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# Consumer Value Drivers in Electronic Banking

Doctoral dissertation

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## **ABSTRACT**

The research on customer value perceptions has been a subject of great interest to academics and practitioners alike. The digitalisation of services has created tremendous opportunities for service providers to provide additional value for their customers ranging from economic and utilitarian value to hedonic consumption experiences. The banking sector is among the leaders in utilising modern technology like the Internet and mobile communications in service delivery. They are currently providing multiple services via multiple electronic channels offering a wide variety of value-creating elements for their customers.

The aim of this dissertation was to explore customer perceived value and value creation in an electronic banking context. Two sequential research settings were designed. The first experiment was a qualitative study based on a means-end approach and laddering interviewing technique in which 20 bank customers were interviewed in-depth. The focus was to investigate how value constellations were constituted by the customers and which were the overriding value drivers of Internet and mobile channels in banking context. The results showed that screen size, keyboard, service access location and response time are the key value drivers in Internet and mobile banking, while value constellations differed between the channels and services explored. Moreover, even though economic and utilitarian value perceptions were dominating clear indications of the existence of hedonic value perceptions in electronic banking were found.

In order to measure the preference order for the value drivers and individual channel preferences, a large quantitative Internet survey using conjoint analysis was conducted in which altogether 2,675 responses were collected. The results showed that the value drivers face different preference orders between Internet and mobile users. While Internet users considered screen size the most important channel attribute, the mobile users placed greatest value on the service access location. Moreover, the findings indicated slight differences between the services while individual respondents' preferences varied widely.

This study contributes the customer value literature by showing the existence of hedonic and other-oriented value in electronic service consumption, suggesting that value perceptions in electronic commerce are not merely derived from utilitarian and self-oriented purposes. The results also provide practical information for service providers' marketing campaigns and communication activities in increasingly diverse consumer markets. The results further contribute to device manufacturers' aims to develop different kinds of devices for different market segments.

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Helecon: banks; electronic commerce; customers; values; internet; mobile technology



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Kuopio, December 2006

*Tommi Laukkanen*

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## LIST OF RESEARCH PAPERS

- I Laukkanen, T. and Lauronen, J. (2005). Consumer value creation in mobile banking services, *International Journal of Mobile Communications*, 3 (4), 325-338.
- II Laukkanen, T. (2006). Customer perceived value of e-financial services: a means-end approach, *International Journal of Electronic Finance*, 1 (1), 5-17.
- III Laukkanen, T. (2007). Measuring mobile banking customers' channel attribute preferences in service consumption, *International Journal of Mobile Communications*, 5 (2), (in press).
- IV Laukkanen T. Customer preferred channel attributes in multi-channel electronic banking, *International Journal of Retail & Distribution Management*, (forthcoming).

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## 1 INTRODUCTION

### 1.1 Motivation for the study

Technological development and changes in service environment have stimulated companies to develop multi-channel strategies to serve increasingly diverse consumer markets. It is generally assumed that a new technological channel is enough to provide consumer demand and business activities. Accordingly, Schoenbachler and Gordon (2002) note that the focus of development of multi-channel service distribution has mostly been on the channels: how to improve the channels, or how to direct customers to the channels without violating existing customer relationships. However, they also argue that the focus should be on consumer preferences instead of channels, and suggest that with a customer-centric focus the managers can better develop and design successful and effective channels.

The banking sector is among the leading industries in utilising the multi-channel technology including Internet and mobile communication in their service delivery. In fact, multi-channelling has a long history in the banking sector deriving from the first telephone banking and computer banking applications already in the early eighties. It has been argued that those utilising a multi-channel strategy need to understand what values consumers derive from each channel in order to determine effective individual channel strategies and resource allocation (Noble et al. 2005).

Traditionally the customer has been seen as a rational problem solver who cognitively weighted benefits and sacrifices in the consumption process. This line of thinking has been reflected to value research, too, and customer perceived value has often been considered as a trade-off between benefits and sacrifices (Zeithaml 1988) and expressed in the form of an equation between perceived benefits and costs (Day 1990). This has been the mainstream also in earlier electronic banking studies when scholars have focused on perceived benefits and sacrifices or inhibitors of electronic banking (e.g. Howcroft et al. 2002; Heinonen 2004a; Heinonen 2004b; Suoranta et al. 2005). However, it has been shown that the Internet provides multiple dimensions of customer perceived value ranging from economic or functional value, referring to benefits versus sacrifices, to more hedonic and experiential value (Kim 2002). It has been argued that the Internet environment compared to traditional markets provides an extended opportunity for both hedonic and utilitarian value in consumption (Childers et al. 2001).

Moreover, Anckar (2002) has shown that consumers' electronic channel adoption and rejection decisions are determined by their perceived value of a channel in comparison to existing alternatives. Thus, an individual is unable to determine the value of a service channel like the Internet without a standard of comparison like an ATM. This indicates that customer value perceptions in electronic environment are comparative in nature. In addition, review of the existing literature in electronic banking indicates that consumers differ in their perceptions to electronic banking (e.g. Rugimbana 1995; Polatoglu and Ekin 2001; Al-Ashban and Burney 2001; Howcroft et al. 2002; Karjaluoto et al. 2002; Black et al. 2002) and hold different views, for example, on concepts like convenience in banking (Lee and Marlowe 2003) showing the subjective nature of the phenomenon. It has further been shown that in electronic service consumption and banking especially, the situational dimension of the phenomenon is crucial (Heinonen 2004a; Heinonen 2004b). This is supported by Anckar and D'Incau (2002), who showed that in the case of wireless services customer value is created in time-critical situations where immediacy is essential.

Consequently, it is argued in this dissertation that electronic service consumption is more multi-dimensional in nature than earlier studies have shown. It raises a theoretical question about how customer value perceptions in electronic service consumption and banking especially could be more comprehensively conceptualised. Thus, in order to gain a more profound understanding of consumer behaviour in multi-channel electronic banking we need a more holistic view of customer value perceptions that would capture all of the above-mentioned dimensions of the phenomenon. Holbrook (1994; 1999) conceptualises the nature of customer value perceptions so that they derive from interactive relativistic preference experiences. However, this definition says little about the differences that occur among the various types of value. Thus he proposes three key dimensions of value perceptions: (a) extrinsic versus intrinsic value, referring to the cognitive and affective nature of value, (b) self-oriented versus other-oriented value, referring to whether the outcomes are judged with reference to the self or others, and (c) active versus reactive value, referring to whether the outcomes are actively accomplished or reactively apprehended, appreciated or admired. These dimensions are seen to provide the needed holism for a current understanding of consumer behaviour in the electronic banking context.

It has been argued that the entire environment in retailing is being changed with the introduction of multi-channel systems delivering more and different kinds of value for customers (Mathwick et al. 2001). In a multi-channel context the concrete channel attributes differentiate the channels from each other. Thus the means of providing value for customers differ between channels. The earlier literature on electronic banking has shown that lower fees (Lockett and Littler 1997; Howcroft et al.

2002; Karjaluoto, 2002b; Karjaluoto et al. 2002a), 24-hour service availability (Lockett and Littler 1997; Howcroft et al. 2002; Black et al. 2002; Gerrard and Cunningham 2003), time savings (Howcroft et al. 2002; Karjaluoto et al. 2002a), location free access to the services (Lockett and Littler 1997; Karjaluoto et al. 2002a), easiness-to-use (Rugimbana 1995; Moutinho and Smith 2000; Karjaluoto 2002b), speed of the service delivery (Karjaluoto 2002b), privacy (Jayawardhena and Foley 2000; Karjaluoto 2002a), control (Daniel 1999; Jayawardhena and Foley 2000; Karjaluoto 2002a) and convenience of service consumption (Rugimbana and Iversen 1994; Rugimbana 1995; Daniel 1999; Moutinho and Smith 2000; Black et al. 2002; Gerrard and Cunningham 2003) create positive consumer perceptions. However, these aspects of the phenomenon seem to represent concepts on a different level of abstraction which seem to have been ignored in earlier discussions. Whereas, for example, 24-hour service availability and location free access to the service represent concrete attributes of the service channel, time savings reflects the consequence of these attributes and convenience could represent the higher order goal as to why the electronic service is used. Consequently, it seems that the elements of the phenomenon may be hierarchically structured. Thus we are faced with a need for an approach that is able to identify the value drivers, i.e. the concrete channel attributes, and their linkages to the more abstract constructs of the phenomenon.

Values, i.e. higher order goals or desired end-states of individuals, guide human behaviour (Rokeach 1973) and thus marketers have attempted to provide theories and conceptual structures connecting consumers' values to their behaviour (e.g. Vinson et al. 1977). Means-end theory links customer perceived product or service attributes to the achievement of desired end-states (Gutman 1982). Means-end theory is based on an idea of value hierarchy in which products and services are seen as bundles of attributes that drive more subjective considerations or outcomes, i.e. consequences of the product or service use which are then linked to the individuals' values or desired end-states that guide their behaviour (Woodruff and Gardial 1996). Thus, current electronic banking research needs a more profound understanding of consumer value composition i.e. how the different elements in the phenomenon are linked to each other. The means-end theory seems to offer a way to satisfy this need.

However, to obtain a better understanding of the individuals' preferences in concrete channel attributes derived from the means-end approach, a conjoint analysis is an appropriate technique (Green and Srinivasan 1990; Wittink et al. 1994; Huber et al. 2001). The theoretical background of the conjoint analysis is based especially on the work by Lancaster (1966), who considered products and services as bundles of attributes. He argued that consumers do not value products or services per se but rather combinations of attributes. Using conjoint analysis in a multi-channel environment makes it possible to reveal individuals' preference differences between alternative

channels offering practical information for market segmentation and a more profound theoretical understanding of customer value perceptions.

Consequently, Holbrook's conceptualisation of customer perceived value is applied in this dissertation since it seems to capture the holistic nature of consumer behaviour in electronic service consumption. It is argued that by using Holbrook's conceptualisation, means-end theory and theoretical underpinnings related to conjoint analysis a more profound understanding of the phenomenon could be achieved.

The interest of this dissertation is in banking services. There are several factors underlying the decision to focus on financial services and banking services especially. First, the banking sector is among the leading industries utilising the latest technology in their multi-channel service distribution. Second, banks are offering a great variety of banking services for consumers via different electronic channels, providing a great opportunity to compare customer perceptions in the consumption of different electronic services. Third, banking services are frequently performed giving a potential to find depth in the perceptions of the multi-channel service consumption. Finally, banks are currently downsizing, reducing costs and improving their efficiency by reorganising basic daily banking services from bank branches into electronic form and focusing their personal services to more specialised needs. This technology tendency in service delivery opens us opportunities for creating more and different kinds of value for customers than pure interaction with the bank employee.

## **1.2 Structure of the dissertation**

This dissertation is based on four research papers reprinted at the end of this volume. The research papers are preceded by an introductory chapter which is organised under four main sections including Introduction, Literature review, Research objectives, design, data and methods and Results and concluding discussion.

The first section outlines the motivation for the study. This is followed by a literature review including discussion on the concept of customer value in Section 2.1. Subsequently, Section 2.2 reviews earlier studies on consumer behaviour in the electronic banking context, and Section 2.3 discusses the fundamental basis of the means-end theory. Key concepts are presented in Section 2.4.

While Section 3.1 presents the research objectives of the study, Sections 3.2 and 3.3 describe how the objectives are operationalised including the description of the research design, data and methods of the study. The validity and reliability of the study are discussed in Section 3.4 and the general view of the research is summarised in the form of outline of the study in Section 3.5.

The research papers are introduced briefly in Section 4.1 and the results of the study are summarised in Section 4.2. Theoretical and methodological implications are discussed in Section 4.3 and managerial implications presented in Section 4.4. Finally, the limitations of the study are discussed and critically evaluated in Section 4.5.





## 2 LITERATURE REVIEW

### 2.1 Customer value

#### **A concept with multiple meanings**

The concept of customer value appears to be of increasing interest to both academics and practitioners (Payne and Holt 2001). The conceptualisation of the term "value" has roots in several academic fields and disciplines like anthropology, with its interests in lifestyles and cultural patterns, sociology, focusing on ideologies and customs and psychology, examining values from the standpoint of attitudes and personal motives (Vinson et al. 1977). Furthermore, the concept of value reflects the interest in social psychology, economics, marketing and management (Woodruff and Gardial 1996; Payne and Holt 2001). It is regarded as a key element in companies' success in competing markets (Woodruff 1997). However, what is value is an interesting question, at least from the academic perspective. In fact, it seems to be a challenge for academics to give a holistic view on the concept of customer value and thus the question has remained somewhat difficult to answer. One reason might be that the concept has multiple facets. First, there is the question of the perspective – are we looking at the concept from the perspective of an organisation or from the customer perspective. Second, there is the question of value as subjective or objective - "Are things valuable because we desire them, or do we desire them because they are valuable?" (Fronidizi 1971, 19). Third, there are literature discussions about value as singular and values as plural with different meanings and finally there are at least three different forms of value with spatial and temporal differences. Thus one can conclude that there is no one and only theory of value in marketing but rather a concept with multiple meanings.

Concerning the perspective of the value concept there appears to be at least two general streams of research in marketing literature. First, there is a stream of literature discussing the nature of value from the perspective of an organisation and second, a stream of literature discussing the value from the perspective of a customer. The former perspective puts emphasis on customers' value to an organisation (e.g. Blattberg and Deighton 1996) or how an organisation delivers superior value to the customer (e.g. Gale 1994). However, customer value is a construct that includes a subjective notion of an individual's value judgment of a product or service. This

perspective mainly refers to customer value perceptions (e.g. Zeithaml 1988) and experiences (e.g. Holbrook 1994; 1999).

Moreover, the question of the subjective and objective nature of customer value has raised discussion among scholars (Rokeach 1973). Frondizi (1971) states that value is "objective" if its nature and existence are free from subject and alternatively value is "subjective" if it owes its existence, its validity, or sense, to the feelings or attitudes of a subject. Extreme subjectivism holds within the idea that value depends only on the nature of subjective experience. For example Perry (1954) argues that a product or service has value only if it is an object of interest. Furthermore, Levitt (1960) stresses the importance of customer orientation of a company and argues that any product has value only if it is valued by the customer. On the other hand, extreme objectivism is based on the idea that value exists in the object like a product or service itself. Philosophers like Max Scheler interpret values as independent of its carrier, which implies the immutability and changeless nature of values and rejects the equation between values and pleasure (see Frondizi 1971). In marketing, the objectivist aspect resides in product orientation assuming that a "superior product will sell itself" (Levitt 1960, 54). However, in the recent marketing literature and especially in consumer behaviour, subjectivism has gained dominance and some scholars even claim an explosion of subjectivity in marketing (Addis and Holbrook 2001).

The comparison of subjective and objective aspects of value raises a question: Does value necessarily have to be subjective or objective? Some authors suggest an intermediate view by arguing that value involves an interaction between a subject and an object (Frondizi 1971; Holbrook 1994; 1999; Woodruff and Gardial 1996). This interactionist perspective argues for the relationship between the valuable object and the subject that values it by noticing that the value can exist only in relation to the subject that values it (Frondizi 1971). This means that a product or service *per se* does not create value to an individual but instead the value is created in an interaction with the product or service by the individual. Thus customer value, as addressed in this dissertation, is neither subjective nor objective but rather an outcome of an interaction between a subject and an object.

It is also important to make distinction between *value* (singular) and *values* (plural) as they both exist in the marketing literature. Whereas values are implicit extremely abstract beliefs and higher order goals of an individual, value as singular refers to an individual's evaluation of a product or service. Therefore values are seen to guide human behaviour independently of the product or service use situation (Vinson et al. 1977; Flint et al. 1997) but value includes interaction with a particular product or service. Moreover, value is seen to refer to a preferential judgment whereas the term values is used to refer to the criteria by which such judgements are made (Holbrook 1994; 1999). Thus values are responsible for the selection and maintenance

of the end or goals toward which human beings strive and regulate the methods and manner in which this striving takes place (Vinson et al. 1977).

It seems that customer value construct has multiple forms reflected at least by the level of abstraction, the locus of the source of value, the relationship to use and permanence. Flint et al. (1997) identify three relevant forms of value as dealing with personal values, desired value and value judgment (Table 1). The biggest differences between these forms of value are related to time and place. Values are personal and customer specific higher order goals, which are independent of time and use situation, whereas desired value is related to interaction between customer, product/service and anticipated use situation, but lacks the use experience. However, value judgment is related to the exact interaction of customer, product or service and a specific use situation experienced by the customer. These judgments are temporal and change between occasions. In other words, the meaning of time and place increases and the meaning of permanence decreases when moved from values through desired value to value judgment.

**Table 1: Three forms of value (Flint et al. 1997, 168)**

	Values	Desired Value	Value Judgment
Definition	Implicit beliefs that guide behaviour	What customer wants to happen (benefits sought)	Assessment of what has happened (benefits and sacrifices)
Level of abstraction	Abstract, centrally held, desired end-states, higher order goals	Less abstract, less centrally held, lower order goals, benefits sought to facilitate higher order goal achievement	Overall view of trade-offs between benefits and sacrifices actually received
Locus of source of value	Specific to customer (person or organisation)	Conceptualised interaction of customer, product / service and anticipated use situation	Interaction of customer, product / service, and a specific use situation
Relationship to use	Independent of use situation	Independent of use specific experience	Dependent on specific use experience
Permanent	Enduring	Moderately enduring	Transient over occasions

Whereas personal values are generally seen as implicit beliefs that guide human behaviour, *desired value* is what a customer wants to happen, i.e. benefits that are sought. However, sometimes these concepts are confused, probably due to the similarity of terms (Flint and Woodruff 2001). Flint et al. (1997, 170) define desired value in the way Woodruff and Gardial (1996, 54) have defined customer value: "the customers' perception of what they want to have happen (i.e. the consequences) in a specific kind of situation, with the help of product or service offering, in order to accomplish a desired purpose or goal". The definition implies that the value is created

by the benefits of products and services in a situation where they help consumers to achieve their goals.

Desired value and the purpose of product use can take on two aspects: value-in-use or possession value (Woodruff and Gardial 1996). Value-in-use reflects the use of the product or service in a context in order to achieve a certain goal or goals (Flint et al. 1997). The specific type of customer-required value-in-use will vary considerably by the type of a product or service and further, one product or service may need to meet a number of value-in-use objectives due to different and often competing purposes of consumers (Woodruff and Gardial 1996). Possession value relates to a consumer's need to possess a product or service. This type of value is often associated with products or services that have a major "pride of ownership" component (Woodruff and Gardial 1996). Owning expensive art or dining at a fine restaurant could be examples of products and services that usually possess value for consumers. In addition, Woodruff and Gardial (1996) argue that many products deliver both: value-in-use and possession value. Considering, for example, online stock trading via the latest model of the Nokia Communicator; it can produce value-in-use due to the mobility of the device and possession value due to the use of modern and expensive technology. The dimensions of desired value can be relatively enduring and the benefits customers seek will remain important as long as situations and people remain consistent. However, desired value dimensions may change over time as situations change. Therefore Flint et al. (1997) have presented a theory of *customer value change* arguing for the need to understand the changes in customer desired value (see also Flint and Woodruff 2001; Flint et al. 2002).

While desired value represents what the customer wants to happen, *value judgment* represents what has happened. Flint et al. (1997, 171) define value judgment as "the customer's assessment of the value that has been created for them by a supplier given the trade-offs between all relevant benefits and sacrifices in a specific use situation". Woodruff and Gardial (1996) argue that value is created when a product or service and a user come together within a particular use situation referring to the interaction between subject and object.

Woodruff and Gardial (1996) found that value judgment changes over time and situations can sometimes result in a "devaluation process", where the customer forms increasingly negative value judgments of a product. This can result in switching from one product to another. In the case of consumption of services through continuously developed electronic channels, the customer's "devaluation process" may also be caused by technological development where the customer becomes aware of new methods of conducting the electronic service which may cause switching from one electronic channel to another.

## Conceptualising customer perceived value

Discussions on customer value research have largely adopted a *received / perceived value* conceptualisation (Flint and Woodruff 2001) which is also related to *value judgment* in the earlier literature. Value perceptions guide consumers' purchasing behaviour and refer to the benefits customers receive, perceive or experience by using the service (Bettman et al. 1998). However, perceived value has proven to be a difficult concept to define and measure (Woodruff 1997; Holbrook 1994; Zeithaml 1988). The traditional view of customer perceived value can be expressed in the form of an equation in which the difference between an individual's perceived benefits and costs represents the perceived value (Day 1990). This is based on a classic economic consumer choice behaviour model in which a consuming unit attempts to maximize the utility subject to the constraints of income and relative price of goods. This utility basis means that the consumer perceives cognitively the ratio of benefits and sacrifice. Thus, the customer is seen to assess and make trade-offs between the benefits and sacrifices of a certain product or service (e.g. Zeithaml 1988; Flint et al. 1997). This approach resembles the way in which customer perceived value is defined in a wide variety of marketing literature and textbooks (e.g. Lai 1995; Butz and Goodstein 1996; McDougall and Levesque 2000; Anderson and Vincze 2000; Hawkins et al. 2004; Schiffman and Kanuk 2004). This is also in line with the views appearing in the business-to-business marketing literature in which perceived value is generally seen as benefits of a technical, economic, service and social nature that a customer receives in exchange for the price paid (Anderson and Narus 1998; 2004) or perceived quality adjusted for the relative price of a product or service (Gale 1994). The business-to-business perspective is, however, beyond the scope of this thesis and is not thus dealt more thoroughly.

Along the same line of thinking Zeithaml (1988, 14) has presented one of the most quoted definitions on customer perceived value as "the consumer's overall assessment of the utility of a product based on perceptions on what is received and what is given". She summarised perceived value in four perspectives: value is low price, value is what is wanted, value is the quality compared with price and value is what is got versus what is given. These perspectives show the constructs' heterogeneity ranging from price, desires and quality to the trade-off between benefits and sacrifices. As such, the benefits must exceed the sacrifices, or the value becomes negative (Zeithaml 1988). Viewing perceived value as a trade-off between benefits and sacrifices represents a one-dimensional perspective on the construct. This line of thinking has evolved with the development of two perceived value dimensions, namely acquisition value referring to the trade-off between benefits and sacrifices, and transaction value referring to the pleasure of getting a good-priced deal (Grewal et al.

1998). However, these lines of thinking refer to cognitive processes of assessment and cognitive responses to consumption, thus leaving affective responses aside (Duman and Mattila 2005).

