991) PZB (1988)	Amenities Servicescape Ambience, layout, artefacts, Service environment Interior, decoration Appearance
Access	Grönroos (1978) Donabedian (1980); PZB (1985); Dabholkar, Thorpe & Rentz (1996) Dabholkar, Thorpe & Rentz (1996)	Accessibility Ease of initiation Convenient location, Easily accessible Ease of orientation
Physical distance	Kaufman & Lane (1986) Lovelock (1983) Yale & Venkatesh (1986) Karjaluoto (2002a)	Distances and travel time Single site, multiple sites Proximity of location Distance
Customisation	Yale & Venkatesh (1986)	Portability

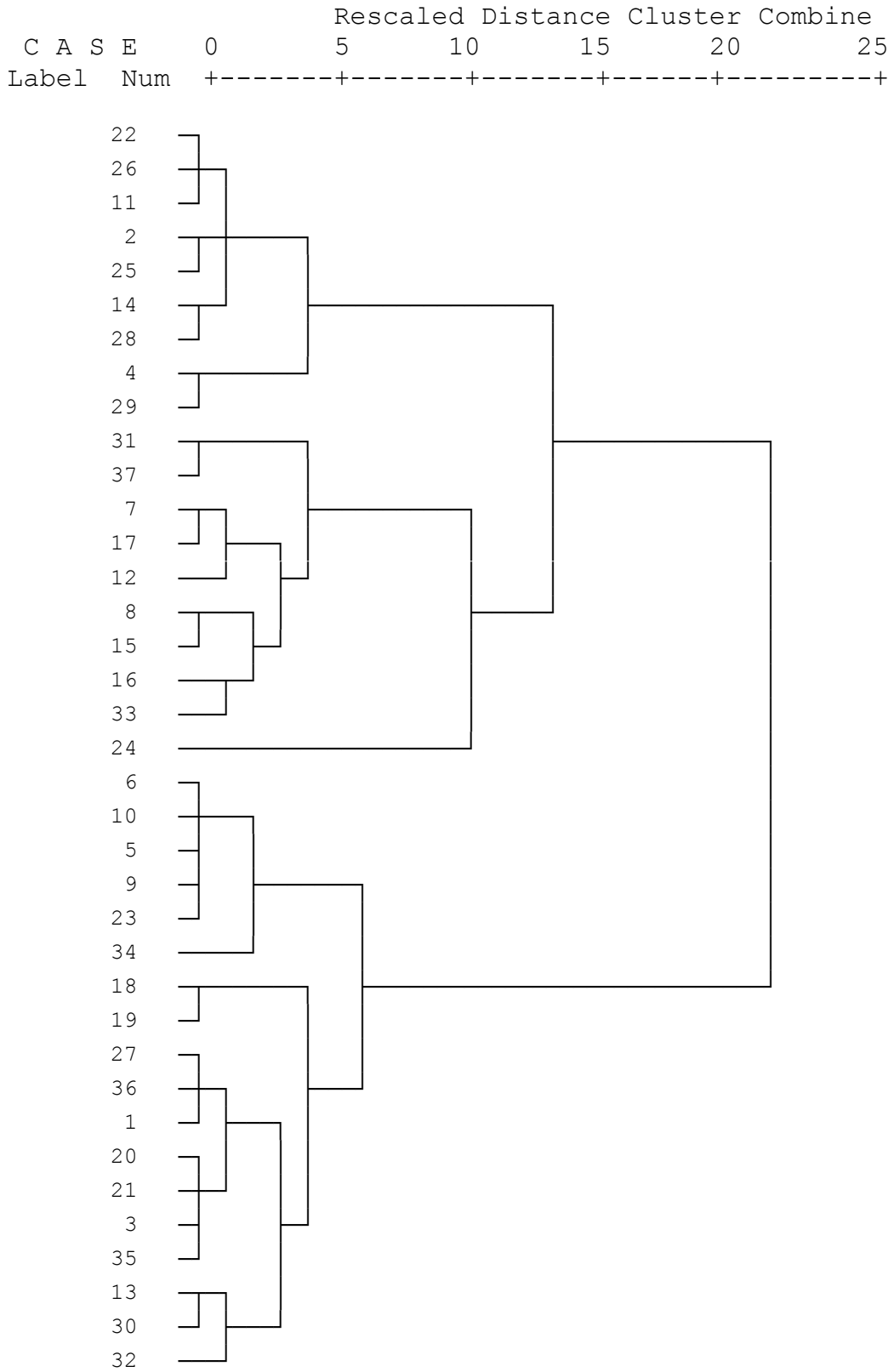
APPENDIX 9: Existing quality models integrated in the customer perceived value model

