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CUSTOMER PERCEIVED VALUE OF EMERGING TECHNOLOGY-INTENSIVE BUSINESS SERVICE
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Abstract

This study explores customer perceived value in the context of emerging technology-intensive business service, in particular a mobile advertising service that is at the application phase of development. The purpose of the study is to conceptualise customer perceived value as a multidimensional concept by exploring 1) the complex interaction between benefits and sacrifices 2) temporality and 3) learning. This way the study contributes to the existing research within services marketing and business relationships.

The empirical part of the study is conducted in the form of a qualitative single-case study. The empirical setting organised to acquire data is qualitative real-life experiment. It consists of three field experiments that were organised by the research project to simulate real-life situations and to gain understanding of developing technological services that are not yet in commercial use. Interviews, observations and personal experiences form the main sources of information and are complemented by secondary documental data.

In this study the sources of value are first identified, which enhances understanding of what kind of value customers perceive from emerging technological service. In addition, value sub-elements have a complex interaction in service value co-creation, since certain sacrifices made by users may increase the benefits they perceive, whereas some benefits can increase the sacrifices and thus reduce the customer perceived net value. Second, the concepts of expected value, realised value and potential value are identified which enables deeper understanding of the temporality of customer perceived value. Third, learning has an important role in customer perceived value. When looking at learning at the process level, it is a sacrifice, but at the outcome level it turns into a benefit and thus also amplifies the customer perceived net value. Learning is needed from the customer to be able to use the new technological service and utilise it effectively, which in turn leads the customer to perceive higher value from the service. Moreover, the temporal dimensions of value are connected to each other through the customer’s learning that varies according to its type and object at different points of time.

For the service providers of new technological services understanding value related to the service and its production is essential. The future success and viability of these kinds of services requires that service providers know what kind of value their customers perceive from the service and especially what kind of future expectations they have for it. This study provides implications for the service providers on how to co-create value with their business customers and thus make technology-intensive business service a profitable business in the future.

Keywords: business relationships, customer perceived value, mobile advertising, services marketing, technology-intensive service, value creation
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Contents

Abstract
Acknowledgements 5
Contents 7
1 Introduction 11
  1.1 Importance of studying customer perceived value in the context
      of new technology-intensive business service ........................................11
  1.2 Purpose of the study ............................................................................14
  1.3 Positioning of the study ......................................................................16
  1.4 Empirical setting of the study ..............................................................21
  1.5 Research strategy ................................................................................23
  1.6 Structure of the study ...........................................................................27
2 Emerging technology-intensive business service as the empirical
   context of the study 31
  2.1 What is emerging technology-intensive business service? .....................31
     2.1.1 Defining the concept.....................................................................32
     2.1.2 Positioning the context ...............................................................33
  2.2 Specific features of emerging technology-intensive business
      service .....................................................................................................36
  2.3 Mobile advertising as a technology-intensive service.............................38
3 Theoretical understanding of customer perceived value of
   emerging technology-intensive business service 43
  3.1 Customer perceived value as a multifaceted concept............................43
     3.1.1 Defining the customer perceived value concept.............................44
     3.1.2 Categorisations of value ...............................................................47
     3.1.3 Positioning the study in relation to the value of the service
         and the value of the relationship..........................................................49
  3.2 The co-creation view of customer perceived value..................................50
     3.2.1 Value co-creation and service co-production in emerging
         technology-intensive business service................................................51
     3.2.2 The role of sacrifices in customer’s value perceptions.....................52
     3.2.3 Towards temporality of customer perceived value..........................54
  3.3 Temporal perspective on customer perceived value................................55
     3.3.1 Past, present and future dimensions of time ....................................55
     3.3.2 Expectations and experiences as a basis for value
         perceptions ..........................................................................................56
3.3.3 Temporality in customer value research................................. 58
3.3.4 Expected, realized and potential value dimensions .......... 61
3.4 Conclusive remarks on customer perceived value in technology-intensive business service............................................... 64

4 Research design 69
4.1 Case study design ........................................................................ 69
4.2 The qualitative real-life experiment as the empirical setting of
the study ............................................................................................... 71
4.3 Design of qualitative real-life experiments in this study ......... 74
  4.3.1 Rotuaari research project .......................................................... 74
  4.3.2 The practical organisation of m-advertising service usage ...... 76
  4.3.3 Organisation of the field experiments .................................... 80
4.4 Data collection ................................................................................ 84
  4.4.1 Primary data ........................................................................... 84
  4.4.2 Secondary data ........................................................................ 88
4.5 Data analysis ................................................................................... 90

5 Empirical study: customer perceived value in a new mobile
advertising service 97
5.1 Context-related background factors influencing customer
perceived value ..................................................................................... 97
  5.1.1 Technological character of the service .................................. 97
  5.1.2 Novelty and the developmental phase of the service .......... 99
  5.1.3 Co-operation with other actors ............................................. 101
  5.1.4 Summary of the context-related factors .............................. 104
5.2 Temporality in customer perceived value of new mobile
advertising service .............................................................................. 105
  5.2.1 Customer expected value elements ...................................... 105
  5.2.2 Customer realized value elements ...................................... 114
5.3 Potential customer perceived value elements ......................... 125
5.4 Revised framework ....................................................................... 135

6 Learning in relation to the temporal dimensions of customer
perceived value 137
6.1 Learning in customer perceived value ........................................ 137
  6.1.1 Defining the organisational learning concept ...................... 137
  6.1.2 Learning in the context of new technology-intensive
service ................................................................................................. 139
6.2 Learning in relation to temporality of value in the case of new m-advertising service................................................................. 142
6.2.1 Learning in relation to the past/expected value dimension........ 143
6.2.2 Learning in relation to the present/realized value dimension ................................................................. 145
6.2.3 Learning in relation to the future/potential value dimension ................................................................................... 150
6.3 Concluding remarks on the types and objects of learning in relation to different temporal value dimensions....................................... 152

7 Findings and discussion 155
7.1 Temporality of customer perceived value ............................................. 155
7.1.1 Expected value ........................................................................... 155
7.1.2 Realized value ............................................................................ 157
7.1.3 Potential value ............................................................................ 160
7.1.4 Further elaboration on temporal value elements ....................... 163
7.2 The role of learning in customer perceived value ......................... 169
7.2.1 Learning as a sacrifice increasing value ..................................... 169
7.2.2 Learning connecting different temporal value dimensions .......... 170
7.3 Empirically grounded framework on customer perceived value of emerging technology-intensive business service ....................... 171

8 Conclusions 175
8.1 Summary of the study in relation to the objective and the research questions ................................................................. 175
8.2 Theoretical contributions of the study............................................. 178
8.3 Managerial implications of the study .............................................. 182
8.4 Methodological contribution of the study ...................................... 186
8.5 Evaluation of the research................................................................. 187
8.6 Limitations of the study and avenues for future research .............. 189

References 193
Appendices 203
1 Introduction

1.1 Importance of studying customer perceived value in the context of new technology-intensive business service

Technological development, and especially the rapid development of information technology, is one of the main forces changing the current business environment. New services exploiting the emerging opportunities are constantly being created. However, creating commercially viable business services is challenging since technological innovations alone do not guarantee commercial success. Therefore exploring customer perceived value and its underlying dimensions is key to acquiring a better understanding of what it takes to make technology-intensive service a profitable business. Focusing on an emerging technology-intensive business service at the application phase of its development, and so when it is not yet commercially available, enables to obtain an in-depth understanding of this critical issue with an emphasis on the value potential of the new service.

Value creation is one of the key areas of interest in the current research on business relations and has recently received increasing attention from both academics and practitioners. A large variety of views concerning value and value creation have been presented by several different authors and the concept has been recognized as important within marketing and management research (e.g. Anderson & Narus 2004, Kothandaraman & Wilson 2001, Lapierre 2000, Lindgreen & Wynstra 2005, Menon et al. 2005, Möller & Törrönen 2003, Ulaga 2003, Zeithaml 1988). The basic notion is that business markets can only be understood by applying the concept of value (Walter et al. 2001) and the most important reason for engaging in a business relationship is the opportunity for value creation (e.g. Boyd & Spekman 2004). This study focuses on customer perceived value in the business-to-business (B2B) context and so here, the customer refers to the business customer of a service provider.

Although the popularity of value research clearly confirms the importance of studying the phenomenon, it also indicates that value is complex, difficult to grasp, conceptualise, and model (see also Lin et al. 2005). This makes it difficult to specify which discussion to contribute to and what theoretical basis to use in examining the customer perceived value concept. Customer perceived value is also a context-specific concept (e.g. Lapierre 1997) and therefore the context in which it is studied becomes important. This study examines customer perceived
value in the context of emerging technology-intensive business service. Technological services, in general, have recently attracted growing amounts of attention (e.g. Freel 2006, Matthing et al. 2006). However, studies attempting to categorise value elements in technological B2B services are very scarce although it has been pointed out that this is an important future-oriented context in which more research on value is needed (e.g. Möller 2006). Also studies exploring the value of technological services in a consumer setting are rare except for Heimonen (2004, 2006) and Pura (2005). The specific context of this study has been chosen because it permits the study of issues that are both theoretically and managerially interesting. Firstly, this context facilitates a focus on three essential, yet under-researched aspects of customer perceived value, namely temporality, learning and the complex interaction between benefits and sacrifices. From a more practical perspective, the growing importance of new technology-intensive services to all business organisations’ long-term success has been widely acknowledged (see e.g. Blazevic et al. 2003, Stevens & Dimitriadis 2005). Since technological development will only get faster in the future and technology-intensive business services are becoming a substantial part of business firms’ everyday life, understanding customer perceived value in this specific context becomes crucial.

Conceptualising and modelling value is very complex in business service settings due to specific service features. In addition, the existing research has mostly concentrated on consumer services (Wynstra et al. 2006). Recently, however, there has been a growing research interest in different services within B2B settings, e.g. in selecting promising business ideas in the IT industry (Baier et al. 2008), in assessing the impact of self-service technologies on business-customer relationships (Johns & Perrot 2008), in supply chain management (Vandaele & Gemmel 2008) and in examining service quality in B2B contexts (Yang et al. 2006, Zolkiewski et al. 2007). However, none of these studies pays sufficient attention to the role of customer perceived value. There are a few that provide assistance, for example, Palmatier (2008) and Liu (2006) dealt with the issue of value but did not examine customer perceived value in the context of emerging B2B services.

Specifically, this study explores customer perceived value in a mobile advertising (m-advertising) service setting — a setting chosen for its quality of being a current example of a field within new, future-oriented and technology-intensive business service. Furthermore, the m-advertising service explored is at the application phase of development, i.e. it is being developed for commercial application but is not yet in commercial use. Due to the inherently dynamic nature
of this kind of technology-intensive business service, value varies and takes
different forms as the service is continuously developed and customers learn to
use it. Hence, value might be very different when evaluated at different points of
time, i.e. before, during and after service use (see e.g. Green et al. 1996,
Parasuraman 1997). For example, customer’s expectations and experiences of the
service may rapidly change and take different forms at different stages of use.
Therefore, in services in general, and in new technology-intensive services in
particular, value perception changes before the service consumption, during it and
afterwards. This empirical context thus permits exploration of the temporal
aspects of customer perceived value, in other words, understanding it as a time-
sensitive concept that has past, present and future dimensions. Temporality has
not been given enough attention within research on business customer perceived
value, as it usually approaches value as a more or less static concept (e.g. Liu et
al. 2005, Menon et al. 2005, Ulaga 2003), so it does not pay attention to the
varying value perceptions when value is evaluated at different points in time.
Although some studies can be found that focus on a time perspective in value
creation (see e.g. Woodall 2003) they suit customer goods better than they do
technology-intensive business services. For example, Woodall (2003) talks about
a disposition value that refers to ‘the point of disposal/sale’ but it is difficult to
imagine a situation where a customer could resell or dispose of an m-advertising
service. Also Möller (2006) points out that the existing studies on value creation
do not adequately cover value that is to be realized in the future. Therefore, there
is a need to conceptualise value as a time-sensitive concept that has past, present
and future dimensions (see also Woodall 2003, Komulainen et al. 2005b) that can
be applied to the emerging service context. Acknowledging temporality as an
important aspect of customer perceived value creates a new understanding of the
phenomenon and supports the further development of the existing theory.

Another perspective that becomes important for understanding customer
perceived value in this context is learning. There are several reasons for this:
firstly, due to the novelty and technological character of the service it is
complicated to use and utilise effectively, which in turn creates a requirement for
investment from the customer (Curran & Meuter 2005). In other words, the
customer needs to commit time and effort to learn to use the service (e.g. Trkman
& Baloh 2003) and to be able to derive value from it. Secondly and closely
related to the technological character of the service, it is common for the service
process to take place via a technical interface. Service may also be partly used as
a self-service which increases the importance of the involvement and
competences of the user (see Komulainen et al. 2007). Moreover, since the technology is constantly developing, the customer also needs to keep up with the development and continuously learn to use (i.e. operate) and utilise (i.e. fully exploit) the new features of the service. Thus, learning is a continuous process – which implies that it has a different role in customer perceived value at different times. In the existing studies on B2B services the role of learning in customer perceived value has not been thoroughly addressed. It is argued here that learning is a critical element in understanding customer perceived value in the context of technology-intensive business service since the customer has to learn to use and utilise the new service which is closely connected to the value perceived from the service.

Although several different studies have addressed the issue of value creation and aimed to understand and define the phenomenon (e.g. Flint et al. 2002, Lapierre 1997, Ulaga & Eggert 2006) relatively few have focused on finding the actual sources of value or exploring the essence of value perception in-depth. Moreover, the role of benefits and sacrifices in the customer’s value perception has often been taken as a given, in other words benefits are seen as increasing the net value and sacrifices decreasing it (e.g. Ravald & Grönroos 1996). This study examines the concept of customer perceived value in-depth and explores the different sub-elements together constituting the value of the technology-intensive service. In this way the complex interaction and trade-off between benefits and sacrifices is explored, which helps to create a more profound understanding of what the customer perceived value in an emerging technology-intensive business service consists of and also highlights the essence of the concept.

1.2 Purpose of the study

The purpose of the study is to conceptualise customer perceived value as a multidimensional concept. For that purpose, an empirically grounded framework of customer perceived value of emerging technology-intensive business service is developed. Multidimensionality here refers to three specific aspects of customer perceived value that have not received sufficient attention in existing studies, namely temporality of the concept, the role of learning in customer perceived value and the complex interaction between benefits and sacrifices.

In order to accomplish this purpose the study focuses on solving the main research question: How can customer perceived value of emerging technology-intensive B2B services be conceptualised?
The solution can be found by answering the following, more specific questions:

1. What are the specific features of a technology-intensive business service that influence value perceptions?
2. How is customer perceived value conceptualised in the existing research on services and business relationships?
3. How does temporality appear in customer perceived value?
4. What kind of value do customers perceive from new technology-intensive business services in different time dimensions?
5. What kind of role does learning have in the customer perceived value concept?

The first question “What are the specific features of a technology-intensive business service that influence value perceptions?” aims to create a theoretical pre-understanding of how the specific context influences business customers’ perceived value. The specific features of technology-intensive business services are therefore explored as well as the features of the m-advertising service in particular. This question goes deeply into the context of the study and forms a background for studying customer perceived value.

The second research question “How is customer perceived value conceptualised in the existing research on services and business relationships?” is theoretical in nature and it aims to produce a deep and extensive understanding of the customer perceived value concept. The answer to this question is sought through a literature review on value creation and specifically the concept of customer perceived value. Numerous studies have dealt with the issue and due to the research phenomenon under study the review focuses on services marketing (and within it specifically business services) and on the business relationships within the interaction and network approach. The relevant literature is reviewed, discussed and evaluated to foster a profound understanding of the customer perceived value concept. Answering this question also enables in-depth theoretical understanding of the role of the sacrifices and the complicated trade-off between benefits and sacrifices in customer perceived value.

The third question “How does temporality appear in customer perceived value?” is both theoretical and empirical in nature and it focuses on exploring the relationship between temporality and the customer perceived value concept. There was a continuous interaction between the theoretical literature review and the empirical data collection and analysis throughout the research process. Therefore, the temporality of customers’ value perceptions became obvious
during the early empirical data collection phase and influenced the way theoretical understanding was created too. As a result, the literature review was extended to include temporality as a part of customer perceived value. In other words, due to the dynamic nature of the service, temporality is seen as a significant aspect of customer perceived value and the aim of this question is to examine its role in detail. By answering the research questions 1, 2 and 3 a theoretical framework of customer perceived value in emerging technology-intensive business service is created.

Both the fourth research question, “What kind of value do customers perceive from a new technology-intensive business service at different points in time?”, and the fifth, “What kind of role does learning have in the customer perceived value concept?” are empirical in nature but they are also closely tied to theoretical part of the study. The answers to these questions are sought partly simultaneously with the theoretical analysis and partly after it. The empirical study can be divided into two separate yet closely interrelated parts in which the fourth question is answered first. The aim of the fourth question is to find out what kind of value the customers perceived from a new technology-intensive business service, in this case m-advertising. In other words, different sub-elements of customer perceived value were identified from the empirical data. This provides a deeper understanding of the sources of value and also enables empirical exploration of the trade-off between benefits and sacrifices.

The fifth and final question was raised after the first round of empirical analysis was conducted. This led to exploring the role of learning in customers’ value perceptions further. Therefore, the final sub-question intends to enhance understanding of how learning influences customer perceived value. Finally, an empirically grounded framework of customer perceived value is proposed based on the theoretical and empirical parts of the study and the close interaction between them.

As the above description reveals, this study has been conducted in an abductive manner in which theoretical and empirical insights interact closely and continuously with each other. They have also strongly influenced each other and directed the study towards its conclusions.

1.3 Positioning of the study

Value creation, and customer perceived value in particular, has been approached from numerous different research avenues varying from a consumer marketing
There are several different approaches towards the phenomenon, e.g. the means-end approach, the benefit-sacrifice approach and the experiential approach (see Golik Klanac 2008 for review). Various definitions of the concept have also been applied, ranging from monetary value (e.g. Anderson et al. 1993, Monroe 1990) to emphasising the non-monetary aspects (e.g. Möller & Törrönen 2003, Walter et al. 2001). Research has also addressed value at different levels; at the service level (e.g. Heinonen 2006, Petrick 2002), the relationship level (e.g. Heinonen & Strandvik 2004, Hogan 2001, Walter et al. 2001, Ulaga 2003), the network level (e.g. Kotthandaraman & Wilson 2001) and at both the relationship and network levels (Möller & Törrönen 2003). Moreover, the view adopted has been either that of the customer (e.g. Woodall 2003) or the supplier (e.g. Walter et al. 2001) or both (Möller 2006). One reason behind the complexity of the concept is that value has been studied through several different research approaches, with each defining the concept from its own theoretical base and using its specific viewpoints and constructs (see e.g. Leino 2004 for a review). It is still arguable whether it is reasonable or even possible to talk about value research as a specific research approach, by definition. However, in this study value research refers to the research focusing on customer perceived value within two major research approaches: services marketing and the interaction and network approach. Based on the objective of this research, they form the basic theoretical background of this study.

However, it is important to note that although services marketing is used as the other main theoretical approach of the study, the concepts used are mostly derived from research adopting the interaction and network approach. This is due to the fact that in the studies on business relationships, customer perceived value has been studied quite extensively. In this study the focus is on the business customer of the service provider and thus, the concepts from B2B research have typically been adopted. On the other hand, within service marketing research, business services have received only limited attention (Wynstra et al. 2006). In addition, concepts like service quality (e.g. Holmlund 1997, Grönoos 1982) and satisfaction (e.g. Woodruff 1997) have been widely used and often interchangeably with the value concept (see e.g. Groth & Dye 1999). Hence, in this study value-related concepts are mostly adopted from business relationship research.

In addition to these two main approaches, two other streams of literature are used in this study to add to the theoretical understanding. There arose a need to
introduce temporality into the exploration of customer perceived value during the research process. Therefore, this study also draws from literature discussing time-related aspects in business markets. Furthermore, learning was revealed as an important factor in the customer perceived value concept and thus, research on organisational learning, specifically in the technological service sector, was reviewed and included in this study. These streams of research are not explicitly positioned within the two main theoretical approaches but provide a complementary understanding of important aspects related to customer perceived value in new technology-intensive business services.

The first source of a theoretical understanding of value is drawn from research on services marketing. It has been chosen because the focus of this study is on a technology-intensive business service. Traditionally, research on services has mostly concentrated on more traditional services in the business-to-consumer (B2C) context (see e.g. Parasuraman 1997, Wynstra et al. 2006) and on distinguishing services from goods (Brown et al. 1994). Different characteristics (e.g. inseparability, heterogeneity, intangibility and perishability) have been used to further this dichotomy (e.g. Zeithaml 1988). According to this view, services are seen only as add-on features of the product (Parasuraman 1997).