The cognitive approach becomes open to discussion in the light of experiential and hedonic aspects of consumption adduced by Morris Holbrook and Elizabeth Hirschman in the early eighties. This line of thinking designates those facets of consumer behaviour related to the "multi-sensory, fantasy and emotive aspects of one's experience with products" (Hirschman and Holbrook 1982, 92). They argue that the traditional line of thinking originated in microeconomics and classic decision theory in which a consumer is seen as a rational problem solver needs a wider perspective in which consumption involves fantasies, feelings and fun alike (Holbrook and Hirschman 1982). They state that consumption includes multiple sensory experiences such as tastes, sounds, smells, tactile impressions and visual images as well as emotional arousals like joy, jealousy, fear, rage and rapture (Hirschman and Holbrook 1982). This line of thinking views products not as objective entities but rather as subjective symbols and the interest is in what the product represents rather than what it is.

Thus we are faced with a hedonic vs. utilitarian dichotomy in the literature of customer perceived value. However, there has been a lack of research focusing on emotional responses to services (Price et al. 1995) and its importance has not been fully acknowledged (Liljander and Strandvik 1997) but there are signs of growing interest in this area and the pioneering scholars have revealed that many consumption activities actually produce both hedonic and utilitarian outcomes (see e.g. Babin et al. 1994). Thus viewing perceived value as a trade-off between quality and price or benefits and sacrifices (i.e. utility provided by the object) may be too narrow and simplistic (see e.g. Hirschman and Holbrook 1982; Bolton and Drew 1991; Sweeney and Soutar 2001). In fact, e-commerce and the Internet environment are argued to even provide an expanded opportunity for both utilitarian and hedonic value in consumption (Childers et al. 2001).

Along these lines, based on the work by Sheth et al. (1991ab), Sweeney and Soutar (2001) presented a perceived value scale. This so called PERVAL scale identifies four value dimensions, namely emotional value, social value, price value (value for money) and quality / performance value. Whereas emotional value is reflected in the utility derived from the feelings or affective states that a product or service generates, the social value derives from the product's or service's ability to enhance social self-concept. Functional value takes two forms: value for money and quality / performance value. Thus whereas price value is derived from the product or service due to the reduction of its perceived short term and longer term costs the

quality / performance value derives from the perceived quality and expected performance of the product or service.

Sometimes customer value is confused with satisfaction. It is important to note that these are related but not synonymous concepts and that satisfaction is not a variant of value (Oliver 1999). According to Woodruff and Gardial (1996) value tells an organisation what to do and gives direction, whereas satisfaction tells the organisation how it is doing. They state that while customer value captures the individual's interaction with product and service, satisfaction refers to a response regarding the value received. In this respect, satisfaction refers to disconfirmation, which is the difference between prepurchase expectations and postpurchase perceptions (Peter and Olson 2005). Disconfirmation provides three types of outcome: positive disconfirmation when expectations are surpassed, negative disconfirmation when performance is poorer than expected and neutral disconfirmation when performance perceptions just meet expectations. This is a rather limited approach to customer perceptions and thus, customer perceived value could provide a more detailed perspective to understand customer perceptions in the phenomenon.

Indeed, many scholars consider value as an antecedent of satisfaction (Zeithaml 1988; Woodruff 1997; Parasuraman 1997; Oliver 1999). However, in his detailed discussion about the relation between satisfaction and value Oliver (1999) relates this line of thinking to the cognitive approach of the customer perceived value in which value reflects the equation of outcomes compared to sacrifices. He suggests that, besides the "cost-based version", the relation between satisfaction and value could also be considered in the light of "extended" value, in which satisfaction provides value when consumer values are satisfied. In that sense, value is seen to provide satisfaction and satisfaction can provide value, but they should be treated as different concepts.

### **Holbrook's value conceptualisation**

Probably the most comprehensive view of customer perceived value is provided by Holbrook (1994; 1999) in the shape of consumer value<sup>1</sup> typology. As in the works by Sheth et al. (1991a) and Sweeney and Soutar (2001) the hedonic and utilitarian consumption coexist in Holbrook's typology. He identifies three key dimensions on which types of customer perceived value differ. He argues that perceived value may be extrinsic or intrinsic indicating that while extrinsic value is related to an idea of objects serving as means to accomplish some further purpose or higher order goal (utilitarian view), intrinsic value refers to an idea that some consumption experience is considered

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<sup>1</sup> In order to avoid confusion it is reasonable to note that Holbrook discusses *consumer value* instead of *customer perceived value*. However, from a consumer research perspective, the term perceived value should be understood as synonymous with consumer value (Gallarza and Saura 2006).

for its own sake - as a goal in itself (hedonic view). Moreover, Holbrook (1994; 1999) proposes that customer perceived value may be self-oriented or other-oriented, meaning that whereas self-oriented value refers to a product or service valuation of an individual for purely that individual's own sake, other-oriented value looks beyond, where product or service consumption is valued for their sake – how others react or feel about it. Finally, he classifies value perceptions as active versus reactive. Active value refers to things done by an individual to or with a product or service. By contrast, reactive value occurs when the subject, i.e. an individual, apprehends, appreciates, admires or simply responds to an object. Thus active value involves things done by the subject and reactive value involves things done to an individual. The distinction between active and reactive value has appeared less frequently in the literature and in that sense Internet banking can be used to exemplify the differences between these two value dimensions. Whereas 24-hour access to a bill payment service, for example, represents active value, the architecture and visual display of the bank's Internet site or customisation of the services typify reactive value in the consumption process. Based on the three value dimensions Holbrook evinces eight examples of different types of value as efficiency, excellence, status, esteem, play, aesthetics, ethics and spirituality (Table 2).

**Table 2: Holbrook's consumer value typology (adapted: Holbrook 1999, 12)**

Value dimensions		Extrinsic	Intrinsic
Self-oriented	Active	EFFICIENCY Ratio of inputs and outputs. Viewed as convenience when dealt with time.	PLAY Involves enjoyment and having fun
	Reactive	EXCELLENCE Involves quality / performance and financial value / security	AESTHETICS Aesthetic appearance, beauty and design
Other-oriented	Active	STATUS Symbols that generate status in the eyes of others	ETHICS Please others, virtue, justice and morality
	Reactive	ESTEEM Reputation, materialism, possessions and enhanced self-esteem	SPIRITUALITY Faith, ecstasy and magic

Consequently, Holbrook (1994, 27; 1999, 5) suggests a detailed definition for customer perceived value as an "interactive relativistic preference experience". By *interactive*, he refers to the value-of-subject / value-of-object discussion indicating that customer perceived value involves an interaction between some subject and an object. This refers to an evaluation of some object by some subject and value depends on the characteristics of some physical or mental object, but, cannot occur without the involvement of some subject who appreciates these characteristics (Fronzizi 1971;



Holbrook 1994; 1999). The subject is usually seen as a customer, whereas the object is generally defined as a product or service. The *relativistic* nature of customer perceived value refers to its 1) comparative, 2) personal and 3) situational dimensions:

- Holbrook states that perceived value is comparative in the sense that an individual is able to state the value of an object only in reference to some other object. Thus, value judgments involve relative preferences among objects for individual rather than utility comparisons among people (Fronzizi 1971). This means that it is impossible for an individual to claim to like some object more than some other individual but one can claim to like some object more than some other object. In fact, there is empirical evidence indicating that electronic channel adoption and rejection decisions by consumers are determined by their perceived value of a channel in comparison to existing alternatives (Anckar 2002).
- Customer perceived value is personal in the sense that it varies from one individual to another, meaning that if an object is valued by some people it may not be valued by others. Thus value perceptions may differ due to the differences in composition of different value dimensions or because of differences in the relative importance of the value dimensions (DeSarbo et al. 2001). These differences in customer perceptions create the ground for marketing and form the fundamental basis for market segmentation.
- Customer perceived value is situational, since it varies between the contexts in which the evaluations are made. Such situations may be seasonal, once in a lifetime events or emergency situations (Sheth et al. 1991ab). Woodruff and Gardial (1996) argue that consumer preferences for different product or service attributes vary from place to place. Heinonen (2004a; 2004b) emphasises the value of time and place, especially in electronic service consumption. It is evident that, for example, the value of mobile banking services is context-dependent, changing from one time frame or one location to another. In fact, Anckar and D’Incau (2002) have identified wireless services as value adding for consumers especially in time-critical situations where immediacy is essential. Holbrook (1984) discusses about situation-specific ideal points that represent the combination of attributes or product features that a relevant market segment finds maximally appealing in a given situation.

Holbrook argues that *preferential* factors are the most significant in customer value creation. They embody a preference judgment and order. Finally, customer perceived value is an *experience* indicating that it derives from consumption experiences rather than products or brands per se. This claim places the role of experience in a key position in the creation of customer perceived value, indicating that individuals do not desire products but satisfying experiences.

Kim (2002) applied Holbrook’s consumer value typology to the retail shopping environment by comparing customer value perceptions in mall and Internet shopping. He ignored the other oriented view of the Holbrook’s typology by arguing that shopping typically characterises a self-oriented activity including an extrinsic (cognitive) vs. an intrinsic (affective) dimension. In the Internet environment he categorised constructs such as 24-hour accessibility, ease of use, simple navigational capabilities, access to specialised goods and services, transmission speed and Internet connection fee to active extrinsic value (efficiency). Examples of reactive extrinsic value (excellence) were quality, selection, price, e-mail support and product and service customisation. While active intrinsic value (play) included interactive games, online puzzles, lottery, chatting and electronic dating, the reactive intrinsic value

(aesthetics) included virtual store display and multimedia presentations. In their recent work Gallarza and Saura (2006) applied Holbrook's work to explore students' travel behaviour. They chose to measure the self-oriented and the extrinsic other-oriented characteristics of value while ignored ethics and spirituality. They argued that these two concepts were too difficult to operationalise in the study. They conclude that there exists a strong relation between active and reactive value, especially in the case of efficiency and excellence. They further state that other-oriented perceptions should not be underestimated and showed the clear emergence of the dual nature of perceived value including both cognitive and affective dimensions. However, Gallarza and Saura (2006) criticise Holbrook's typology in the sense that it does not consider the negative dimensions of value even though there are scholars clearly demonstrating the positive and negative perceptions in value creation (see Woodruff and Gardial 1996).

## **2.2 Electronic banking**

### **Factors determining consumers' e-banking behaviour**

The continuous technological development of telecommunication systems provides new opportunities for electronic banking. Especially in Finland, the extensive utilisation of information technology and widespread consumer adoption of new communication methods are changing the industry. Furthermore, the number of different ways to conduct banking actions is continuously increasing. Alternative channels offer an opportunity for differentiation and for attracting new customers (Thornton and White 2001), but also to retain the existing customer base (Kimball and Gregor 1995). Multi-channelling provides alternative opportunities for service consumption and thus multiple dimensions of perceptible customer value, ranging from economic utility to more hedonic and emotional motives. As a consequence, consumer behaviour in electronic banking has become a focus of growing interest of academics and practitioners.

Initially the research in electronic banking focused on consumers' attitudes toward automated teller machines (ATM) (Rugimbana and Iversen, 1994; Rugimbana, 1995; Davies et al. 1996; Filotto et al. 1997; Moutinho and Smith 2000), but more recent studies have analysed consumers' and service providers' attitudes toward the development of telephone banking (Lockett and Littler 1997; Al-Ashban and Burney 2001), personal computer (PC) banking (Mols 1998) and Internet banking (Sathye 1999; Polatoglu and Ekin 2001; Black et al. 2002; Karjaluoto 2002b; Karjaluoto et al. 2002ab; Mattila et al. 2003; Gerrard and Cunningham 2003). Some studies (Barczak et al. 1997; Thornton and White 2001; Howcroft et al. 2002) also have a multi-channel

approach including more than two electronic channels under discussion. Some of the most recent studies (Brown et al. 2003; Suoranta 2003; Luarn and Lin 2005) have focused on adoption and acceptance of mobile banking.

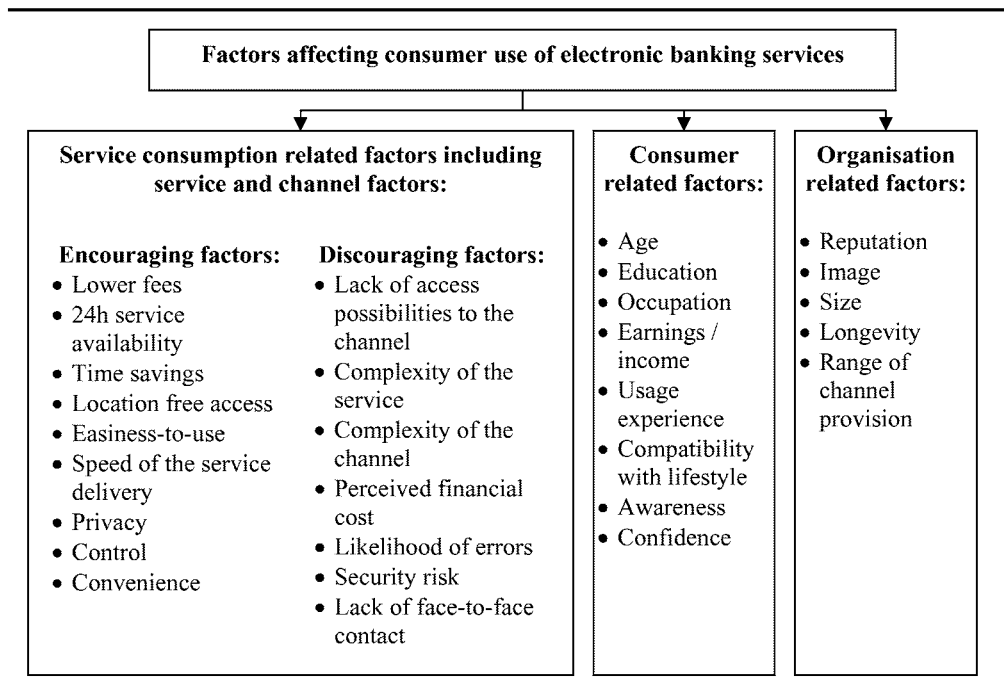
The studies of consumer behaviour in electronic banking have reported at least three kinds of key factors influencing the use of the services. First, factors related to electronic service consumption including service and channel related factors, second, consumer related factors and third, organisation related factors (Figure 1). The service consumption related factors, especially, can be divided into encouraging and discouraging factors. Based on the literature review, factors that encourage customers to use electronic banking services are: lower fees (Lockett and Littler 1997; Howcroft et al. 2002; Karjaluoto, 2002b; Karjaluoto et al. 2002a), 24-hour service availability (Lockett and Littler 1997; Howcroft et al. 2002; Black et al. 2002; Gerrard and Cunningham 2003), time savings (Howcroft et al. 2002; Karjaluoto et al. 2002a), location free access to the services (Lockett and Littler 1997; Karjaluoto et al. 2002a), easiness-to-use (Rugimbana 1995; Moutinho and Smith 2000; Karjaluoto 2002b), speed of service delivery (Karjaluoto 2002b), privacy (Jayawardhena and Foley 2000; Karjaluoto 2002a), control (Daniel 1999; Jayawardhena and Foley 2000; Karjaluoto 2002a) and convenience of service consumption (Rugimbana and Iversen 1994; Rugimbana 1995; Daniel 1999; Moutinho and Smith 2000; Black et al. 2002; Gerrard and Cunningham 2003).

Lack of access to the channel like insufficiency of technology (Howcroft et al. 2002), complexity of the service (Lockett and Littler 1997; Howcroft et al. 2002; Black et al. 2002) or the channel itself (Pousttchi and Schurig 2004) and perceived financial costs of using the service (Black et al. 2002; Luarn and Lin 2005) have been found to discourage the consumers' use of electronic banking services. Moreover, it has been found that consumers are worried about the likelihood of errors during the service encounter (Howcroft et al. 2002) and security risks associated to the electronic service consumption (Lockett and Littler 1997; Sathye 1999; Howcroft et al. 2002; Black et al. 2002; Brown et al. 2003; Luarn and Lin 2005). However, contrary to previous studies, the findings of Karjaluoto et al. (2002a) suggest that the security concerns are not among the greatest obstacles to adoption.

Some initial studies (e.g. Marr and Prendergast 1993) reported consumers' preference for dealing with humans to be one of the major factors discouraging electronic banking adoption. However, the study by Howcroft et al. (2002) suggests that the lack of face-to-face contact is not an important discouraging factor and does not have much impact on the adoption of an electronic channel, indicating changes in consumer attitudes toward electronic service consumption. Moreover, some studies indicate that the value of social contacts clearly differentiates the users and non-users of electronic channels. While non-users value social contact in their service encounter

the users do not (Karjaluoto 2002b; Karjaluoto et al. 2002b). The findings of Thornton and White (2001) support these findings by indicating that the use of electronic devices increases when respondents become more technology and change oriented and when consumers become more knowledgeable about methods for accessing their money. However, the effect seemed to be the opposite when consumers became more service oriented.

Consumer related factors like demographics and lifestyles have also been reported to influence the use of electronic banking services. Earlier studies indicate that young age (Rugimbana 1995; Polatoglu and Ekin 2001; Al-Ashban and Burney 2001; Howcroft et al. 2002; Karjaluoto et al. 2002b; Black et al. 2002), good education (Al-Ashban and Burney 2001; Karjaluoto et al. 2002b), occupation (Rugimbana 1995; Karjaluoto et al. 2002b), higher earnings (Lockett and Littler 1997; Polatoglu and Ekin 2001; Al-Ashban and Burney 2001; Karjaluoto et al. 2002b) and past usage experience (Filotto et al. 1997; Polatoglu and Ekin 2001; Al-Ashban and Burney 2001; Karjaluoto et al. 2002a; Karjaluoto et al. 2002b; Gerrard and Cunningham 2003) appears to be the variables mostly influencing the use of electronic banking channels. Moreover, compatibility with lifestyle (Rugimbana and Iversen 1994; Rugimbana 1995; Black et al. 2002; Gerrard and Cunningham 2003), awareness of electronic services (Sathye 1999) and confidence with a particular channel (Black et al. 2002) have been found to influence electronic service consumption. Lockett and Littler (1997) found in their study that users of electronic channels generally work longer hours and move house more frequently. Furthermore, Mols (1998) argues that customers using electronic devices in their service encounters are generally more satisfied with the service, more loyal, more eager to repurchase and more willing to recommend the service provider to others than non-users generally are. The study also revealed that customers using electronic channels are more willing to complain and give feedback if problems arise, and further, less price sensitive than non-users. Howcroft et al. (2002) found that elderly and wealthy people seem to avoid electronic channels in their service encounters, which logically supports the general assumption that older people are less receptive to technological innovations. The findings of Mattila et al. (2003) support the notion by indicating that mature customers are late adopters of Internet banking and suggesting four main reasons for this: practical problems in the use of e-banking, concerns about the expensive start-up, security and lack of personal service. Furthermore, Black et al. (2002) found that organisations like banks may influence customers' behaviour regarding their choice of product and channel. Good company reputation, image, size, longevity and ability to offer multi-channel distribution were found to reduce the consumer perceived risk of novel distribution channels and influencing channel selection.



**Figure 1: Factors influencing electronic banking usage**

Even though the personal factors are identified as predictors of electronic banking usage, the importance of understanding in-depth the customers' reasons for channel choice are also emphasised (Black et al. 2002). In this respect, the interest of this study is in the customer-perceived service and channel related factors in the electronic service consumption. There are many interrelated constructs defining the phenomenon and these are discussed in the following.

### ***Convenience***

Convenience as a construct is argued to be an important research issue but still under-explored in scholarly research (Heinonen 2004a). The concept of convenience was first discussed in the marketing literature by Copeland in 1923 when he connected convenience to decision-making with limited mental or physical effort. Thus he treated convenience as a one-dimensional construct which means that something can be done so that either time or physical/mental resources are lost or saved (Gehrt and Yale 1993; Gehrt et al. 1996). Along one-dimensional thinking Berry et al. (2002) propose five types of service convenience namely decision convenience, access convenience, transaction convenience, benefit convenience and post benefit convenience. They relate decision convenience to time and effort in deciding how to obtain a particular performance whereas access convenience is claimed to involve consumers' perceived

time and effort expenditures to initiate service delivery. Moreover, transaction convenience means consumers' perceived expenditures of time and effort to effect a transaction and benefit convenience is consumers' perceived time and effort expenditures to experience the service's core benefits. Finally, post benefit convenience is claimed to involve consumers' perceived time and effort expenditures when reinitiating the contact with a service provider after the benefit stage of the service as in the case of claim. All of these stages include time and effort as the driving forces of convenience.

The one-dimensional view of convenience has its roots in the classic consumer choice behaviour model in which a consumer is seen to maximise utility by cognitively weighting the ratio of benefits and sacrifices. Holbrook (1994; 1999) emphasised this utility feature by placing convenience under the concept of efficiency. He stated that convenience forms a special case of efficiency and argued that at least when the ratio of benefits and sacrifice deals with time, consumers perceive efficiency as convenience. This line of thinking gained extension when Yale and Venkatesh (1986) and Gehrt and Yale (1993) proposed six classes or dimensions for the concept of convenience. They found that time utilisation, accessibility, handiness, portability, appropriateness and avoidance of unpleasantness were related to the concept of convenience. Time utilisation means effective use of the time available. Accessibility refers to spatial distance between the spot of need recognition and the optional spot of need satisfaction. Handiness refers to saving or wasting physical effort. It is also manifested by the effort saving capacity of product or service. Portability resembles accessibility e.g. the consumer has an "on-line" opportunity to reach the service using, for example, a mobile phone (a customer carries the opportunity for service need satisfaction with him all the time). Appropriateness refers to the ability of a product or service to fulfil the specific need of a consumer. Avoidance of unpleasantness means certainty that a product or service will not cause unpleasant surprises. These dimensions brought a new insight to the scope of the convenience concept.

Time utilisation, accessibility and handiness may refer to a cognitive comparison between benefit and sacrifice. When consumers perceive that they can gain the same benefit in a shorter time (time utilisation), within a shorter distance (accessibility) or with less effort (handiness), the perception of convenience is born. However, in their qualitative study Gehrt and Yale (1993) found that besides cognitive comparison consumers tend to express convenience directly in qualitative terms. They showed that consumers do not necessarily think solely of the ratio of benefits and sacrifices in relation to convenience. The respondents in their study could simply feel a service was fast, easy to reach, easy to use and so on. Thus, it can be assumed that in these cases a certain state of feelings produces convenience.

The earlier literature indicates that convenience is also strongly present in contexts like online shopping and electronic banking. However, convenience is perceived differently by customers. According to Lee and Marlowe (2003), bricks-and-mortar-oriented customers define issues like bank location and opening hours as convenience features, whereas more self-oriented customers relate convenience to ATM availability and online banking. In addition, it is argued that convenience orientation among customers may be associated with desiring less personal service and a greater use of electronic self-service technologies (Thornton and White 2001). In the use of ATMs convenience is found to be the overriding perceived benefit deriving from attributes like conveniently placed, 24-hour service availability, time savings, compatibility with lifestyle and feeling of confidence (Rugimbana and Iversen 1994; Rugimbana 1995). Convenience is also seen as a key advantage in Internet banking. It is related to the visual view of the Internet compared to telephone banking (Black et al. 2002). Moreover, the 24-hour service availability (Gerrard and Cunningham 2003; Liao and Cheung 2002), home access (Gerrard and Cunningham 2003), world wide access (Liao and Cheung 2002), time savings (Gerrard and Cunningham 2003) and wide variety of services accessible (Liao and Cheung 2002) are seen to drive convenience in Internet banking.