Reference	**Technical dimension**		**Functional dimension**		**Temporal dimension**		**Spatial dimension**	
	Benefit	*Sacrifice*	*Benefit*	*Sacrifice*	*Benefit*	*Sacrifice*	*Benefit*	*Sacrifice*
Grönroos 1982	Technical quality Image		Functional quality					
Lehtinen 1982	Technical quality Institutional quality		Interaction quality					
PZB 1985	Tangibles Competence Credibility Reliability Security		Responsiveness Communication Understanding Courtesy		Access		Tangibles Access	
Baker 1987	Design factors		Social factors				Design factors Ambient factors	
Gummesson 1993	Design quality		Delivery quality Relational quality Production quality		Delivery quality		Delivery quality	
PZB 1988	Tangibles Reliability		Empathy Assurance Responsiveness				Tangibles	
Monroe 1990	Physical attributes Service attributes	Purchase price Acquisition costs	Technical support	Transportation costs Installation costs Order handling				
Lehtinen & Lehtinen 1991	Physical quality Corporate quality		Interactive quality				Physical quality	
Rust & Oliver 1994	Service product		Service delivery				Service environment	
Ravald & Grönroos 1996			Relationship benefit	Relationship sacrifice				
Holmlund 1997	Technical quality Economic quality	Economic quality	Social quality					
Parasuraman & Grewal 2000	Acquisition value Transaction value Redemption value		In-use value					

Appendix 9 Continued

Reference	Technical dimension		Functional dimension		Temporal dimension		Spatial dimension	
	Benefit	*Sacrifice*	*Benefit*	*Sacrifice*	*Benefit*	*Sacrifice*	*Benefit*	*Sacrifice*
Dabholkar, Thorpe & Rentz 1996	Physical aspects Policy Reliability		Personal interaction				Physical aspects	
Dabholkar 1996	Enjoyment Reliability		Control Ease of use		Speed of delivery			
Zeithaml, Parasuraman & Malhotra 2000	Reliability Security/privacy Price knowledge Site aesthetics		Responsiveness Flexibility Efficiency Assurance/trust Customisation/ personalisation		Access		Ease of navigation Site aesthetics	
Kaynama & Black 2000	Content and purpose Navigation Design & presentation Background		Responsiveness Personalisation & customisation				Accessibility Navigation	
Anselmsson 2001	Reliability Physical appearance		Enjoyment Decisional control Personnel-based support Ease of use		Speed of delivery			
Liljander, van Riel & Pura 2002	Reliability User interface		Responsiveness Customisation/ personalisation					
Janda, Trocchia & Gwinner 2002	Access Security Information		Sensation Performance Assurance/trust					
Santos 2003	Linkage Appearance Structure and layout Reliability		Ease of use Efficiency Support Communication					

APPENDIX 10: Hierarchical cluster membership using Ward method



APPENDIX 11: K-means cluster membership

Cluster Membership

Case Number	Cluster	Distance
1	3	1,340
2	2	1,262
3	3	,945
4	2	1,821
5	3	1,168
6	3	1,452
7	1	1,591
8	2	1,610
9	3	1,168
10	3	1,264
11	2	1,018
12	1	1,917
13	3	2,149
14	2	1,694
15	2	1,610
16	1	2,037
17	2	1,790
18	3	2,247
19	1	2,151
20	3	1,340
21	3	1,340
22	2	,839
23	3	1,758
24	4	,000
25	2	,733
26	2	,839
27	3	1,024
28	2	1,326
29	2	2,705
30	3	1,823
31	1	2,106
32	3	2,487
33	1	1,678
34	3	2,588
35	3	,924
36	3	1,606
37	1	1,178

APPENDIX 12: Variance analysis of attribute importance

	Mean square	**F**	**Significance**
Technical dimension		11.638	.000
Between groups	719.196		
Within groups	61.800		
Functional dimension		38.536	.000
Between groups	1486.035		
Within groups	38.562		
Temporal dimension		18.607	.000
Between groups	1237.901		
Within groups	66.529		
Spatial dimension		.950	.397
Between groups	87.027		
Within groups	91.575		

APPENDIX 13: Variance analysis of the attribute levels

	Mean square	**F**	**Significance**
More services		17.807	.000
Between groups	2.970		
Within groups	.167		
Same services		1.070	.355
Between groups	0,254		
Within groups	.237		
Fewer service		11.746	.000
Between groups	4.620		
Within groups *s*	.393		
More input		42.734	.000
Between groups	8.937		
Within groups	.209		
Same input		3.442	.044
Between groups	.817		
Within groups	.237		
Less input		49.278	.000
Between groups	11.269		
Within groups	.229		
More time freedom		19.298	.000
Between groups	4.694		
Within groups	.243		
Same time freedom		8.405	.001
Between groups	1.942		
Within groups	.231		
Less time freedom		4.956	.013
Between groups	1.099		
Within groups	.222		
More place freedom		.999	.379
Between groups	.293		
Within groups	.293		
Same place freedom		5.170	.011
Between groups	.981		
Within groups	.190		
Less place freedom		2.169	.130
Between groups	.690		
Within groups	.318		

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