However, due to the specific characteristics of the service under examination a traditional view of services cannot be applied as such. This study agrees with Edvardsson et al. (2005) by arguing that the existing service definitions are too narrow and their characteristics are outdated. Instead, service needs to be used as a perspective on value creation where service is a result of value co-creation between service provider and customer, and determined by the customer. In other words, this study emphasises a value-in-use perspective, contrary to the more traditional value-in-exchange view (Edvardsson et al. 2005, Strandvik et al. 2008).

In order to create a comprehensive understanding of customer perceived value in the technological business service context this study views service as a process where the service is co-produced with customers (e.g. Grönroos 1991, Gummesson 1979, Vargo & Lusch 2004a, 2004b). Thus, customers are primarily co-producers of the service and co-creators of value (Vargo & Lusch 2004a) which in turn influences the value they derive from the service. Hence, it is suggested that the customer’s perceptions of value are strongly related to the co-production of service and co-creation of value. This approach provides a better understanding of the customer perceived value of the technology-intensive business service and also develops the services marketing research by examining
this previously under-researched context. In addition, the unique context of the study enables in-depth exploration of the phenomenon of service co-production and value co-creation that have recently featured widely in research in the field of services marketing.

The interaction and network approach and within it the research focusing on B2B relationships and value creation in particular, has been chosen as another main theoretical approach for this study since it acknowledges that technology-intensive business services are produced and consumed within the context of business relationships. In addition, this approach has increasingly been used in research on business services (see e.g. Wynstra *et al.* 2006). The discussion of business relationships in this study is mostly derived from the research within the IMP (Industrial Marketing and Purchasing) Group. One of the main premises of network theory is that no company can do business on its own; instead, it needs relationships with others (e.g. Håkansson 1982). A number of studies within this approach deal with different aspects of customer perceived value (e.g. Lapierre 1997, Lindgreen & Wynstra 2005, Möller & Törrönen 2003, Ulaga 2003, Walter *et al.* 2001) and value co-creation (e.g. Forsström 2005) and this study builds on them.

Since this study examines a technology-intensive business service that is at the application phase and is constantly developing, the time-related aspects of value come to the fore. Therefore, exploring studies on temporality in a B2B context promotes better understanding of the dynamic nature of the new technology-intensive business service. The perceptions of value in any service relationship change when evaluated at a different time (see e.g. Halinen 1996). Therefore, in services in general, and in a new technology-intensive service in particular, value perceptions are different before the service consumption, during it and afterwards. This issue has not received enough attention in prior research on business customer perceived value; instead value is usually approached as a more or less static concept. Therefore, there is a need to conceptualise value as a time-sensitive concept that has past, present and future dimensions (see also Komulainen *et al.* 2005b, Woodall 2003) that can be applied to the emerging service context. Acknowledging temporality as an important aspect of customer perceived value creates a new understanding of the phenomenon and helps to develop the existing theory further.

Finally, the role of learning in customer perceived value became an important issue while analysing the empirical data. Therefore research on learning was incorporated into this study later than the other abovementioned research
approaches, so after the empirical data had been collected and analysed for the first time. It was noted that the first empirical analysis did not provide a complete picture of the studied phenomenon. Then it became evident that learning could be used to better understand value creation in the technological service context. Due to the novelty and technological character of the service it is complicated to use and utilise effectively, and so requires investments of time and effort from the customer before it can be mastered and the customer can derive value from it. This notion led to the closer examination of the value co-creation phenomenon and specifically the role of learning as a sacrifice that may actually increase the value perceived by the customer. It was also noted that learning plays a role as a factor linking the different temporal value dimensions together. In other words, it became important to explore how learning is embedded into the multidimensional concept of value. Conducting the literature review revealed that the role of learning in customer perceived value has not been addressed by the existing studies on B2B value creation. Since learning is a broad and widely studied phenomenon which has been explored in numerous research domains, this study focuses on the studies that best correspond to the context of the study – learning in technological services literature, and more generally research on organisational learning.

![Theoretical contribution of the study](image)

**Fig. 1. Theoretical background of the study.**
As summarised in figure 1, this study approaches the research phenomenon using studies on value creation within services marketing and interaction and network approach. They are complemented by select relevant literature on time-related studies in business markets and organisational learning in the technological services sector.

The major contribution of this study is a more profound understanding of the multifaceted nature of the customer perceived value concept, specifically in relation to 1) trade-off between benefits and sacrifices, 2) temporality and 3) learning. The study contributes to the theory development of services marketing by exploring customer perceived value of an emerging technology-intensive business service, a context which has not been sufficiently addressed in the existing studies. The service explored is at the application phase of development and is yet to be introduced commercially, which enables the study of different aspects to those focused on in the existing research, the most important being the potential value that is to be realized in the future. Furthermore, this study also incorporates new aspects of the value co-creation and service co-production view studied within services marketing and recently also within the interaction and network approach. To the research on interaction and network approach, this study contributes an increased understanding of customer perceived value within B2B relationships. Moreover, the study provides useful managerial implications for the service providers operating in the field of emerging technology-intensive business service.

1.4 Empirical setting of the study

A new mobile advertising (m-advertising) service was chosen as the empirical example of a technology-intensive service. M-advertising refers to advertising messages that are sent to and presented on mobile devices and it is one of the most promising business areas in the field of information technology (Varshney & Vetter 2002).

The m-advertising service examined in this study represents a new and future-oriented technology-intensive business service. The service under study is at the application phase of development, i.e. the service is not available in the markets but is being developed and tested before actual commercial usage. Therefore, customers do not have any previous experience of this kind of service.
This makes it an excellent setting for studying the new and significant aspects of customer perceived value.

Empirical data for the examination of customer perceived value were obtained from three experiments organised by the Rotuaari research project. The experiments were organised to simulate real-life situations of how the services of the future (such as m-advertising) could be used by real business firms. The aim was to test the new m-advertising service at its application phase to gain important information about the usage, utilisation, commercialization and further development of the service. The experiments were set in an extensive test environment designed as part of the project where several parties were involved in creating a future-related understanding of tomorrow’s services. M-advertising was only one of the services tested during the three experiments, but this study focuses solely on that particular service.

The practical organisation of the experiments is briefly described next. The Rotuaari research project acted as a service provider and provided an infrastructure and a service system for testing m-advertising with volunteer retailers in the Oulu region of Finland. The retailers acted as mobile advertisers (m-advertisers), using the new service and so were prototype business customers of the service provider. The study focuses on the value perceptions of those retailers who tried the new service during the experiments.

The three experiments were organised in 2003, 2004 and 2005 and a total of 69 retailers from various fields of retailing used the new service. In the experiments the retailers could design, implement, target, and send their m-ads to real consumers. The service provider (i.e. the project) took care of the m-advertising service system and guided the retailers in the use of the system. The service provider also collected and maintained a database of consumers willing to receive m-ads to their mobile phones or PDAs (Personal Digital Assistant). In total over a thousand consumers registered with the system and received more than 12000 m-adverts from the retailers during the experiments. After each experiment the retailers were interviewed and the result is a body of 55 interviews that form the main empirical data used in this study. In addition, the author worked as a researcher on the project during the experiments and thus participated in organising the experiments, recruiting and training the retailers, and also had access to informal discussions and all e-mails between the retailers and the project. Moreover, all the document and archival material collected by the other

1 The research project developed the m-advertising service examined in this study.
research parties was available for the use of this study. Thus, based on the interviews, observations (e.g., e-mails and personal notes) and other research project material, multifaceted data were collected on the interaction between the retailers and the service provider.

1.5 Research strategy

A research strategy can be seen as the overall direction of the research including the process by which the research is conducted (Remeney et al. 1998). The research strategy of the present study follows the hermeneutic, theory building approach (see e.g., Spiggle 1994, Thompson 1997) to understand the multidimensionality of the customer perceived value concept in the emerging technology-intensive service context. For example, Flint and Woodruff (2001) emphasise that discovery through theory-building research is needed when previously developed theories do not appear to answer the current question. This is the case in this study because the study explores aspects of customer perceived value in an emerging context that have not been acknowledged in the existing research. A hermeneutic research approach aims to reconstruct previously held constructions using dialectical interchange (Guba & Lincoln 1994: 112). In hermeneutic methodology absolute truths do not exist but instead the researcher tries to find new ways of understanding the phenomenon. Interpretations and in-depth understanding of the phenomenon are central aspects: that is also the case in the present study.

Closely related to the research methodology is the choice of inductive and deductive ways of building theories and drawing conclusions. Instead of using either of them directly, the present study follows the abductive reasoning (cf. Peirce 1931). It is based on the view that the formation of a new theory is only possible when a guiding principle is connected to the observations. Although it is different from inductive and deductive reasoning the abductive logic includes features of them both. Abductive reasoning starts moving from the empiric but does not deny the existence of the theory as a background either. Thus, the central element of abductive reasoning is thought and the interaction between the empirical and theoretical insights. Dubois and Gadde (2002) refer to this as ‘systematic combining’ that is an application of the abductive approach. In a systematic combining framework, data collection and analysis evolve simultaneously. Thus, in the abductive approach the original framework is modified based on the empirical findings.
The abductive approach has been chosen for this study for three reasons. Firstly, the abductive approach helps to explain a surprising phenomenon (Kent 1987: 179) or observed fact (Peirce 1903: 117). In other words, it is useful when the aim is to discover new things, to develop and refine an existing theory (see also Dubois & Gadde 2002). In this study the aim is to conceptualise customer perceived value of the new and developing technological service and to increase current understanding of this emerging issue. Hence, the abductive approach is suitable for this study. Secondly, by using the abductive approach, the researcher goes back and forth between empirical observations and theory, so creating an in-depth understanding of the phenomenon (e.g. Dubois & Gadde 2002). This study is longitudinal and both the empirical data and the existing theories have an equal and continuous role in the knowledge production process which makes it sensible to follow the principles of the abductive approach in creating new understanding of the phenomenon. Finally, the abductive approach was also the practical choice since the research project involved three time-separated field experiments that strongly affected the research process. As the experiments were organised once a year during summer over a three-year period, the periods with intensive empirical work and periods of theoretical exploration took turns and influenced each other in an abductive manner.

Next, an overview is presented of how this research has been conducted. A more detailed description of the actual empirical research and decisions made will be presented in chapter 4.
Fig. 2. Research process.

Theoretical pre-understanding of customer perceived value

Empirical context

Interaction

1st Field experiment: empirical data collection

Initial data analysis

Refining theoretical understanding by bringing in temporal dimensions of customer perceived value

2nd Field experiment: empirical data collection

Initial data analysis

Refining theoretical understanding

3rd Field experiment: empirical data collection

Initial data analysis

THEORETICAL FRAMEWORK

1st in-depth data analysis including empirical material from all three field experiments

Refined theoretical framework

Need for a new theoretical approach

Theoretical understanding of learning phenomenon

2nd in-depth data analysis including empirical material from all three field experiments

EMPIRICALLY GROUNDED FRAMEWORK OF CUSTOMER PERCEIVED VALUE
26

Figure 2. describes the research process of this study. The research process consists of several stages in which theoretical and empirical insights were in continuous interaction with each other. This way the empirically grounded framework was formed based on both theoretical and empirical insights obtained during the study.

The study began with a creation of the theoretical and empirical pre-understanding of the phenomenon under examination. According to Gummesson (2000) creating a pre-understanding is a condition for the development of understanding. Pre-understanding of the focal phenomenon was created by working as a researcher in the research project that organised the field experiments in which emerging technology-intensive business service was explored and by getting familiar with the existing literature on value creation.

At the beginning of the research process the existing research dealing with customer perceived value and the contextual factors were reviewed with the purpose of exploring value creation as a research phenomenon, and out of determining the specific features of the context influencing customer perceived value. In tandem with this, the first field experiment was organised and the first set of empirical data was collected. Based on the initial analysis of this empirical data temporality became an important part of the study and it was incorporated into the theoretical framework. Then, the second and third data collection phases and the initial analysis of the empirical data further influenced understanding of the phenomenon and assisted in refining the theoretical framework. The first in-depth data analysis phase was conducted after all three field experiments. Based on that, learning-related literature was incorporated into the theoretical domain of this study since it was identified as a “missing link” between temporality and customer perceived value. The new direction of the study necessitated analysing all the data once again based on new theoretical insights concerning the role of learning in customer perceived value. This also influenced the structure of the thesis and a chapter discussing learning both in theoretical and empirical terms was introduced after the first in-depth empirical analysis.

Thus, both theoretical and empirical parts of the study had an important and mutual role in exploring the research phenomenon and finding solutions for the research problem. Collection and analysis of the empirical data were influenced by the evolving theoretical framework, and the theoretical framework was strongly shaped and developed based on the analysis of empirical data. Thus, an empirically grounded theory evolved during the research process from an open interaction between the theoretical ideas and empirical data. This way it was
possible to create profound understanding of the customer perceived value of emerging technology-intensive business service.

1.6 Structure of the study

The thesis begins with the “Introduction”. The second chapter “Emerging technology-intensive business service as the empirical context of the study” details the context of the study, as it forms the essential background for the examination of customer perceived value. This includes defining technology-intensive business service and its specific characteristics as well as positioning the context within existing research. In addition, mobile advertising is introduced as an example of this kind of service.

In the third chapter, “Theoretical understanding of customer perceived value of emerging technology-intensive business service”, a theoretical understanding of customer perceived value is elicited from an extensive literature review on value research conducted within services marketing and the interaction and network approach. First, the concept is defined, existing categorisations are presented and the value co-creation view is described with an emphasis on sacrifice as an important element of customer perceived value. Then the temporal aspects of value are examined in detail. Finally, at the end of the third chapter, a theoretical framework is presented that illustrates the temporality of customer perceived value in the specific context of technology-intensive business service and also describes the background factors influencing customer perceived value.

The fourth chapter “Research design” focuses on the empirical research and justifies the choices made. First, the case study design is presented. Then the empirical research setting, i.e. a qualitative real-life experiment is described and discussed as well as the practical organisation of the empirical study. This includes introducing the research project and the mobile advertising service setting and providing overviews of each field experiment and how it was organised. Finally, the data collection and data analysis are described.

Next, the fifth chapter “Empirical study: customer perceived value of emerging mobile advertising service” focuses on the empirical part of the study and presents the results of the empirical analysis of the data both in relation to context-related background factors and temporally-loaded value sub-elements. Based on the analysis the theoretical framework is revised with context-related background factors influencing the value perceptions and complemented with identified sub-elements of expected, realized and potential value dimensions.
In the sixth chapter “Learning in relation to the temporal dimensions of customer perceived value” the role of learning in customer perceived value is examined. First, previous research on learning, specifically in the technological services field, is reviewed to create a theoretical pre-understanding which is followed by an empirical exploration of learning in relation to temporality of value in the case of the new m-advertising service. Finally, different types and objects of learning are identified in relation to the temporal value dimensions and based on that discussion, the empirically grounded framework is presented.

In chapter seven, the main findings of the study are presented and discussed. Finally, in the last chapter the study concludes by summarising the research and answering the research questions. Then theoretical, managerial and methodological contributions are suggested, the research is evaluated and finally the limitations of the study and avenues for future research are proposed. The content and structure of the study are summarised in figure 3.
<table>
<thead>
<tr>
<th>Chapter</th>
<th>Source of information</th>
<th>Outcome</th>
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<tbody>
<tr>
<td>1. Introduction</td>
<td></td>
<td>The purpose of the study and guide to the research process</td>
</tr>
<tr>
<td>2. Emerging technology-intensive business service as the empirical context of the study</td>
<td>Literature on technological services and mobile advertising</td>
<td>Description of the context of this study</td>
</tr>
<tr>
<td>3. Theoretical understanding of customer perceived value of emerging technology-intensive business service</td>
<td>Services Marketing literature and research within Interaction and Network Approach</td>
<td>Theoretical framework of the study</td>
</tr>
<tr>
<td>4. Research design</td>
<td></td>
<td>Description of the empirical research setting, data collection and data analysis methods</td>
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<tr>
<td>5. Empirical study: Customer perceived value of new mobile advertising service</td>
<td>Empirical qualitative material</td>
<td>Analysis and findings</td>
</tr>
<tr>
<td>6. Learning in relation to temporal dimensions of customer perceived value</td>
<td>Literature on organizational learning in technological service context</td>
<td>• Theoretical understanding of learning in relation to customer perceived value</td>
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<tr>
<td>7. Findings and discussion</td>
<td>Literature from Chapters 2, 3 and 6 and the empirical data</td>
<td>Summary and discussion of the findings</td>
</tr>
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<td>8. Conclusions</td>
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<td>Answers to research questions and contributions of the study</td>
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Fig. 3. Illustration of the content and structure of the study.
2  Emerging technology-intensive business service as the empirical context of the study

Emerging technology-intensive business service provides the context for the present study. It is emerging in the sense that it is still in development and has not yet been commercially released. Hence, its value potential is still unclear and will only be fully recognized when the service is brought to market in the future. This particular context was chosen because the specific emerging nature of the service makes it possible to examine new aspects of customer perceived value in relation to temporality and learning.

In this chapter the focus is on defining new technology-intensive business service; the kind of service it includes, its special features and how it differs from other services. In addition, the context of the study is positioned and the developmental phase of the service is examined with the aid of typology describing different types of value systems and their characteristics. This chapter also explores mobile advertising as a specific type of technology-intensive business service and compares it to the traditional forms of advertising. The purpose of the chapter is to diligently describe the context of this study and thus foster an understanding of how it adds new aspects to existing value research.

2.1 What is emerging technology-intensive business service?

Technology-intensive services have become a major topic of interest and a key priority for many business organisations, as they are making considerable investments to take advantage of the new business opportunities offered by emerging technologies like mobile technologies (Anckar & D’Incau 2002, Johns & Perrot 2008). Also more and more service companies are capitalizing on the opportunities provided by accelerating technological development, e.g. various online and mobile services. Along with this development, traditional service provision is undergoing major changes because of the infusion of technology into service encounters (Bitner et al. 2000). Since technological development will only accelerate in the future and technology-intensive business services are becoming an integral part of firms’ everyday life, understanding value in this context is becoming critical. However, it is not enough to examine value in an already commercialized technology-intensive business service, the analysis needs to be extended to a service that is only at the application phase of development. Only then can we take account of all the continuously changing aspects of customer
perceived value in the emerging business field and explore the value potential of the service. This, in turn, will support the evolution of technology-intensive business service into a profitable business sector in the future. The next section explains what is meant by emerging technology-intensive business service and how this context is positioned.

2.1.1 Defining the concept

The specific service explored in this study is mobile advertising, which can be more generally classified as a mobile service. However, the term technology-intensive service is used in this study as a general concept. The reason for this is that the focus is on the business customer perceived value and for the customer (in this case the retailer acting as an m-advertiser) the technological nature of the service was a more important and visible feature than the mobility. Instead, for the consumers receiving m-ads mobility played a more important role since they received m-ads to their mobile phones. Thus, due to the focus of this study the concept of technology-intensive business service is used.

Technology-intensive business service is defined in this study as the area of industrial service in which high-technology plays a central role (see e.g. John et al. 1999). In addition, such services are usually delivered with the support of wireless devices and they include characteristics that are new and constantly developing.

Other titles or labels for technological services have been used in different studies. For example, Bettencourt et al. (2002) use the concept of knowledge-intensive business services that are “produced by firms whose primary activities consist of the accumulation, creation or dissemination of knowledge for the purpose of developing a customized service or product solution to satisfy the client’s needs.” Freel (2006) also uses this concept. However, this definition is better suited to describing firms providing software or IT consulting projects in which knowledge and its creation play a central role. Matthing et al. (2006) favour a concept of technology-based service which refers to “highly innovative services based on technology platforms that have not existed previously, e.g. Internet, 3G mobile phone technology or geographic positioning systems”. Moreover, Joseph et al. (1999) and Dabholkar (1996) use the term technology-based service.

What connects these studies is their focus on the service provider-consumer interaction and how the new services enabled by technological development
influence service delivery between them. In these studies the technology-based service is seen as a means for a service provider to cut costs by reducing the extent of employee-customer contact (Joseph et al. 1999) and for consumers to get an efficient and fast service that remains under their own control. Thus, the context in which the concept of technology-based service is usually used (B2C) is different from the present study (B2B). Also from the perspective of the present study the term technology-based seems to emphasise the pure technological character of the service too much, since other characteristics (see section 2.2.) of the service in question also influence the value perceptions of the customers using it. In addition, using the specific concept of “emerging technology-intensive business service” aims to emphasise that the service is a specific type of technological business service that is at the application phase of development.