### ***Efficiency***

Berry et al. (2002) have defined efficiency as an aspect of convenience. By contrast, as noted above, Holbrook (1994; 1999) has placed convenience under the concept of efficiency. However, the authors agree that efficiency refers to the perceived benefits customers receive in relation to the sacrifice or costs. This efficiency perception means that a consumer cognitively perceives the ratio of benefits and sacrifice. For example, when a consumer perceives that mobile bill paying produces flexibility by reduced sacrifice (e.g. time) compared to his earlier way of paying, the perception of efficiency is formed. The relation between convenience and efficiency is somewhat obscure. Based on the earlier literature it seems that whereas convenience is a multi-dimensional construct including cognitive appraisals and more hedonic emotions efficiency for its part is related solely to the economic ratio of benefits to sacrifice.

### ***Accessibility***

Even though accessibility is related to other constructs like convenience (Yale and Venkatesh 1986; Gehrt and Yale 1993; Liao and Cheung 2002; Gerrard and Cunningham 2003) and efficiency (Nah et al. 2005) it has marked its own field in the marketing literature. Grönroos (1990) argues that besides interaction with the service organisation and consumer participation, accessibility of the service is a basic element of the service process. He states that accessibility of the service depends at least on:

the number and skills of the personnel, office hours and time tables, location of the service outlets, exterior and interior of the outlets, tools and equipment used in the process and the number and knowledge of consumers simultaneously involved in the process. He further claims that accessibility could be broken down into the following four parts: 1) site accessibility, referring to the convenience and ease of access to the service site, 2) customer ease of use of the physical resources, meaning the attractiveness and condition of the exterior and interior of the service providers' facilities 3) frontline personnel's contribution to accessibility concerning issues like response time, billing and payment procedures and the number, skills and professionalism of the employees and 4) ease of customer participation, referring to the difficulties of different procedures during the service process. Grönroos et al. (2000) developed the role of accessibility in the service process by arguing that the accessibility and interaction elements of service offerings merge and cannot be kept apart in the case of Internet services. They propose a communication variable and argue that communication cannot be facilitated unless there is an easy-to-understand and easy-to-use Web site referring to a well-functioning user interface. Thus, besides accessibility, the concept seems to relate to physical service access location and also to the easiness / complexity of the service and channel use.

### ***Privacy***

Privacy has been an interest of multiple disciplines. Historically, the concept *right of privacy* first appeared in 1890 in a Harvard Law Review article by Louis Brandeis and Samuel Warren. Legal theorists and courts have since largely based their privacy legislation on Brandeis and Warren's (1890) statement of privacy as the *right to be left alone*. However, due to the diverse nature of the privacy concept it lacks a common definition. Young (1978) argued that it is much easier to recognise privacy than to describe it. Goodwin (1991) suggests that the difficulties in defining privacy may derive from broad applications of general privacy concepts. Therefore a narrower concept is needed. The marketing literature discusses consumer privacy in the sense of consumer's control over information disclosure and the environment in which a consumer transaction occurs (Goodwin 1991). Consumers' perceptions of privacy are dependent on their unique social and personal experiences, but broadly also on cultural environment (Foxman and Kilcoyne 1993). The newest technological advances such as Internet and wireless devices radically expanded privacy while simultaneously allowing for new forms of intrusions into it (Salecl 2002). In that sense online privacy has evolved to mean the process by which information such as an individual's name, address, phone number, marital status, identification number, health statistics or financial situation are gathered and used (Strauss and Rogerson 2002). Indeed, surveys and experiments have shown that privacy is ranked by consumers as the utmost



concern in Internet activity (e.g. Kehoe et al. 1997; Hoffman et al. 1999). This relates the concept to the concept of security. When banking actions are conducted via Internet, consumers can leave a trail of information that may jeopardise their privacy. Although consumer privacy has generally been claimed to decrease in online actions, Internet has also been suggested to increase consumer privacy. It is argued that via Internet customers can manage their financial affairs when and wherever they want and thus enjoy more privacy while interacting with their bank (Karjaluoto 2002a). This relates the concept of privacy to the freedom from time constraints and thus to the concepts of convenience and efficiency.

### ***Control***

The psychological construct, locus of control (Rotter 1966), has received attention in personality research since its introduction in the mid 1960's. The construct includes a consumer's beliefs about his role in determining personal life goals. It is considered a generalised expectancy regarding the contingency between personal actions and their outcomes (Lefcourt 1982). Individuals with an internal locus of control generally expect that their actions will produce predictable outcomes whereas individuals with an external locus of control believe that happens in their lives is determined by luck, change or powerful others. The Internet offers an enhanced opportunity for consumers to have control of the environment. Hoffman et al. (2000) argue that consumers with an internal locus of control differ from those with an external locus of control in online environments. They found that 'Internals' are more experienced and more frequent users of the Internet using it primarily for goal-directed activities, whereas 'Externals' use the Internet more for experiential activities like entertainment and chat. Karjaluoto (2002a) relates control to increased customer power in electronic banking, meaning that the power has shifted from the banks to their customers since customers are able to control almost all of their financial transactions via the Internet. Moreover, Daniel (1999) suggested that besides convenience, control is among the key factors driving the adoption of electronic banking.

### ***Four value dimensions***

In her study Heinonen (2004a) combined the constructs related to electronic banking under four value dimensions namely technical value, functional value, temporal value and spatial value. She further divided each dimension into benefit and sacrifice components (Table 3). She found that customer perceived technical benefits in electronic banking are *cost efficiency*, including monetary savings, *design*, referring, for example, to real-time information and *trustworthiness*, referring to elements such as functionality and security. Moreover, she listed four technical sacrifices including 1) *costs*, 2) *package*, referring, for example, to standardisation, 3) *risks*, including

security and uncertainty and 4) *tangibles*, including passwords and codes. Similarly, she listed functional benefits and sacrifices. Benefits included *assistance*, like technical support, *control*, referring to self-control and process control, *ease-of-use* and *self-service*, while sacrifices included *dependence*, *effort*, *responsibility* and *routinisation*.

**Table 3: Four value dimensions (adapted: Heinonen 2004a)**

Component	Technical value	Functional value	Temporal value	Spatial value
<b>Benefit</b>	Cost efficiency	Assistance	Temporal flexibility	Physical appearance
	Design	Control	Time allocation	Private space
	Trustworthiness	Ease-of.-use Self-delivery		Spatial flexibility
<b>Sacrifice</b>	Cost	Dependence	Temporal restrictions	Physical interface
	Package	Effort	Time spending	Spatial inconvenience
	Risk	Responsibility		Spatial restrictions
	Tangibles	Routinisation		

Heinonen (2004a) argues that in electronic service consumption especially temporal and spatial dimensions become essential when dealing with customer value perceptions. She listed two temporal benefits, namely *temporal flexibility*, including opening hours and *time allocation*, including speed of delivery and time savings. The temporal sacrifices included *temporal restrictions* and *time spending*, for example in the case of disruption. Finally, she found that spatial benefits include *physical appearance*, *private space*, referring, for example, to privacy issues and *spatial flexibility*, while spatial sacrifices include *physical interface*, like public display, *spatial inconvenience*, like planning in advance and *spatial restrictions*, for example, when public Internet access is needed.

### **Holbrook's value conceptualisation in electronic banking context**

Applying Holbrook's value definition to the electronic service consumption context implies that in order to perceive value a consumer has to first interact with an electronic channel and a service. In fact, Anckar and D'Incau (2002) make a distinction between the value offered by the technology, i.e. the channel, itself and the value emerging from the actual use of the device. They propose two kinds of value in mobile commerce: wireless value created through the use of a wireless device thus being a service-independent phenomenon, and mobile value created only through different types of wireless services being in that sense a service-dependent phenomenon. Moreover, according to Holbrook's definition a consumer is unable to perceive value without a point of comparison i.e. experience of using the service via another distribution channel – conventional or electronic. As earlier discussed, this is

supported by Anckar (2002), who indicates that consumers perceive the value of a channel in electronic service consumption in comparison to existing alternatives. This can also be derived from earlier literature on electronic banking convenience in which, for example, Black et al. (2002) showed customer perceived Internet banking convenience in relation to telephone banking. In addition, the value perceptions being personal and varying between individuals indicates differences in consumers' behaviour. Indeed, Lee and Marlowe (2003) showed that, for example, bricks-and-mortar-oriented customers define banking convenience differently compared to more electronically oriented customers. Moreover, a review of the existing literature in electronic banking indicates that consumers differ in their perceptions to electronic banking (e.g. Rugimbana 1995; Polatoglu and Ekin 2001; Al-Ashban and Burney 2001; Howcroft et al. 2002; Karjaluo et al. 2002; Black et al. 2002). These findings indicate the presence of subjectivism in the phenomenon. Furthermore, Holbrook argues that perceived value is dependent on the usage situation in which the evaluations are made. This situational dimension is related to electronic service accessibility (e.g. Grönroos et al. 2000) and, especially in banking, to customers' ability to manage their financial affairs wherever they want to (Karjaluo 2002a). Thus, for example, customers' value perceptions are not necessarily the same when paying bills at the country cottage than at home. Heinonen (2004a; 2004b) emphasised the situational dimension by suggesting spatial value as one of the key dimensions in customers' electronic banking value perceptions.

It seems that Holbrook's definition of customer perceived value as interactive relativistic preference experience aptly conceptualises customers' perceptions of electronic banking. However, referring earlier studies on electronic banking to Holbrook's value typology as extrinsic versus intrinsic, self-oriented versus other-oriented and active versus reactive value reveals that they have largely put interest only in the extrinsic self-oriented value of the phenomenon (Table 4) leaving intrinsic and other-oriented value perceptions aside. This leaves an open area in our understanding of the phenomenon.

There might be several explanations for this. Banking services might be seen as such a routine necessity that intrinsic and other-oriented dimensions are ignored. Another explanation might be that current electronic banking experiments focus almost without exception on bill paying services limiting the broader examination of the phenomenon.

Thus, a wider perspective on services is needed, especially since there are indications that besides cognitive (extrinsic) benefits, online banking services like stock trading also constitute affective (intrinsic) experiences (Brooker 1998; Whitford 1998). Thus viewing the phenomenon from the perspective of Holbrook's value conceptualisation would give a more holistic perspective to our knowledge.

**Table 4: Main focus of earlier e-banking studies**

Value dimensions		Extrinsic	Intrinsic
Self-oriented	Active	EFFICIENCY Ratio of inputs and outputs. Viewed as convenience when dealt with time.	PLAY Involves enjoyment and having fun
	Reactive	EXCELLENCE Involves quality / performance and financial value / security	AESTHETICS Aesthetic appearance, beauty and design
Other-oriented	Active	STATUS Symbols that generate status in the eyes of others	ETHICS Please others, virtue, justice and morality
	Reactive	ESTEEM Reputation, materialism, possessions and enhanced self-esteem	SPIRITUALITY Faith, ecstasy and magic

### Different abstraction level concepts

As shown in the discussions above, concepts such as convenience or accessibility in electronic banking are not "things" but rather constellations of consumption-related constructs. This means that the earlier literature has identified factors defining the behaviour, but the factors seem to represent constructs on a different level of abstraction. For example, 24-hour service availability, location free access and service access speed represent concrete attributes of electronic channels whereas concepts like time savings and easiness-to-use represent more the benefits or consequences deriving from interaction between customer and a service via a particular channel. Moreover, concepts like convenience, security and privacy represent more abstract desired end-states of customers. Thus, these concepts should not be jumbled together but rather treated as different level meanings that are linked to each other hierarchically. In the light of customer value perceptions value can be created on different levels of abstraction and can be an outcome of a combination of different factors at different levels of abstraction. However, the composition of different factors and their linkages have not been explicated in the current literature.

Besides understanding the composition of these different level constructs it is important to recognise which of these concrete attributes driving value are most important for customers in the consumption of different electronic services. Moreover, referring to the personal nature of value perceptions, it is important to explore if and how these preferences vary between individuals. The current literature lacks studies measuring consumer preferences and relative preference orders regarding the concrete attributes of different electronic channels, even though it would provide essential information for understanding consumer behaviour and choices in multi-channel

electronic service consumption. Thus, what is needed is an approach that is able to identify the value drivers, i.e. the concrete channel attributes, and their links to customers' desired end-states in the consumption of electronic banking services. Huber et al. (2001) argue that a suitable approach which connects the consumption of products or services and personal values of an individual is the means-end theory.

### **2.3 Means-end theory**

Values, the desired end-states of customers, play an important role in the behaviour of individuals (Rokeach 1973). The use of values in marketing could be improved if the behaviour of consumers could be related to their desired end-states (Gutman 1982). However, one of the limitations of past research on values and consumer behaviour is that most of the studies have been at a fairly descriptive level, lacking depth (Shrum and McCarty 1997). The means-end theory, having its roots in cognitive psychology, seeks to explain in-depth how a consumer's choice of a product or service enables him to achieve his desired end-states. The means are objects or activities in which people engage whereas the ends are customer valued states of being (Gutman 1982).

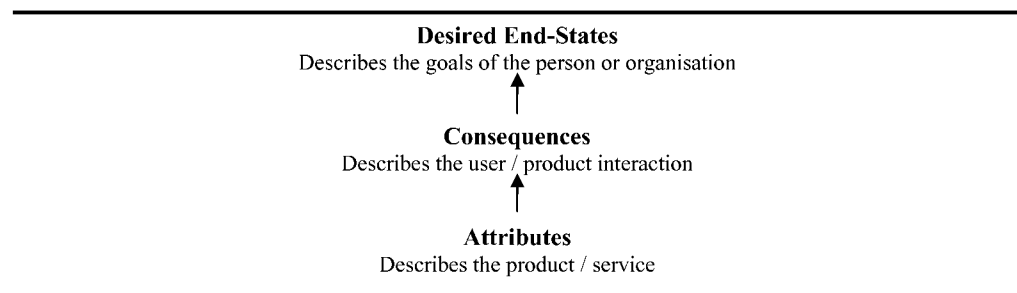
The conceptual basis and measurement techniques for the means-end approach have been developed over the past two to three decades through the effort of Tom Reynolds and Jonathan Gutman. Among the earliest scholars exploring aspects of the means-end approach was John Howard (1977), whose work included many aspects of the means-end idea. Many marketing researchers soon began to realise that consumers' product-related knowledge exists at different levels of abstraction and that these levels are hierarchically structured. Consequently, researchers became used to measuring product or service attributes, consequences and consumer values (e.g. Vinson et al. 1977) and in the early 1980s (e.g. Gutman 1982) began to combine these elements with ideas from cognitive psychology about associative networks and levels of abstraction to a form today known as the means-end approach (Olson and Reynolds 2001).

Gutman (1982) states that the means-end theory offers marketing managers a way to position products by connecting means, the physical aspects of products or services, with advertising that seeks to tie the consumption to the achievement of desired end-states. For example, knowing that customers are looking for ease of use in their electronic banking actions does not help banks a lot unless they know why customers are looking for those elements in their service consumption (desired end-states) and what product or service attributes customers associate with easy banking. Thus, the means-end theory seeks to explain how customers perceive and evaluate their product or service use experiences, what product attributes and consumption

related consequences are sought by customers and why (Gutman 1982; Zeithaml 1988). The means-end theory is based on four fundamental assumptions (Gutman 1982):

- Values, customers' desired end-states, play a dominant role in guiding customers' choice patterns
- People cope with the diversity of products that are potential satisfiers of their values by grouping them into sets or classes in order to reduce the complexity of choice. This suggests that, besides product-class type of categorisation, consumers are capable of classifying products based on product functions
- All consumer actions yield consequences
- Consumers learn to associate particular consequences with particular actions.

The theory assumes that customers are motivated to achieve the goals they value by consuming certain products and services. Thus customers are considered goal-oriented and seeking the means enabling them to achieve their goals. This line of thinking is related to value hierarchy, in which products or services relate to customers on three levels: attributes, consequences and customer desired end-states (Figure 2).



**Figure 2: A value hierarchy (Woodruff and Gardial 1996, 65)**

*Attributes* serve the lowest level of the hierarchy and correspond to the specific product or service attributes. These attributes are typically used to describe the product or service by both customers and the provider organisation. They can be considered as the "options" offered by a particular product or service and there may be multiple attributes or bundles of attributes that make up a particular product or service (Woodruff and Gardial 1996). Usually even the simplest products or services have several attributes. These attributes normally are specific, tangible items that can be measured, whereas the consequences derive from the use of the product or service. Peter and Olson (2005) claim that marketing practitioners should know which product attributes are most important to customers, what those attributes mean to customers and how customers use this knowledge in decision making. However, if an organisation's focus stops at an attribute perspective and fails to consider the upper

levels of the value hierarchy, it may run into difficulties and failures (Woodruff and Gardial 1996).

The intensity of abstraction increases when moving from the lower to higher level in the hierarchy. At the middle level are the customers' more subjective considerations or outcomes of the product or service use. These are called *consequences*, and defined as the experience accruing to the customer as a result of product or service consumption (Gutman 1982; Woodruff and Gardial 1996). Consequences may be desirable or undesirable and the main aspect of the theory is that consumers act to produce desired consequences and minimise undesired consequences. Whereas positive consequences are related to benefits that the customer gets or seeks as a result of product or service consumption, negative consequences are related to perceived risk, sacrifices or costs that customers want to avoid when buying and using a product or service (Gutman 1982; Woodruff and Gardial 1996; Peter and Olson 2005). Peter and Olson (2005) have identified a variety of negative consequences: physical, financial, functional and psychosocial risks. Further, they argue that customers may underestimate or overestimate the risks. In cases where a customer does not know about the potential for negative consequences the perceived risk is low. Alternatively, customers may have unrealistic perceptions of product risks since they overestimate the likelihood of negative consequences.

The positive or negative consequences may derive from one particular attribute of a product or service used, or accrue across multiple product or service attributes and determine the benefits or risks for the customer. Woodruff and Gardial (1996) argue that for every positive consequence associated with product or service use, there is a corresponding negative consequence that the customer must bear if that benefit is not received. In the purchase decision, customers consider the benefits and risks of each product or service alternative by integrating information about positive and negative consequences (Peter and Olson 2005). It is important to note that attributes cannot have consequences without customers performing product or service usage behaviours, i.e. experiences that generate consequences (Olson and Reynolds 2001). Moreover, Gutman (1982) notes that consequences may derive directly from the act of consumption, like satisfying hunger, or indirectly, when other people react favourably or unfavourably to the customer's consumption behaviour. This resembles Holbrook's (1994; 1999) self-oriented vs. other-oriented value dimension.

Consumption situations provide customers with an opportunity to achieve their desired consequences. Thus, an act of consumption must occur in order for the consequences to be realised. Gutman (1982) argues that in order to make a choice between alternative products a consumer has to learn which products have attributes that will produce the desired consequences. He continues that each consumer learns over time which choices in a given situation produce these desirable consequences and

group products in different categories depending on their features. This, again, resembles Holbrook's way of thinking about customer value perceptions as interactive relativistic preference experience.

Attributes and consequences are sometimes hard to differentiate. Consequences differ from attributes in that people receive consequences whereas products have attributes (Gutman 1982). Thus, a consequence is an outcome of a consumption experience but an attribute is an element of a product. By considering what types of questions one would have to ask to understand attributes and consequences is one way to think about the differences. Woodruff and Gardial (1996) suggest that at the attribute level the questions would simply ask a respondent to describe the product or service. However, at the consequence level questions are related to the customer: e.g. how a customer uses the product or what the product does for the customer. Let us consider the factors influencing electronic banking usage described in Figure 1. For example, the 24h service availability, location free access and service access speed describe the service, while time savings and easiness-to-use are outcomes of customer-specific experience of the service consumption.

At the highest level of the hierarchy are the *desired end-states*: the users' core values, i.e. abstract, general end-goals and purposes people are trying to achieve in their lives (Peter and Olson 2005). These are the desirable modes of conduct or desirable end-states of existence (Rokeach 1973). Values form an evoked set that guide people's behaviours (Badovick and Beatty 1987) and drive customers' evaluations of the consequences of their behaviours (Gutman 1982; Reynolds and Gutman 1988). Research on human values (Rokeach 1973; 1979) has led to the identification of consumer values as an important subject in marketing research. One of the interesting developments in values research has been the Values and Life Styles (VALS) by Mitchell (1983), which is theoretically based on Maslow's (1954) need hierarchy. The application of consumer values in marketing research has also raised the List of Values (LOV) (Kahle et al. 1986), which is theoretically based on Maslow's (1954), Rokeach's (1973) and Feather's (1975) work on the field of values. Items within the LOV include self-respect, security, warm-relationships with others, sense of accomplishment, self-fulfilment, sense of belonging, being well respected, fun and enjoyment in life and excitement (Kahle et al. 1986). Studies have shown that these nine values could be reduced to three classes namely (1) External Values, including sense of belonging, being well respected, security and warm relationships with others, (2) Internal Values, including self-fulfilment, sense of accomplishment and self-respect, and (3) Fun/Excitement Values, with fun and enjoyment in life and excitement (Homer and Kahle 1988).

The application of personal values in marketing can be classified into two theoretically-grounded perspectives: the "macro" perspective referring to standard



survey research methodology on values (e.g. VALS; LOV) and the "micro" perspective based on means-end theory (Reynolds 1985). Reynolds (1985) argues that the "macro" perspective fails to provide an understanding, specifically, of how the concrete aspects of the product fit into the customer's life and lacks the key components, namely, the linkages between the product and the personally relevant role consumption has in the life of the customer. Since customers are motivated to achieve their values by consuming products and services, the means-end approach offers a theoretical base for understanding how values are related to the products and services in consumer decision-making.

Thus, from the means-end perspective customer desired end-states are the ultimate ends that are served by the product or service means and often involve an emotional affect related to goals which distinct them from consequences (Woodruff and Gardial 1996). Peter and Olson (2005) argue that recognising when a desired end-state has been achieved is an internal feeling of the customer that is somewhat intangible and subjective in nature (e.g. "I feel secure", "I am respected by others"). Instead, consequences are more tangible and more obvious when they occur. Moreover, Gutman (1982) states that a consequence is a state of being produced by an act of consumption; it is not an end-state, but its relation or ability to move the customer toward an end-state is what gives the consequence a meaningful role in the means-end chain model. Let us, again, view this in an electronic banking context. Whereas time savings and easiness-to-use are outcomes of customer-specific experience of the service consumption, privacy, control, convenience and security are examples of customer desired end-states and ultimate feelings that give consequences importance.

The distinction between attributes, consequences and customer desired end-states should be based on a conceptual definition of the terms so that one could easily determine the basis on which a concept is categorised in one given class (attribute, consequence or desired end-state) instead of another. However, the means-end theory is surprisingly void of such clear definitions and in practice many borderline cases turn up (Grunert et al. 2001). This is one of the weaknesses of the current means-end theory. One way to try to avoid this problem is to use as much context information as possible (Grunert et al. 2001). This means detailed information, like interviewer notes or atmosphere of the interview, obtained from the original interviews but possibly missing from the raw data. Thus, Grunert et al. (2001) suggest that the interviewer who has conducted the interview to be coded should also do the coding, because the interviewer will remember part of the context information and is also better at clarifying matters by referring back to a tape. A second coder, lacking the background information, may perform the coding in a different way and the research could achieve low reliability (Grunert et al. 2001). Thus, as in many other qualitative studies, the

results may be personally influenced by the interviewer and the distinction between attributes, consequences and customer desired end-states is therefore a somewhat subjective conception of the interviewer. However, the focus of interest in the means-end study is not on the elements themselves but rather the relationships between the elements (Reynolds and Gutman 1988) which might be one reason why the theory does not give an implicitly defined distinction between attributes, consequences and desired end-states.

A customer can perceive value both upwards and downwards in the hierarchy. Woodruff (1997) argues that when purchasing or using a product or service customer forms desires or preferences for certain attributes based on their ability to facilitate the achievement of desired consequences and end-states. Further, he argues that customers also learn to desire certain consequences according to their ability to facilitate customers to achieve their end-goals and purposes. When value is perceived downwards the customer estimates the consequences and most important product or service attributes based on desired end-states and looks down the value hierarchy from the top (Woodruff 1997). In that sense, personal values provide the overall direction, consequences determine the selection of specific behaviours in specific situations and finally attributes convey the essence of the tangible product or service that produce the consequences (Olson and Reynolds 2001). The means-end theory is capable of graphically describing these interrelationships among the elements on these three different hierarchical levels. Thus, the focus of the means-end theory relies in the attribute-consequence-desired end-state linkages and one of the most applicable methods identifying these linkages is the laddering interviewing technique (Reynolds and Gutman 1988) described in the Data and methods section.

In a multi-channel service environment the channels differ in their concrete attributes, which are the means to reach the individual's desired end-states. In order to attain a better understanding of the individuals' preferences to concrete channel attributes derived from the means-end approach, a conjoint analysis has been found to be an appropriate technique (Green and Srinivasan 1990; Wittink et al. 1994; Huber et al. 2001). Thus in this thesis the phenomenon is explored qualitatively using the means-end theory with laddering interviewing technique and quantitatively using the conjoint analysis.

## **2.4 Key concepts**

The key concepts of the study are: values/desired end-states, customer perceived value, value creation, value driver, electronic channel, attributes of electronic channel and electronic banking. These concepts are defined in this study as follows:

Generally *personal values*, also referred as global values, are centrally held, enduring beliefs that guide human behaviour independently from product or service use situation (Vinson et al. 1977; Flint et al. 1997). A value is seen as an "enduring belief that a specific mode of conduct or end-state of existence is personally or socially preferable to an opposite or converse mode of conduct or end-state of existence" (Rokeach, 1973, 5). Following Woodruff and Gardial (1996), personal values in this study are seen as a synonym to customer desired end-states.

Traditionally *customer perceived value* has been seen as a trade-off between benefit and sacrifice referring to the classic economic consumer choice behaviour model which sees the customer as a rational problem solver. However, it is argued that viewing value perceptions as a ratio of benefits to sacrifices perceived by a customer is too simplistic and lacks realism by ignoring the customer's intrinsic feeling state. Holbrook (1994, 27; 1999, 5) proposes a more detailed definition for customer perceived value as "an interactive relativistic preference experience" which refers to the evaluation of some object (e.g. product or service) by some subject (e.g. consumer or customer). This definition implies that customer perceived value is (1) *interactive*, meaning that consumer value involves an interaction between a customer and a product or service; (2) *relativistic*, referring to its comparative (involving preferences among products or services), personal (varying between customers) and situational (context dependence) nature; (3) *preferential* meaning that the customer has an order of preference and (4) *experiential* referring to the idea that customer perceived value resides in the consumption experience, not in the product or service, brand or in any object.

The *value creation* literature identifies two perspectives. The difference between them involves the question of who creates value. It has traditionally been claimed that the company creates value for customers (e.g. Gale 1994) whereas the other perspective explores the value created by the customer (e.g. Wikström 1996). The former perspective posited the customer as a recipient of the offering and marketing measures of a company and value was seen as inbuilt in the product or service. The latter perspective, followed in this study, considers the customer as a value creator in which value is taken to be inherent in the interaction between the customer and service provider (see Heinonen 2004a).

*Value drivers* represent the means to achieve the personal goals when purchasing a product or a service (Huber et al. 2001). Walters and Lancaster (1999) define a customer value driver as the response to the value expectations of customers. Thus, a value driver, e.g. service mobility, is a response to a value expectation such as convenience. Therefore, the value expectations of customers are seen as synonymous with customer desired end-states, which are the enduring beliefs that guide human behaviour and influence individual's value perceptions. In this research value driver is

conceived of as an attribute of a product that generates value perceptions assisting the achievement of desired end-states.

Traditionally the term channel describes the flow of a product from the source to an end-user (Chaffey et al. 2003). This definition implies product or service distribution from provider to customer through a retailer or a middleman. The technological development has enabled direct service distribution from provider to the customer through electronic channels. Technically a channel represents a physical path along which data or voice transmission occurs between sending and receiving devices (Alter 2002; Laudon and Laudon 2002). However, in order to communicate electronically a telecommunication system is needed. Laudon and Laudon (2002, 237) define a telecommunication system as "a collection of compatible hardware and software arranged to communicate information from one location to another". They find the following as essential components of a telecommunication system:

- Computers to process information
- Terminals or any input/output devices that send or receive data
- Communication channels, the links by which data or voice are delivered between sending and receiving devices in a network. Communications channels use various communications media, like telephone lines, different kind of cable and wireless transmission
- Communication processors, such as modems, which provide support functions for data transmission and reception
- Communication software, which for example controls input and output activities.

In this respect an *electronic channel* is considered in this dissertation as one combination of compatible hardware and software components for information communication from one location to another.

Technically attributes are defined as the specific data items describing a particular entity (Alter 2002; Laudon and Laudon 2002). In the marketing literature they are usually seen as either subjective or physical characteristics of a product (Peter and Olson 2005). Therefore, in this study the attributes of electronic channel are defined as the characteristics of different components of the electronic channel.

*Electronic banking*, also known as cyber banking, e-banking, virtual banking, home banking and online banking, includes a range of banking activities conducted from a user's office, home or even on the road using an Internet connection (Turban et al. 2004). The term electronic banking is used to describe the provision of information or services by a bank to its customers via a computer or television (Daniel 1999). Karjaluoto (2002a) defines electronic banking as "private banking via an electronic device such as computer, mobile phone, traditional telephone or digital television". However, to be specific, the electronic device is only one end of the whole telecommunication system that actually delivers the banking actions. Therefore, customer value perceptions in electronic banking can also be derived by other

components of a telecommunication system. Hence, in this study electronic banking is simply defined as private banking via an electronic channel.



### 3 RESEARCH OBJECTIVES, DESIGN, DATA AND METHODS

#### 3.1 Research objectives

The purpose of the study is to achieve a better understanding of customer value perceptions and value creation in Internet and mobile banking. Earlier studies on electronic commerce suggest that Internet provides multiple value perceptions ranging from economic utility to more hedonic experiences (Kim 2002). It has further been argued that an Internet environment even provides an extended opportunity for both hedonic and utilitarian value in consumption (Childers et al. 2001) when compared to traditional markets. However, the present electronic banking literature does not give a comprehensive view on multiple value dimensions. Moreover, the concepts in the current electronic banking literature overlap and their relations to each other are somewhat obscure. It is therefore argued that a more holistic conceptualisation of customer perceived value in electronic banking context is needed. This leads to the theoretical objective of the study:

- How could customer value perceptions in electronic service consumption, and in banking especially, be more comprehensively conceptualised?

Moreover, the Internet, connected via personal computer, and a mobile phone form two distinct channels to conduct multiple electronic services. These two alternative service access methods have different value potential regarding concepts like convenience, efficiency, accessibility, privacy and control. The differentiating factors of these channels are their concrete attributes serving as drivers of value derived from the use of the channel. Thus the empirical setting in the study is designed to reveal how different concepts determining consumer behaviour in the phenomenon are constituted and moreover, how the value driving attributes differentiating the service access methods are preferred by different customers. Thus the main empirical research objective is to explore:

- What drives value in Internet and mobile banking?

As already indicated, the earlier literature does not give a comprehensive understanding on the composition of different concepts and the linkages between

different factors in the phenomenon. The means-end theory explains consumer value creation by hierarchically structured factors including concrete product or service attributes, the consequences of product or service use and customer desired end-states. Therefore, in order to understand the composition of different concepts in the phenomenon the factors explaining consumer behaviour need to be approached hierarchically. Thus, the following subordinate research question becomes evident:

- 1 How are different attributes of electronic channels linked to customer desired end-states in the consumption of Internet and mobile banking services?

The above research objective is designed to reveal how different concepts are constituted in the phenomenon and which are the value driving attributes forming the basis for the constitution of the concepts. It has, however, remained unclear how the different attributes are preferred by customers. Since different electronic channels, due to their technological differences, deliver multiple electronic services differently there is a need to understand which of these attributes are most essential in order to better understand consumer behaviour in the phenomenon. This leads to the second sub-question:

- 2 What are the most essential attributes of electronic channels in the consumption of different Internet and mobile banking services?

Furthermore, as already noted by Holbrook (1994; 1999), value perceptions are personal and thus it can be assumed that individual customers' preferences toward electronic service consumption differ from each other enabling customer segmentation. Today service providers are concerned about what services to offer via which channels and, on the other hand, device producers are interested in developing distinct devices for different purposes and consumer groups. Customer segmentation provides guidelines for a company's resource allocation and marketing strategy enabling it to react to preference heterogeneity by modifying current product and service offerings, distribution strategies and marketing campaigns to better cater for differing customer needs. This leads to the third sub-question of the study:

- 3 How do individual customers' channel attribute preferences differ from each other in the consumption of Internet and mobile banking services?



### 3.2 Research design

The research design holds the research project together. It structures the research and shows how all of the key elements of the research project work together in order to answer the main research questions. Aaker et al. (2001) state that research design is a detailed blueprint used to guide a study toward its objectives involving decisions about the research approach and data collection methods. The study has two fundamental purposes: first, to seek insights into the general nature of value creation by the customer in an electronic banking context and to identify the relevant variables driving the value. Second, the aim of the study is to explore different bank customers' evaluations of the relevant value drivers and to cluster customers based on their evaluations in order to provide an accurate generalisable overview of the situation in the market. Therefore, the study follows both an explorative research approach and a descriptive research approach. Whereas explorative research is generally highly flexible, unstructured and qualitative in nature, the descriptive approach often includes hypotheses studied by quantitative methods (Aaker et al. 2001). Thus the study combines qualitative and quantitative research methods representing a mixed method approach.

The variables to be measured in the quantitative phase were generated from the qualitative study. The aim was to explore how value was created by the customer and which channel attributes served as a source of value. Earlier studies were not leaned on but they acted as a source of inspiration and ideas for some intuitive suppositions about customers' value perceptions. Thus the explorative study was based on in-depth customer interviews using laddering interviewing technique and a means-end approach. After identifying the key value drivers, a large quantitative survey research using conjoint analysis was implemented in order to ascertain the importance of these different drivers of value for different customers.

With increased interest in and use of qualitative research and continuing use of quantitative research designs in the social and human sciences, mixed research approach, involving the data collection and analysis of both qualitative and quantitative research, is expanding. The mixed research model is related to the pragmatist approach combining qualitative and quantitative research approaches with inductive and deductive logic within different phases in the research process (Tashakkori and Teddlie 1998). Pragmatist knowledge claims arise from actions, situations and consequences rather than antecedent conditions as in positivism and postpositivism, which are based on quantitative methods with a deductive logic (Creswell 2003). Creswell (2003) argues that positivists and postpositivists, referring to the thinking after positivism and recognising that a researcher cannot be purely "positive" about claims of knowledge when studying human behaviour, follow a

research approach in which the researcher begins with a theory and then collects the data aiming to empirically test the theory. He states that pragmatists, instead, do not see the world as an absolute unity but rather are open to choose methods and draw liberally from both qualitative and quantitative methods, thus also differing from constructivists, who inductively aim to develop the theory or pattern of meaning using qualitative methods. Thus pragmatism falls somewhere in between positivism and constructivism (Tashakkori and Teddlie 1998).

In this study the mixed research method and pragmatist approach are used since instead of methods, the research problems are seen to be most important and the methods used are derived from the research problems. Creswell (2003) identifies six different types of mixed method strategies deriving from sequential or concurrent data collection, priority of the qualitative or quantitative method, integration of the data and guidance of theoretical perspective. The *sequential explanatory strategy* is characterised by the collection and analysis of quantitative data followed by the collection and analysis of qualitative data with priority given to the quantitative phase and results integrated during the interpretation phase of the study. The *sequential exploratory strategy* resembles the former, the only difference being that the qualitative research is given the priority and conducted before the quantitative study. Whereas sequential explanatory strategy is appropriate to explain and interpret relationships, the primary focus of the sequential exploratory approach is to explore a phenomenon. In the *sequential transformative strategy* either method can be used first and priority can be given either qualitative or quantitative study or even both. The primary difference between sequential transformative strategy and the previous two is that the transformative model has a theoretical perspective to guide the study. The remaining three models differ from sequential models in that the qualitative and quantitative data collection is concurrent, occurring in one phase of the study. The difference between the remaining models is that whereas the *concurrent triangulation strategy* uses separate quantitative and qualitative methods the *concurrent nested strategy* has a predominant method and the method given less priority is embedded or nested within the predominant method. Finally, the *concurrent transformative strategy* differs from triangulation and nested strategy by being guided by the researcher's use of a specific theoretical perspective – as with the sequential transformative model.

Since this study is guided by theoretical perspectives reflected from value theory, the means-end approach and the conceptual foundation and fundamental basis of consumption, and, moreover, as the phenomenon was designed to be explored by qualitative study and then expanded by quantitative research, the sequential transformative strategy seemed the most suitable for the research design. However, according to Creswell (2003), the approach has its strengths and weaknesses. He states that the use of distinct phases facilitates its implementation, description and sharing

the results, although requiring much time to complete the two data collection phases. Moreover, since little has been written about this approach there is not that much guidance on how to use the transformative vision to guide the methods, and, further, it may be unclear how to move between the analysis of the first phase into the data collection of the following phase (Creswell 2003). This study aims to illustrate a research design and framework that would serve this kind of research setting.

### **3.3 Data and methods**

#### **The laddering interview**

A customer's sequence of attributes, consequences and desired end-states associated with a product or service (i.e. means-end chain) represents the customer's perceptual orientation of decision criteria (Reynolds et al. 2001). Customers may have multiple chains of decision criteria for a given product or service and marketers are interested in identifying these inner decision criteria of customers. One way to uncover these perceptual orientations is by an interviewing process called laddering. This is basically a one-on-one semi-structured in-depth interviewing technique in which respondents describe freely why something is important to them and researchers try to find linkages between the key perceptual elements across the range of attributes, the consequences of those attributes and values linked with those consequences (Reynolds and Perkins 1987; Reynolds and Gutman 1988; Reynolds et al. 2001).

#### ***Framing the problem***

Prior to commencing a laddering interview four fundamental framing questions should be answered: Who are the relevant customers? What are the customers' relevant behaviours? What are the relevant contexts of the behaviour? And, what are the competitive choice alternatives? (Reynolds et al. 2001). The answer to the first research question sets the criteria for selecting the research sample. Reynolds et al. (2001) claim that respondents must have knowledge of the specific product or service in question since laddering involves detailed probing about consumers' brand beliefs. Thus, experienced electronic banking customers of Nordea Bank Finland were selected to be interviewed. Experienced users, in this study, were taken to be customers who had used electronic banking services for over three years. Moreover, so that the respondents could state the difference between different electronic channels they had to have experience of using more than one electronic channel for banking actions. Based on the criteria Nordea Bank Finland collected a list of customers from their customer database in Kuopio area, telephoned them, asked about their interest in

participating in an interview conducted by the University of Kuopio and requested permission to give the customer's telephone number to a researcher from the University in order to set a time for the interview. A list of 30 customers was generated. The researcher called each one of them and tried to set a time for the interview. However, 10 customers were unable to participate in the study so altogether 20 customers were interviewed. The number of respondents was considered adequate since according to Reynolds et al. (2001), if the respondents are carefully specified and screened, 20 respondents can provide the full range of attributes, consequences and values associated with the given products or services.

The second question about relevant behaviours is related to those behaviours that the marketer wishes to understand in order to make decisions. These behaviours are often related to brand or product usage and therefore frequently answered when defining relevant consumers (Reynolds et al. 2001). In this study, the relevant and interesting behaviours were associated with electronic banking and especially with those reasons why some electronic channels are used instead of others and what the value of a given channel is compared to a competitive choice alternative.

The decision-making process of a consumer does not happen in a vacuum but rather is influenced by a situation or relevant context (Reynolds et al. 2001). For example, a person may handle the monetary transactions of a company from his office desk via computer but use a mobile phone for private banking actions in a country cottage with the family. Reynolds et al. (2001) state that consumption context can be influenced by physical occasions like time, place, activity and the presence of other people, and psychological occasions such as culture and personal factors. They further argue that contextual variables in laddering can be represented in the sample selection criteria or they can be included in the research instrument. The interest of this study was in private banking customers' electronic banking behaviour leaving corporate banking customers aside. This was noted when selecting the customers for the interview. Since there were a few entrepreneurs among the interviewees the focus of the discussion was on their private banking actions. Other contextual criteria were not predefined.

In bill paying, for example, customers have several options to perform the action. The fourth fundamental framing question associated with laddering is related to competitive choice alternatives of customers. Reynolds et al. (2001) identify three different competitors: "In-kind competitors" which are products with similar attributes, "Functional competitors" that represent products with different attributes but similar lower level consequences and "Ego-emotive competitors" which are products that do not provide similar attributes or consequences but rather compete at the desired end-state level. In this study the choice alternatives represented automated or electronic ways to conduct different banking actions. These were an ATM, a computer with

Internet access and a mobile phone so that computer (Internet access) was mainly compared with ATM and mobile phone while mobile phone was primarily compared only with computer (Internet access). Moreover, some respondents compared Internet bill paying with direct debit. These alternatives are not "In-kind competitors" since their attributes differ from each other but rather represent "Functional competitors" and "Ego-emotive competitors" since they compete at the consequence or desired end-state levels.

### ***Sample description***

People of different ages were selected to be interviewed in the study. The intention was to form an overview of the research phenomenon and therefore the age distribution also had to be wide. The youngest interviewee was 24 years old and the oldest 74 years old. Thus the age difference between youngest and oldest interviewee was as much as 50 years. The difference between sexes of the respondents was notable (1 female and 19 male). However, gender is found to have a low impact on the use of electronic banking (Mattila 2001). Furthermore, the intention of the study was to find linkages between attributes of different electronic channels and customer desired end-states and further to make a comparison between electronic channels in service consumption rather than between user demographic profiles. Therefore the number of respondents per gender was considered unimportant. Instead the sample varied widely in respondents' educations and professions. Whereas nearly half of the interviewees had a university degree the other half consisted of those who had a vocational qualification, college-level training or a polytechnic degree. Eight interviewees worked in official or leading positions, six as experts, two as entrepreneurs and one as a trainee shopkeeper, while three of the interviewees were retired. Table 5 describes the key demographics of the respondents.

**Table 5: Demographic profiles of the respondents in the means-end study**

Demographic characteristic	Respondent number:																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
<b>Interviewing date</b>	10.2.2004	10.2.2004	12.2.2004	12.2.2004	13.2.2004	13.2.2004	16.2.2004	16.2.2004	16.2.2004	17.2.2004	17.2.2004	17.2.2004	18.2.2004	19.2.2004	19.2.2004	19.2.2004	20.2.2004	24.2.2004	26.2.2004	30.3.2004
<b>Gender</b>																				
Female																				x
Male	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
<b>Age</b>																				
24-29 years												x							x	x
30-39 years	x	x	x		x			x		x				x		x	x	x		
40-49 years									x				x							
50-59 years				x			x													
60-69 years						x					x									
70 years or more															x					
<b>Education</b>																				
Vocational school	x			x					x			x								
Institute degree								x						x						x
Polytechnic degree			x															x	x	
University degree		x			x	x	x			x	x		x			x	x			
<b>Profession</b>																				
Leading position					x								x			x				
Official	x			x				x										x		x
Entrepreneur			x							x										
Expert							x		x			x		x			x		x	
Retired						x						x				x				
Other		x																		
<b>Size of the household</b>																				
Single																			x	x
2 persons	x			x			x			x	x				x					x
3-4 persons		x	x		x	x		x	x			x		x		x	x			
More than 4 persons														x						

***Laddering interviewing process***

Reynolds et al. (2001) state that the interviews should take place in a peaceful environment free of distractions. Moreover, they argue that getting respondents to reveal their true beliefs, feelings and goals requires warm-up questions to put the respondent at ease with the interviewer and to help them to start thinking about the product or service in question. Thus, each interview was carried out in a quiet and peaceful room at the University of Kuopio, Finland. This ensured a neutral environment for the interview and made possible a close and confidential connection with the interviewee. Moreover, the interviews (Appendix 1), conducted in February 2004, began with a discussion about using electronic banking services. The respondents were asked to describe as fully as possible what they thought about banking services in general and how their banking actions had changed during the past few years. In addition, they were asked how they managed their banking actions and

what kind of services they used. The purpose of this was to focus the respondents on the topic.

Moreover, it is considered extremely important that respondents do not feel threatened and are thus willing to be introspective regarding the underlying motivations in a given context (Reynolds and Gutman 1988). This was enhanced by telling respondents in the introductory comments that there are no right or wrong answers and that the entire purpose of the study is simply to understand the ways in which the interviewee behaves. In that sense, the respondent was positioned as the expert who "educates" the interviewer. Furthermore, it is considered important by Reynolds and Gutman (1988) to create a slight sense of vulnerability on the part of the interviewer and thus in this study the respondents were told that some of the questions may seem somewhat obvious or even stupid, indicating that the interviewer has to follow certain predefined guidelines. Consent for recording was requested from the respondents and all the interviews were audiotaped and transcribed so that the researcher would not lose the detail of what was said.