2.1.2 Positioning the context

New technology-intensive business services are developed and provided by networks of co-operating organisations. Due to the high dispersal of knowledge and technological resources, individual firms cannot internally pursue innovations and master all the relevant value activities, but there is a need to create increasingly complex webs of knowledge and technological bonds between firms with complementary skills and resources (Möller et al. 2005). In these value-creating networks each actor has different capabilities and resources, and innovation is made up of the combination of these capabilities and resources (Faber & Bouwman 2003). So, unlike with the more traditional services, a technology-intensive business service is not produced within the dyadic interaction between the service provider and customer, but requires a large number of different actors to realize it.

In order to define and clarify the characteristics of the context of this study and to position it accordingly, a business net classification framework suggested by Möller and Törrönen (2003) and Möller and Rajala (2007) is used as a starting point. A value system continuum is proposed including three generic value systems (or business nets) based on the level of determination and the role of knowledge of their underlying value creation (see figure 4). At one end of the continuum are stable, well-defined value systems called current business nets that have achieved a relative stability and high level of business process specification in their value creation. They involve well-known actors, technologies, business processes and value activities. In the middle of the continuum are business
renewal nets that refer to established value systems which are relatively well
determined but involve incremental change through innovation activities aimed at
improving their offerings or specific parts of their businesses (e.g. logistics,
production). At the other end of the continuum are emerging business nets
categorized by radical, discontinuous and system-wide changes in old value
activities resulting in new technologies, business concepts or even business fields
(e.g. the birth of the commercial internet or gene technology). The emerging value
system requires future-oriented thinking and involves dynamic and complex
learning processes that cannot be specified in advance. This is a complex and
under-researched domain and comes close to the context of the present study
since the mobile advertising service requires new actors with diverse skills to
form novel service production networks that continuously develop knowledge and
technologies and finally create new value for their eventual customers.

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<tr>
<th><strong>Current Business Nets</strong></th>
<th><strong>Business Renewal Nets</strong></th>
<th><strong>Emerging Business Nets</strong></th>
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<td>Vertical Demand-Supply Nets</td>
<td>Business Renewal Nets</td>
<td>Application nets</td>
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<td>Toyota</td>
<td>- Offer improvements</td>
<td>- Flat panel displays</td>
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<td>DELL</td>
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<td>- Bluetooth</td>
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<td>- Software solutions</td>
<td>- Science-based networks</td>
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<td>Nectar</td>
<td>- Emerging Business Nets</td>
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Fig. 4. Business net classification framework (Möller & Rajala 2007).

Möller and Rajala (2007) further identify three different network categories
within the emerging value systems. First, there are innovation networks that are
science and technology-based research networks involving universities, research
institutions, and research organisations of major corporations. They are not
primarily business networks but rather aimed at scientific discoveries. However,
the innovation networks involving large companies as research partners can also
be directed towards achieving specific application-oriented goals. Secondly, in
dominant design networks proactive companies try to create dominant
technological designs in the pre-market phase of the business field evolution to support their positions in the field. Thirdly, application networks are formed to exploit commercially viable business applications as spinoffs from the evolving technology. These networks usually involve a hub firm, different technology producers and pilot customers. For example new mobile services are generally created by these types of networks.

The empirical context of the present study shares similar characteristics with both the innovation and application networks introduced above. Hence, the categorisation suggested by Möller and Rajala (2007) enables better understanding of the nature and the characteristics of this particular context. In this study the network producing the technology-intensive business service (i.e. an m-advertising service) is a kind of science network involving a large consortium of different actors — a university, technology providers, a mobile operator, Finland’s National Technology Agency (Tekes), many other business organisations, and finally retailers and consumers as test users of the service (comparable to “pilot customers”). Thus, the network is not a business network in the traditional sense but rather a project network emphasising the achievement of scientific research results. However, the aim of testing m-advertising was also to develop it towards commercialization which makes the context resemble an application network.

Moreover, to emphasise the specific emerging nature of the technology-intensive business service researched in this study and to further define the position of the context, a similar type of evolving continuum is suggested in figure 5. It has

Fig. 5. Positioning of the context.

Emerging technology-intensive business service in the focus of this study

Innovation phase of development

Application phase of development

Commercial phase of development

Time
many similarities to the new service development process suggested by Edvardsson (1997) which involves four phases: the idea, the project formation, the design and the implementation. The continuum suggested in this study evolves from innovation towards commercialization through an application phase. First, there is the idea or innovation of a new business service that deserves to be developed further. It is then formed into a concrete application by the actors involved in the service network. Before the service is commercially viable and can be brought to market, it has to be carefully tested, which is done at the application phase. Finally, at the commercial phase the service is launched and available in the market. The emerging technology-intensive business service that is the focus of this study (an m-advertising service) is at the application phase where it is tested by real users with the purpose of developing it further and finally offering it for sale in the commercial markets.

An increasing number of firms will be operating in a technology-intensive business service environment in the future. However, starting to use new technology-intensive services and utilising them effectively creates many challenges for customer firms. It requires not only learning to use new technology but also learning to utilize the new opportunities provided by the technology, and replacing the old ways of thinking and learning to operate with new ideas requires effort. Since an emerging technology-intensive business service at the application phase has a great value-creation potential, understanding its specific features and creating a more comprehensive understanding of the value creation related to it is important for developing the service towards commercial success in the future.

2.2 Specific features of emerging technology-intensive business service

The context of this study, technology-intensive business service has specific features that have an impact on value creation. These new features are related to 1) the special technological character that distinguishes it from more traditional types of services, 2) the novelty and developmental stage of the service, and 3) the network that is needed to produce this type of service (see also Komulainen et al. 2007). These features are naturally intertwined and partly overlapping but are discussed separately for purposes of clarity.

First, it follows from the technological character of the service that it is complicated to use and utilise effectively. Overcoming that complexity requires investments from the customer (see Curran & Meuter 2005). The customer needs
to invest resources, i.e. time and effort to learn to use the service and to understand how value can be derived from it. In a novel technology-intensive service setting, the service process typically takes place through a technical interface – meaning that the role of the customer increases and part of the service can in fact be self-service (see e.g. Dabholkar 1996, Komulainen et al. 2006). This makes the role and competencies of the customer integral to the success of the service process. Thus, it is a major challenge for the service provider to make the customer understand how to derive value from the new service. An even greater challenge is to convince the customer to invest often-scarce resources, given the many uncertainties related to emerging technological services.

The second characteristic of the emerging technology-intensive business service is the novelty and developmental phase of the service. Since technology-intensive business service represents a new business field involving many uncertainties (e.g. Möller & Rajala 2007) it follows that neither the service provider nor its customer has much experience of the type of service. The m-advertising service addressed in this study, for example, is entirely new for both parties, as is the relationship between them. Therefore, both are unsure of the value potential of the new kind of service which creates various uncertainties in relation to what might constitute maximum value from the service, how to co-create value efficiently in the relationship with the service provider, plus the whole network producing the service, and what aspects of the service are actually valuable for the final consumers.

Due to the rapid growth of new technologies and the rapid advances in the resulting technologies, the area of technology-intensive service is continuously being developed and updated with new features (e.g. Curran & Meuter 2005, Edvardsson 1997). Moreover, the m-advertising service explored in this study is only at the application phase of development and due to be commercially released in the future. Due to this developmental phase, the service and its features are in a state of flux. Hence, also the value related to the service takes different forms as the service is developed and as the customers learn to use and utilise it. Both the customer firm’s relationship with the service provider and the surrounding network develop simultaneously. All these changing conditions have an influence on value creation. As a result, the value perceptions of the customer may change quite radically over time, both in relation to the service and in terms of relationships. This makes studying the temporality of values very rewarding in this kind of turbulent context.
The third specific feature of the emerging technology-intensive business service is the network that is needed to produce this kind of service. Due to the complexity and technological nature of the technology-intensive business service, individual companies cannot produce and market such services alone (Möller et al. 2005). Instead, a network of co-operating actors, e.g., technology providers, network operators, application providers, device manufacturers, and content providers is needed to co-operate in service production (see e.g., Kallio 2004, Komulainen et al. 2006). The network producing the service has an impact on the final service offering and the value related to it (see e.g., Möller & Törrönen 2003) determining the kind of features and options included with the final service and how the service functions. Therefore, understanding that the service is produced in the wider network is important as the network also influences, at least indirectly, the value perceptions of the customer firm.

To conclude, these three features characterizing emerging technology-intensive business service are naturally intertwined and partly overlapping. All the characteristics make the value creation in the context of emerging technology-intensive business service unpredictable and dynamic. Value creation takes different forms as the service is constantly developed and as the customers learn to use it. Careful exploration of the context thus ensures a large variety of perceptions and changes will emerge over time, which is a prerequisite for effective theory development.

2.3 Mobile advertising as a technology-intensive service

The use of wireless communication services, such as m-advertising, is becoming a global phenomenon since mobile phones are becoming an essential vehicle for business and personal communications (Lee et al. 2006). Technological convergence of mobile phones with audio, video, computing, telecommunications and television has made them an effective media for m-advertising (Kim & Jun 2008).

Many definitions of this new kind of advertising have been offered. For example, the Mobile Marketing Association (MMA) defines it as “a form of advertising that is communicated to the consumer/target via a handset” and it involves for example SMS (simple text message) and MMS (multimedia message) advertisements, mobile gaming advertisements, and mobile video advertisements (www.mmaglobal.com). Leppäniemi et al. (2004) suggest that m-advertising refers to “any paid message communicated by mobile media with the
intent to influence the attitudes, intentions and behaviour of those addressed by the commercial messages”. Thus, m-advertising can be seen as advertising messages that are sent to and presented on mobile devices through a wireless network, and accordingly it is seen as one of the most promising business areas in the field of information technology (e.g. Kim & Jun 2008, Peters et al. 2007, Varshney & Vetter 2002).

Peters et al. (2007) suggest that despite the widely acknowledged benefits of m-advertising the studies focusing on this emerging field of business are still rare. Most studies have approached m-advertising in B2C contexts, an exception being the research of Takkula and Tähtinen (2006) that explores m-advertising as a part of B2B marketing communications. In addition, some studies can be found that have discussed it from the consumers’ (e.g. Lee et al. 2006, Tsang et al. 2004), retailers’ (e.g. Salo & Tähtinen 2005) or advertising agencies’ (e.g. Komulainen et al. 2005a) perspectives.

Due to the special characteristics of new mobile technologies, m-advertising can be used to deliver advertisements which are radically different from traditional ones (see e.g. Choi et al. 1997, Salo & Tähtinen 2005). Traditional advertising is primarily targeted at mass audiences, and relies predominantly on one-way mass communication. M-advertising can be tailored to individual customers, because it efficiently identifies the receiver of the message (Kim & Jun 2008). In addition, the mobile device allows m-advertising to be highly interactive as it is possible to engage consumers in discussions and transactions with the advertiser (Barwise & Strong 2002). M-advertising also has the potential to take account of the situation of the receiver, e.g. the time of day, weather, the customer’s mood and/or location (Pura 2005, Salo & Tähtinen 2005). Thus, m-advertising makes it possible to send unique, personalised and customized advertisements as well as to engage customers in discussions and transactions with the advertiser (Salo & Tähtinen 2005). In order to be successful, the use of m-advertising requires new ways of thinking and learning how it can best be applied.

Another special feature of an m-advertising service common to other types of mobile services as well (see Möller & Rajala 2007) is the need for different actors in the production of the service. The network actors have different roles in service production (Heikkinen et al. 2007) and they have an impact on the final service offering and the value related to it. Although acknowledging the importance of the surrounding network, this study focuses on the value that is co-created in the relationship between the two focal actors of the network: the m-advertising
service provider and its customer, i.e. the retailer as an m-advertiser. Specifically, attention is paid to the retailers’ perceptions of the value they received from the m-advertising service within the focal relationship. However, it is also noted that the other network actors may have an impact, either directly or indirectly, on the value perceptions of the customer as well. Therefore changes in the network around the focal dyad may also influence value co-creation in it.

In the study of Komulainen et al. (2005a) an m-advertising business model scenario illustrates a network producing the m-advertising service, the business actors and their roles, and the value-creating exchanges among the actors. This is a modelling of the potential m-advertising service network based on a scenario planning method and it represents one possible way to organise m-advertising. It is here discussed briefly since it provides an important understanding of the m-advertising service production network and the various roles of different actors.

A service provider, for example a software firm, acts as an intermediary between the focal actors. The service provider has developed the m-advertising service system and provides it for the use of advertisers. It also hosts the service system,
i.e. develops the software, maintains it, runs the system, and gathers and updates databases of consumers willing to receive m-advertisements. The process starts with an advertising agency designing an m-advertisement for the advertiser, placing it into the m-advertising service and receiving payment for the work (1). However, those tasks can be done by the m-advertiser itself if preferred. The m-advertiser pays the service provider an entry fee, and either a monthly usage fee with a maximum number of sent m-advertisements or a fee per m-advertisement sent (2). The service provider then sends m-advertisements as multimedia messages to consumers according to the criteria chosen by both the consumers and the m-advertiser. After receiving the m-advertisement consumers may make a buying decision and thus provide direct revenue for the advertiser (3). A mobile network operator provides access to the wireless network and the service provider pays it for the service of sending messages to consumers (4). This also includes the costs of the mobile network operator renting the network from the infrastructure provider. It should be noted that the mobile network operator and the infrastructure provider could belong to the same group. However, in such cases they are still different strategic business units, which charge each other for their services (5). This is to ensure competition in the telecommunication business (see Komulainen et al. 2005a).

Acknowledging the network surrounding an m-advertising service is important to understanding value creation in this kind of new service environment. However, this study focuses on one of the central actors in the network, the m-advertiser. Although ultimately the value of m-advertising is determined by the recipient of the m-advertisement, the final consumer, the future success of an m-advertising service depends first and foremost on the m-advertisers and their willingness to use the service in their marketing communications. Therefore, the value perceived by the m-advertiser needs to be examined before it is even possible to explore the value for the consumers. Moreover, from the perspectives of the other m-advertising network actors, the m-advertiser plays a critical role in the success of the service. If the m-advertiser did not perceive any value from the service the roles of the other actors would be irrelevant since the service could not be produced.

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2 M-advertising is legal in the EU only if the receiver has given permission to receive the advertisement.
3 Theoretical understanding of customer perceived value of emerging technology-intensive business service

The aim of this chapter is to provide a review of how the customer perceived value concept is discussed theoretically in the existing research on services and business-to-business relationships. As this study examines value in the context of emerging technology-intensive business service (i.e. in a B2B context) the primary sources of theoretical understanding of value are derived from the recent research on services marketing. In addition, since technology-intensive business service is produced and consumed within the context of business relationships, the interaction and network approach is used to complement the services marketing literature. In addition to these main approaches this chapter also draws on time-related studies in marketing in order to understand the temporal nature of the customer perceived value concept.

Below, the multifaceted character of the customer perceived value is examined. Then the value co-creation view is introduced with the emphasis on sacrifices as an important element of value perception. After that, the chapter addresses customer perceived value as a temporal concept and introduces the expected, realized and potential value dimensions. Finally, the theoretical framework of this study is presented and discussed.

3.1 Customer perceived value as a multifaceted concept

The most important reason for engaging in a business relationship is the opportunity it provides for value creation (e.g. Boyd & Spekman 2004). Numerous studies have addressed value creation from different perspectives and sought to understand and define the phenomenon (e.g. Flint et al. 2002, Lindgreen & Wynstra 2005, Liu et al. 2005, Möller 2006, Ulaga & Eggert 2006). Although such popularity clearly confirms the importance of studying the value phenomenon, it also indicates that value is complex, difficult to grasp, conceptualise, and model (see also Lin et al. 2005). The following sections tackle the complexity related to the value concept by first defining what is meant by customer perceived value in the present study; next, the existing categorisations of value are presented and the study is positioned within existing research in relation to the value of the service and the value of the relationship.
3.1.1 Defining the customer perceived value concept

Numerous definitions of value have been proposed, some developed from a consumer’s perspective whereas some are more suitable for B2B contexts. The product, the service or the relationship have all been used as a starting point for value definitions as well as the perspectives of both the customer and supplier.

For example, Ulaga and Chacour (2001) define customer perceived value in industrial markets as “the trade-off between multiple benefits and sacrifices of a supplier’s offering as perceived by key decision makers in the customer’s organisation and taking into consideration the available alternative supplier’s offerings in a specific use situation”. The definition used by Walter et al. (2001) is similar but adopts the perspective of the supplier. In addition, they suggest that benefits and sacrifices can result from the relationship in question, and also from connected relationships.

On the other hand, the often-cited definition of Woodruff (1997) defines customer perceived value as “a customer’s perceived preference for, and evaluation of, those product attributes, attribute performances, and consequences that arise from use and that facilitate, or block achieving their goals and purposes in use situations”. This definition is created on the basis of consumers evaluating the value of products.

In services research, value is typically defined from the consumer’s perspective (Patterson & Spreng 1997). There are also two concepts that come close to the concept of value: service quality and customer satisfaction (see e.g. Ulaga & Chacour 2001). Parasuraman et al. (1985, 1988) suggest that service quality is defined by the customer with reference to how well the service is delivered and matches their perceived expectations. Also Grönroos (1982) suggests that service quality stems from a comparison of what customers expect from the service (i.e. their expectations) with the seller’s actual service performance. Furthermore, service performance involves more than simply an outcome dimension. It also includes the way in which the service is delivered during interactions between service provider and customer, i.e. it needs to be conceptualised as comprising technical (what is delivered) and functional (how the service is delivered) quality (e.g. Grönroos 1982, Parasuraman et al. 1985, Patterson & Spreng 1997). However, according to Bolton and Drew (1991) perceived value is a “richer, more comprehensive measure of customers’ overall evaluation of a service than service quality”.

44
The concepts of value and satisfaction are also closely causally related to each other: value assessment leads to feelings of satisfaction or dissatisfaction. Also the assessment criteria are basically the same, except that assessing customer satisfaction focuses mostly on attribute-level assessment, whereas customer perceived value also includes higher-order and more abstract levels of assessment (Woodruff 1997).

Holbrook (1994) points out that the different approaches defining value can be characterized as existing along a continuum between two extremes: extreme subjectivism and extreme objectivism. In the case of the former, value is dependent on individual assessments of what is experienced, while the extreme objectivism holds that value is intrinsic or innate to an object and therefore exists before the process of valuation (see Walker et al. 2006). Shillito and De Marle (1992) argue that value can be defined or interpreted in one of four main ways: exchange value or intrinsic value which are both object-based, or use value or utilitarian value that are subject-based.

The popular conceptualisations of value in services marketing are functional perspectives on value that define value in terms of performance (quality) and price. However, Patterson and Spreng (1997) state that perceptions of value are not limited only to the functional aspects but may include social, emotional and even epistemic value components. Thus, in line with evaluating the quality of the service, the total perceived value of a service comes from two sources; from the service act itself and from the quality of the service act (Groth & Dye 1999) and there is a need to pay attention to both the functional and more abstract elements of customer perceptions.

Furthermore, the definitions of customer value both in relation to a service and to a relationship in which the service is produced, have an important feature in common when it comes to making the value evaluation. The value of a service is seen to be related to both the service itself and the service process. Similarly, the value of a relationship refers to both the value created in (or through) the relationship and as a result of acting in a relationship (see also Lindgreen & Wynstra 2005). This notion of customer perceived value in relation to the service and, on the other hand, in relation to the relationship is discussed in more detail later in this chapter.

According to Khalifa (2004) definitions of customer value can generally be grouped into 3 categories. First, value component models focus on product or service features but fail to pay attention to interactions and relationships between customers and suppliers. Second, benefits/costs ratio models suggest that
customer benefits include tangible and intangible attributes of the product/service and the sacrifice component includes monetary and non-monetary factors. Huber et al. (1997) propose that the costs of a purchase considered relevant by consumers include monetary costs, time costs, search costs, learning costs, emotional costs, and cognitive and physical effort coupled with financial, social and psychological risks. These types of models (e.g. Ulaga & Chacour 2001, Huber et al. 1997, Zeithaml 1988, Grönroos 2001, Parolini 1999) are broader than the value components models but do not pay much attention to the dynamics of value and thus are more static than dynamic. Thirdly, means-end models are based on the assumption that customers acquire and use products/services to accomplish favourable ends (consumer behaviour literature). For example, Woodruff’s (1997) customer value hierarchy model captures the dynamic and context-dependent nature of how customers judge value, the criteria they use to do so, and the relative importance they place on such criteria. Means-end models explain why customers attach different weights to various benefits but the models fail to pay sufficient attention to the sacrifices. In addition, they do not elaborate on the trade-offs customers are expected to make between benefits and sacrifices. Golik Klanac (2008) uses the same kind of categorisation for customer value definitions as Khalifa (2004) but replaces the value component models with an experiential approach, in which the emphasis is on the experiences of a customer. This is an abstract-level approach and it is not widely used in B2B studies since it is quite difficult in practice to closely observe customers’ activities to the degree needed to understand their experiences (Golik Klanac 2008).

When defining value, scholars should also bear in mind the role of the customer perceiving the value. Firstly, the customer makes the evaluation and at the same time actually influences it. Therefore, value perceived is always influenced by the person and his or her personal qualities and the way the evaluation has been made. Hence, it is not just the service that determines value perceived but the customer is actually an important source of value as well. This is why subjectivity is at the core of the customer perceived value concept. The definition adopted in this study is probably the most commonly shared view on customer perceived value – that regarding it as a subjective perception of the trade-off between multiple benefits and sacrifices (or give and get components), relative to the net value of an alternative (or competition) (e.g. de Chernatony et al. 2000, Komulainen et al. 2007, Möller & Törrønen 2003, Ulaga 2003, Walter et al. 2001, Zeithaml 1988). This definition of net value (see Woodall 2003) highlights not only the benefits gained but also the sacrifices or
investments that a customer makes in order to gain the benefits. In addition, the comparison to competing offerings is here noted as an important factor influencing the value perceptions of the customer. This definition of value is presented graphically in figure 7.

Fig. 7. A visualisation of customer perceived net value (Komulainen et al. 2007).

In relation to Khalifa’s (2004) categorisation the present study represents a benefit-sacrifice approach, but contrary to the common view, here the temporal aspects are emphasised to assist understanding of the essence of the customer perceived value concept. This study analyses the net value consisting of the trade-off between two basic value elements: the benefits and the sacrifices (e.g. Kothandaraman & Wilson 2001, Menon et al. 2005, Walter et al. 2001). Furthermore, value elements are divided into sub-elements that reveal the sources of benefits and sacrifices. As suggested in Komulainen et al. (2007) this choice respects the definition of value and enables a clearer and deeper understanding of the essence of customers’ value perceptions.

### 3.1.2 Categorisations of value

A number of studies (e.g. Eggert & Ulaga 2002, Lapierre 2000, Ravald & Grönroos 1996) can be found categorising and classifying customer perceived value using the benefit-sacrifice approach. Nevertheless, none of the studies has addressed industrial customers’ value perceptions of emerging technology-intensive service except for the study of Komulainen et al. (2007) that identifies
two outcome-level benefits (pioneering and commercial effectiveness), three process level benefits (technical functionality, service support and communication) as well as monetary and non-monetary sacrifices as the elements of customer perceived value in mobile advertising services. Within B2B services, value has been categorised by Lapierre (1997), Liu et al. (2005) and Liu (2006). In addition, within consumer services, Pura (2005) has studied value in location-based mobile services, and Heinonen (2004) in technology-based self-services. However, as the following discussion reveals, the above mentioned studies seem to categorise net value, instead of benefits and sacrifices, to its sources; furthermore, they implicitly emphasise benefits.

In B2B services, Lapierre (1997) categorises value at the exchange level into technical quality, functional quality, relational variables and image, and at the value-in-use level into financial, social, operational and strategic value. Liu et al. (2005) conceptualise value in three sources: 1) economic value, 2) value of the core service, and 3) value of the support service. More recently, Liu (2006) identifies three facets of customer value for business services; economic value, relational value and core value.

The existing research on technology-intensive consumer services brings in the socio-psychological sources of value. Pura (2005) identifies six value sources. First, convenience refers to ease and speed of achieving a task conveniently. Secondly, social value relates to social approval and the increased self-image. Thirdly, emotional value is acquired when feelings are aroused by a service, and fourthly, epistemic value relates to experiences of curiosity, novelty or knowledge gained. The fifth value is conditional, referring to the fact that it exists only in a specific situation. The final variant, monetary value is derived from task fulfillment. Heinonen (2004) relates value to the technical (outcome of the service interaction) and functional dimensions with the latter concerned with the functional aspects of the service delivery process. Taken together, they form the value of the core service.

Outside pure service research, in an IT industry context, Lapierre (2000) presents a categorisation of value drivers that originates from the definition of value. Hence, it differs from the categorisations presented above by acknowledging different sub-elements within both benefits and sacrifices. Benefits are divided into product-related (alternative solutions, product quality, and product customization), service-related (responsiveness, flexibility, reliability, and technical competence), and relationship-related benefits (supplier’s image, trust, and supplier solidarity with customer). The recognized sacrifices include
product and service-related price, relationship-related time/effort/energy and conflict. Although Lapierre’s study focuses on the value of IT suppliers supplying both goods and services, its basic logic of classifying benefits and sacrifices to their sources is followed in this study, since it is an approach that provides a more profound understanding of the actual sources of customer perceived value.

In the present study, both the benefits and sacrifices (i.e. main value elements) are acknowledged equally. In other words, in this study the sources of benefits and sacrifices are categorised and referred to as sub-elements of customer perceived value. The argument for this is that their combination is essential to the customer’s value perception since this creates an in-depth understanding of the aspects that constitute the customer perceived value in the specific context. This is also in line with Komulainen et al. (2007). Thus the present study departs from the majority of views categorising value according to its sources.

3.1.3 Positioning the study in relation to the value of the service and the value of the relationship

This study focuses on customer perceived value, in other words the customer’s subjective evaluation of value derived from a novel technology-intensive service. Generally, customer perceived value can be related to a single purchase of goods or of a service, or to a relationship between a supplier and a customer, or even to a net or network of such relationships. Lindgreen and Wynstra (2005) categorise the existing research on value according to two distinct focuses: the value of goods and services and the value of relationships. A similar type of categorisation is used by Möller (2006) who refers to “total value creation” that involves both exchange value and relationship value. In the context of emerging technology-intensive business service, these two levels can be difficult to distinguish, especially in terms of customer perception. The object of exchange, the service, is intertwined with the service relationship and the two cannot be separated. Hence, this study positions itself at the centre, because the customer perceived value in the m-advertising service setting contains elements of both the exchange and of relational value.

The m-advertising service is a result of a co-operation and interaction between the service provider and its customer (here a retailer as m-advertiser) and therefore the nature of the service is interactive, as in any business relationship. Hence, the evaluation of the value of the service blends in with the evaluation of the relationship with the service provider. The value related to the relationship is,
in fact, also influenced by the value of the relationships that the service provider has with the other network actors (see Lindgreen & Wynstra 2005). M-advertising involves collaboration between many different actors, such as advertising agencies in designing the m-advertisements. The creative part of the campaign design influences the value derived by the consumer and in this way it also influences the value perceptions of the retailer. In addition, a functioning m-advertising service requires the co-operation and interaction of various other actors (e.g. infrastructure providers, network operators, application providers, device manufacturers, and m-advertisement receivers) and all these network actors influence the final service offering and its value (see Komulainen et al. 2007). Also Möller (2006) notes that services involving new technological innovations generally require close collaboration between many business partners to combine several competences. Thus, there are many factors influencing customers’ value perceptions which make the value created very uncertain and difficult to assess in advance.

In summary, focusing solely on the value of the relationship or the value of the service would not provide sufficient understanding about customer perceived value in any new technology-intensive business service. Instead, how it is affected by the evaluation of both the service and the relationship in which it is produced should be taken into account.

### 3.2 The co-creation view of customer perceived value

Next, a co-creation view of customer perceived value is adopted since it aids comprehension of the value of the emerging technology-intensive business service. As suggested in the previous section, this kind of service is produced in the collaboration between the service provider and the customer, and it also involves many other actors. In addition, due to the novelty and technological character of the service examined, the current approach emphasising value co-creation and service co-production is fruitful in exploring value creation in this specific context. In the following, value co-creation between the service provider and its customer is examined but the focus remains on the customer’s value perceptions.
3.2.1 Value co-creation and service co-production in emerging technology-intensive business service

More and more services today are interactive, technology-intensive and embedded in relationships (Matthing et al. 2004). Services research has mainly focused on the interpersonal dynamics of service encounters and characteristics of interpersonal interactions between the service provider and customer. However, there is still much to be learned about customer interactions with technology-based self-service delivery options and technological interfaces (Meuter et al. 2000), for example services operated over the internet or the various or mobile services. Thus, more research is needed in technology-oriented service context.

In the context of this study, an emerging technology-intensive business service, it is typical that the service process takes place through a technical interface. That means that the role of the customer increases and part of the service can in fact be self-service (see e.g. Komulainen et al. 2007). This makes the role and competencies of the customer essential to the success of the service process. However, the role of the service provider in training and supporting the use of the service is also integral. Hence, both parties play important roles in this type of service production.

In general, services can be defined as activities, deeds or processes and interactions where the customer plays the complex role of both contemporary consumer and producer (see e.g. Matthing et al. 2004, Vargo & Lusch 2004a, 2004b). An important distinguishing feature of services as a context of exchange is that the service production and delivery processes as well as the customer’s value creation processes happen, to a large extent, simultaneously (Grönroos 2001). However, in the specific context of new technology-intensive business service the production and consumption of the service do not necessarily need to take place inseparably which distinguishes the emerging service from the more traditional ones.

This study views service as the result of co-production by both service provider and customer (e.g. Grönroos 1978, 1991, Gummesson 1979, Lusch & Vargo 2006, Vargo & Lusch, 2004a, 2004b). This is in line with the current trend in value and service research emphasising the value-in-use perspective (e.g. Strandvik et al. 2008). The basic idea is that the customer is no longer “a target” that receives the value determined by the service provider but instead, value can only be created with and defined by the customer (Edvardsson et al. 2005). Value co-creation is defined as occurring at the intersection of the actions of the offerer
(i.e. the service provider) and the customer over time, either directly or as mediated by a product (see also Grönroos 2006). In the context of this study, the customers (i.e. retailers) and the service provider interact both directly and indirectly. The mediator, however, is not a product in the conventional sense, but a self-service technology – a customer interface on the internet. On the other hand, co-production as the other basic component of value co-creation, involves the participation in the creation of the core offering itself and it can occur through shared inventiveness, co-design, or shared production of related goods. Thus, the customer is primarily a co-producer of a service and a co-creator of value (Vargo & Lusch 2004a). In the context of this study it is suggested that value is partly co-created with customers and partly solely-created by customers in their own processes after the service and relationship processes (Komulainen et al. 2007). In summary, it is suggested that the customer’s (in this study, the retailer’s) perceptions of value are strongly related to the co-production of service and co-creation of value.

In addition, the interaction and network approach has addressed the issue of value co-creation. The more traditional research on value creation within interaction and network research approaches it from two main perspectives. Firstly, value in business markets has been traditionally seen as the assessment of how suppliers create value for their customers and how customers perceive value in a supplier’s offering (e.g. Flint et al. 1997, Ulaga 2003). Secondly, value has been approached from the supplier’s perspective (e.g. Walter et al. 2001), which means that the supplier needs to gain benefits from the customer while offering value to the customer. However, within the interaction and network approach the value co-creation view has also attracted support. This is the view that the transaction relationship does not merely involve the service provider creating value and the customer consuming it, but rather that both are engaged in creating value together through interacting in the relationship (see e.g. Forsström 2005).

In line with the value-in-use perspective, the present study focuses on value co-creation by emphasising that in relationships and in service production there are two active parties, co-operating and co-creating value with each other.

### 3.2.2 The role of sacrifices in customer’s value perceptions

In relation to value co-creation the role of sacrifices in the customer’s value perceptions becomes important. Although benefits and sacrifices are the basic elements of customer perceived value, the existing categories mainly focus on
benefits. Even when sacrifices are examined, the majority of the existing literature considers the purchase price as the most important sacrifice and neglects a thorough examination of indirect and non-monetary sacrifices (Ravald & Grönroos 1996), like psychological costs, time, effort and energy (Leino 2004). However, sacrifices inevitably influence the customers’ value perceptions, and in the context of emerging technology-intensive business service, it is essential that the customer’s non-monetary sacrifices are taken into account too, because of the nature of the service (e.g. it is new and technological which may make it complicated to use). An important feature of this kind of service as a context of exchange is the co-production of the service which implies that a certain number of sacrifices are actually needed from the customer in order to co-produce the service and thus co-create value. In other words, the customer’s input into the exchange is essential because without mutual investments in the co-production the service cannot exist.

Interaction and network research has addressed the role of sacrifices at the relationship level. Johanson and Mattsson (1987) suggest that the creation and acquisition of value in business relationships depends on the investments the parties make. These investment processes vary in the degree of commitment and the amount of resources available and used in the relationship. Thus the price and process costs (Hogan 2001, Ulaga 2003) vary. Several types of costs related to relationship development have been identified, e.g. relationship handling costs and relationship-specific investments (Walter et al. 2001). Moreover, adaptations can be seen as one form of sacrifices and they are important preconditions for value creation through business relationships. Adaptations refer to all changes in the company’s resource deployment made for the exchange partner, and those can occur in the technical, commercial, financial and social arenas (Walter & Ritter 2003, Håkansson 1982). Related to this, Blankenburg Holm et al. (1999) talk about mutual commitment that is “the willingness on the part of both partners to make short-term sacrifices to realize long-term benefits in the relationship”. They state that building mutuality is a matter of exchanging incremental commitments in order to form a relationship that creates value for both partners. The development of mutual commitment is a time-consuming process that requires building relationship-specific investments by both partners. In summary, making sacrifices and investing in the relationship is imperative for value creation in B2B relationships.

Sacrifices thus play an essential role in customer perceived value of the service and relationship. Although benefit and sacrifice are interconnected
components of customer perceived value, the trade-off between them in this particular type of business service context is not as straightforward as is often assumed, i.e. one of benefits increasing value and sacrifices reducing it. Instead, value sub-elements may have a complex interaction in service value co-creation, since certain sacrifices can actually increase the perceived benefits. This is due to the nature of the technology-intensive business service and also the relationship where it is co-produced, in other words sacrifices are required from both parties to co-produce the service and thus perceive value from it, as well as from the relationship.

Thus, this study suggests that to maximise net value requires finding the best combination of sacrifices and benefits. Thus, sacrifices may actually increase the benefits and result in higher customer perceived value (e.g. Rokkan et al. 2003). This logic could be adapted from transaction cost analysis (TCA) to apply to a value discussion (see e.g. Gosh & John 1999), that has not yet explicitly and thoroughly addressed the issue. However, this issue is examined in more detail in later parts of the study.

### 3.2.3 Towards temporality of customer perceived value

In applying a co-creation view on value (Grönroos 2006, Vargo & Lusch 2004a, 2004b) this study suggests that value can be perceived at two levels: the process and outcome levels (Komulainen et al. 2007). The process level refers to the co-creation of value taking place in the service and relationship processes conducted between the counterparts, whereas the outcome level refers to value that is created after the service and relationship processes, in a customer’s own value-creation processes (see also Lapierre 1997).

These two value levels implicitly include two time dimensions – during and after the service process. At the more general level, when considering a customer’s value perceptions of the emerging business service, it becomes important to take a closer look at the temporality of the value perceptions since they may take place before, during or after the service episode (Lapierre 1997, Parasuraman 1997) or relationship. Also the specific emerging character of the service explored in this study makes it crucial to focus on the time-related issue; and it is this issue which is addressed in the following section.
3.3 Temporal perspective on customer perceived value

This section focuses on the temporal aspects of customer perceived value by first reviewing existing marketing literature on temporality and then moving on to consider the time-sensitivity of a customer’s value perceptions. The novelty of any service influences the customer’s willingness to start using the service and hence to take part in the service co-production. In this study the service explored is not only new to the customers but still at the application phase of development. Thus, the value system of the service is in an emergent state (see Möller & Svahn 2003, Möller & Rajala 2007) which makes temporality of customer perceived value important to study. The following section aims to convey an in-depth understanding of the phenomenon.

3.3.1 Past, present and future dimensions of time

In order to take a general look at temporality as a phenomenon, it is first examined in terms of past, present and future dimensions. Medlin (2004) suggests that past, future and present time act as reference frames to each other. Past refers to all actions before the present. Hence, each actor has its own past, i.e. the past actions relevant to him or her at the present time (Stanley & Tyler 2002). History refers to a past that holds the memories and interpretations of events that are remembered (Medlin 2004). On the contrary, the future is full of many possible options or scenarios that may be realized but only one of them can become the present (Luhmann 1979). Stanley and Tyler (2002) suggest that future refers to “all actions that proceed from current actions”, and divide it into certain future and uncertain future. The certain future consists of the events that can be rationally and realistically expected to occur, e.g. agreed meetings and routine actions. The uncertain future is related to the options or events that may or may not take place in the future. A firm has to be prepared for these events, although they may not happen at all. However, preparing for the future may be very challenging due to the uncertain character of the future time dimension.

Furthermore, since past, present and future are also very relative concepts their range can vary substantially. For example, the past can refer to yesterday or the Middle Ages and similarly, the future can be seen as taking place tomorrow or a hundred years hence. Only the present is occurring at the moment of interpretation. To make temporality an even more challenging phenomenon to deal with, Halinen and Törnroos (1995) introduce a vertical time perspective to
They state that time should not be regarded only horizontally, in relation to the past, present and future, but also vertically, in relation to the specific cultural and contextual setting. Hence, time can include cultural, organisational and individual aspects as well as natural and physical dimensions. Since the context has a significant role in this study, those aspects are important to notice as integral parts of temporality. They are present throughout the study but more concerted attention is paid to the objective horizontal time perspective and its linear progression from past through present to future (see Stanley & Tyler 2002).

To sum up, these views of the past and future as continuously changing contexts can only be interpreted in the present, thus making it a complex structure which relies on the existence of the past and future (Luhmann 1979). In this study past, present and future as dimensions of time are seen to be closely interrelated. In fact, it is questionable whether they can even be discussed as separate dimensions. Reflection can be seen as the central link between the concepts – we often spend our present time thinking about the past or forming future actions. Of course what is now the present will soon be considered the past too. Thus, there is an inseparable connection between different temporal dimensions and they all influence each other. However, to be able to study the diversity inherent in temporality and also for reasons of clarity, the concepts of past, present and future are presented as separate concepts in this study. This does not mean that their interrelated nature has not been noticed, but rather that it will be borne in mind throughout the study, even if not expressly noted. Further on in this chapter these time aspects (past, present and future) are tied to the value assessment of the customer.

### 3.3.2 Expectations and experiences as a basis for value perceptions

Time-related aspects have been more or less implicitly addressed both in the existing services marketing research and also more generally in the customer value research. Next, the study explores the services marketing literature in order to find out how it could contribute to the understanding of customer perceived value as a time-sensitive concept.

According to Groth and Dye (1999), the specific characteristics of a service have an important influence on the ex ante perceptions and ex post perceptions of the customer. In contrast to a transaction involving a product, service-based transactions are awkward to evaluate prior the decision to purchase as they are
non-observable and intangible. In addition, the perceptions are subjective. Hence, service attributes are often very uncertain. This uncertainty increases the risk of divergence between ex ante and ex post perceptions of the service. Thus, the time dimensions of past and present become important; the former referring to expectations concerning the service before its usage and the latter to experiences of it evaluated in the present.

As suggested earlier the concepts of customer perceived value and customer satisfaction are closely related to each other. Satisfaction research within services marketing is dominated by a theory known as the disconfirmation paradigm (see e.g. Parasuraman et al. 1985). According to this model the customer compares a service’s perceived performance to a standard, such as what was expected. If the focal service’s performance is seen as equal to what was expected, the customer is satisfied. If the focal service’s performance exceeds or falls short of expectations, the customer is very satisfied or dissatisfied, respectively. Parasuraman et al. (1985, 1988) suggest that in this conceptual disconfirmation model, customers’ perceptions of service quality are influenced by a series of expectation-perception gaps. In the present study the service evaluated is, however, totally new for the customer and thus there cannot be a proper “standard” on which to base expectations. Therefore, another service with similarities to the new technology-intensive service is most likely to be used as a point of comparison (in the case of m-advertising, a more traditional kind of advertising, like print media advertising could be referenced). However, using a somewhat similar service as a point of comparison may cause an issue with distorted and unrealistic expectations for the new service. The idea of comparing the expectations and experiences or perceptions does, however, bring in two temporal aspects that are useful in examining customer perceived value from the emerging service – namely past and present.

In relation to the disconfirmation paradigm, Parasuraman et al. (1991) also suggest that customers have an implicit range of expectations for each service attribute that they label their “zone of tolerance”. If the service performance is perceived by the customer to fall below the zone, the service provider has failed and will be at a competitive disadvantage. The company will be at a competitive advantage if its service performance is within the zone and finally, if the service performance exceeds the zone it means the customer is extremely satisfied with the service. However, it is important to notice that the expectations change with familiarity with the service. Furthermore, in the case of a technology-intensive
service that is only at the application phase of development these “zones of tolerance” are different than for a service that is already in commercial use.