After the warm-up questions lasting from 5 to 10 minutes the interview moved to laddering. Traditionally the laddering probes begin with distinctions made by the respondent concerning perceived meaningful differences between brands of products (Reynolds and Gutman 1988). Thus, the researcher seeks to reveal how a product or service is believed by the respondent to be better or worse than others. In this case the probes began with distinctions concerning the perceived advantages and disadvantages of different electronic channels currently and previously used by the respondent for banking actions. Reynolds and Gutman (1988) identify three general methods of eliciting these distinctions: *Triadic sorting*, in which respondents are presented with sets of three products or brands and asked to evaluate how they conceive the differences between the products or brands; *Preference-consumption differences*, in which respondents are asked to explain why they prefer their most preferred product or brand to their second most preferred or simply why one particular product or brand is their most preferred; the *Differences by occasion* method, in which the respondent is presented with a personally meaningful context within which to make the distinctions. This study mainly used the Preference-consumption differences method by asking the respondents to explain why they used a certain electronic channel instead of another. The purpose of the comparison was to identify differences between electronic channels and their ability to deliver different electronic banking services. In cases in which respondents had difficulty in explaining the reasons for their channel preferences the Differences by Occasion Method was used to help the customer to enter into the context in which the banking actions occur.

After eliciting the customer-perceived distinctions, laddering must move the respondent up and down the chain of abstraction to uncover the salient elements in the

decision-making process (Reynolds et al. 2001). If the customer-perceived distinction is on a consequence level, referring to the benefits of the product or service, the salient attributes are uncovered by asking questions such as "What is it about the product or service that makes it that way". However, typically the customer-perceived distinctions are on an attribute level and these attributes are then linked to higher level constructs by asking a series of questions similar to "Why is that important to you?" after each response. This continuous asking of "why" questions allows the underlying consequences and desired end-states of a certain choice to be brought into the open. Sometimes the researcher may need to use negative ladders which require stating the questions in negative terms like "Why is that negative for you?" or "Why do you want to avoid that?". In this study both positive and negative laddering were used. During laddering interviews respondents may become blocked at one level and unable to proceed further (Reynold et al. 2001). In these cases, following the suggestions by Reynolds and Gutman (1988), the respondents were asked either to assume that the channel they used was unavailable in that situation, to compare usage in a previous time period with the current time or to evaluate how others might feel in similar circumstances. The interview continued until the respondents could no longer provide any further information. The interviews lasted from 45 minutes to 1½ hours each.

### ***Laddering analysis***

The process of analysis includes four main steps: first, to organise the ideas found in the laddering interview into summary codes; second, to use the codes to produce a matrices presenting individual respondents' ladders; third, to provide frequency matrices for associations between the codes; and fourth, to construct hierarchical value maps (HVM) from the most common pairs of associated codes. The first and possibly the most important step in the laddering analysis is to develop a set of summary codes for the strategic elements at each level of the value hierarchy namely attributes, consequences and desired end-states (Reynolds et al. 2001). These elements must accurately reflect all of the key concepts or beliefs mentioned in the ladders by the respondents. Respondents' verbatim statements similar in meaning were grouped under summary codes, which were then identified by the researcher as attributes, consequences and desired end-states (Appendix 2). Reynolds and Gutman (1988) note that if all those separate concepts or beliefs are given separate codes it is likely that none of the relations between them and other elements would have high frequencies, and thus further analysis would become problematic. However, they further state that if the categories are too broad too much meaning is lost. In this study, for example, "slow to tap information", "clumsy to use" and "cumbersome to use" were all categorised under consequence-level code *Difficult to use*. Likewise, statements such as "with a mobile phone you are less dependent on location and you can conduct this



sort of necessity while, for example, on a bus or train" and "you do not have to go to a branch office to transfer money anymore - you can do it even from your country cottage" were both categorised under attribute-level code *Location free access* and consequence-level code *Can use service wherever wanted*. Moreover, expressions like "via the mobile phone the amount of information provided is so limited" and "the screen size of a mobile phone is a hundredth part of the screen in a computer, so the information is compatible to that" were categorised under attribute-level codes *Display* and *Low amount of information*, since these represent elements of the product or service. However, a statement like "on a mobile phone screen you can see only a part of the information at a time - not the big picture" refers to an outcome of consumption experience and therefore to a consequence-level code *Cannot see the whole picture*.

The content codes were then used to score each element in each ladder producing a matrix with rows representing individual respondents' ladders (Appendices 3-7). It should be noted that one respondent usually has multiple ladders and thus multiple rows in the matrix. Moreover, the number of columns in the matrix corresponds to the number of elements in the longest ladder. These summary score matrices serve as the basis for determining the important connections between different elements (Reynolds and Gutman 1988). Reynolds and Gutman (1988) note that the qualitative nature of the information gathering and the quantitative way of dealing with the information obtained is one of the unique aspects of laddering clearly setting it apart from other qualitative methods.

The analysis focuses on relationships between the elements, not the elements themselves. Therefore the next step is to construct an implication matrix that displays the number of times each coded element is linked to another coded element (Reynolds et al. 2001). Thus, every time an element precedes another element in a ladder, it is counted. Both direct and indirect connections are usually presented. Direct connections refer to two consecutive elements where one element directly precedes another element with no elements in between the two. Indirect connections refer to a relation where one element precedes another in a ladder but one or more additional elements are between them. Therefore, there may be many more indirect connections than direct connections in any given ladder. The numbers of connections are expressed in fractional form so that the direct connections are on the left side of the decimal and indirect connections are on the right side of the decimal (Appendices 8-12).

The implication matrices are used to construct hierarchical value maps (HVM). The chains in the maps are constructed considering adjacent relations. So, if A leads to B and B leads to C, then a chain A-B-C is formed. Reynolds and Gutman (1988) note that there does not necessarily have to be an individual respondent with an A-B-C ladder for an A-B-C chain to emerge from the analysis since an HVM is built up by connecting the linkages showed by the implication matrix. In order to draw a

map of important relations, a cutoff level has to be decided. The cutoff level implies the number of relations between different elements in the implication matrix. According to Reynolds and Gutman (1988), one may count only the direct linkages in any cell, or the total number of linkages, direct or indirect. They further note that the use of multiple cutoffs permits the researcher to evaluate several solutions and to choose the one that appears to be the most informative and most stable set of relations. Two different cutoff levels were used in this study depending on the number of respondents in a given service. Cutoff level 1 was used in the case of mobile stock exchange service. This meant that the elements had to have at least one direct contact in order to appear in HVM. In all other cases cutoff level 2 was used, which meant that the elements had to have at least two connections of which at least one was a direct connection. Finally, the HVM is literally built up from the information provided by the implication matrix. This task requires creativity, the only guideline being that the researcher should try to avoid crossing lines in order to build a coherent and easily interpretable map (Reynolds and Gutman 1988). A complete map includes the most commonly mentioned coded elements and the most common associations between the elements (Reynolds et al. 2001).

### **Conjoint study**

In the quantitative phase a large survey was selected due to its ability to provide more generalisable information and measure the channel attribute preferences and preference order. The questionnaire was placed in the log-out page of Nordea Bank's online service in Finland, thereby reaching only users of online banking services. Since mobile banking usage is still relatively low, the respondents were first asked if they used a mobile phone for exchange service, bill paying or requesting account balances. The aim was to identify all the mobile banking users and get them to answer the questions related to their mobile banking behaviour. Thereafter, the mobile banking users were asked to choose one of the above-mentioned mobile services that they had used and then the following questions related to that particular service. Similarly, if respondents reported that they did not use a mobile phone for any of the above-mentioned services they were asked to choose one of the above-mentioned services that they had used via Internet and the following questions were related to that Internet service. The assumption, due to the location of the questionnaire, was that all the respondents used Internet banking service.

The questionnaire was open for 48 hours from noon to noon between May 30<sup>th</sup> and June 1<sup>st</sup> 2005. During that time the page had some 440,000 visitors. In order to decrease the likelihood that the questionnaire was opened more than once for a single customer the questionnaire was prearranged to open up for every fifth visitor (ca

88,000). However, due to the pop-up blocks of the newest web browsers the questionnaire opened up for 23,995 customers. Altogether, the questionnaire was completed by 2,675 respondents the response rate being 11.1 percent (Table 6).

**Table 6: Demographic profiles of the respondents in the conjoint study**

Demographic characteristic	N	Percentage	Valid percentage
<b>Gender</b>			
Female	1564	58.5	60.2
Male	1032	38.6	39.8
Total	2596	97.0	100.0
Missing	79	3.0	
<b>Age</b>			
Less than 18 years	2	0.1	0.1
18-24 years	239	8.9	9.0
25-29 years	389	14.5	14.6
30-39 years	724	27.1	27.1
40-49 years	625	23.4	23.4
50-59 years	508	19.0	19.0
60-69 years	162	6.1	6.1
70 years or more	20	0.7	0.7
Total	2669	99.8	100.0
Missing	6	0.2	
<b>Place of residence</b>			
Helsinki, Espoo, Vantaa, Kauniainen	982	36.7	37.4
Other city with over 50,000 residents	656	24.5	25.0
Other smaller city	607	22.7	23.1
Urban district	384	14.4	14.6
Total	2629	98.3	100.0
Missing	46	1.7	
<b>Province</b>			
Southern Finland	1561	58.4	58.7
Eastern Finland	196	7.3	7.4
Western Finland	680	25.4	25.6
Oulu Province	143	5.3	5.4
Lapland Province	76	2.8	2.9
Åland Islands Province	2	0.1	0.1
Total	2658	99.4	100.0
Missing	17	0.6	
<b>Education</b>			
Comprehensive school	237	8.9	9.0
Vocational school	473	17.7	17.9
College	302	11.3	11.4
Institute degree	616	23.0	23.3
Polytechnic degree	358	13.4	13.5
University degree	658	24.6	24.9
Total	2644	98.8	100.0
Missing	31	1.2	
<b>Profession</b>			
Leading position	233	8.7	8.7
Official	785	29.3	29.4
Manual worker	571	21.3	21.4
Entrepreneur	265	9.9	9.9
Expert	287	10.7	10.7

Student	222	8.3	8.3
Retired	153	5.7	5.7
Unemployed	84	3.1	3.1
Other	72	2.7	2.7
Total	2672	99.9	100.0
Missing	3	0.1	
<b>Household income</b>			
Less than 10.000€ per year	118	4.4	4.6
10.000-20.000€ per year	198	7.4	7.7
20.000-30.000€ per year	518	19.4	20.2
30.000-50.000€ per year	830	31.0	32.3
50.000-80.000€ per year	631	23.6	24.6
Over 80.000€ per year	275	10.3	10.7
Total	2570	96.1	100.0
Missing	105	3.9	
<b>Size of the household</b>			
Single	494	18.5	18.6
2 persons	1059	39.6	40.0
3 persons	394	14.7	14.9
4 persons	452	16.9	17.1
5 persons	185	6.9	7.0
More than 5 persons	65	2.4	2.5
Total	2649	99.0	100.0
Missing	26	1.0	
<b>Total</b>	<b>2675</b>	<b>100.0</b>	

The figures show that the sample was female dominated (58.5 %) and half of the respondents were 30-49 years old. Moreover, the majority of the respondents lived in southern Finland and nearly two out of three lived in the metropolitan area or other city with over 50,000 residents. In addition, every fourth respondent had a university degree and over half worked as officials or manual workers. Nearly 40 percent of the respondents lived in 2-person households and nearly every fifth respondent was single while the predominant annual household income was between 30,000 and 50,000 euros.

As earlier indicated, the respondents were divided into Internet users and those who also used a mobile phone for banking actions. Moreover, the respondents were able to choose one out of three banking services and the following questions were related to that service. Altogether 12 percent of the respondents used a mobile phone for banking actions and of these over 70 percent (N=230) answered the mobile request for account balance questionnaire and one fourth (N=83) the mobile bill paying questionnaire. Over 80 percent of all respondents answered the Internet bill paying questionnaire, the number of responses being 2199, and five percent the Internet request for account balance questionnaire, the number of responses being 122. The response rate for Internet stock exchange service was 1.3 percent (N=34) and for mobile stock exchange service only 0.3 percent (N=7) (Table 7). The number of responses for these questionnaires was considered too low compared to other

questionnaires and therefore the responses for stock exchange service were excluded from the analysis phase and the effort in the quantitative study was focused on Internet and mobile bill paying service and mobile request for account balance service.

**Table 7: Completed responses for different services**

<b>Service used / responded</b>	<b>N</b>	<b>Percentage</b>	<b>Valid Percentage</b>
<b>Internet service</b>			
Stock exchange	34	1.3	1.4
Bill paying	2199	82.2	93.4
Request for account balance	122	4.6	5.2
Total	2355	88.0	100.0
Missing	320	12.0	
<b>Mobile service</b>			
Stock exchange	7	0.3	2.2
Bill paying	83	3.1	25.9
Request for account balance	230	8.6	71.9
Total	320	12.0	100.0
Missing	2355	88.0	
<b>Total</b>	<b>2675</b>	<b>100.0</b>	

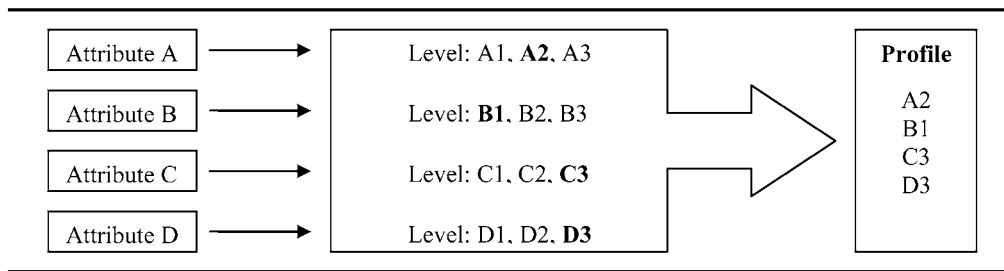
A critical dimension in customer value perceptions rests on individual preference judgments and order. It is further argued that the whole starting point for the marketing discipline lies in an adequate analysis of customer preferences for specific products or services (Vriens 1999) since product manufacturers and service providers are eager to match their services as well as possible to their customers' preferences. The fundamental basis and conceptual foundation of conjoint analysis in marketing rests on the theory of consumer demand and especially on the work of Lancaster (1966, 133), who assumed that "consumption is an activity in which goods, singly or in combination, are inputs and in which the output is a collection of characteristics". What he meant was that consumers do not consume products or services per se but rather combinations of attributes and further, consumer preference orderings rank the attribute combinations and only indirectly rank the collections of products or services through the attributes that they own. Thus these attributes that serve as means to reach consumer's personal goals in consumption are in essence in the value creation by the customer.

Conjoint analysis is seen as a general model for the analysis of customers' attribute preferences (Vriens 1999). It is a generic term coined by Green and Srinivasan (1978) to refer to a number of paradigms in psychology, economics and marketing that are concerned with quantitative description of customer preferences and value trade-offs (Louviere 1994). The seminal paper by the mathematical psychologist Luce and the statistician Tukey (1964) in the early 60s can be viewed as the origin of conjoint analysis (Green and Srinivasan 1978). Since its introduction into marketing,

conjoint analysis has developed into a method of preference studies that receives attention from both academics and practitioners and has become one of the most widely applied marketing research methods for predicting and understanding customer trade-offs, decisions and choices (Louviere 1994). Although its usefulness may be most evident in feature-oriented product markets, it also has been applied to virtually every type of market including financial services (see Cattin and Wittink 1982; Wittink and Cattin 1989; Vriens 1999), banking (e.g. DeSarbo et al. 1994), as well as electronic banking (e.g. Heinonen 2004a; Heinonen 2004b). In their survey of research suppliers in the United States Wittink and Cattin (1989) documented a large number of conjoint applications in a wide variety of industries during the period of 1981-1985 and further, they argue that since 1985 use might have become even more widespread due to the introduction of conjoint software. Based on their overview of conjoint applications in market research Gustafsson et al. (2003) argue that the success of the method comes from both the ability to apply it to new areas, in the sense of broadening the concept, as well as the ability to enhance knowledge in certain areas. Furthermore, the success of the method may be due to its high degree of realism and ability to provide researchers with insight into the composition of customer preferences (Hair 1998).

Traditional research designs typically ask respondents if and the extent to which various product features or attributes are important in the purchase decision. These research designs ask respondents to state importance directly and abstractly, without specified ranges of variation and further, in the absence of trade-offs, the findings may reveal that all attributes are perceived to be important. However, conjoint analysis calculates the relative importance of various product or service attributes indirectly by asking respondents to rank or rate different product or service profiles more or less similar which they face in real life. This means that the relative importance of attributes is calculated by determining the respondent's part worth utility for each attribute level. It provides the researcher with insight into the importance of different attributes against the total value of a product or service and about the importance of a certain level within a certain attribute. Moreover, having estimated the part worth utilities for individuals the total utility can be predicted for any combination of attributes even if they were not specifically included in the experiment.

In summary, the value of conjoint analysis is that it quantifies the weight people give to the various factors that underlie their decisions and enables the researcher to estimate consumer behaviour. Profiles or stimulus represent the potential or hypothetical products or services that are composed of different attributes and attribute levels (Figure 3). Customer value perceptions and desired end-states are to reflect in individuals' choices among product or service profiles.



**Figure 3: Composition of a profile in conjoint analysis**

Since each respondent gives a number of evaluations of different product or service profiles, sufficient degrees of freedom are available to perform analysis at an individual level (Vriens 1999). This yields an opportunity to investigate individual differences and combine the analysis with cluster analysis. This may yield identification of benefit segments that are homogenous with respect to their preference structure. In fact, market segmentation in commercial applications is claimed to be one of the primary purposes for conducting conjoint analysis (Wittink and Cattin 1989; Wittink et al. 1994).

Although conjoint analysis places few demands on the respondent in terms of both the number and types of responses needed, the researcher is faced with a need to make a number of key decisions in designing the experiment (Hair et al. 1998). Conducting conjoint analysis involves various options and decisions before carrying out a practical conjoint study including the selection of the preference function, data collection method and design, the way the stimuli are presented, the data collection procedure, selection of the method for stimuli evaluation and estimation of benefit values (Gustafsson et al. 2003). The seven-step model has been adapted and updated from the original flow diagram developed by Green and Srinivasan (1978). Each step should be determined before carrying out a practical conjoint analysis (Green and Srinivasan 1978; 1990). However, before designing the conjoint experiment it is important that the conjoint analysts first decide which attributes and attribute levels influence in customer decisions in a particular research context (Louviere 1994).

### ***Selection of attributes and attribute levels***

From the theoretical standpoint the attributes selected should be salient in influencing customer preferences and choices, and from the managerial perspective the attributes and their levels should be actionable (Malhotra and Birks 2003). The attributes can be identified through discussions with management and industry experts, analysis of secondary data, qualitative research and pilot surveys (Malhotra and Birks 2003) or from prior academic literature or exploratory research (Louviere 1994). However, it is critical to have a careful thought out list of attributes since an increased number of

parameters to be estimated require either a reduction in the reliability of parameters or a larger number of stimuli (Hair et al. 1998). Furthermore, a list of too many attributes will greatly increase the burden on respondents but a list with too few attributes may reduce the predictive capabilities of the research design. Therefore, a qualitative exploratory pilot study was conducted to ensure an actionable list of attributes. As suggested by Huber et al. (2001), a means-end approach and laddering interviewing technique were used in order to find the most relevant value driving attributes for the conjoint study. The results of the qualitative interview showed that the attributes most differentiating Internet (personal computer) and mobile phone in banking actions were the size of the screen, the size of the keyboard, location of the service consumption and response time. These attributes were selected for the conjoint study.

Once the attributes have been identified, the researcher assigns levels to each attribute to represent the relevant range of variation in the present or future market of interest (Louviere 1994). The range of the levels should be somewhat outside existing values since it has a tendency to reduce inter-attribute correlation but not, however, at an implausible level because this may impair credibility (Hair et al. 1998). Malhotra and Birks (2003) state that by using attribute levels that are beyond the range reflected in the marketplace the researcher exposes the evaluation task to impaired credibility, but increases the accuracy with which the parameters are estimated. Following Heinonen (2004a) the levels of the attributes were created through reasoning based on existing knowledge of electronic banking and banking services. Furthermore, the knowledge of electronic devices was used in the level creation. The attributes and levels are presented in Table 8.

**Table 8: Attributes and attribute levels**

<b>Attribute</b>	<b>Attribute level</b>
Screen size	About 2" (e.g. cell phone)
	About 5" (e.g. Nokia Communicator)
	About 13"-19" (e.g. PC)
Keyboard	Small (e.g. cell phone)
	Medium (e.g. Nokia Communicator)
	Normal PC-keyboard
Location	Fixed (e.g. library)
	Home or work
	Flexible
Response time	0-3 sec
	3-10 sec
	Over 10 sec

Hair et al. (1998) claim that levels must be practically relevant and should not be specified in imprecise qualitative terms such as low, moderate or high due to



perceptual differences among individuals. Therefore, in the case of keyboards the attribute levels (small, medium, normal) were supplemented with concrete examples that respondents can refer to. Similarly it was considered that the screen size, indicated in inches, needed a referable example since it may have been difficult for some respondents to visualise the screen size in inches.

### ***Selection of the preference function***

The first step in the flow diagram of conjoint analysis is to make assumptions regarding the relationships of the levels within an attribute. This means that the researcher should assume how individual attribute levels affect the importance of the attribute. No part worth relationships were decided upon beforehand and thus the attribute levels were considered as discrete. This meant that it was possible to see the added utility for each level of an attribute without predetermined constraints like linearity or ideal relationship.

### ***Selection of data collection method***

The classic data collection methods of conjoint analysis are full profile approach and two-factors-at-a-time procedure (Green and Srinivasan 1978). The full profile approach closely resembles real buying situations because it utilises the complete set of attributes. However, there is a major limitation in the approach since as the number of attributes increases the risk of information overload increases as well (Hair et al. 1998). The information overload may result in a temptation for the respondent to simplify the experimental task or the attribute levels themselves (Green and Srinivasan 1978) and may therefore impair the accuracy of respondents' preference evaluation. However, the number of profiles of the respondents needed to be evaluated can be reduced by using fractional factorial design. For this reason and due to its perceived reality the full profile approach is the most frequently used presentation method in conjoint analysis (Hair et al. 1998).