To sum up, services marketing research has examined the service expectations versus perceptions issue (e.g. Groth & Dye 1999, Parasuraman 1985, 1988, Zeithaml et al. 1985). However, these studies 1) take place in a consumer context, 2) are based on the traditional view of services and 3) mostly deal with concepts other than customer perceived value (i.e. service quality and satisfaction) whereas the present study explores customer perceived value of an emerging service in a B2B context. Therefore, the studies referred to above are used here to provide a loose theoretical background to inform an approach to customer perceived value from the temporal perspective, taking into account expectations and experiences – the past and present dimensions of time.

3.3.3 Temporality in customer value research

Some studies addressing customer perceived value have acknowledged value as a temporal concept but none of them focuses on the value perceived from an emerging technology-intensive business service. However, within product business and the B2C context, temporality of value has been explored by Woodruff (1997), Parasuraman (1997), and Woodall (2003). In addition, Flint et al. (1997, 2002) have explored the changes in customers’ value perceptions in manufacturing supply chains in a B2B context. As the following discussion reveals, these studies emphasise the past and present dimensions of time and do not focus on the future-oriented value potential that is vital in the context of the emerging technological service explored in this study.

Time sensitivity and changes in customers’ perceptions of value have been studied by Flint et al. (1997, 2002). The aim of their first study (1997) was to conceptualise value changing processes in order to enhance customer retention in industrial supply relationships. Different trigger events were identified (supplier located, customer located and environment located changes) that initiate changes in three forms of value – values, desired values and value judgments. It is suggested that customer value has three different related meanings. Values refer generally to implicit beliefs that guide behaviour. Probably the most commonly used meaning defines values as judgments or assessments of what a customer perceives in a specific use situation (value judgments). Thirdly, desired value refers to “what customers want to have happen when interacting with a supplier and/or using the supplier’s product or service” (Flint et al. 1997, 2002). These
forms of value involve expectations (desired value) and perceptions (value judgments) and are therefore connected to the past and present dimensions of time.

In his study, Woodruff (1997) explores customer perceived value as an important source of competitive advantage for companies. It is suggested that customers consider the value of goods at different times, i.e. when making a buying decision or when experiencing product performance during or after its use. In other words, when they are making the choice, they in fact predict the received value, and during the use they actually experience the received value.

The dynamic nature of the customer value concept is also recognized by Parasuraman (1997) who suggests that both the attributes customers use to judge value and those attributes’ relative importance may change over time. In other words, the attributes that motivate the customer’s initial purchase of a product may differ from the criteria of assessing value during the use soon after the purchase, which in turn may differ from the determinants of value applied during long-term use. The study of Parasuraman (1997) examines different types of customers (first-time customers, short-time customers, long-time customers and defectors) to find out what kind of value criteria are the most relevant at the different stages of the relationship. It is suggested that first-time customers most likely focus on attribute-level criteria (i.e. product-specific attributes), but short-term and long-term customers focus on consequence-level and goal-level criteria. Hence, the traditional disconfirmation process can be questioned, since comparing desired customer value (assessed prior to purchase) to received customer value (assessed after purchase) is not relevant if the pre-purchase criteria are at the attribute level while the post-purchase criteria are at the consequence level. However, the study of Parasuraman (1997) focuses on a product-oriented business and explicitly takes into account only the past and present dimensions of time.

Woodall (2003) presents a longitudinal perspective on value that can be related to a pre-purchase position, value experienced at the point of trade or experience, a post-purchase position and after-use position (see figure 8). First, the ex ante pre-purchase position implies that customers have preconceptions concerning value when they consider the purchase. The desired value suggested by Flint et al. (1997, 2002) is closely related to this. Second, the transaction position applies to value experienced at the point of trade in real time. Third, the ex post condition relates to a post-purchase situation similar to the received value suggested by Woodruff (1997). Finally, the value at the point of disposal/sale
refers to value after use or experience. However, Woodall’s (2003) concept of value for the customer suits consumer goods better than emerging technological services. For example, Woodall’s (2003) suggested disposition value refers to ‘the point of disposal/sale’ (ibid, 10) but it is difficult to imagine a real-life situation where a customer could resell or dispose of a mobile advertising service.

![Figure 8. A longitudinal perspective on value for customer (Woodall 2003)](image)

In general, studies of customer perceived value in relation to temporality can be split into two types. First, there are studies that do not explicitly take into account the time-sensitivity of the concept and prefer to approach value as a static concept (e.g. Menon et al. 2005, Liu et al. 2005, Ulaga 2003). In other words, they do not pay attention to the varying value perceptions when value is evaluated at different times. Secondly, there are studies that acknowledge the temporality of the concept (e.g. Flint et al. 1997, 2002, Parasuraman 1997, Woodall 2003, Woodruff 1997).

A common element of those studies is that they suggest that customers consider value when making the purchase decision and during and/or after use. However, most of the studies taking temporality into account discuss it in the context of consumers buying products, with the exception of the study of Flint et al. (2002) that uses a B2B context, but focuses on manufacturing supply chains. The present study extends the exploration of temporality of customer perceived value to the context of emerging technology-intensive business service, which introduces new aspects to be considered.

Due to the emerging nature of technology-intensive business service the value is not only difficult to assess before the actual service consumption, but even during it or afterwards and therefore, high levels of uncertainty are involved (Hogan 2001). Furthermore, as the service is only at the application phase and being developed towards commercial viability, the value related to it is even more dynamic in nature. This requires that future orientation in the form of the value potential of the service is included in the concept. Although prior studies have discussed the value evaluations before, during and after the use they do not
explicitly pay attention to the future-related aspects of value. This means that the value potential of the service has not received sufficient attention in the current research. This study attempts to fill this gap by considering the future-oriented aspects of value, complementing the current understanding of customer perceived value acknowledging prior and during/after use evaluation.

3.3.4 Expected, realized and potential value dimensions

An emerging technology-intensive business service includes value creation that changes and takes different forms during the service delivery and usage process, i.e. before the actual service consumption, during it, and even afterwards. Hence, in this study value is seen as a dynamic concept that has past, present and future dimensions. In addition, both elements of value – benefits and sacrifices – are seen as having these different temporal dimensions. In other words, benefits and sacrifices, as well as their sources (i.e. sub-elements) change when evaluated at different points of time.

Due to the lack of previous experience, the novelty of any technology-intensive service amplifies customers’ uncertainty about the expected value (see Hogan 2001, Hibbard et al. 2003) and this may decrease customers’ willingness to take part in the service co-production. Expected value, i.e. the benefits and sacrifices customers expect to occur before they start using the service, plays an important role in value co-creation, as it strongly influences the customer’s willingness to try a new service, continue to use it and to form a relationship with a new service provider (Komulainen et al. 2007). Flint et al. (1997) refer to it as a desired value, which is what the customer wants to happen and the benefits the customer seeks. Here the concept of expected value is used to emphasise that there are not only the expected benefits but also expected sacrifices in relation to both the service and the relationship in which it is produced.

On the other hand, the customer perceived value also includes realized value, referring to actual benefits and sacrifices customers perceive when evaluating the service experience. Similarly, Flint et al. (1997) talk about a value judgment that reflects an assessment of what has happened (in terms of benefits and sacrifices) in a specific use situation. Thus, realized value refers to the trade-off between benefits and sacrifices in relation to the net value of an alternative perceived by the customer when evaluating the service experience.

Finally, as the service is at the application phase and thus subject to continuous development, customers also have future expectations for the service
that may need to be realized before the service can be commercially viable. This potential value is here seen as the trade-off between the benefits and sacrifices the customers expect from the commercialized service in the future when it is available in the market and in commercial use. This concept is highly future-oriented and emphasises the importance of the value potential of the emerging service. It is especially important for the service provider since it can be utilised in developing the service and the relationship with the customer to the preferred direction. Existing studies have mostly focused on the value at the level of expectations and perceptions (see e.g. Woodruff 1997) but this study stresses the importance of value potential that is to be realized in the future. It becomes particularly relevant in the context of an emerging technological service that represents a business field receiving growing attention both from academics and practitioners.

Hence, the expected value, realized value and potential value play an important role in understanding the customer perceived value in the context of emerging technology-intensive business service. Both elements of value, benefits and sacrifices (and hence obviously their sources as well) are seen as having past, present and future dimensions. In other words, both the benefits and the sacrifices may be expected, realized and potential and they change when evaluated at different points of time. These three dimensions of customer perceived value have been suggested in the study of Komulainen et al. (2005b) but are here further elaborated upon and developed. The expected value, realized value and potential value are illustrated in figure 9 as two snapshots of the evaluation of the new technology-intensive business service (Komulainen et al. 2005b).
First, in the present (Present 1), customers have certain expectations of the service they are going to use. Those expectations are related to both the benefits expected from the service and the sacrifices they are prepared to make. On the one hand, expected value is related to the past events, that is, the customer’s previous experiences. In the case of a new service there can be no previous experience of the service, so if available, experience of similar services or knowledge of other customer’s experiences of the new service are used. On the other hand, the expected value is also directed towards events in the near future (Future 1). This introduces a future orientation to the concept. The ‘future’ is only one alternative of the many potential ones and thus it is uncertain which will become the present. Hibbard et al. (2003) suggest that uncertainty reduces the value of a relationship because it reduces a firm’s flexibility to respond to future events. In the focal case, there is not only the ‘normal’ uncertainty, always present in future time, but an additional amount of uncertainty resulting from the new service that is only in its application phase. Due to a lack of previous experience of the new service, uncertainty about expected value is emphasised (Hogan 2001, Hibbard et al. 2003). Evaluation of the expected value is thus related to both past experiences and future events.
Second, when perceiving the realized value the customer compares the expected value to the experiences gathered during the use of the new technology-intensive service. Thus, in figure 9, Time 2 refers to the time after the usage period has ended. The evaluation of the realized value takes place in Present 2. The target of the evaluation is what happened in the past – the service experience. However, realized value also encompasses a future dimension by providing a basis for evaluating a potential value to be created in the future.

Third, the perception of potential value includes changes that have to take place between the present time and the future (Future 2 in figure 8) before the potential value can become expected or realized value. Potential value is the best possible net value that the customer, in the present time, can imagine being realized. Hibbard et al. (2003) discuss future value as the result of future benefits or investments and consider it difficult to evaluate because of the inherent uncertainty of future outcomes. This is close to the context of new and complex service innovation with its many uncertainties. Möller and Törrönen (2003) present a value spectrum with a future-oriented value production where potential benefits and sacrifices are very difficult to evaluate in advance. However, the concept of potential value extends to “such future that can be imagined at this moment, but while it is imagined, it is known that; 1) it has not existed in the past, 2) it does not exist in the present, 3) it will not exist in the near future, 4) it might not ever, but 5) if everything goes well, it might in the foreseeable future. Therefore, it encompasses, at least implicitly, all the three time concepts, e.g. past, present and future” (see Komulainen et al. 2005b).

3.4 Conclusive remarks on customer perceived value in technology-intensive business service

Below, a summary of the above discussion is presented and the theoretical framework of the study is described. The framework is based on chapters 2 and 3 and the following sections introduce its components.

The context-related factors were first explored in chapter 2. Based on that discussion, the underlying factors of the context that influence customer perceived value of emerging technology-intensive business service are the specific features related to the particular form of service, namely 1) the technological character that distinguishes the service from more traditional types of service, 2) the novelty and developmental application stage of the service and 3) the network of different actors that is needed to produce this type of service.
These aspects are presented in the theoretical framework (see figure 10) as the context-related factors influencing customers’ value perceptions. The contextual factors are further explored in the empirical part of this study that investigates whether they are consistent with the features suggested in chapter 2 or whether they should be revised.

The present chapter has presented a broad discussion on the customer perceived value concept and how the phenomenon has been examined within services marketing and the interaction and network approach. There are many studies on the topic and the field of research on it is very fragmented. However, it was noted that the existing studies do not sufficiently cover the issues raised by the specific context of this study, and therefore this study provides novel insights that are important to the development of the theory on value. The purpose of this chapter has been to discover and clarify the complex nature and essence of the concept and to create a more profound understanding of the multifaceted character of the customer perceived value concept. In particular, time-sensitivity has been seen as a highly important issue in customer perceived value of the emerging technology-intensive business service and therefore, this chapter has strongly focused on the temporality of the value concept.

To conclude, figure 10 summarises the above discussion and illustrates the theoretical framework of this study. Customer perceived value is seen as the key concept that inherently includes temporal dimensions that are presented in the figure as expected value, realized value and potential value dimensions. These dimensions are interrelated and influenced by each other. Customer perceived value is also influenced by the specific context of emerging technology-intensive business service. According to the definition of value used in this study the different value dimensions consist of a trade-off between benefits and sacrifices against alternatives. Further, the benefits and sacrifices are divided into sub-elements that reveal the sources of value in detail. For example, the expected value consists of the trade-off between the benefit and sacrifice sub-elements the customer expects from the new service. Following a similar logic realized and potential value are determined.

It is important to note that the trade-off between benefits and sacrifices is not necessarily straightforward but certain sacrifices can increase the perceived benefits and thus also perceived net value. This is due to the complex value co-creation processes taking place in the context of emerging technology-intensive business service, in which sacrifices are required from both parties (customer and service provider) in order to co-produce the service and co-create value. This
“opposite” influence of sacrifices further implies that certain benefits may also increase the sacrifices, thus reducing the realized net value. To elaborate on this issue, it is important to empirically explore the sub-elements of value to better understand the complicated nature of this trade-off. This is covered in the empirical part of the study.

It is also important to notice, that a customer perceives value both in relation to the service and to the relationship in which it is produced. Thus, for example customer expected value consists of factors in relation to the service and in relation to the relationship(s). Therefore, these two cannot be separated, but the evaluation of value includes elements of both the service and the relationship, which it is important for the service provider to acknowledge. Furthermore, the sub-elements of value can be categorised at the process and outcome levels. In other words, the perceived value involves evaluation of the factors in relation to the service co-production process and the outcome of the service usage. This improves understanding of how customers perceive value.

As a whole, the framework provides a conceptualisation of customer perceived value of an emerging technology-intensive business service and emphasises the time-sensitive nature of the phenomenon. Next, the framework is brought into the empirical setting of the study. It will aid in identifying the sub-elements of value and supplement and revise the theoretical framework, and thus deepen the understanding of the customer perceived value in the specific context of emerging technology-intensive business service.
Fig. 10. Theoretical framework of customer perceived value of emerging technology-intensive business service.
4 Research design

This chapter describes the empirical research design and thus explains how the empirical research has been conducted and justifies the choices made. The chapter starts with a presentation of case study design and continues by describing the empirical research setting, namely the qualitative real-life experiment and the practical organisation of the three field experiments in this study. Thereafter, the data collection and analysis procedures are discussed in detail.

4.1 Case study design

The research design of this study is guided by the purpose of conceptualising customer perceived value. More specifically, this study explores the phenomenon of customer perceived value of emerging technology-intensive business service. To achieve this, the case study design was chosen for the following reasons.

The case study method enables an intensive study of the particular phenomenon. Case study is considered an appropriate method when the research area is only partly understood (Ghauri & Gronhaug 2002), when new perspectives are sought (Patton 1999) and when the contextual understanding of the phenomenon is important (Bonoma 1985). These conditions suit the present study very well since the purpose is to understand customer perceived value and emphasise different, previously unknown aspects of the phenomenon. The case study method is also suited to theory development research (Ghauri & Gronhaug 2002) as this study is. Through a case study it is possible to capture the complexity and richness of the concept of customer perceived value. A case study also allows to gain insights and observe the phenomena that occur in the emerging business field – again, as is the case in this study.

The case is a “specific, unique, bounded system” (Stake 2000: 436) and thus represents an example of the wider phenomenon. In choosing the case the criteria suggested by Stake (1995) was used, i.e. the ability to maximise what can be learned through the case, accessibility and acceptable practical limits on conducting the case (e.g. time limits). In this study, the case refers to the retailers’ value perceptions of an m-advertising service that is at the application phase of development. Single retailer's value perception as such is not considered as the case here, but the overall value perception of the retailers. In this study the research project provided an access to the empirical setting (i.e. the qualitative real-life experiment discussed below) which provided an exceptional opportunity.
for in-depth exploration of customer perceived value of a service that was at the application phase of development.

A case study can be carried out by using either qualitative or quantitative methods. Also in case study design there are alternatives, namely a single-case study or a multiple-case study and these can employ a single unit of analysis or multiple units of analysis (Yin 1994). This study is a qualitative single-case study with a single unit of analysis. The choice of qualitative methods is natural as the objective of the study is to gain new insights and to deeply understand the phenomenon (e.g. Denzin & Lincoln 1994: 2.). A single-case study enables a better focus on the complex concept of customer perceived value compared to a multiple-case study, and so it is possible to can gain an in-depth understanding of the concept. The unit of analysis is the value perception of a customer, an approach promoting a detailed understanding of the complex and multifaceted phenomenon of customer perceived value.

In addition, use of multiple data sources is inherent in the case study method (Yin 1994). In this study interviews, observations and personal experiences are the most important data sources and they are complemented by secondary documental data. Together they provide a profound understanding of the researched phenomenon.

Typically, case studies explore phenomena that have already occurred in situations where the researcher has little or no control over events (Yin 1994). Since this study explores the customer perceived value of an emerging technology-intensive business service a rather different approach is used to that normally adopted in case studies. The empirical setting that is organised to acquire data is here labeled a qualitative real-life experiment. It consists of three field experiments that were organised by the research project to gain understanding of the usage of different developmental technological services that are not yet in commercial use. Therefore, the setting of this study is not purely “natural” – although the behaviour of the retailers explored was not controlled or intentionally influenced. Thus, despite this specific empirical setting this study is a case study since it examines the value perceptions of the retailers who participated in the field experiments rather than focusing on the experiment per se. The qualitative real-life experiment is the empirical setting enabling the study of the phenomenon and the acquisition of unique data. It is discussed in more detail in the next section.

70
4.2 The qualitative real-life experiment as the empirical setting of the study

The word experiment has its origin in the terms “try” or “test” and it refers to procedures used in trying to discover unknown facts and procedures. Experiment is also defined as “a test under controlled conditions that is made to demonstrate a known truth, examine the validity of a hypothesis, or determine the efficacy of something previously untried” (Shadish et al. 2002: 1). This definition reveals that experiment is traditionally conceived of as a quantitative method and as a test of a hypothesis in which a causal relationship exists between two or more variables. The two key features of quantitative experiments are the ability to investigate causal relationships and to exert control over major components of the research (Patzer 1996: 5). An experiment is also generally understood as a laboratory technique (e.g. Plutchik 1974), however, in this study it is suggested that the term experiment need not be restricted to these traditional versions of itself. Instead of only exploring causal relationships in the controllable laboratory setting, the experiment analysed here can be seen as a more innovative, profound and multifaceted research method.

In this study, the experiment refers to an empirical research setting that takes place outside a laboratory in a real environment. This approach to the experiment is necessary to be able to test new developing products or services currently unavailable in the markets as authentically as possible, and at the same time acquire a profound understanding of the researched phenomenon. It represents a novel and exceptional research setting that is created to simulate the real situation in which tomorrow’s services could be tested by real business actors. In order to do this, qualitative methods are needed since they are most suitable when the objective is to gain an in-depth understanding of the target phenomenon (e.g. Denzin & Lincoln 1994: 2.). Ghauri and Gronhaug (2002) consider qualitative methods useful for studies that are explorative in nature and aim at theory development. Furthermore, using a qualitative research approach requires that the researcher is intensively in the field, makes observations, analyses, synthesises and exercises subjective judgments (Stake 1995: 41). Qualitative research involves the use of many diverse and interconnected methods such as case study, personal experience, historical texts, interviews and observations. Thus, the qualitative approach is particularly suitable for a real-life experiment. In general, a qualitative real-life experiment can be defined as a specific empirical setting.
that is organised to explore emerging phenomena and create an in-depth understanding of those phenomena using qualitative means.

In this study, the qualitative real-life experiment is used to explore a new service that is at the application phase of development and is being tested through actual business organisations and consumers using it. The service in question was so new that it had not yet been brought to market at the time of testing, and the retailers could not have used it anywhere else. Thus, an empirical setting was created that enabled the retailers to try a totally new, emerging (future) service. This gives important information on how the service could be developed further towards commercial use. More specifically, the present study aims to create an in-depth understanding of how customers perceive the value of a novel m-advertising service. Hence, the experiment is not seen as an experiment in the traditional sense, but the term instead refers here to the specific empirical setting that was organised to try the emerging m-advertising service and to obtain information on how business customers (i.e. retailers) perceive value from this type of developing service in a real-life environment when using the service.

The qualitative real-life experiment explored here involves three field experiments organised by the Rotuaari research project. The empirical data were obtained from these field experiments by interviewing and observing the retailers who participated in the field experiments as trial users of a new mobile advertising service. The retailers were recruited and trained by the research project to use the new m-advertising service system. The three field experiments were organised in successive years and, in general, followed the same design.

In order to explore in greater detail what experiment means in this study, Easton’s (1995: 458) approach can be used. That differentiates between a controlled experiment and a natural experiment that occurs as a result of natural changes that take place in the system under study. Using Easton’s (1995) categorisation, the field experiments of this study can be seen as partly natural and partly controlled. The experiments included one element that was controllable, i.e. the m-advertisers were recruited by the research project and thus, some level of control over the group of subjects involved in the experiments could be exerted. However, it should be noted that all the retailers who volunteered were allowed to take part in the experiments. Instead of limiting the participants in the experiments, the starting point was to get as many different types of m-advertisers involved as possible, in order to obtain varied and extensive data. This type of versatile data encourages more generic conceptualisations in customer perceived value as well as making them
justifiable. However, the controllability of the experiments was also very limited
due to the fact that it took place in a real-life context where the researcher had no
control over the majority of variables or events. This also limited the data
collection to including only qualitative data obtained by interviews, observations
and archival material. Hence, this empirical study could be labelled a qualitative
real-life experiment where the empirical data consists of solely qualitative data
and the aim is to understand a phenomenon under examination.

It was noted that other types of (experiential) research settings also exist but
none of them fit precisely to this study. They are briefly discussed next to
demonstrate how the real-life experiment of this study differs from other similar
settings. For example, Quasi-Experiments and Field experiments are used in
many natural social settings. They have the advantage that outcomes are observed
in a natural setting rather than in an artificial laboratory environment. In addition,
they differ from experiments as they lack random assignment and hence the full
experimental control is lacking (Campbell & Stanley 1973: 34, Shadish & et al.
2002: 14). However, similarly to basic types of experiments they focus on finding
causal relationships and do not represent a qualitative research setting as is the
case in this study. Secondly, this study comes close to what is called the Living
Lab concept that refers to testing technological innovation in the real user
environment. Living Labs use real world testing by end-users in an authentic
digital, physical, and social environment. The problem in relation to the use of the
descriptor, Living Lab, is that it is not a scientific research method but rather a
general label for quasi-experiential tests that some technology-oriented research
projects have recently started to use. Thirdly, the empirical research setting used
in this study also closely resembles new service development, where customers
take part in creating new features, improving the usability or solving technical
problems of the service (e.g. Edvardsson 1997, Johne & Storey 1998). However,
customer usually refers to the consumer and the perspective is thus different in
this study. Finally, the research setting of this study also resembles a pilot testing
situation broadly used for example in the software business. There a prototype
service is first tested with a few pilot customers, then after testing, any required
and/or suggested changes are implemented and then the service is put up for sale.
In this study the software business approach is applied but instead of using a few
pilot testers three extensive experiments were organised that involved a total of 69
companies as m-advertisers and around 1300 consumers as test users.

Choosing a real-life experiment as the empirical setting was done deliberately
to emphasise a novel empirical approach to customer perceived value of emerging
technology-intensive business service. It would not have been possible to examine customers’ value perceptions of the service in the normal market situation. Instead, a research project organised a simulation of the real-life setting in which the customers’ perceptions of value were explored. This produced a profound understanding of the phenomenon for the researcher due to being involved in the field experiments, and that brought the opportunity to closely observe the retailers when they were recruited and trained to use the new service, as well as to interview them after the usage. More traditional research settings do not usually permit this kind of extensive involvement. Most importantly, however, they do not allow exploration of the value related to a service that is still at the application phase of its development, but that is being used by actual retailers and consumers who share their opinions and experiences for the benefit of scientific research. Thus, this qualitative real-life experiment can be seen as an exceptional yet very rewarding way to approach the customer perceived value of the emerging technology-intensive service, since this approach enables to explore the aspects of customers’ value perceptions in a future-oriented way that no other method could do. Thus, a qualitative real-life experiment provided truly novel insights into customer perceived value. The practical organisation of the three field experiments is described in the following section.

4.3 Design of qualitative real-life experiments in this study

In the following sections, the design of the qualitative real-life experiment of this study is presented by first introducing the Rotuaari research project responsible for organising the three field experiments. Next the m-advertising service and its components are described in detail. Thereafter a practical organisation of the field experiments is described and each field experiment is examined individually.

4.3.1 Rotuaari research project

Empirical data for the examination of customer perceived value in m-advertising were obtained from the three experiments organised by the Rotuaari research project. Rotuaari was a three-year (6/2003 - 5/2006) multidisciplinary research project, focusing on the development and testing of new technologies and business models for mobile multimedia services of the future in a real end-user environment.
The project consisted of three main segments: the service system, the value networks and the field experiments. The service system developed in the project comprised of wireless networks, service platforms and prototype services that were used with different kinds of mobile devices (e.g. PDA devices and mobile phones). Tasks related to the service system focused on developing, prototyping, operating and evaluating context-aware mobile services in a business-oriented manner. This study focuses solely on the mobile advertising service developed by the project, and the value networks mentioned refer to the various actors involved in that project.

Secondly, value networks refer to the different actors involved in the project. Technology developers contributed their opinions to the research on what could be done with the technology of today and the future. Correspondingly retailers, public corporations and end-users expressed their opinions about what was essential in view of their business activities. The project consortium consisted of several different actors including the city of Oulu, the National Technology Agency (Tekes) and many business organisations from retailers to technology providers, mobile operators and diverse lines of businesses. The project also involved researchers from many different research groups, units and departments at the University of Oulu: the Department of Marketing, Media Team, Oulu University Secure Programming Group, Intelligent Systems Group (the Department of Electrical and Information Engineering, Faculty of Technology), User Interface and Group Technology Laboratory (the Department of Information Processing Science, Faculty of Science), and the Educational Technology research unit (Faculty of Education). Also one laboratory of the University of Art and Design contributed to the research (Media Lab, University of Art and Design, Helsinki). Of all the actors involved, this study focuses on the retailers who tested the new mobile advertising service.

Thirdly, field experiments were organised to test the service system and its services in a real usage environment where the services were used by actual business organisations and end-users. The field experiments provided important information on the technical performance of the service system, the usability of services, real customer needs, end consumer behaviour and the functioning of business models. The services were developed further on the basis of feedback and usage statistics collected automatically. This study focuses on three main field experiments organised during 2003, 2004 and 2005 which tested the m-advertising service.
In summary, although the Rotuaari project included many different actors, several field experiments and different kinds of mobile services, this study focuses on the retailers as the customers of the service provider (the research project), and their perceptions of value of the new mobile advertising service. Next, the overall procedures according to which the m-advertising service and its testing were organised are briefly reviewed, after which each field experiment will be introduced in more detail.

### 4.3.2 The practical organisation of m-advertising service usage

The project provided an infrastructure and a service system for m-advertising to volunteer retailers and consumers in the vicinity of Oulu. The basic idea was that the retailers made m-advertisements that were sent to the mobile phones or PDAs of interested consumers. The consumers registered on the service system and defined what kind of m-advertisements they were interested in receiving. The retailers defined the sending criteria for their m-advertisements. When those criteria matched the receipt conditions of particular consumers, the service system sent the m-advertisements to the right consumers at the right time. Hence, both the retailers and consumers were test users of the new m-advertising service.

During the three experiments where m-advertising was tested a total of 69 local retailers tried the service. In the field experiments retailers had the opportunity to design, implement, target, and send their m-advertisements to real consumers. The research project operated as a service provider that developed the service system and offered it for the use of volunteer local retailers free of charge (see figure 11 for an illustration of the setting of m-advertising). The retailers could design and implement the m-advertisements by themselves through a user interface on a web page, or they could use an advertising agency or outsource everything to the project. In the latter case, the retailers delivered their advertising material to the project personnel and defined all the details concerning the sending and targeting of m-advertisements. This ensured that the testing of the service was easy for all the retailers regardless of their resources. During the field experiments, a help desk hosted by the project personnel was available to the retailers. In case of problems or questions, the retailers could phone, e-mail or visit the help desk at the project’s field office in the city centre. In short, the retailers were offered a turnkey solution at no cost.
The retailers were recruited from the city of Oulu in several different ways. First of all, the retailers who were members of the local “Oulu City Centre Association” were informed of the opportunity to test m-advertising by the association, which sent brochures including information about the field experiments directly to its members. In addition, local retailers were contacted by project personnel by telephone and through visits to the companies in the city centre of Oulu. Retailers could also sign up for the experiment by contacting project personnel themselves. The only requirement was that their stores had to be located in the city centre, for that was covered by the network infrastructure (i.e. Wireless Local Access Network) needed to send and receive the m-advertisements. Hence, all interested retailers were offered the opportunity to test the service.

The research project hosted and further developed the service system during and after the field experiments and also collected and maintained a database of end customers willing to receive mobile advertisements to their mobile phones or PDAs. The project had a field office in Oulu’s city centre, from which passersby
were recruited as test users. In total over a thousand consumers signed up to receive m-advertisements during the experiments. In addition to the m-advertising service, other types of mobile services were available for testing, these included a system featuring a map-based guide to the city, a services directory and a mobile time machine giving users views of Oulu in the 19th century. However, in this study the focus is solely on the m-advertising service. In the field office, test users logged onto the service system and were then carefully trained to use the service. Consumers could also borrow smart phones and/or PDAs from the project to test the service if they did not own the required type of device. Most of the consumers tested the service for a couple of hours whereas some of them used it for a longer period (from one week up to as much as two months).

Figure 12 provides a closer look at the mobile advertising service system. This figure describes the service system used in the two later experiments conducted in 2004 and 2005. In the first experiment the system was a little different as the m-advertisements were designed for PDAs only. However, the technology was developed further after the first experiment and the service system described here then allowed the sending of m-advertisements to mobile phones too. The basic idea of m-advertising was, however, the same in the all field experiments. Since the service system described in figure 12 was operational for the most of the testing time, it is described here in detail.

The users of the system are on the left; they are an administrator (i.e. the service provider), an advertiser (i.e. the retailer), and the end-user (i.e. the receiver of the m-advertisements). The service provider managed each m-advertiser’s account, which involved adding new m-advertisements, deleting those that opted out of their contract and similar actions. The m-advertisers or their nominated advertising agencies created the m-advertisements and managed their transmission via web pages secured by account names and passwords. The m-advertisements included text, images, animations, video and audio, and they could be targeted at specific end-users by means of sending criteria (e.g. receiver’s age, gender, preferred interests, or patronage). In addition, the duration of the campaign and the sending hours per day were set by the m-advertisers. The advertising tool also allowed the advertisers to keep track of the number of times that any given advertisement had been sent to service users. The technology applied could deal with sending m-advertisements in the form of an SMS, a MMS or a service message (WAP Push) directly to the targeted consumers’ mobile phones.
Each person wishing to receive m-advertisements contributed information on their interests on their user profile through an end-user interface entitled Home Service. The Home Service web pages could be accessed via mobile phones or PCs, but each user was able to change only their own information. A user profile manager kept the end-users’ profile information up-to-date in the mobile advertising database (MAD). The database also stored all m-advertisements and advertiser account settings. An ad delivery daemon programme searched for m-advertisements that matched the user’s interests, age, gender etc. and sent them to the delivery queue to be processed by an ad delivery agent. The ad delivery agent sent the m-advertisements to the end-users via a messaging service.

The m-advertising service system required that the end-users opted in to receive the m-advertisements, which was also required by law. This solution meant that the end-user profile information was owned by the service provider. Another option was that the m-advertisers used their own standard customer information, customer relationship management (CRM) databases or the like, and sent m-advertisements only to their own customers willing to receive them.

The main point of the m-advertising system was that it enabled the advertiser to send accurately-targeted m-advertisements to those consumers it sought to
reach, and the consumers in turn could define what kind of m-advertisements they really wished to receive. During the 2nd and 3rd field trials, a total of 12190 m-advertisements were delivered by m-advertisers to consumers. The number does not include the first field trial because the system used at that time did not store this information. Finally, in total 184 different m-advertisements were created in all the three field experiments and sent to consumers.

4.3.3 Organisation of the field experiments

The qualitative real-life experiment in this study consists of three field experiments. They were conducted in three successive years 2003, 2004 and 2005. The basic idea was the same in each experiment: to get real businesses and consumers involved in testing new technological services in an authentic environment. The general design of the field experiments was basically the same. The research project recruited both retailers and consumers to use the service and collected feedback from them after each field experiment. Each volunteer retailer was given the opportunity to participate in the field experiments and was trained to use the service. Each year they also had to the choice of making the m-advertisements themselves or outsourcing the task to an advertising agency or the Rotuaari project team. Every year there was a help desk in the field office that the retailers could contact with any questions or comments. The common feature was that all experiments were organised during the summer time so that the project could reach more people walking in the city centre and also recruit tourists as test users. This also left the winter free to analyse the results and also plan the next field experiment. In addition, there was a particular project work group that took care of the practical organisation of the field experiments and another work group responsible for all the issues related to m-advertisers. This enhanced the consistency of the field experiments since the same key people took care of the same things in each field experiment.

However, there were also some differences in practical organisation as learning from the previous experiences was absorbed. For example, the training of the retailers on how to use the m-advertising service was organised differently each year. In the first year, the retailers got a user’s manual on how to use the service. The next year the project organised two general training sessions before the second field experiment. They were available to all the interested local retailers and included key note speeches and provided an opportunity to ask questions about m-advertising. In addition, each retailer was visited to offer
assistance with using the m-advertising service system. This was seen as an
effective way to get retailers familiar with the service and therefore personal visits
were also organised before the third field experiment. However, in the third year
quite a few retailers were already familiar with the m-advertising service so the
visits were mainly directed at those retailers who did not have previous
experience of the service system. By the time of the third field experiment general
training sessions had been shelved following feedback received from the retailers.

In addition, a lot of technical development took place between the field
experiments. The service system was developed and the technical problems
reported were fixed. Also new features were added to the service system, for
example, new technically improved m-advertisement features and an option to
send m-advertisements to a firm’s loyal customers. The project team also planned
different ways to get public attention and make the project more visible and
attractive to potential test users.

Altogether the three field experiments form an entity that followed the same
fundamental principles but also developed in terms of practical and technical
improvements. Thus, it can be seen as a continuum in which the basic elements
remained the same but learning from the previous experiences shaped the
following phases. Next each field experiment is described in greater detail.

Overview of the 1st Field experiment “SmartRotuaari”

A total of 18 retailers and 194 test users (consumers) participated in the first field
experiment of the Rotuaari project entitled “SmartRotuaari” that lasted from 28th
of August to the 30th of September 2003 (for information on the retailers
participating in all three field experiments see Appendix 3).

The retailers testing m-advertising in the first field experiment varied from
small firms with a staff of between 1 and 3 to large stores involving several
business units. The retailers involved were restaurants, an electrical supplies shop,
clothing stores, a bakery, a design shop, an insurance company, a leather goods
shop, nightclubs, cafés and pubs, a jeweller’s, a bookstore and a hairdresser.
Some of the retailers made the m-advertisements themselves, some hired an
advertising agency and some outsourced the task to the research project.

This field experiment was different from the other two, since initially the
limitations of the service system meant m-advertisements could only be sent to
PDA devices. However, the basic idea of m-advertising, making m-
advertisements on a web page and sending them to registered consumers was the
same. The consumers were given PDA devices for 2 hours, with which they could receive m-advertisements and also use other services, e.g. map-based guidance to find the stores and other locations that they were looking for, and utilise the mobile time machine Oulu service see the centre of Oulu as it was in the 19th century. The services were operable within the coverage of a wireless local area network (WLAN) built in Oulu city centre and use of the services was free of charge.

The field experiment was coordinated from a field office situated in the Rotuaari pedestrian precinct. The office distributed the PDAs to the volunteer test users and also hosted project personnel to guide the retailers through to the science of m-advertising. There was a help desk physically located at the field office and the retailers could also phone or e-mail if they had any queries or problems.

In total there were 40 different kinds of m-advertisements created by the retailers, their advertising agencies or the project. Unfortunately the m-advertising service system did not store data concerning the times the m-advertisements were sent, so this information is not available.

Overview of the 2nd field experiment “SmartRotuaari 2”

The second field experiment “SmartRotuaari 2” ran from 9 July - 30 September 2004. In total, 45 m-advertisers and 610 consumers were registered during this field experiment. Again, there was a field office taking care of the practical tasks related to field experiments (e.g. recruiting local consumers to test the services, lending the mobile phones for their use, and guiding and assisting retailers in all m-advertising related tasks). However, in this field experiment the consumers could register as test users by themselves via the project’s webpage rather than having to go to the field office as they had in the first field experiment. The mobile services could be used with Nokia S40 and S60 series mobile phones (e.g. 6220, 3650, 6600, 7610, N-Gage) via a GPRS connection. The services could also be used with PDA devices within the coverage of the panOULU WLAN-network. Test users could either use their own devices or borrow one from the field office. Test use was free of charge, but people using their own phones had to pay for the GPRS data connection. The other mobile services in the second field experiment in addition to m-advertising included a service directory, a town guidance service, an event calendar, the Lehtiset application (community service that enabled sharing user-created information between different mobile phones via Bluetooth-
Before the second field experiment the project organised two education sessions for retailers willing to test the m-advertising service. The purpose was to inspire them to utilise the specific features of the m-advertising service to help plan their m-advertising campaigns. In addition to these general sessions, the project personnel visited each m-advertiser individually and showed how the m-advertisements could be implemented, targeted and sent via the webpage. The service was also able to monitor the number of m-advertisements sent. The m-advertisements could be sent in one of three different forms: an SMS, a MMS or a service message (WAP Push). The m-advertisers could define which form to use, but if they did not the m-advertising service system sent the m-advertisements randomly using all these options evenly.

Again, the retailers involved represented a large variety of different businesses (for details see Appendix 3). Some were small, one-person companies whereas some were large chain-stores. There were restaurants, clothing and shoe stores, advertising agencies, an accounting company, gift and decoration shops, a furniture shop, a dental clinic, a health store, a book store, a pub, a travel agency, a mobile phone store, a cinema, a music store, hairdressers, a beauty salon, a gym, a co-operative, an art museum, an optician, a toy store, a kiosk and a mobile content provider, a telecommunications company and nightclubs. 35 retailers were using the service for the first time while 10 retailers had also participated in the first field experiment. Some of the retailers made the m-advertisements themselves, some hired an advertising agency and some outsourced the task to the research project.

Altogether, 66 different m-advertisements were created during the second field experiment and they were sent a total of 9550 times. Since some m-advertisers were keen to keep using the m-advertising service, they were offered an option to continue the testing until the end of 2004.

**Overview of the 3rd field experiment “SmartRotuaari 3”**

51 m-advertisers and over five hundred test users participated in SmartRotuaari 3, the third field experiment of the Rotuaari project. The field experiment was divided into two parts: the Mobile Fair Diary was tested within the Housing Fair took place in Oulu and the services tested in the city centre were mobile advertising, the Oulu Search (including the Oulu Cultural Directory, city
The practical arrangements and organisation of the third field experiment were nearly identical to the second field experiment and therefore the details are not repeated here. Again, a wide variety of retailers were involved in m-advertising. 15 retailers were first-time users of the service and 8 retailers had participated in both previous field experiments too. In total, 78 different kinds of m-advertisements were created and 2640 m-advertisements were sent during the field experiment.

4.4 Data collection

In this study the data collection was conducted using multiple sources of information that are discussed in detail in the following sections. As the research project took place between June 2003 and May 2006, versatile data has been collected over a relatively long time period and, hence, rich longitudinally collected data is available for the use of this study. Due to the high amount of empirical data it has been categorised into primary data consisting of interviews and observations and secondary data including various documentary data.

4.4.1 Primary data

The primary data consist of thematic interviews and observations. Firstly, the procedures concerning interviews are discussed. The interview data consist of 55 interviews with the selected retailers who participated as m-advertisers in the field experiments and used the new m-advertising service.