The two-factors-at-a-time procedure, also known as trade-off procedure, compares two attributes at a time by ranking all combinations of levels. Thus the respondents evaluate two attributes at a time until all possible pairs of attributes have been evaluated (Malhotra and Birks 2003). The model reduces the information overload of the respondent by representing only two attributes at a time (Green and Srinivasan 1978). However, the model may lack realism and may involve too many judgments to be made by the respondents (Green and Srinivasan 1978; Green 1984). Therefore, the use of this method has decreased dramatically in recent years (Hair et al. 1998).

A third stimulus presentation, the pairwise comparison method, is a combination of full profile and two-factors-at-a-time methods. Respondents compare

two profiles at a time in order to indicate a preference for one profile over the other. The method differs from full profile method in that the profile does not include all the attributes but only a few attributes at a time are selected in constructing profiles (Hair et al. 1998). The pairwise method is reminiscent of the trade-off method, only it compares product profiles whereas the trade-off method compares product attributes. The pairwise comparison method is also an important part of some special computerised conjoint analysis methods like adaptive conjoint analysis (ACA) (see e.g. Herrmann et al. 2003).

Due to its strengths a full profile method was used in this study. Furthermore, according to Hair et al. (1998) the full profile method is recommended when the number of attributes is six or less, and when the number ranges from seven to ten the trade-off approach is appropriate (Hair et al. 1998). In addition, if the number of attributes exceeds ten, alternative methods like (ACA) are recommended (Green and Srinivasan 1990).

### ***Selection of the data collection design***

Real products or services are usually not distinctive enough to provide reliable estimates of parameters and therefore conjoint analysis is usually done with hypothetical product or service descriptions (Green and Srinivasan 1978). If all combinations of attribute manifestations are included in the study, it is called complete factorial design (Gustafsson et al. 2003). However, due to the risk of excessive respondent burden, it is important to keep the number of profiles as low as possible and therefore a reduced design is often preferred which attempts to represent the complete design based on a smaller number of profiles (Green and Srinivasan 1978). For this reason, most or all interactions are typically excluded and they are therefore called "main effects only" models. A fractional factorial design is the most common method for defining the "main effects plans" for evaluation (Hair et al. 1998). These attribute level combinations are also called orthogonal designs because the levels of each attribute are uncorrelated with (orthogonal to) one another (Malhotra and Birks 2003).

Fractional factorial design selects a sample of possible profiles depending on the type of composition rule assumed to be used by the respondents (Hair et al. 1998). According to Louviere (1994) virtually all applications of traditional conjoint technology have used the "main effects plans". In this study, too, an additive "main effects" model was selected which assumes that individuals "add-up" the part-worths to calculate an overall score indicating the preference or utility of a product or service (Hair et al. 1998). If the full profile method was used in this study it would include 81 ( $3*3*3*3$ ) different combinations of attribute levels (i.e. profiles). This may result in excessive respondent burden and compromise the quality of the responses. To reduce

the respondents' evaluation task, a fractional factorial design was employed and a set of nine profiles was constructed using the SPSS/Conjoint.

### ***Selection of the way the stimuli are presented***

Verbal and graphical representations and their combinations can be used to present the profiles. When the presentation is verbal, the respondents are typically given profile cards and asked to either rank order them or rate them on a scale (Green and Srinivasan 1978). Since verbal labels are not always the optimal in conveying the meaning of some attribute levels, visual representation methods have sometimes been used (American Marketing Association 2000). Green and Srinivasan (1978) found several advantages of visual profiles over verbal profiles. They argue that information overload is reduced, higher homogeneity of perceptions across respondents is achieved, the task is perceived to be more interesting and the stimuli are perceived to be more realistic. They also found some disadvantages like increased costs and time spent on the part of the researcher and further, a danger of displaying different information than the researcher intended.<sup>2</sup> In this study a combination of pictorial and verbal representations was used. Whereas Location and Response Time were represented verbally Screen Size and Keyboard were represented both verbally and pictorially in each profile card.

### ***Selection of data collection procedure***

Conjoint studies, like many other surveys, can be conducted by using telephone, face-to-face interview, mail, computer or the Internet. According to Wittink and Cattin (1989) conjoint studies are mainly conducted by telephone or mail to ensure geographic representativeness. This study was conducted using the Internet. The questionnaire was placed on the Internet service of the Nordea Bank Finland. An Internet survey was felt to be efficient when collecting a large amount of data. This reduced the burden of the researcher. As Gustafsson et al. (2003) note, computer administered conjoint analysis requires greater attention with the growing popularity of the Internet and further, the benefits of Internet conjoint surveys call for a more extensive use of this way of surveying.

### ***Selection of the method for stimuli evaluation***

Respondents' evaluation and measurement of potential products takes either a metric scale used for rating, or a non-metric scale used for ranking and paired profiles comparisons. When a rating scale is used, respondents normally grade perceived benefits on a numbered scale but when a ranking scale is used they only present an

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<sup>2</sup> For a more detailed comparison between verbal and pictorial representations see Vriens et al. (1998).

order of preference (Gustafsson 2003). Thus, while the ranking format asks the respondents to rank product or service profiles from most preferred to least preferred, the rating format allows respondents to indicate their preferences for the profiles in terms of numbers. Both preference measures have certain advantages and limitations. Rank-order has been argued to be more reliable since it is perceived by respondents to be easier when a rather small number of profiles are to be ranked (Hair et al. 1998). The major drawback of the ranking process is related to its administering since a rank-ordering task usually entails a personal interview due to the considerable amount of information required by the research procedure (Green and Srinivasan 1978). In contrast, advocates of rating data believe that rating is more convenient for the respondents (Malhotra and Birks 2003) and easier to analyse and administer by various data collection procedures (Hair et al. 1998; Malhotra and Birks 2003). Furthermore, rating scales require respondents to provide the intensity of the preference which cannot be determined using the ranking method (Gustafsson 2003). In recent years the metric approach and rating method in marketing conjoint studies has increasingly replaced the traditional ranking method (Gustafsson 2003; Malhotra and Birks 2003). Thus, in this study the respondents were asked to rate the profiles by indicating how well on a scale 1 to 10 the fictional device described would serve the respondent for the banking service in question, a high score indicating greater likelihood.

#### ***Estimation of benefit values***

The researcher has to decide whether the data is analysed at an aggregate or individual level (Malhotra and Birks 2003). At the aggregate-level the results provide group statistics of the data and on individual level the data of each respondent are analysed separately enabling data clustering. In this study the group statistics were analysed at the aggregate level in order to find the utilities of the attribute levels and the relative importance of the different attributes. Thereafter, using K-Means clustering with individual-level results the individuals with similar responses were grouped together.

### **3.4 Validity and reliability of the study**

Four criteria have been commonly used for judging the quality of research design: internal validity, construct validity, external validity and reliability (Yin 1994). Validity in general is seen as a synonym for truth (Silverman 2002). It is synonymous with accuracy or correctness and indicates whether the score observed and recorded actually represents the true score of the object (Churchill 1999). *Internal validity* is a truth about conclusions regarding cause-effect or causal relationships (i.e. whether what the researcher did in the study caused what the researcher observed to happen).

Thus internal validity indicates the extent to which a researcher is successful in eliminating the effects of other factors that may confound the relationships under study (Churchill 1999). Yin (1994) argues that it is typically a concern for explanatory or causal studies, and not for descriptive or exploratory studies. Yin (1994, 33) explains internal validity as follows: "establishing causal relationship, whereby certain conditions are shown to lead to other conditions, as distinguished from spurious relationships".

*Construct validity* establishes correct operational measures for the concepts being studied (Yin 1994). Thus it aims first to define the concept or construct explicitly and then to show that the operational measures logically connect the empirical phenomenon to the concept (Aaker et al. 2001). It reveals whether the researcher has done what was intended to be done and whether the researcher has observed what was intended to be observed. In qualitative interview studies construct validity may be improved by compiling information on the interviewed persons and the related earlier theories before the interviews are carried out (Hirsjärvi and Hurme 1991), whereas in quantitative experiments construct validity could be tested by whether or not the measures confirm hypotheses generated from the theory based on the concepts (Aaker et al. 2001). However, Aaker et al. (2001) have argued that little construct validation is done in marketing since the relatively young theory itself may be incorrect making construct validation risky. *External validity* refers to the extent to which the research results are generalisable, i.e. equally applicable to other research settings (Yin 1994). It is argued that whereas qualitative studies and laboratory experiments are generally believed to be more internally valid, field experiments and surveys are typically more externally valid (Churchill 1999).

Finally, *reliability* refers the extent to which a measurement reproduces consistent results if the process of measurement were repeated (Malhotra and Birks 2003). Thus if another investigator follows exactly the same research process as described by an earlier investigator and conducts the same study all over again, the second investigator should arrive at the same findings and conclusions (Yin 1994). Reliability is an important indicator of the quality of a measure since it determines the impact of inconsistencies in measurement on the results (Churchill 1999). Therefore, the research process should be carefully and objectively described and documented, so that the researcher himself or other researchers are able to replicate the research process and obtain similar results.

In the light of research validity in the qualitative phase of the study the previous studies in electronic banking and theories concerning consumer behaviour, means-end approach and value were analysed before the interviews. Based on this information the questions for the interview were formulated and the structure of the research was designed. Also, some relevant information concerning the study about

the individuals to be interviewed existed before the interview. The interviewees were selected based on this prior information. However, the validity of laddering technique in general has been criticised by a number of authors and some improvements have been suggested (see e.g. Valette-Florence and Rapacchi 1991; Grunert and Grunert 1995). Grunert and Grunert (1995) suggest focusing on *predictive validity*, meaning the expected accuracy of the laddering method in predicting behaviours toward the products and services in question. They propose four criteria that will improve the predictive validity of laddering results: First, the interviewer should not in any case suggest attributes, consequences or values in the laddering study, second, the inclusion in the interview of respondents with little knowledge about the product or service is not recommended since uninformed respondents may construct new associations to meet the interview demands. Respondents with highly comprehensive knowledge should likewise be avoided since they may find it difficult to follow the hierarchical structure of laddering. Third, in the coding phase, the researcher should be careful not to influence on the results in grouping different answers together. Fourth, only respondents classified as reasonably homogenous should be entered on the map that describes the results of the means-end study.

Due to the validity problems in laddering technique mentioned above, the interviewees selected were experienced customers who still were not professionals in electronic banking. Experienced customers, in this study, were taken to be customers who had used electronic banking services for over three years and who had experience of using more than one electronic channel for banking actions. Moreover, attention was paid to the coding of the results in order to minimise the researcher's subjective influence on the results. Finally, the respondents were classified based on the one hand on the service they used and on the other hand the channel they used for consumption of the service. Thus the results of the means-end study were presented in different hierarchical value maps (HVM), each service-channel combination in a separate map.

The laddering technique has also been criticised for lack of external validity arising from the generalisability of the results to a larger population (Grunert et al. 2001). However, some attempts have been made to validate results from laddering studies by quantitative data collection methods (see e.g. Grunert 1997; Hofstede et al. 1998). Huber et al. (2001) have suggested conjoint analysis as an applicable quantitative technique to measure the product or service attributes derived from a means-end experiment. The results of conjoint analysis are assessed for accuracy, that is, to ascertain how consistently the model predicts the set of preference evaluations given by each respondent (Hair et al. 1998). This is typically measured with Pearson's R and Kendall's tau. However, if the attribute levels are defined as discrete, that is, no part worth relationships like linearity are decided upon beforehand, the correlation obtained from Pearson's R and Kendall's tau are not necessarily informative regarding

validity. Thus, a popular method to measure the validity and reliability of a conjoint study is to use validation or holdout profiles. They resemble the original profiles evaluated and rated by the respondents but the conjoint procedure does not include the ratings of the holdout profiles in the estimation of part-worths. Instead, the estimated part-worths are used to estimate the preference order for the holdout stimuli, which is then used by the conjoint procedure to compute correlations between these predicted and actually observed responses in order to assess the validity and reliability of the study (Hair et al. 1998). In the SPSS/Conjoint the holdout cases do not duplicate the experimental profiles or each other. They can be randomly mixed with the experimental profiles or presented right after them. In this study, in addition to the set of nine profiles to be evaluated by the respondents, three holdout profiles randomly generated by SPSS/Conjoint were used and included at the end of the conjoint task. Table 9 illustrates the design and holdout profiles used in the study and Table 10 the validity of the conjoint analysis.

**Table 9: Profiles in the conjoint study**

<b>Profile number</b>	<b>Attribute: Screen size</b>	<b>Attribute: Keyboard</b>	<b>Attribute: Location</b>	<b>Attribute: Response time</b>	<b>Profile status</b>
1	About 13"-19"	Medium	Flexible	0-3 sec	Design
2	About 2"	Normal PC-keyboard	Flexible	Over 10 sec	Design
3	About 13"-19"	Normal PC-keyboard	Fixed	3-10 sec	Design
4	About 5"	Small	Flexible	3-10 sec	Design
5	About 13"-19"	Small	Home or work	Over 10 sec	Design
6	About 2"	Small	Fixed	0-3 sec	Design
7	About 5"	Normal PC-keyboard	Home or work	0-3 sec	Design
8	About 2"	Medium	Home or work	3-10 sec	Design
9	About 5"	Medium	Fixed	Over 10 sec	Design
10	About 2"	Small	Flexible	0-3 sec	Holdou
11	About 2"	Medium	Flexible	0-3 sec	Holdou
12	About 5"	Small	Flexible	0-3 sec	Holdou

Correlations between actual and predicted ranks were measured with Pearson's R and Kendall's tau. The measures of correlations will take values between -1 and +1, with a higher value indicating higher correlation. Both Pearson's R and Kendall's tau received values 1.000 in each service, indicating perfect fit. However, since the attribute levels were considered to be discrete in the study the model nearly without exception perfectly fits the data and thus Pearson's R and Kendall's tau did not necessarily provide informative message for validity considerations. These correlations are usually high in conjoint studies and thus since there is always a potential for "overfitting" the data Hair et al. (1998) have strongly encouraged conjoint analysts to use holdout stimuli.

**Table 10: Validity of the conjoint study**

	Internet bill paying		Mobile bill paying		Mobile request for account balance	
		Sig.		Sig.		Sig.
Pearson's R	1.000	.0000	1.000	.0000	1.000	.0000
Kendall's tau	1.000	.0001	1.000	.0001	1.000	.0001
Kendall's tau for 3 holdouts	.333	.3008	-.333	.3008	-.333	.3008

Kendall's tau for the three holdouts expresses the validity and reliability of the conjoint task. It is a measure of the correlation between the actual and predicted ranks of holdout stimuli. That is, for each stimulus separately the values are put in ascending order and numbered, 1 for the lowest value, 2 for the next lowest and 3 for the highest. The holdout sample showed low correlations between the predicted ranks based on responses given to the design profiles, and actual rank orders of holdout stimuli, the correlations being 0.333 in Internet bill paying and -0.333 for mobile bill paying and mobile request for account balance service. One explanation for the low correlations could be the nature of holdout profiles in the study. The SPSS/Conjoint randomly generated holdout profiles that were identical in terms of location and response time and closely resembled each other in terms of screen size and keyboard. This may have caused similar ratings for all holdout profiles given, especially by those respondents who highly valued flexible service access location and fast connection speed and were not concerned about screen size or the keyboard of the device. If this is the case the SPSS/Conjoint deleted these responses from the equation and the correlations were based on the remaining responses. In this sense, a conjoint study based on profile rankings by the respondents could have provided better results. Moreover, the number of holdout profiles was small in the study, which makes it extremely sensitive to even the slightest mismatch of actual and predicted ranks. More reliable validity evaluation of the study would have required more holdout profiles to be measured.

### 3.5 Outline of the study

The outline of the study introduces the fundamental design of the work. It illustrates the empirical research process and the theoretical assumptions on which the study is based. Moreover, it shows how the research problems are integrated in different phases of the process and how the research papers are interrelated with the research problems. Finally, the outline of the study presents the methodological process of the study, demonstrating how the sequential transformative mixed research strategy is applied in the work.



As the study concentrated on identifying the essential value driving characteristics of Internet and mobile channels in banking, a literature review was first conducted in order to gain an understanding of the research phenomenon. Thereafter, as the first empirical subordinate research problem concerned the linkages between attributes of electronic channels and customer desired end-states, a means-end approach seemed to provide appropriate theoretical and methodological ground for exploring the phenomenon. The fundamental premise of the framework rested on value theory and its assumption, that values, i.e. desired end-states, guide the selection or evaluation of human behaviour (Schwartz and Bilsky 1987). The desired end-states can be seen as the ultimate ends served by the product or service (Woodruff and Gardial 1996). Achieving desired end-states may be a result of a combination of multiple consequences and the consequences may be the result of multiple product or service attributes, which may be hierarchically structured. There is a large body of literature arguing that perceived value is referable to the benefits customers receive (Anderson and Narus 1998; 2004; Bettman et al. 1998; Lai 1995; Butz and Goodstein 1996; McDougall and Levesque 2000; Anderson and Vincze 2000; Hawkins et al. 2004; Schiffman and Kanuk 2004). However, some scholars argue that viewing perceived value as a trade-off between benefits and sacrifices is too simplistic (see e.g. Bolton and Drew 1991; Sweeney and Soutar 2001) and it seems that customer perceived value is more complex than a mere function of benefit and sacrifice (Heinonen 2004a). Thus, Holbrook's (1994; 1999) dimensioning of customer perceived value as extrinsic vs. intrinsic, self-oriented vs. other-oriented and active vs. reactive value offered a more holistic view of the phenomenon. Moreover, his definition relating interaction between subject and object, the relativistic nature of value perceptions and preference experience to customer perceived value, provides a more comprehensive value concept and thus is also applied in this study. Customer value perceptions were measured by qualitative customer interviews. The intention was to explore how the characteristics of the object were valued by individuals referring to the interactive nature of value perceptions. Moreover, in the research setting the respondents were asked, based on their usage experience, to compare different electronic methods of banking and to justify their responses referring to the comparative nature of customer perceived value. The intention was to identify the concrete value driving differences between the different channels in service consumption and to identify indications about personal and situational differences.

As services and goods are both of a multi-attribute nature, consumers make trade-offs between different attributes and their levels when selecting between services available in the market (Liljander and Strandvik 1993). Thus, when consumers have options for service consumption, like paying bills via different channels, and they have experience of using these channels, they embody a preference judgment and order for

the value driving characteristics of the channels. Thus, the second empirical subordinate research question was related to the most essential attributes of electronic channels in the consumption of different Internet and mobile banking services. One way to think about value perceptions is that they provide an understanding of how customers prefer certain product or service attributes over others. Conjoint analysis has been found to be an adequate technique to obtain an understanding of the concrete attributes and their preferences valued by customers (Green and Srinivasan 1990; Wittink et al. 1994; Huber et al. 2001). The results of the conjoint study can be analysed at aggregate or individual level (Malhotra and Birks 2003). The aggregate-level results provide utility measures of the attribute levels and the relative importance of the different attributes. These results were used for exploring the second subordinate question of the study. However, since the third empirical subordinate research question related to consumers' individual differences in their channel attribute preferences in Internet and mobile banking, the results of the conjoint study were also examined on an individual level allowing data clustering. Therefore, the K-means clustering with individual-level results was used to group together the individuals with similar responses. Figure 4 presents the outline of the study.

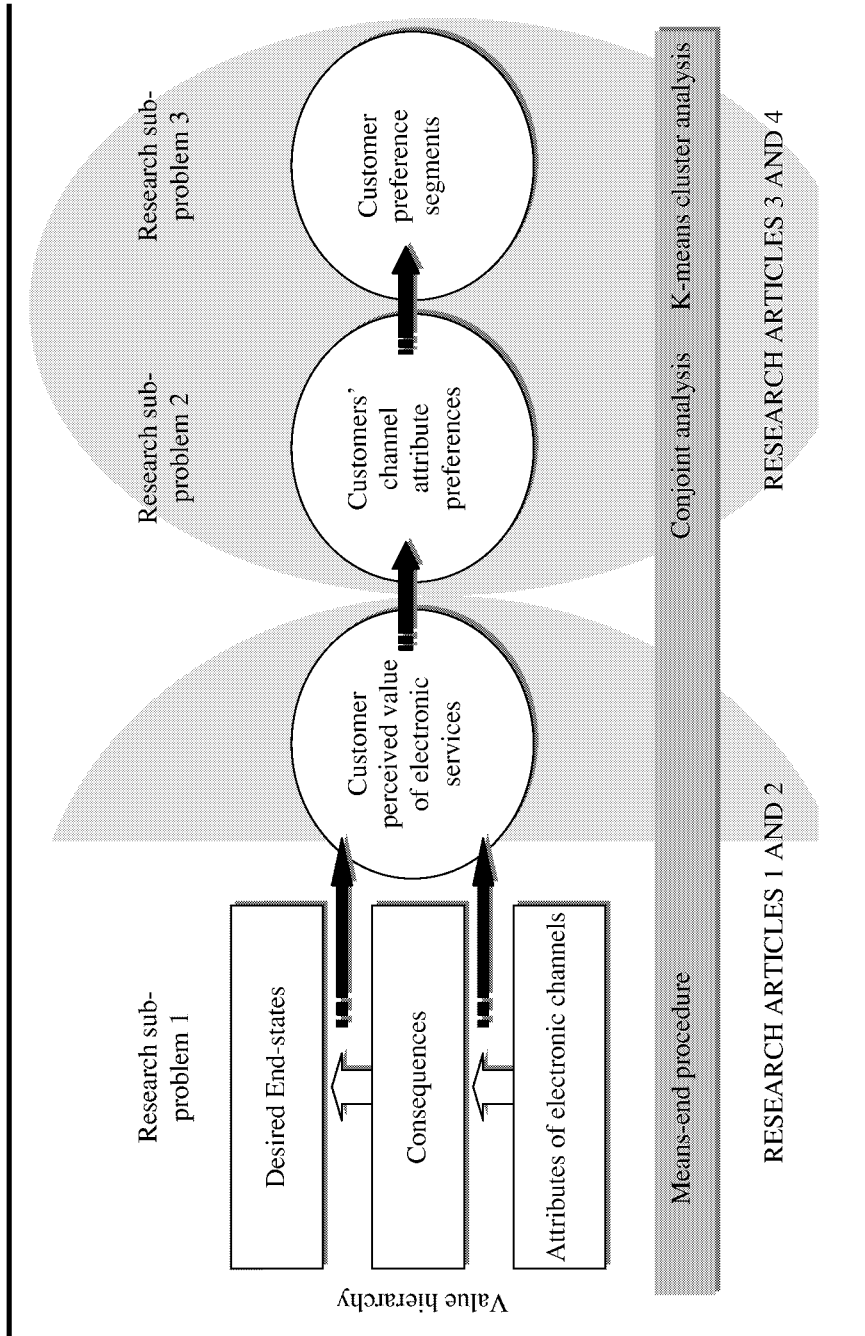


Figure 4: Outline of the study



## **4 RESULTS AND CONCLUDING DISCUSSION**

### **4.1 Introduction to the research papers**

The dissertation is based on four research papers. The first two present the results and findings of the qualitative study based on the means-end approach and laddering interviewing technique. The intention of the papers was to describe how value is created by the customer in Internet and mobile service consumption by describing the hierarchical value compositions that constitute value perceptions. The first paper compares consumer value creation in three different mobile banking services while the second paper compares customers' value perceptions in two Internet banking services. The last two papers present the results and findings of the quantitative Internet survey based on conjoint study and cluster analysis. The focus of the latter two papers was to measure customer preferences of the most important value driving channel attributes emerging from the qualitative interviews. Moreover, the aim of the quantitative study was also to identify preferentially homogenous consumer segments and thus the respondents of the Internet survey were clustered based on their channel attribute preferences. While the third paper compares channel attribute preferences between the customers of two mobile banking services, the fourth paper compares channel attribute preferences between Internet and mobile bill payers.