The themed interviews covered five general areas: 1) Background information on the company, 2) Objectives for and expectations / assumptions of m-advertising, 3) Experiences of m-advertising (including quality of training and guidance, design and implementation of m-ads, and usage of m-advertising service system), 4) Effectiveness and usefulness of m-advertising, 5) Proposals for improvement of the service and 6) Interest in using this kind of service again. Clarifying questions were posed to expand upon each theme. The questioning approach was the same in all three interview rounds as were the general interview themes. All the interviews were also conducted after each field experiment had ended. Interview themes were mainly guided by theory, but there were also questions concerning the practical issues of the field experiments. The man idea
was to let the interviewees talk as freely as possible about their own experiences, feelings and thoughts. The interviewer’s role was intentionally minimized to one of providing themes for discussion and directing the discussion towards relevant issues. With this in mind, interviews were planned so that first more general questions were asked and were then followed by more detailed questions, as required. As there were many different kinds of retailers involved, a great diversity between the interviews was evident. Some of them were more informative and included wide descriptions of each theme, whereas others included only short and precise answers to questions asked.

The selection of the interviewees was a multi-stage process which varied to some extent in each field experiment. The general idea was to interview as many diverse types of retailers as possible to get a multifaceted and extensive data representing a variety of views and experiences. The interviewees were carefully selected before each round of interviews. Therefore, the process of collecting interview data relevant to each field experiment is described briefly below.

The first round of empirical data was gathered through themed interviews with 17 retailers who participated as m-advertisers in the first field experiment (for information about all the interviews, see Appendix 2). The aim was to interview all the 18 retailers involved in testing but one of the retailers did not respond to requests for an interview and so was excluded. Three researchers conducted face-to-face interviews with representatives of the retailers at their premises during October 2003. The interviewees were shop managers and marketing personnel that had been responsible for the firms’ m-advertising.

The themed interviews lasted about 30 minutes and they were tape-recorded and transcribed verbatim resulting in 104 pages of transcriptions. Two researchers participated in four of the 18 interviews (in one firm two interviews were made) to make the interview procedure sufficiently consistent between the three interviewers. It has to be acknowledged that the average length of the interviews is rather short. The number of themes discussed was restricted by the fact that many of the retailers were from small businesses, meaning that each minute away from their main tasks was a sacrifice to them.

After the second field experiment, the selection of the interviewees began by interviewing all 45 m-advertisers by phone and asking whether they were willing to continue m-advertising until the end of the year. If the answer was positive, they were next asked if they were willing to pay for the telecommunication costs related to sending the m-advertisements and to use a commercial m-advertising service, if offered. Based on their answers, the advertisers were categorised into
three groups; enthusiastic, dubious and negative. M-advertisers from each of the three categories were selected to be interviewed. Moreover, the fact that some of the advertisers that had agreed to take part in the trial had not actually sent any m-advertisements was taken into account, as was the fact that some had already taken part in the first experiment a year ago. Finally, the m-advertisers were also selected based on who had designed their m-advertisements themselves, who had used an advertising agency, and who had outsourced the m-advertisement design to the research project’s personnel. Thus, the 24 advertisers chosen represent a variety of experience of and attitudes towards m-advertising, as well as various fields of retailing. This theoretical sampling set out to maximise the differences between the interviewees chosen from among the 45 m-advertisers (Glaser & Strauss 1967, Spiggle 1994).

Two researchers interviewed the representatives of the m-advertisers after the seven-week experiment period. The interviewees were again those who had been responsible for the firms’ mobile advertising. The themed interviews covered essentially the same areas as in the first round of interviews. However, since there had been an initial analysis of the previous interview data after the first field experiment, the questions were slightly re-formed to elicit elements of temporality in the value perceptions. The main themes discussed were the same as in the first round, but additional questions were asked about the specific experiences of each advertiser to get beneath the surface responses. What should be noted, however, is that since some of the interviewed retailers did not make any m-advertisements during the second field experiment, some had used an advertising agency or the research project and some made the m-advertisements themselves, the questions needed to be slightly rephrased to reflect those differences. The retailers who had made m-advertisements themselves were asked specific questions concerning the planning and implementation of the m-advertisements, and retailers who had outsourced the creation of their advertisements were asked to explain their reasoning. Again, the interviews were tape-recorded and transcribed verbatim resulting in 171 pages of transcriptions. The average duration of the interviews was 30–45 minutes.

Finally, after the third field experiment a final round of interviews was made. The selection of the interviewees was again based on the theoretical sampling aimed at maximising the differences between the interviewees (Glaser & Strauss 1967, Spiggle 1994). The m-advertisers were categorised based on the following criteria: 1) whether the retailer had designed their m-advertisements themselves, used an advertising agency or outsourced the task to research project personnel,
2) whether the retailer had actually sent m-advertisements during the third field experiment
3) whether the retailer had been involved in previous field experiments. Interviewees were then selected so that all kinds of m-advertisers were represented. Hence, the 13 selected m-advertisers represent a variety of experience of and thoughts on m-advertising.

Researchers interviewed the representatives of the m-advertisers after the third field experiment had ended. The interviewees were again those responsible for the firms’ mobile advertising and the themes of the interviews covered essentially the same areas as the previous rounds. There were some additional questions concerning the interviewees’ general views of the lessons learned after the final testing period. Also the initial analysis of the previous interview data had again slightly influenced the emphasis and form of the questions asked. The interviews lasted approximately 45 minutes and were tape-recorded. Soon after the interviews ended, they were transcribed verbatim resulting in 126 pages of transcriptions.

Although personal interviews with the retailers form the main source of data, the various coordination work of the project provided the author with additional sources of information. Observation data was collected first in the form of personal notes. Working as a researcher in the work group of the research project and being responsible for the practical organisation of m-advertising made it possible to get many different types of information. The notes were made while recruiting the retailers, training them (both in general training sessions and when visiting the retailers’ premises and giving individual hands-on guidance) and solving their everyday problems during the field experiments. During the field experiments the researcher was also on duty in the project’s field office where the retailers could come with any questions or comments. The researcher had access to field diaries that were kept during field experiments in the field office in order to record all the information concerning the experiments (e.g. contacts from the consumers and retailers using the services, information about the problem situations, technical issues, and feedback). The researcher also received all the e-mails that were sent between the project and individual retailers and answered their phone calls. All this provided an opportunity for observations and numerous informal discussions with the retailers, and thus aided in gradually developing the understanding of the research phenomenon, i.e. the retailers’ perceptions of the value of an emerging technology-intensive business service.

The observations were documented both as personal memos and as formal reports. The formal reports were presented to the whole research group in
monthly meetings of the research project. The purpose of these reports was to bring out important things that appeared during the field experiments (e.g. possible problems, successful solutions, retailers’ comments and feedback). More informal notes were discussed in the meetings of the work group, involving a work group leader, two senior researchers and three junior researchers. The work group meetings were organised every other week to keep all the researchers informed about everything what was going on in the research project. Since the observation data involves different types of formal and informal documents created over three years, its role in this research process was to support the creation of a general understanding of the research phenomenon. Thus, it was used as a complementary data and was not systematically analysed as the interviews were.

4.4.2 Secondary data

In addition to interviews and observations, versatile material collected by the other researchers of the project was available for use in this study. Access to the material was through the project’s web-based content management system “DocuShare” where all the project-related material was collected and stored. This data included records of the monthly meetings, technical reports, project schedules, detailed project plans for all three project years, various informal reports written by the different work packages operating in the research project, notes and memos on the field experiments, formal reports of each field experiment published on the project’s websites, research reports and published conference and journal articles.

Secondary data also included various information from the seminars and workshops the project organised during the three-year time period. The project organised final seminars after each field experiment where all the interested parties (including for example retailers, research partners, and the press) were invited. In those seminars researchers from different work packages presented their research results to the visitors and invited them to discuss the results. The project also organised several workshops that were more informal and involved discussion groups with different topics. At the end of the project, an international conference (Wireless Cities 2006 Conference) was organised where the research results were collected from each of the three years and presented in public.

Feedback from the seminars and workshops concerned for example the practical organisation of the field experiments and interesting ideas about the
future development of m-advertising and other technological services. The feedback was discussed and evaluated in the internal meetings of the project and was used, for example, in planning future scenarios of the m-advertising service (see Komulainen et al. 2005a, 2006) and making suggested changes to the services. All the presentations and discussions in the workshops, seminars and conferences also provided valuable information for the use of this study.

The actual m-advertisements sent during the field experiment were also used as a complementary data source. The researcher had access to all the m-advertisement material that was sent in the three field experiments. The m-advertisements were available either as printed versions, Powerpoint presentations or videos. Moreover, all statistical information concerning m-advertising was available, including for instance how many m-advertisements each advertiser had made, how many times each m-advertisement had been sent and all the other statistics stored by the service system. M-advertisements were not systematically analysed except to the extent that the researcher also participated in content analysis of the m-advertisements made during the 2nd field experiment. The results were used in a separate conference article and are not in this particular study, but analysing the m-advertisements gave interesting insights into m-advertising on a general level.
Table 1. The main data collection phases.

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<th>Data collection phases</th>
<th>Sources of data</th>
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<tr>
<td>Data collection phase I</td>
<td>Primary data</td>
<td>Autumn 2003</td>
</tr>
<tr>
<td></td>
<td>Interviews with 17 of 18 retailers who participated in the 1st field experiment.</td>
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<td></td>
<td>Observations based on working as a researcher in the field experiments</td>
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<td></td>
<td>Secondary data</td>
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<td></td>
<td>Diverse documentary data from the 1st field experiment</td>
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<td>M-adverts sent during the First field experiment</td>
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<td>Data collection phase II</td>
<td>Primary data</td>
<td>Autumn 2004</td>
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<td></td>
<td>Interviews with 24 out of 45 retailers who participated in the 2nd field experiment</td>
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<td></td>
<td>Observations based on working as a researcher in the field experiments</td>
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<td>Secondary data</td>
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<td></td>
<td>Diverse documentary data from the 2nd field experiment</td>
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<td>M-adverts sent during the second field experiment</td>
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<tr>
<td>Data collection phase III</td>
<td>Primary data</td>
<td>Autumn 2005</td>
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<tr>
<td></td>
<td>Interviews with 13 out of 51 retailers who participated in the 3rd field experiment</td>
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<td></td>
<td>Observations based on working as a researcher in the field experiments</td>
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<td>Secondary data</td>
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<td></td>
<td>Diverse documentary data from the 3rd field experiment</td>
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<td></td>
<td>M-adverts made during the Third field experiment</td>
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In summary, based on the interviews, observations and diverse secondary document data, multifaceted data were collected that enabled efficient data triangulation. The data collection phases are summarised in table 1.

4.5 Data analysis

Analysing the qualitative empirical data is a process that brings order, structure and meaning to the collected data. It is an integral part of the entire research process. More accurately, the analytical practices can be seen in five forms: organising data, generating categories, testing the emerging hypotheses against the data, searching for alternative explanations of the data and writing a report (Marshall & Rossman 1989: 112–114). At the core of the qualitative analysis is the interpretation of the data related to the phenomenon being explored (Stake
1995: 41). Also in this study the data analysis is based on the interpretations of the empirical data collected during the longitudinal research process. The interpretations are always at some level subjective, since both the researcher and the retailers as key informants, carry their own theoretical framework into the research process. In the present study the researcher was involved in organising the field experiments from which the empirical data was collected, and so inevitably possessed a certain pre-understanding of the phenomenon explored. However, as suggested by Gummesson (2000: 60) a critical element in the process of collecting and analysing data is also personal experience gained in the research field.

In this study the empirical setting influenced the data analysis process since the field experiments, from which the empirical data were collected, were organised in three different time periods. Due to this cyclicality, the research process was truly abductive, i.e. characterized by movement between empirical and theoretical insights (e.g. Dubois & Gadde 2002) (for illustration of the research process, see figure 2). Before the actual in-depth data analysis process was started there was a phase of the research that included both creation of theoretical understanding and collection and initial analysis of the empirical data. The field experiments were organised once a year (lasting from one to five months at a time) over the three-year time period. Thus, there were periods when it was possible to focus on reviewing existing research and creating understanding of the phenomenon. After each field experiment the empirical data were collected and the interview data were also immediately transcribed. Thereafter the data from each field experiment were initially analysed in order to be capable of use in other scholarly work, for instance, conference papers. These analysis processes are not described in detail here since they usually involved other researchers in addition to the author of this study and the processes varied depending on the researcher conducting them. This enhanced researcher triangulation and aided in creating a general pre-understanding of the empirical data which helped to direct the theoretical examination towards the relevant literature.

This way the research process proceeded from a general understanding of value creation based on existing research towards a more focused view of customer perceived value as a complex temporal and learning-based concept. Each data collection phase and the initial analysis phases increased the understanding of the phenomenon. As the work progressed, the theoretical framework was further developed to better describe how customers perceive value in the specific context of new technology-intensive business service.
However, the actual in-depth data analysis process was not started until all three field experiments had been concluded. The in-depth data analysis process is described below.

The verbatim interview transcripts formed the main raw data of the analysis. The role of the other source material, including personal notes, e-mails, m-advertisements made during the field experiments and other archival document material was more complementary. In other words, the latter aided the researcher throughout the research process in developing a comprehensive understanding of the phenomenon (i.e. the customer perceived value of emerging technological service). Although not systematically included in the in-depth data analysis phase they had a strong influence on the previous phases of the research process in creating pre-understanding of the empirical insights and also in directing the research theoretically in the appropriate direction.

When analysing the interviews, the unit of analysis was the m-advertisers’ representatives’ perceptions of the value of the service. First interpretations of the interview data were based on multiple readings of each transcript in order to reveal meaningful insights (Miles & Huberman 1994: 430). Thereafter, the original verbatim interview data were imported to the QSR N’Vivo software. The software facilitated the storing and organisation of the text as well as coding, searching and retrieving text segments which stimulated the researchers’ interaction with the data (see Dembkowski & Hanmer-Lloyd 1995). Thus, using QSR N’Vivo software enabled the classification of the data, making notes on it and hence contributed to systematic, transparent and reliable reporting.

However, N’Vivo was used in this study mainly for document management and as a tool in the classification and outlining of the extensive amount of data. The actual analysis was based on categorising the data based on codes that were either pre-determined or that emerged during the analysis process. The first coding was based loosely on an understanding of customer perceived value and the temporality of the concept. In addition to pre-determined codes, the researcher was intentionally searching for themes that could arise from the data and these were categorised similarly. This kind of taxonomic organisation of the data forms the basis for drawing conclusions (Grönfors 1982: 161). Furthermore, coding qualitative material enables the researcher to recognize and re-conceptualise the data (Coffey & Atkinson 1996: 46) and to understand what the data is actually saying. As is the case in most qualitative research the researcher’s interpretation of the text played an important role in the analysis process.
The aim was first to identify expected, realized and potential value sub-elements from the data. In other words, different sources of benefits and sacrifices were searched for in the text and then positioned within three temporal categories: expected benefits and sacrifices referring to expectations for the service, realized benefits and sacrifices referring to the experiences of the service and potential benefits and sacrifices referring to the future expectations of the potential service. In addition, context-related factors were extracted from the interviews based on three loosely-defined categories: factors related to the technological character of the service, factors related to novelty and the developmental phase of the service and network-related factors.

However, coding, although important, is only one part of the analysis process. Before and during the coding process of this study, so-called tree nodes, free nodes and memos were created, consisting of words and lines of the transcripts that gave meaning to the data. Tree nodes were pre-determined categories and they included the above mentioned temporal value dimensions (expected benefits and sacrifices, realized benefits and sacrifices and potential benefits and sacrifices) and the context-related factors (technological character of the service, novelty of the service and network needed to produce it). Free nodes were created during the analysis process and they were refined several times as the analysis proceeded. Memos were created to aid the researcher to recall all different kind of things in relation to coding process. Constant refinement of concept definitions and interpretations were tied to specific words and lines within the transcripts.

The following example will help to describe the coding process. An interview imported in NVivo software was intensively read through with pre-determined codes in mind. When an interesting sentence/comment/idea emerged, it was coded and added to a suitable category. In addition, all the interesting, surprising or obtrusive aspects were extracted and categorised either into existing categories or new free nodes were created. It was possible that, for example, a sentence describing the respondent’s feelings about m-advertising was coded into different categories. If this was the case, it was further analysed in the following phase (analysis of the coded data is discussed next) and it was then determined to which category it fitted best. This way, all the interview data was carefully examined and coded.

Thereafter, the research process proceeded by analysing the coded data. The coded data was read through several times and the ideas and notions were let arise. The different coded categories were also compared to each other, combined and refined. Based on the analysis, different sources of benefits and sacrifices
within each temporal category were identified, specified and labelled. Also the context-related factors were identified and categorised. The coded and analysed data did not include anything very surprising since the pre-determined categories seemed to be quite extensive. However, it was interesting how much the opinions and experiences of the retailers varied within each category. This also resulted in the numerous sub-elements within each temporal dimension that are presented in the findings section with the aid of quotes describing the data.

The quotes were also carefully selected from the coded interview material. Naturally, there were both general thoughts and experiences that almost all the retailers shared and also varying thoughts and feelings. Therefore, quotes were selected, firstly, to demonstrate both the common opinions and also the more specific details of the interviews. Thus, the citations provide a truthful and extensive picture of the interviews and demonstrate both typical points of view and the richness of the data. Secondly, with the same purpose in mind the quotes were selected from different retailers and from different interview rounds as much as this was possible.

Based on this first data analysis process including all the 55 interviews, a first version of revised framework of customer perceived value of emerging technology-intensive business service was conducted. It is presented at the end of the fifth chapter of the thesis. It, however, did not seem to give a complete picture of the phenomenon. There were different temporal value dimensions and sub-elements that deepened the current understanding of customer perceived value but the relation between them remained unclear. The question that remained unanswered was: What connects and influences the temporal value perceptions?

The technological and constantly developing nature of the service under study directed the researcher to consider the role of learning in the customers’ perceived value. The questions arose: what kind of role does learning have in customers’ perceptions of the value of an emerging technological service? Could it be the factor connecting different temporal value dimensions? First, a thorough literature review was conducted on the aspects related to learning in the emerging technological service context. As an initial action, literature discussing technology acceptance (e.g. Davis 1989, Davis et al. 1989, Taylor & Todd 1995) was first reviewed, but it did not seem to provide sufficient understanding of learning due to its emphasis on usage intentions and the usefulness of new technologies. Finally, a conceptual understanding of learning was formed based on existing research on learning in the technological services sector and more generally on organisational learning.
Based on the literature review the central concepts in relation to the specific context of this study were identified as starting points for re-analysing the data. Those concepts were unlearning, exploitative learning, explorative learning and absorptive capacity. In addition to those pre-defined concepts (i.e. tree nodes) other aspects in relation to learning also extracted from the data. Thereafter the empirical data was re-analysed by focusing on the learning-related issues. The coding and analysis processes followed the same procedures as in the first round of analysis. Finally, the categories describing learning were cross-checked with the previously (i.e. in the first in-depth data analysis round) formed categories describing customer perceived value in order to create a temporal picture of value in relation to types and objects of learning.

Based on the literature review on learning and the re-analysis of the empirical data, a final empirically grounded model was created illustrating temporality and learning as essential parts of customer perceived value. This framework is presented in chapter 6.
5 Empirical study: customer perceived value in a new mobile advertising service

This chapter presents the analysis of the empirical study. The empirical part was used to develop the theoretical framework of customer perceived value of emerging technology-intensive business service. First, the context-related factors influencing customer perceived value in the novel service that emerged from the empirical data are suggested. Thereafter the chapter proceeds with the analysis of temporality of customer perceived value including the exploration of the expected, realized and potential value sub-elements in the new mobile advertising service.

5.1 Context-related background factors influencing customer perceived value

Based on the interviews, different types of contextual factors could be identified as influencing the customer perceived value of the emerging technology-intensive business service. The three main factors, i.e. the technological character of the service, the novelty and developmental phase of the service and co-operation with other actors producing the service, are discussed next with quotations from the interviews with the retailers used to clarify them. The quotations are followed by the line of retailing (if there was more than one company representing the same line of retailing it is referred to by a number) and the year when the interview was conducted (e.g. 03 referring to the year 2003).

5.1.1 Technological character of the service

First, the factors related to the technological or technical features of the service suggested in the theoretical framework emerged from the interviews. Since the m-advertising service was very technological in nature, it provoked many different opinions and thoughts among the retailers, both positive and negative. What needs to be noted is that retailers generally did not have specific technological expertise and therefore their technical skills and enthusiasm for technical issues varied considerably. The technological nature of the service, bringing with it a high degree of uncertainty, could have been a major challenge for the retailers, since they were unsure about their own technical skills, and the interviews proved this to be the case.
“Using it (m-advertising)… there is a threshold for that. Especially when we talk about technology […] As we noticed here there are still many challenges to overcome.” Co-operative 04

Interviewees also reported various technical problems with the service. These technical errors and problems were mostly due to the technological core and the developmental phase of the m-advertising service. This was a disappointment for retailers who had expected the service to be already set up for commercial use in the testing period. Generally, those retailers who were interested in the technical aspects of the service managed to solve the problems that occurred. However, anything that slowed down the m-advertising service implementation or use and technical problems made it easier to give up and reduce the commitment.