#### **Consumer value creation in mobile banking services**

The development of electronic banking services via multiple electronic channels has made it possible to create new kind of added value for customers. New service channels are already replacing the more traditional electronic channels like ATMs and push-button telephones in banking. Mobile devices represent one of the recent developments in electronic service distribution. Mobile banking is still in the initial stage of adoption and deeper insight into aspects of consumer psychology and decision-making is needed. The objective of the article is to qualitatively examine consumer value creation in three different mobile banking services, namely fund transfer service, stock exchange service and request for account balance service.

The results indicate heterogeneity in the customers' value perceptions in the consumption of different mobile banking services. Location-free access, keyboard, display and connection speed were found to be the overriding value drivers,

constituting positive or negative value perceptions, when mobile banking was compared to other electronic banking methods. While the location-free access constituted positive experiences in all three services, the value perceptions related to keyboard, display and connection speed varied between the services. In the use of mobile fund transfer and stock exchange service the keyboard of the device was considered difficult and time consuming, causing inconvenience. Similarly, the display of a mobile phone was considered small and insufficient to provide enough information in both of the above-mentioned services limiting the visual view and requiring consumers to engage in browsing. This gave rise to feelings of inconvenience but also, especially in fund transfer, feelings of insecurity. The SMS-service for requesting account balances was felt to be a very efficient and convenient way to check one's balance and the latest transactions of the account. This was largely due to the simple authentication method of the service, which is based on the customer's individual GSM number.

The paper concludes that mobile services are no longer a new phenomenon and in banking they have some apparent advantages and some disadvantages. The inhibitors recognised in the study are partly overcome by technological development but an enhanced understanding of consumer decision-making, behaviour and preferences is needed to increase the added value and penetration of mobile banking services.

### **Customer perceived value of e-financial services: a means-end approach**

Advances in technology and sophisticated users of electronic channels have had a remarkable influence in the development of e-financial services. Not even round-the-clock availability and efficiency are now sufficient in electronic service consumption; customers also have needs for emotional sensations and hedonic consumption experiences. Internet services are able to produce value for both, rational problem solvers and those who base their decisions on emotions and other non-cognitive criteria. However, some organisations have been slow to go online, whereas banks have been one of the leading adopters of Internet technology. By transferring customers' banking transactions to the Internet, banks have been able to gain economic benefits. However, today, when customers are showing increased interest in stock investment activities, service providers also need to pay increased attention to the users of these more advanced Internet services. Thus, the interest of the article is to explore and compare consumer value creation and value perceptions in two Internet services, namely the Internet fund transfer service, representing a basic Internet banking service, and the Internet stock exchange service, representing a more advanced electronic financial service.

The results reveal similarities and differences in customers' value perceptions between the services explored. Convenience and efficiency, deriving from attributes such as computer display, keyboard, 24/7 service availability, home access and financial benefits, were found to be influential factors in the use of both of the services explored. Furthermore, privacy, control and safety related factors, deriving from home access, display and printing capability, were found to be important in Internet fund transfer while Internet stock trading yielded slightly different perceptions. The results suggest that Internet stock exchange contributes more to consumers' lives than the mere ability to fulfil the need for routine transactions. The service was partly perceived by some respondents as a game that they play evoking emotional experiences.

The paper concludes by arguing that consumers' value perceptions seem to differ between different services. Moreover, the results suggested individual differences in value perceptions and called for quantitative studies to examine the findings of the study.

### **Measuring mobile banking customers' channel attribute preferences in service consumption**

The development of mobile communications technology has been dramatic and the use of mobile telecommunications has expanded vastly, encouraging companies to develop and put different kinds of mobile services on the market. Mobile applications produce vast additional value for service consumption but current mobile networks and devices have notable limitations and thus consumers are forced to make trade-offs between the various features of service channels. Today consumers are faced not only with a choice between the branch office and an electronic channel but also with a choice between different types of electronic channels. In this respect alternative channels have different value driving characteristics that enable different kinds of service consumption. Moreover, different services require different technical capabilities from the device. This article examines mobile banking users' channel attribute preferences in the use of request for account balance service and bill paying service.

The results show that location of the service consumption was considered the most important channel attribute in the consumption of both the request for account balance service and the bill paying service. The results indicate that a short spatial and temporal distance between need recognition and need satisfaction is very important for those customers who use a mobile phone for banking actions. The findings also demonstrate the influence of the type of electronic service on the consumer demand for different channel attributes since whereas the second important channel attribute in the use of the request for account balance service was response time, screen size was considered the second most important attribute for bill paying. Moreover, even though

the keyboard of the device received low relative importance scores in the consumption of both of the services a small cell phone keyboard was considered preferable to a PC keyboard in a simple information-based service, whereas the case was the opposite in the consumption of service that requires transactions. While the aggregate results provided a general view of how different channel attributes are valued by consumers in banking actions, individual customers' preferences varied widely. Both groups, request for account balance users and bill payers, had users who attached the greatest importance to the service access location, the other attributes being of hardly any interest. Moreover, both services had a group of those users who considered the screen size of the device the most important channel attribute in the service consumption in question. Finally, both services had those respondents who perceived both screen size and response time to be important characteristics in the use of the service.

The study revealed groups of customers who call for currently ongoing development in technology concerning 3G and improvements in resolution of the screens. From the academic perspective the results show that the drivers of value and their weights differ between customers, calling for companies to react the preference heterogeneity by modifying their current offerings to serve different consumer segments.

### **Customer preferred channel attributes in multi-channel electronic banking**

Whereas Paper 3 examined mobile customers' channel attribute preferences in two different services, Paper 4 focuses on identifying differences between those customers who use the Internet for bill paying and those who, in addition, use a mobile phone for the service. Thus the interest is to compare how Internet and mobile users' channel attribute preferences differ from each other in the consumption of the same service. The results indicate that for the Internet users the most important attribute was screen size, followed by location and response time, while the mobile users paid the greatest attention to service access location, followed by screen size and response time. The importance attached to keyboard was relatively low in both groups. The biggest difference between these two groups of users relates to service response time. Whereas an increase in the response time from 0-3 seconds to 3-10 seconds appears to have caused hardly any reduction in utility among the mobile group the reduction was notable among the Internet group. Moreover, among mobile users a screen size of about 5 inches is considered adequate for bill paying whereas among Internet users the large screen is considered the only appropriate option. In addition, more flexible service access points were preferred over more fixed locations and the midsize keyboard was the most preferred in both groups.



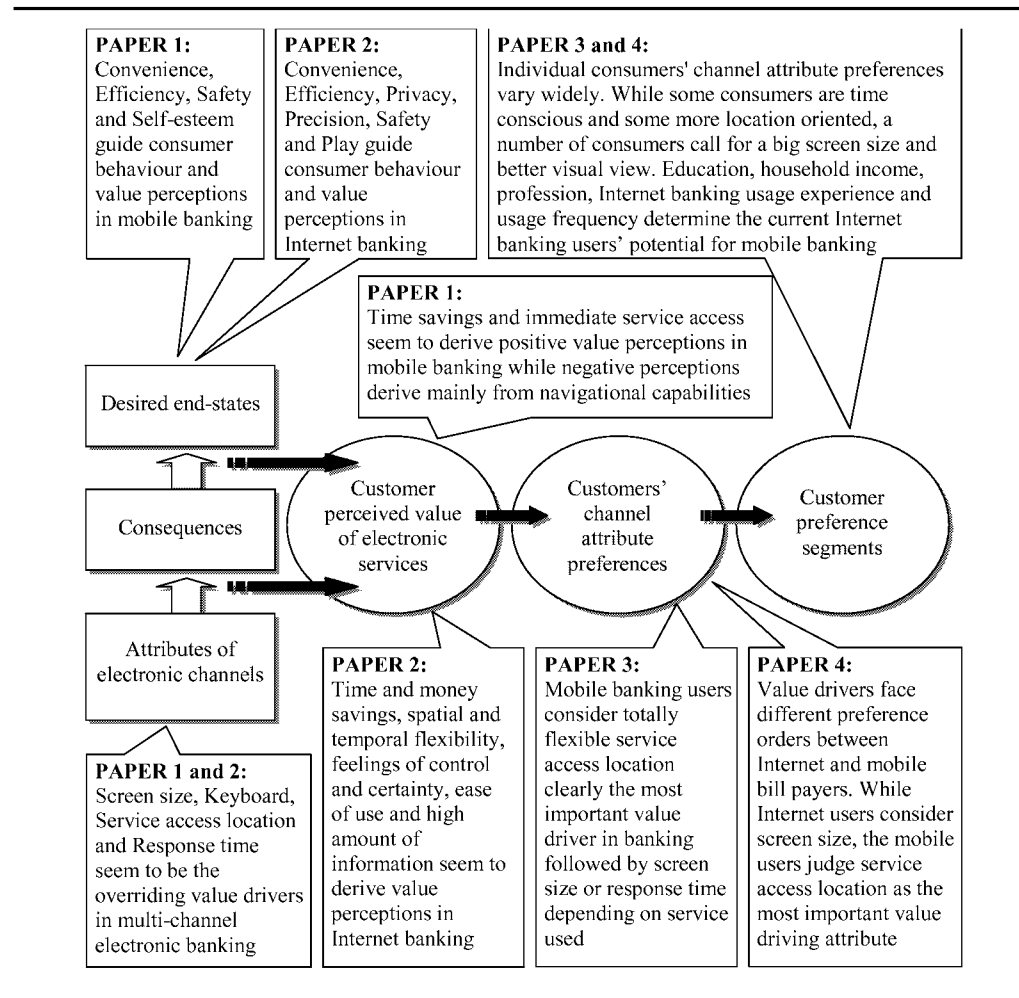
The paper shows that Internet and mobile users differ in their preferences for electronic channel attributes in bill paying. Moreover, the article also suggests that the attributes meet different needs from different Internet and mobile user segments providing the banks with a basis for developing their communication strategies. For example, groups of potential mobile bank customers among current Internet users are identified in the article encouraging banks to develop marketing actions to increase the number of mobile users.

## **4.2 Summary of the results**

The theoretical interest of the study relied on gaining a more comprehensive conceptualisation of customer value perceptions in an electronic banking context while the empirical goal was to explore what drives value in Internet and mobile banking. This was explored by three subordinate research questions: (1) How are different attributes of electronic channels linked to customer desired end-states in the consumption of Internet and mobile banking services? (2) What are the most essential attributes of electronic channels in the consumption of different Internet and mobile banking services? and (3) How do individual customers' channel attribute preferences differ from each other in the consumption of Internet and mobile banking services? Figure 5 relates the key findings of the study and different research papers to the outline of the study.

The creation of superior customer value has been one of the prime interests of industrial marketing research while at the same time many scholars have been interested in exploring how customers perceive value. The motivation for the study derived from the capability of the different electronic service consumption methods to provide multiple dimensions of customer perceived value ranging from economic or cognitive value to more hedonic or affective value. It was further argued that the mainstream in electronic banking studies has had a rather narrow perspective on consumer behaviour in the context and a more holistic view was needed. Thus, customer value literature and those works especially discussing multiple dimensions in value creation were seen to have potential for providing contribution to the research in the field. It was concluded that Holbrook's (1994; 1999) definition of customer perceived value as interactive relativistic preference experience and his three-dimensional value typology would provide the needed perspective on electronic banking research. It was, moreover, noticed that current results explaining consumer behaviour in an electronic banking context seemed to provide different abstraction level constructs, but their hierarchical relations to each other were poorly reported. Thus the compositions that constitute value perceptions were explored by qualitatively

identifying hierarchical structures that illustrated how value was created by the customer. The means-end theory and laddering interviewing technique was used. Table 11 illustrates the results of the qualitative study in relation to Holbrook's value typology.



**Figure 5: Results related to the outline of the study**

These structures further provided information about the essential value driving attributes. It was argued that individual customer's value perceptions determine the importance and preference order for these value drivers. The value driving attributes were measured quantitatively using conjoint analysis in order to identify customer preferences for these drivers. Finally, using K-means clustering the individuals' preference diversity was measured. The following discusses the findings of the study in relation to the empirical research problems of the study.

- 1 How are different attributes of electronic channels linked to customer desired end-states in the consumption of Internet and mobile banking services?

The intention was first to explore how different value creating elements of electronic banking were related to each other by consumers and second to explore if and how the value constellations were different between channels and services. The results, depicted in the research papers 1 and 2, showed that screen size, keyboard, service access location and response time are the overriding value drivers in Internet and mobile banking. The location free access of a mobile device resulted in time savings in the consumption of fund transfer service, money savings in the case of stock exchange service and feelings of control and ability to avoid negative situations when requesting account balances. Moreover, while the keyboard and display of a mobile device resulted in constellations relating to negative value perceptions, the case was the opposite for Internet services. The results showed that value constellations differ between services as well as between channels.

**Table 11: Customer perceived value dimensions in electronic banking**

Value dimensions		Extrinsic	Intrinsic
Self-oriented	Active	<b>EFFICIENCY</b> Ratio of inputs and outputs. Viewed as convenience when dealt with time.	<b>PLAY</b> Involves enjoyment and having fun
	Reactive	<b>EXCELLENCE</b> Involves quality / performance and financial value / security	<b>AESTHETICS</b> Aesthetic appearance, beauty and design
Other-oriented	Active	<b>STATUS</b> Symbols that generate status in the eyes of others	<b>ETHICS</b> Please others, virtue, justice and morality
	Reactive	<b>ESTEEM</b> Reputation, materialism, possessions and enhanced self-esteem	<b>SPIRITUALITY</b> Faith, ecstasy and magic

While convenience, efficiency and safety were found to guide consumer behaviour and value perceptions in both Internet and mobile services, self-esteem in some mobile services and privacy, precision and play in part of Internet services generated differences. Even though service consumption is typically seen to characterise a self-oriented activity, the study revealed other-oriented value perceptions especially in the use of mobile request for account balance service. The service was related to ability to avoid negative and embarrassing situations such as if there was no money on the

account at the time of purchase, for example, by requesting the account balance before realising a purchase. This was related to self-esteem being an other-oriented value in the sense that the consumer evaluates how other people react and feel and aims to avoid negative perceptions.

Privacy as a desired end-state in Internet service was related to peaceful home access without anyone distracting the user from the use of the service while precision related to feelings of control through the ability to perform actions by oneself. While value perceptions are generally related to a trade-off between benefits and sacrifices referring to extrinsic value and to the consumer as a rational problem solver, the results identified both reactive and active self-oriented intrinsic value perceptions in electronic banking service consumption. While the reactive value referred to the visual view in both channels the active value referred to online stock trading service as a game that some customers play. This differs from the general understanding that banking services serve purely as a means to accomplish a goal like conducting a transaction or making more money by active stock trading. It is argued that the Internet has generated additional dimensions for the exchange business by influencing consumers' ability to experience intrinsic fun by following the online stock rates, colours and graphics and finally take action when needed.

Earlier studies have argued that ethics and spirituality in Holbrook's value typology are difficult concepts to measure (Gallarza and Saura 2006). These value perceptions did not appear in the current study, either. It seems that other-oriented intrinsic value perceptions are not related to consumer behaviour in an electronic banking context. Similarly, no proofs related to customer perceived status in the eyes of others were found in the study. These open-remained areas are worth future research.

Value perceptions of scholarly interest as other-oriented value and intrinsic value were embedded in the consumption of rarely investigated services like request for an account balance service and stock trading service. This indicates a need for a further research on these unexplored areas of customer value. Even though the results showed that the self-oriented extrinsic value perceptions referring to cognitive judgments are dominant in electronic banking, there were clear indications of the existence of hedonic value perceptions in the phenomenon. Thus, viewing customer perceived value in electronic service consumption merely as a ratio between benefits and sacrifices is far too simplistic and narrow view of consumer behaviour.

- 2 What are the most essential attributes of electronic channels in the consumption of different Internet and mobile banking services?

Holbrook (1994; 1999) emphasises the preferential aspect in value perceptions. One way to think about value perceptions is that they provide understanding how customers prefer certain product or service attributes over others. The attribute preferences and preference order was measured quantitatively using conjoint analysis. The concrete channel attributes were derived from the qualitative means-end study which showed that screen size, keyboard, service access location and response time are the key value drivers differentiating Internet (personal computer) and mobile banking channels from each other. The results of the quantitative survey showed that mobile banking users consider totally flexible service access location clearly as the most important value driver in banking followed by screen size in bill paying and response time in request for account balance. The consumers' perceptual differences between consumption of these services are in line with the qualitative findings presented in the first research paper. While bill paying represents a service that requires transactions to be made the request for account balance service represents a purely information-based service. Thus, a service that requires transactions to be made by the user calls for a bigger screen and it is not necessarily perceived that time dependent as a service that only produces information to the customer.

Moreover, value drivers face different preference orders between Internet users and those who, in addition, have experience of using a mobile device for the same service. The results showed that while Internet users considered screen size the most important channel attribute in bill paying, the mobile users placed greatest value on service access location. Even though the results showed equal preference for response time between Internet and mobile users the Internet users considered 0-3 sec response time the only appropriate alternative while mobile users perceived hardly any difference between response times of 0-3 sec and 3-10 sec. Generally the results showed minor differences in customers' channel attribute preferences between services but the differences between channels were notable. Thus more work is needed to understand why users of different channels have different preferences toward different channel attributes. Is it due to attitudinal differences between the consumers or is it a result of learning? If the latter is the case and service providers will want to direct customers to use new electronic channels, they need to teach their customers how to use innovations and encourage them to make the first trial.

### 3 How do individual customers' channel attribute preferences differ from each other in the consumption of Internet and mobile banking services?

Since customer perceived value is argued to be personal (Holbrook 1994; 1999), varying between individuals, individual customers' channel attribute preferences were measured in the study. The situation is challenging for the marketer, since individual

customers' preferences varied widely regardless of service or channel used. While some consumers are time conscious and some more location oriented, a number of consumers call for a big screen size and better visual view. Individual differences revealed the groups of customers who will most likely benefit from the ongoing developments in mobile technology, especially concerning connection speed and screen graphics. In fact, potential mobile banking users were identified among those who currently use Internet but have never used a mobile phone for banking services. The results showed that education, household income, profession, Internet banking usage experience and usage frequency distinguish potential mobile banking users from other Internet banking users while age, gender, size of the household, province or place of residence had no statistically significant influence.

### **4.3 Theoretical and methodological implications**

It has been argued in this dissertation that a more profound understanding of customer value perceptions in electronic banking is needed since the present literature does not provide a comprehensive enough understanding of the phenomenon. On the basis of the literature review, several deficiencies in this research area were found. First, customer value perceptions have mainly been conceptualised cognitively as trade-offs between benefits and sacrifices, leaving a more hedonic examination aside. Second, there is hardly any research evidence in the earlier literature on electronic banking of the hierarchical structure of customer value perceptions even though the elements provided by the literature seem to represent different abstraction level concepts. Third, the earlier literature lacks a comprehensive understanding of the relations of different elements in the phenomenon. Thus, rather than quantitatively measuring pre-defined value items, there is a need to understand how the value is created by the customer. Heinonen (2004a) states that value needs to be conceptualised as a holistic and abstract construct that incorporates dimensions perceived as important by the customer and not merely as based on dimensions controllable by the service provider. Fourth, along the line of thinking by Lancaster (1966) products and services are bundles of attributes and customers evaluate products and services based on these attributes. The earlier literature does not provide comprehensive information on how essential attributes such as 24-hour service availability or service access location are preferred by different customers in Internet and mobile banking. Consequently the following main theoretical contributions and methodological implications of the study can be identified:

- The study provides a more holistic view of customer value perceptions in electronic banking than merely viewing the phenomenon as trade-offs between benefits and sacrifices
- It provides evidence of the existence of hedonic and affective aspects of consumption in electronic banking
- It shows a hierarchical structure and different abstraction levels of the electronic banking related concepts
- It maps connections of different elements of the phenomenon in the value hierarchy
- Finally, the study was able to find segments of customers that value different elements in the consumption of electronic banking services.

The earlier literature has poorly conceptualised consumer perceptions in electronic banking context. The fundamental idea of this study was to bring holism to the discussion by applying Holbrook's value conceptualisation and value typology in the given context. The study was operationalised by using the means-end theory and laddering interviewing technique since the elements of the phenomenon, derived from the literature, appeared to represent different abstraction level concepts whose interrelations, however, were not comprehensively presented. The study shows that measuring customer perceived value merely as a trade-off between benefits and sacrifices lacks realism. This supports the view that the trade-off perspective on customer value perceptions, originating in microeconomics and classic decision theory in which a consumer is seen as a rational problem solver, may be too narrow and simplistic (e.g. Hirschman and Holbrook 1982; Bolton and Drew 1991; Sweeney and Soutar 2001). Earlier studies have largely treated banking services as a necessity whose consumption is made more efficient by electronic channels. By using qualitative methods it was possible also to show the hedonic and affective aspects in the consumption of electronic banking services. The Internet stock exchange service especially generated perceptions of play-value. It seems that besides cognitive appraisals, at least some electronic services are also evaluated in terms of affective experiences. Holbrook (1994; 1999) defines this utilitarian versus hedonic dichotomy as an extrinsic versus intrinsic value dimension. Moreover, earlier studies have largely treated electronic consumption as a self-oriented activity referring to the product or service valuation of an individual purely for that individual's own sake. It was possible to show in this study that consumers value consumption of some banking services also for other-oriented purposes, for example, by using mobile request for account balance service in a store in order to avoid embarrassing situations. In his study on mall and Internet shopping Kim (2002) ignored the other-oriented dimension of Holbrook's typology by arguing that shopping typically characterises a self-oriented activity. The findings of this dissertation suggest that other-oriented value exists in electronic service consumption and it should not be ignored but rather studied more thoroughly. Thus a major contribution of the study is to show that viewing electronic consumption

in terms of self-oriented extrinsic activity does not provide the whole truth of the phenomenon - instead a more holistic view is needed.

Consumer theorists in the late seventies and early eighties (Howard 1977; Vinson et al. 1977; Gutman 1982) began to recognise that consumers' product-related knowledge exists at different hierarchically structured levels of abstraction. Along this line of thinking it was possible to show in this study that different factors defining consumer behaviour in electronic banking context are not necessarily separate concepts but rather interrelated elements in different abstraction levels. This means that the phenomenon cannot be comprehensively described on one abstraction level only. For example, stating that convenience is important does not provide enough actionable information unless we are not familiar with how the convenience is constituted by the customer. Moreover, earlier studies have, for example, treated time and location separately (e.g. Heinonen 2004a; Heinonen 2004b) but the results of this study showed that in the value creation process these concepts can also be interrelated and appear on different abstraction levels. Thus an important contribution of the study is to provide a more profound understanding of how these different elements are related to each other and further, how different channel attributes generate customer value perceptions.

The study also contributes to the existing literature on customer perceived value by showing that consumer perceptions differ even in such a narrow context as consumption of electronic banking services. The results showed that the relative importance of different channel attributes differed markedly between bank customers enabling customer segmentation. Four to five segments with different preferences were identified. This indicates that the four channel attributes, namely screen size, keyboard of the device, service access location and response time derived from the means-end study generate different opinions between customers. As such, it can be concluded that all four attributes are relevant in electronic service consumption but not equally for all customers.

To conclude, the study contributes to the value literature by offering a more holistic view on customer value perceptions in multi-channel electronic service consumption which differs remarkably from traditional service consumption in branches. Holbrook's value ideology seemed to work well in the context offering the needed perspective to the phenomenon. It is obvious in the consumption of banking services that more and more customers are moving towards more flexible service consumption disengaging themselves from fixed locations like branch offices. Even electronic banking users and those who already use the Internet for banking actions desire more flexible service access methods. However, it has to be conceded that customers have different preferences and thus face different needs. Products and services need to be developed by catering for this human characteristic.



#### 4.4 Managerial implications

From a managerial perspective the study provided a more profound understanding of customer value drivers in multi-channel electronic banking. The means-end theory through qualitative laddering interviewing technique is a tool that can help managers to gain clearer picture of consumer decision-making so that they can think more effectively about their product or service development strategies (Reynolds et al. 2001). The findings revealed customer-perceived important attributes of different electronic channels in banking actions. The study showed why customers look for these attributes when using electronic banking services by linking the attributes to consequences of customer-service interaction and finally to customer desired end-states. Managers can use this information in specifying customer desired characteristics of the service consumption and in developing their current multi-channel service offerings. For example, the location free access in mobile bill paying was seen to be time saving and efficient, while the data input and visual view was considered difficult and inconvenient by customers. Improvements like barcode readers using, for example, the camera of mobile phones could reduce the burden and perceived uncertainty of the customer and increase convenience in mobile bill paying by copying the account numbers, index numbers, the sums and due dates from the printed bill into the mobile phone. The customer would only need to accept or reject the payment.

Moreover, SMS-based mobile request for account balance service was by the respondents perceived to be very efficient and convenient. The value of the service mainly derived from the fact that the customer does not have to open an Internet connection to the bank and enter PIN and TAN codes. Instead, the customer enters the personal access codes only once during the first call and afterwards, the service identifies the user by the GSM number. The customer gets the balance and latest transactions of the account as a reply message in SMS format. Even though the mobile request for account balance service seems to be value adding, it has not yet received attention on a mass scale. Banks should perform marketing actions in order to raise the awareness of this value adding mobile service. Moreover, adoption of one mobile service could also increase interest in other mobile services.

The results of the study indicated that, for some, Internet stock exchange service is a game that they play while others engage in active trading solely in order to make more money. Marketers should recognise these different groups of customers and use the information in service development and marketing actions. Moreover, the feeling of control and improved privacy were recognised as one of the value adding

elements of Internet and mobile banking. In addition to increased efficiency and convenience, banks could appeal to the increased control and privacy in their marketing campaigns when recruiting new electronic banking users.

From a managerial perspective Vriens (1999) classified the use of conjoint analysis into four purposes: segmentation purposes, product related purposes, pricing related purposes and promotion and distribution problems. Identifying the differences in consumer preferences is important, since marketers could reach different segments of their target customers by emphasising combinations of attributes important to individual sub-segments in their marketing campaigns and communication activities. Indeed, the conjoint study revealed that preferences of individual customers vary widely regardless of service or channel used. A clear distinction was shown between Internet and mobile users. It appears that while Internet users put most emphasis on screen size, followed by location and response time, mobile users weight location the most, followed by screen size and response time. This shows that banks have been able to provide added value for those customers requiring mobility in service consumption. Moreover, the study identified groups of customers who put emphasis on connection speed and on-screen graphics. Thus there seems to be a need in mobile service consumption for the ongoing developments in mobile technology. Moreover, potential mobile banking users generated by the technological development were identified among those who currently use Internet but have never used a mobile phone for banking services. The results showed that higher education level, higher household income, longer Internet banking usage experience and higher usage frequency determine the current Internet banking users' potential for mobile banking. Moreover, those in leading position, experts or entrepreneurs have higher potential for mobile banking than others.

Product related marketing problems require a large amount of information (Vriens 1999). This study also provided information for device manufacturers' aims to develop even better devices for mobile service consumption. The study showed that an approximately 2-inch screen is far too small for using banking services while already about 5-inch display is adequate in the use of information-based services like mobile request for account balance service. Moreover, today many mobile devices have limited keyboards with small keypads. The results of the study suggested that in mobile service consumption a full middle-sized keyboard (like the Nokia Communicator) would be the most preferred option. Device manufacturers could use this information in designing different models of mobile devices, especially those intended to be used for service consumption.

Furthermore, response time was considered important by both Internet and mobile users. The results showed that an increase in the response time from 0-3 seconds to 3-10 seconds appears to cause hardly any reduction in perceived utility

among mobile users while the reduction seems to be notable among Internet users. However, over a 10-second response time is considered almost unacceptable in both groups. It may be that mobile users are more patient with the service. Probably they are used to being more forbearing in the bill paying process, whereas those who have used Internet but not a mobile phone for the service expect instant interaction with the service. Thus service providers could market the potential of the third generation mobile phones in service consumption in order to increase the number of mobile service users and their awareness of the value adding elements of mobile services in general.

#### **4.5 Limitations and critical evaluation of the study**

Some limitations are evident in the study and critical evaluation from a theoretical and empirical perspective is needed. In this study, qualitative and quantitative research techniques were used in a sequential manner. The purpose of the qualitative study was to identify the most important value drivers in Internet and mobile banking and to describe the compositions that constitute customer value perceptions. Thereafter, the aim of the quantitative study was to measure how the perceptions differed between consumers. The use of the means-end theory with laddering interviewing technique in the qualitative phase and the generalisation of the results to a larger population by using conjoint analysis seemed to work well. However, there are issues in the means-end theory, laddering interviewing technique and conjoint analysis that need critical evaluation.

The epistemological status of the means-end chains is not clear (Grunert et al. 2001). Grunert and Grunert (1995) propose two basic views, namely motivational view and cognitive structure view. The motivational view refers to means-end theory as a tool for obtaining insight into consumers' buying motives, whereas in the cognitive structure view the means-end theory is used to explain the way consumption-relevant knowledge is stored and organised in human memory. However, it is argued that a model of cognitive structure by itself cannot explain or predict behaviour and theory currently lacks links between means-end chains and consumer behaviour (Grunert et al. 2001). In this respect, a complete and formalised means-end theory has not yet been developed and many scholars prefer to talk about a means-end approach rather than theory (Olson and Reynolds 2001).

The means-end approach is based on an idea of value hierarchy. One problem related to it is that in order to proceed in the hierarchy the researcher systematically probes for one higher level goal after another and therefore may ignore many important associations at a given level in the hierarchy. Moreover, from the

researcher's perspective it may be unclear when to stop probing (Grunert et al. 2001). The respondent may find it difficult to find further answers already in the lower levels of the hierarchy. This may lead to a situation in which respondents wonder how to answer after realising that they have never thought about why a given outcome is desirable. However, since the means-end theory suggests that preferences have reasons guided by elements on a higher level of abstraction the interviewer may be tempted to continue. If the respondents in this situation are "pushed up" in the hierarchy, the responses may become unreal.

Grunert and Grunert (1995) suggest that respondents with little knowledge about the product or service are not recommended to be interviewed since uninformed respondents may construct new associations to meet the interview demands. Respondents with highly comprehensive knowledge should likewise be avoided since they may find it difficult to follow the hierarchical structure of laddering. In this study only experienced electronic banking customers who, however, were not professionals in the field were interviewed. Experienced customers, in this study, were seen as customers who had used electronic banking services for over three years and had experience of using more than one electronic channel for banking actions. This naturally exposes the study to a potential bias so that the results are not generalisable to a larger population. Moreover, even though the total number of respondents seemed appropriate for a means-end study, the number varied widely between services explored. In those in which, for example, Internet bill paying service had 19 respondents, the results of the mobile stock exchange service are based on only three respondents' responses. This naturally impairs the comparison of the results between the services explored. Furthermore, even though the age distribution was wide the difference between the sexes of the respondents was notable and may have influenced the results of the qualitative study.

In the analysis phase, the distinction between attributes, consequences and desired end-states is not always clear and the researcher has to make subjective evaluations which may expose the study to a potential bias. Moreover, in striving for useful, representative and interpretable means-end chains, individuals' responses were coded and aggregated, which may have sacrificed a certain degree of accuracy. In addition, the literature does not provide strict criteria for choice of cutoff level when constructing hierarchical value matrices (Grunert et al. 2001). This may lead to information loss or, at the other extreme, information overload on the value map. Due to the small number of respondents in some of the services, the cutoff level had to be set low in the study. Therefore, individual respondents' responses had a major influence on the structure of the hierarchical value maps diminishing the generalisability of the means-end study. The external validity of the results from the qualitative laddering interviews are claimed to be difficult to assess in quantitative

surveys (Grunert et al. 2001). Conjoint analysis is suggested to be an applicable quantitative technique to measure the product or service attributes derived from a means-end experiment (Huber et al. 2001).

A critical issue in conjoint study, as in any other quantitative survey, is the representativeness of the sample. Due to the focus of the quantitative study only online users participated, causing problems with generalising the results to the whole population. Moreover, the pop-up questionnaire was placed on the log-out page of only one bank's web service whose customers may differ behaviourally from customers of other banks, causing problems with generalising the results to other banks' customers. In addition, response rates are difficult to determine accurately since in Internet surveys the invitation may be seen several times by some and totally missed by others and thus it is difficult to eliminate multiple responses by the same customers. However, this likelihood was reduced by arranging in advance for the questionnaire to open up to only every fifth visitor and by limiting the period of the survey to 48 hours. On the other hand, since different people may bank online on weekdays than at weekends, placing the survey on the banking site for 48 hours may have exposed the study to a potential bias.

Another critical issue is related to potential correlations between the attributes. The correlation among attributes denotes a lack of conceptual independence among the attributes and may result in unbelievable combinations of attribute levels (Hair et al. 1998). This is related to an attempt by the researcher to provide as realistic a description of the product or service as possible. Due to the nature of the study, some profiles measured may have appeared somewhat unrealistic to the respondents. Let us consider, for example, profile number 2 in the conjoint study. It represents a device with an approximately 2-inch screen, PC-sized keyboard, flexible service access point and over 10-second response time. It may appear unlikely to have such a small screen with a PC-keyboard. However, this combination is totally realistic since, for example, Nokia provides wireless full-size keyboards for mobile phones to facilitate the writing of emails, text messages or notetaking in meetings. The question is, did all the respondents perceive all the profiles as realistic, and the answer may well be negative. Thus it can be concluded that some of the respondents may well have perceived some of the profiles as unrealistic, which may have caused confusion and impaired the validity of the study.

Finally, cluster analysis is widely used and applied in multiple research settings in a variety of disciplines. However, it has aspects that need critical evaluation, and a number of authors have viewed the technique with some scepticism (Saunders 1994). Some have expressed reservations about the clarity or sharpness of the homogenous clusters (Wells 1975), while some have been concerned about determining the appropriate number of clusters or measures of similarity (Green et al.

1967; Frank and Green 1968). Arnold (1975) states that a fundamental problem with the method is that cluster analysis partitions the entities whether or not there are natural groupings. One way to deal with the problem is to analyse the correlations between the variables measured, since collinearity may cause the researcher to come up with unreal results (Sambandam 2003). Therefore, possible correlations between the attributes may have corrupted the results of this study. The correlations between the different channel attribute levels were measured in the Internet bill paying data and mobile bill paying data and no high correlations were found. The absence of strong correlations suggests that the groups obtained from the study represent believable and real clusters.

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## APPENDICES

### Appendix 1: Questionnaire for the laddering interview

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#### 1. Questions related to banking actions (warming-up questions)

What do you think, in general, about the services that banks currently provide?

Could you please describe how your banking actions have changed during the last years?

#### 2. Questions related to electronic banking

How do you manage your banking actions?

What services are you currently using or have you previously used via this / these channels?

Could you please sum up and describe some of your recent electronic banking action

#### 3. Means-end procedure

*The interviewer picks one of the above mentioned channels and one of the above mentioned services*

Could you please explain why you use this channel for this service?

*The interviewer picks one of the above mentioned reasons for using the particular channel for the service*

Could you justify why that attribute is important to you?

*The interviewer continues "why is that important to you" type of questions until the respondent can no longer provide any further information*

*If the respondent used several electronic channels and services all the service-channel combinations are discussed in the way described above*

**4. Background information**

- Gender  Male  Female
- Year of birth Year:
- Education  Comprehensive school  
 Vocational school  
 College  
 Institute degree  
 Polytechnic degree  
 University degree
- Profession  Student  
 Retired  
 Official  
 Leading position  
 Entrepreneur  
 Farmer  
 Expert  
 Other:
- Size of the household  1 person  
 2 persons  
 3-4 persons  
 more than 4 persons
-

## Appendix 2: Content codes of the laddering interview

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### DESIRED END-STATES

- (55) Convenience
- (56) Ecology
- (57) Efficiency
- (58) Family
- (59) Feel of freedom
- (60) Play
- (61) Privacy
- (62) Preciseness
- (63) Safety
- (64) Self esteem

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### CONSEQUENCES

- (24) Anonymous
- (25) Avoid feel of shame
- (26) Avoid time pressure (can do in peace)
- (27) Can check the movements (e.g. on the account, investments)
- (28) Can concentrate better
- (29) Can not ask advice
- (30a/b) Can / Cannot see the entire page / whole picture
- (31) Can react immediately (e.g. buy/sell stocks, transfer money)
- (32) Can test own skills
- (33) Can use multiple service components at the same time (e.g. stock rates, company information)
- (34) Can use service whenever wanted
- (35) Can use service wherever wanted (e.g. on the road, bus, holiday trip, country cottage, abroad, store)
- (36a/b) Certainty / Uncertainty
- (37) Confirmation and background information to own decision making
- (38) Difficult to use (e.g. tapping information, charging figures and pictures, check tapped information)
- (39) Easy to use
- (40) Feeling of control (under own control)
- (41) Have to do browsing / Need to browse
- (42) Impress others (e.g. technological ability)
- (43) Makes saving easier
- (44) No language problems abroad
- (45a/b) Need / No need to carry (e.g. bills, TAN lists)
- (46) No need to carry plenty of cash
- (47) No need to commit
- (48) No need to leave home/office
- (49) Possibility for making a mistake
- (50a/b) Safe connection / Unsafe connection
- (51a/b) Saves money / Increases costs
- (52a/b) Saves time / Takes time
- (53a/b) Visual view / No visual view (e.g. ability to see tapped information, text, figures, graphs)
- (54) Wish to avoid negative surprises (e.g. no money on the account, forget to pay a bill)

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### ATTRIBUTES

- (1) 24/7 service availability
  - (2) Ability to perform actions by oneself
  - (3) Breaking connection
  - (4) Display
  - (5) Electronic bank statement
  - (6) Location free access
  - (7) Independent of time
  - (8a/b) High / Low access cost
  - (9a/b) Large / Low amount of information
  - (10a/b) Fast / Slow connection speed
  - (11) Home access
  - (12) Keyboard
  - (13) Loan counter
  - (14) Low commission
  - (15) Modem
  - (16a/b) Mouse / No mouse
  - (17) No connection creating
  - (18a/b) Enter / No PIN and TAN
  - (19) No personal service
  - (20) No queuing
  - (21) Personal device
  - (22) Printing capability
  - (23) Real time information
-

**Appendix 3: Respondents' ladders in mobile bill paying**

Respondent number		Content codes				
2	6	35	52a	57		
2	6	35	55			
7	4	9b	38	63		
7	12	38	55			
7	8a	51b	57			
8	4	9b	38	63		
8	12	38	52b	55		
9	6	35	31	52a	55	
9	6	35	44	63		
9	6	35	46	63		
9	4	9b	53a	41	38	55
9	4	9b	53a	41	49	63
12	4	9b	30b	41	38	63
12	12	38	49	36b	63	
12	6	31	55			
12	6	31	52a	57		
13	6	35	55			
13	6	35	52a	57		
16	10b	52b	57			
16	16b	38	55			
16	3	36b	63			
18	6	35	31	54	55	
18	6	35	52a	55		
18	21	50a	36a	63		
18	12	38	52b	55		
19	18a	45a	63			
19	12	38	55			
19	4	9b	30b	41	38	63

**Appendix 4: Respondents' ladders in mobile stock exchange service**

Respondent number		Content codes				
5	4	9b	53a	41	52b	55
5	4	9b	30b	41	52b	55
5	12	38	55			
10	6	23	27	31	51a	57
10	10b	38	52b	55		
13	10b	52b	55			

**Appendix 5: Respondents' ladders in mobile request for account balance service**

Respondent number		Content codes				
8	17	18b	52a	55		
8	6	35	55			
9	17	52a	55			
9	21	63				
9	6	35	54	64		
9	6	35	55			
9	18b	45b	55			
9	18b	52a	55			
12	6	35	39	55		
12	17	18b	52a	57		
12	17	18b	39	55		
13	6	35	27	42	55	
13	6	52a	57			
16	6	35	27	54	25	64
16	17	18b	52a	39	27	40
16	17	18b	45b	63		
16	17	18b	45b	55		
16	17	18b	52a	57		
19	18b	52a	39	55		
19	6	35	27	40		

**Appendix 6: Respondents' ladders in Internet bill paying**

Respondent number		Content codes			
1	11	45b	55		
1	11	48	55		
1	11	2	43	57	
1	16a	39	55		
1	1	7	34	59	
1	1	7	40	59	
1	4	53a	36a	63	
2	2	54	40	62	
2	4	9a	52a	57	
2	4	53a			
2	12	39	57		
3	2	40	63		
3	20	26	28	61	
3	1	7	34	58	
4	20	57			
4	11	48	55		
4	5	56			
4	5	23	54	40	62
5	11	48	52a	58	
5	2	40			
5	20	26	40	61	
5	1	48	55		
6	1	7	26	63	
6	1	7	34	55	
7	2	54	40		
7	1	7	34	55	
7	4	53a	63		
7	12	52a	39	55	
8	1	11	48	55	
8	4	9a	30a	55	
8	4	9a	53a	63	
9	4	9a	52a	55	
9	22	36a	63		
9	1	7	51a	57	
9	1	7	52a	57	
10	11	23	27	31	57
10	11	48	55		
10	11	48	52a	57	
11	10a	52a	57		
11	10a	33	40		
11	1	7	52a	57	
11	1	7	55		
11	11	48	20	55	
11	11	48	52a	57	
11	4	9a	36a	63	
11	4	9a	33	40	
11	22	36a	63		
11*	10b	38	52b	55	
11*	10b	36b	63		
11*	6	35	40		
11*	6	35	55		
12	4	53a	39	55	
12	4	9a	36a	63	
12	2	40			
12	11	61			
12	11	48	55		
14	11	48	55		
14	11	7	55		

15	2	40	60		
15	1	2	40		
15	23	27	40		
16	1	7	34	55	
16	11	24	61		
16	2	34	40		
16	2	54	25	64	
17	11	48	61	63	
17	11	48	34	55	
17	8b	51a	57		
17*	3	36b	63		
17*	10b	8a	51b	57	
18	4	9a	33	53a	
18	10a	52a	55		
18	1	7	34	55	
19	4	9a	30a	53a	63
19	12	38	55		
19	11	48	52a	57	
19	1	7	34	55	
19	9a	33	54	40	
20	4	30a	27	40	55
20	2	43	57		
20	8b	51a	57		
20	6	35	39	55	
20	15	42	64		

\*Modem connection

#### Appendix 7: Respondents' ladders in Internet stock exchange service

Respondent number	Content codes					
3	4	9a	33	36a	63	
3	4	9a	33	55		
3	11	23	48	31	57	
5	23	31	57			
5	23	31	32	60		
6	12	38	49	36b	63	
6	14	51a	57			
6	11	26	61	63		
9	4	27	39	55		
9	19	37	36b	63		
10	10a	52a	57			
10	10a	53a	39	55		
10	4	9a	30a	52a	57	
10	4	9a	27	39	55	
13	9a	33	32	60		
15	14	51a	57			
15	11	23	7	34	27	60
15	9a	33	60			
17	4	53a	37	36a	63	
17	8b	7	36a	63		

**Appendix 8: Implication matrix for mobile bill paying**

	9b	30b	31	35	36a	36b	38	41	44	45a	46	49	50a	51b	52a	52b	53a	54	55	57	63		
3						1.00																.01	
4	6.00	.02					.05	.04				.01					.02		.01			.05	
6			2.02	9.00					.01	.01					.05			.01	.06	.03	.02		
8a														1.00								.01	
9b		2.00					2.03	.04				.01					2.00		.01			.05	
10b																1.00						.01	
12						.01	5.00					.01				.02			.04			.01	
16b							1.00												.01				
18a										1.00													.01
21					.01									1.00									.01
30b							.02	2.00															.02
31															2.00			1.00	1.02	.01			
35			2.00						1.00	1.00					3.01			.01	1.04	.02			.02
36a																							1.00
36b																							2.00
38						.01						1.00			2.00				4.02				4.01
41							3.00					1.00							.01				.03
44																							1.00
45a																							1.00
46																							1.00
49							1.00																1.01
50a					1.00																		.01
51b																							1.00
52a																				2.00	3.00		
52b																				2.00	1.00		
53a							.01	2.00				.01								.01			.01
54																				1.00			











## **Kuopio University Publications H. Business and Information technology**

**H 1. Pasanen, Mika.** In Search of Factors Affecting SME Performance: The Case of Eastern Finland. 2003. 338 p. Acad. Diss.

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