“The most difficult part of it (m-advertising) was that we did not manage to put the picture into the system as described in the instructions. We did not get it and even our advertising agency tried to shape it but… The picture was so small that it did not… We do not have any material in that form. So we did not manage to do that.” Clothing store I 03

“Our experiences of m-advertising were rather clumsy. For example, there was a possibility to see the city map and the location of different services but when you zoomed it, the software fell down. There were these kinds of technical errors. In fact, technical problems were quite peculiar to the whole experiment.” Restaurant I 03

It became clear from the interviews that due to the highly technological character of the service, it required learning from the retailers to even implement the m-advertisements not to mention actually utilising the special features of the service. Thus, the fact that the service was highly technological and complicated to use influenced their willingness to learn to use it. Some retailers were more willing to sacrifice their time and effort to do this, whereas some made only the minimum time investment. In relation to this, it was pointed out that there was a need for more training and assistance from the service provider to learn to use the m-advertising service technically and to design effective m-advertisements.

“We would have needed more help in planning and designing the m-advertisements. What kind of message it should be and where could we find partners to do it. […] I mean, more assistance for the firms that participate in this. Aid in developing our m-advertising, designing the m-advertisements
and implementing it all. Somebody to tell you what is effective and what works. Now we only got the tools and instructions and if I go to the advertising agency with them… the result is not going to be good. More assistance, that is it.” Nightclub and restaurant 05

There were also retailers who found the technological character of the service very intriguing and some even revealed that it was the main reason they were involved in the testing of an m-advertising service. There was an urge to know more about the new kind of service and to get familiar with its technical details. Behind this enthusiasm could be seen a willingness to keep up with technological development, and a perception that it could be beneficial to stay abreast of the new technologies.

“Technologies develop and systems develop. So it is good to know what has changed and what is possible. Being aware at grass roots of all the technical details. And also in practice: how long does the mobile phone take to download the m-advertisement? Is it a half second or is it twenty seconds? These kinds of things and the resolutions and other stuff. What size the photos are and how they concretely appear in the mobile phone screen?” Advertising agency I 04

5.1.2 Novelty and the developmental phase of the service

Secondly, the m-advertising service was a new thing for the retailers and they did not have any experience of that kind of service. This strongly influenced their attitudes and expectations of the service. There were retailers who were very optimistic and curious to find out more about this new kind of advertising. Some were very sceptical, both about the utility of the service and their own capability to learn to use it properly. The novelty of the service could also be seen as a kind of mental hurdle. In other words, retailers had doubts and prejudices towards it because it was new to them and that made them view it with suspicion. However, overcoming the obstacle by courageously familiarizing themselves with the service was very rewarding for those retailers who did so.

“Before I was informed of all of the aspects of this (m-advertising service) I thought that it is so intelligent… too intelligent for anybody. Nobody can use it. But when I found out more it came really close to me. When I got to know
it, it was very easy to accept and I felt that “Yeah, this is our thing!” Travel agency 03

Due to the novelty of the m-advertising service it involved many uncertainties. Common to all interviews was a certain uncertainty concerning the m-advertising service, its use and utilisation. The retailers were unsure what kinds of m-advertisements would be effective and how they could be implemented. Because of the lack of previous experience of a similar service, the newness of the service increased the uncertainty of the expectations towards the service.

“Of course, as this is so new you do not know how to use it. For example, should we put a picture there and how would it appear there. We had some technical instructions but I am not a very technical person, so…” Furniture shop 04

“It differs so much from the “normal” marketing, visual characteristics are so different and all that. […] I mean what does it (m-advertising) mean in practice? What kind of possibilities does it offer? It was a bit unclear what it really is.” Nightclub 03

The novelty of the service also piqued the curiosity of the retailers since they were eager to learn new things and discover new business opportunities. However, it was agreed that it required learning since they did not have previous experience of this type of service. Some retailers connected the novelty of the service and their own capabilities, in other words they were afraid that learning to use the service would be too demanding. This is also closely related to the technical character of the service which some of the retailers felt to be forbidding.

“It was really interesting as it was so new. But when I discussed it with others we thought that it might be so extraordinary that not everybody could use it.” Oriental restaurant 04

Closely related to the novelty of the service is its developmental phase. As mentioned above, the m-advertising service in question was at its application phase and being tested for suitability for future commercial release. Similar services were not available in the market at the time and also the service itself was developed and improved during the field experiments as problems were reported and fixed. Thus, its value creation potential was unclear to all actors involved, including the retailers. Therefore, retailers were not sure of what to expect from the service. Some retailers were well aware of the developmental
phase of the service and were prepared accordingly, whereas some had higher expectations and were not so satisfied when they noticed the service was not yet ready for commercial use.

“This was such a new thing that you cannot even think what it could do or what we could require from it […] I think that although this was an experiment or testing it was a really good one. We saw that it could work very well. Definitely this was an important experiment. And I think it showed that it really can work after the rough edges are refined.” Health store 05

“Some of us (retailers) imagined that this was already a working solution but maybe we should have realised that this is a kind of exercise that is organised to get feedback and comments. That we are only learning […] When we saw that this is only at the application phase we did not put everything on this. Of course we have other advertising and other operations too that are being done at the same time. Mainly this was an interesting test.” Co-operative 04

As the m-advertising service was only at the application phase, it is not surprising the retailers agreed that the service requires a lot of further development and investments before it can become commercially viable. Based on the interviews, however, the retailers were quite optimistic that the service would become a part of everyday life in the future after the challenges related to the novelty and developmental phase are overcome and the service is further developed.

“It is about to become a part of everyday life but we think that at the moment it is still in its infancy. But unavoidably it will be a big thing some day.” Advertising agency I 04

5.1.3 Co-operation with other actors

Thirdly, when exploring the influence of the context on the value retailers perceived from the new m-advertising service, co-operation between different actors came out as an important factor. In the theoretical framework it was suggested that the network of different actors and their impact on the service is an essential contextual factor influencing the value perceived from the technology-intensive business service but when analysing the data the importance of co-operation with other parties came out more clearly in the interviews. These aspects are of course closely related to each other since co-operation involves the network actors producing the service, but network refers more to the group of
relationships, whereas co-operation stresses the importance of doing things together. However, here the third contextual factor is referred to as co-operation with other actors because that best correlates with the empirical findings. The following quotation describes that one of the most important aspects of participating in the field experiments and testing the new kind of service was the possibility to co-operate and network with the various parties involved.

“This has given us many positive things. One important thing is the increasing co-operation and learning to do things together. As we all know, networking is a very topical subject […] In that sense this has given us so much. And it really impressed me to see how wide a group of actors were behind this thing.” Gift and decoration shop I 05

Two kinds of opinions could be identified from the interviews concerning the co-operation between different actors, both negative and positive. Mostly the retailers saw the co-operation as extremely important and a good thing, and for some, it was one of the major reasons to get involved in the field experiments. Also the involvement of the university and other public and well-known actors was important for many retailers.

“Co-operation in this area is extremely important to us. We are willing to co-operate with all the local actors, such as the university and also other companies.” Telecommunications company 04

On the other hand, some negative aspects of co-operation were mentioned. The fact that m-advertising involved many different actors who all needed to continue to develop and improve their behaviour, attitudes and know on the subject before it could become commercially viable was seen as problematic. The main challenges were seen to be related to the levels of knowledge and understanding of the retailers and their advertising agencies concerning m-advertising. These were often not at a level appropriate to exploiting all the opportunities offered by the service. This resulted in, for example poorly implemented m-advertisements that did not differ greatly from print media advertisements.

Attitudes of the retailers, and even more so of consumers, were also highlighted as important factors that needed to improve. Furthermore, it was suggested that the roles of different actors should be more clearly defined for m-advertising to become a useful and working advertising medium. However, most of the retailers saw that the challenges were related to the m-advertising in its current form.
“In my opinion, not all advertisers can use this service properly. And I think the problems are related to the implementation of the new medium […] Also, pricing is a challenging thing since the operators take quite a big slice from the messages sent. So, at the moment a rather weak medium is quite expensive to use.” Mobile applications 04

“There is a big gap in the content providers’ knowhow and understanding and utilisation of this service. It is a big challenge to get both the advertisers and the content providers who produce the m-advertisements for advertisers to understand all the possibilities. And then there is the law of the critical mass concerning penetration. I mean even if the penetration of the mobile phones is good but the knowledge on how to utilise this service is not, then many of us think that “No, I will not get into this because it is still such a marginal thing.” Co-operative 04

The challenges related to m-advertising were also seen to be technical and therefore issues to be resolved by the people responsible for the technologies and their development. Thus, the need to solve technical issues was emphasised, such as the development of a technical infrastructure and to address the low penetration of the smart phones capable of receiving m-advertisements. Co-operation between for example mobile network operators, device manufacturers and technical infrastructure providers was seen as key to improving the operational preconditions for m-advertising.

“This is the problem: different mobile devices are brought to market but people do not buy them fast enough so it is unprofitable to do that. Secondly, there is a need to get all the wireless networks and connections and everything to work properly.” Advertising agency VI 04

Finally, although the retailers pointed out several areas where there was still much room for improvement and development, the general view of co-operation was mainly positive. The retailers felt that co-operation was imperative in developing m-advertising towards commercialisation and they were keen to do the work together.

“This (testing of the m-advertising service) is a very exceptional and extensive pioneer work which also includes a lot of scientific research. Even a small entrepreneur as I am understands that it brings different expectations and requirements. So, in that sense I would say that all the entrepreneurs have
to understand how extraordinary this is. […] We have to understand that this is pioneer work for all parties involved.” Gift and decoration shop I 04

5.1.4 Summary of the context-related factors

The three main contextual factors forming the background to understanding customer perceived value of the new m-advertising service were identified as the technological character of the service, the novelty and the developmental phase of the service and co-operation with other actors. These aspects were also suggested in the theoretical framework although “the network producing the service” has now been replaced with a more appropriate label emphasising co-operation. This stresses the importance of a co-operational relationship between the actors, not only in co-producing the service but also in other more informal aspects of the interaction between them.

Findings from the empirical data went deeper in defining and specifying the different aspects of the context that may influence customer perceived value. It was not the aim of this study to measure the influence of the context-related factors per se, but rather to find out what aspects could be found in the background of the customer perceived value in the context of emerging technology-intensive business service. It is, however, possible to make certain interpretations of how the above mentioned factors may influence customer perceived value. For example, the technological character of the service and technical problems may have a negative influence on the customer perceived value since they constrain use of the service. On the other hand, some retailers also felt technological learning to be very rewarding. In the same way the novelty and developmental phase of the service may have both positive and negative impacts on customers’ value perceptions of the service. Finally, co-operation with the other actors was seen as challenging, yet worthwhile.

The three context-related factors also come close to the value sub-elements introduced in the next section. However, the factors identified above are not sub-elements of benefits and sacrifices, but rather characteristics of the context that the retailers brought out and which may have influenced their perceptions of value at the general level. The analysis now moves on to the specific value sub-elements that may resemble the aspects discussed above, but which are clearly identifiable as benefits or sacrifices forming the combination that actually defines the customer perceived value.
5.2 Temporality in customer perceived value of new mobile advertising service

The study now moves on to examine the temporal aspects of customer perceived value. Following the definition of value introduced in the theoretical part of this study, the sources of benefits and sacrifices (i.e. sub-elements) are categorised, since their combination is essential in value perception. First, customer expected value is explored by identifying sub-elements of expected benefits and sacrifices. It is then followed by identifying realized and finally potential benefits and sacrifices as sub-elements of value. The sub-elements are presented with the aid of the quotations from the interviews with the retailers.

5.2.1 Customer expected value elements

In one way, expected value can be seen in relation to the customer’s previous experiences or past events. In the case of this novel m-advertising service there was no previous experience of the service, so experiences from other advertising media were commonly used as a reference point for expectations. Another perspective comes from the fact that the expected value is directed towards the events in the near future, thus stressing the future orientation of the concept. An emerging m-advertising service involves an exceptional amount of uncertainty since the service is totally new for the retailers. Therefore, both in expected benefits and sacrifices the lack of previous experience of the m-advertising service as well as uncertainty related to the usage of the new service, were emphasised.

As suggested above, expected value consists of the two main value elements, benefits and sacrifices; and the trade-off between them compared to an alternative defines the value perceived by the customer. In the following section their sub-elements are identified and discussed in detail. The examination begins with sub-elements of expected benefits.

Expected benefits

Expected benefits refer to the utility the customer expects before starting to use the service. In the following paragraphs, the sources of benefits are identified from the data as experience, commercial effectiveness, pioneering and useful service features. It should be noted that all the data used in identifying and
analysing the expected benefit and sacrifice sub-elements have been collected from the firms that used the m-advertising service for the first time and therefore had no previous experience of the service. Next, the sub-elements of expected benefits are introduced with the aid of citations from the interviews.

**Experience**

The retailers expected to gain experience of the novel m-advertising service. Experience thus refers to getting to know the new service, testing it, learning to use it and seeing how it works.

“We simply wanted to test the system, see what it is in practice and to see if it works and how it works. We were interested in gaining experience.” Health store 04

The interviews indicated that retailers were interested in getting detailed information about the m-advertising service. Some were interested in the technical details, for example how the user interface was implemented or what constituted the process of making and sending m-advertisements through a medium that they had probably heard something of beforehand but had not had a chance to see in practice. Therefore practical understanding of the new service was expected from participating in the field experiment.

“We made quite a few m-advertisements to see the whole process. How it works, what kind of message could possibly reach the consumers and attract them, what kinds of colours, pictures, and moves could work in this environment. To get experience of what the consumers think of it.” Advertising agency III 04

Closely related to this was the retailers’ expectation of being prepared for the future by getting experience of the service before it is in commercial use. M-advertising was generally seen as a potentially important advertising medium in the future – although some were more sceptical about it. However, retailers pointed out that it was interesting to test the new service to get experience of it when the opportunity was offered to them.

“For us it (the objective of participating in the field experiment) was to get a general knowledge about this thing, to be prepared in advance for what the future may bring. M-advertising will certainly not be our main business area at any point but it is possible that in some future projects m-advertisements
will play some kind of role. For those situations we would like to have this pre-understanding.” Advertising agency I 04

Interview data suggests that retailers expected to gain experience from the service to be able to stay at the forefront of technological development. It was seen almost as an obligation to be aware of the latest trends in marketing and therefore the ability to test m-advertising was seen as a chance not to be missed.

“Our goal is to be at the forefront of development. It was very simply our motive (to test m-advertising). If you think of our business field, we are retailers in clothing and footwear, we are involved in trends and the fashion business. It would feel very weird if we did not follow this same logic in our marketing. Our logic is definitely to keep up with the development, be there where our customers are, either now or in the future.” Clothing store III 03

In addition, it was emphasised in the interviews that the retailers specifically expected to gain first-hand knowledge of m-advertising. They did not want to rely on any objective research reports or other second-hand information sources but wanted to have their own hands-on-experience of the service and its features.

“It (m-advertising) will be one of the most important mediums in the future. If print media and the internet do not work we wanted to have first-hand experience of mobile marketing that is sent straight to the consumers’ mobile phones. How does it work?” Mobile applications 04

Finally, there were retailers for whom the only expectation of the field experiments was simply to gain experience of a new kind of service. They were very open-minded and willing to learn about the new advertising medium and did not have any specific expectations or goals for participating in field experiments except for acquiring new experiences.

“We want to keep up with developments. We are very curious about everything new, like this m-advertising. Also in our own business we have very fearlessly started to test and implement new things, new restaurant concepts. And then we have succeeded and if not, then we have tried something else!” Restaurant chain 03

*Commercial effectiveness*

Commercial effectiveness refers to the financial gains and improved sales the retailers expected from the m-advertising service. The expectations concerning
commercial effectiveness were based on the anticipation that m-advertising reaches the potential customers and attracts them to make a purchase. It could have been the only reason they had for participating in the field experiment to get customers and thus improve sales.

“Our only expectation was to find out if we can get more customers and whether they (consumers) use it (m-advertising) to get to our restaurant.”
Oriental restaurant 03

For the retailers, m-advertising represented a means of communicating with their potential customers, to provide them with information and to increase revenue. Commercial utility can also be indirectly expected as the retailers felt it important to attract the attention of potential customers that could further improve the public awareness of the company and finally also result in increased sales.

“(Our goal was) to make people recognize us…get them familiar with our company name and what we could offer them. There are so many similar physical therapy services available so getting people to know our name is very important.” Physiotherapist 05

It became clear from the interviews that some retailers did not expect great increases in the sales volume but were more interested in other things, such as pioneer status or experiences in general. However, those retailers also fundamentally expected commercial utility although it was not necessarily the primary reason for using the m-advertising service.

“First of all, we expected this to improve our company image and then of course, increase the sales. It is in the background in everything, always.”
Jeweller’s 03

“We did not even think beforehand that ‘yeah, the purpose is to get to huge sales volume’. It is not realistic to think like that. We have not done it at any phase. Our starting point was that even if a single customer comes because of this it is brilliant!” Gift and decoration shop I 04

**Pioneering**

Pioneering refers to the status of being among the first companies to use a novel advertising medium. It is different from getting experience of the service as at the heart of pioneering lies an image and the mental picture of a modern firm whereas
experiences are more practical level benefits associated with the usage of the new service.

In the case of pioneering, motivation for starting to use and test the service arises from the willingness to be among the first to introduce this kind of new advertising form. Retailers felt that using the service associated them with an image of the up-to-date and future-oriented company that is “in the spirit of the age” and well aware of the current development trends.

“Our firm is a traditional firm, established in 1946, and some people may consider it even a bit stick-in-the-mud. I do not share this opinion and this was an opportunity for our kind of traditional firm to show that we are in the spirit of the age.” Clothing store II 03

Retailers connected their pursuit of a pioneering image to the image of their hometown as a centre of innovation and technology. They felt that testing new kinds of things such as m-advertising is typical of the attitude to innovation of the city. Participating in innovative projects helps strengthen the city’s image, which in turn would also benefit the retailers’ own image. The city’s image as an innovative space may even to some extent make individual firms feel obliged to be innovative and to participate in pioneering projects such as m-advertising.

“It is nice to be the first ones who hear about these results (from the field experiment). And to know where everything is going when these things develop all the time. […]This city has an innovator image and therefore we also want to be… or at least try to be among those firms who participate and are pioneers and who have an opportunity to reach customers using this (m-advertising service).” Electrical supplies shop 03

Useful service features

Useful service features refer to a group of service-related features that the retailers perceived to be important and useful. In other words, they are specific features of the m-advertising service that are closely related to the service and its usage, and are therefore discussed as one sub-element of the expected benefits.

The retailers highlighted several special characteristics of the m-advertising service and how they expected them to be utilised. The interview data indicates that retailers had some kind of first impression of the m-advertising and of its special features even before they had used it for the first time. This might be due to their pre-understanding gained from newspapers or other media, or perhaps
they had made preliminary searches e.g. on the internet before they had agreed to participate in the testing.

Firstly, one important feature of the service pointed out was its ability to reach the target audience. More specifically, retailers expected m-advertising to reach a certain, carefully-defined group of consumers or alternatively, specific types of consumers that could be difficult to reach through other advertising media (for instance, young men interested in technology). In addition, they expected that m-advertising would enable them to send personal messages that would always reach the receiver.

“Before using it I had an image of the possible users of m-advertising, I mean these young people and students. Therefore my first thought was that we could inform them that we also have these (student priced) tickets.”
Travel agency I 04

“The strength of it (m-advertising) is that it enables us to reach our own customers. You can send them personal messages. And it always reaches the receiver. It definitely reaches you because when you get the message you will have to open it, you cannot use the phone before you have opened it.”
Dental clinic 05

Another useful service feature expected by the retailers was the ability to tailor the message personally and define the criteria when the m-advertisement is sent. Based on these characteristics m-advertising was expected to be a very powerful and effective means for not only reaching the customers but also sending interesting messages that are personally tailored and therefore very influential. Retailers pointed out that utilising the situation of the receiver is one important expected service feature. For example, when it starts raining and consumers are walking in the city centre, the shop could send them a message inviting them in to a nearby coffee shop.

“I knew we could direct the message better to the right person and on the other hand we could also tailor the message. And even more importantly, we could pay attention to the time and place and the interest areas of the receiver.”
Co-operative 04

What the retailers also expected from the service was ease of use. That is not primarily a service feature, but is however closely related to the service and its usage. It clearly came up in the interviews that retailers expected the service to be
very simple and easy to use. If they felt it was difficult to start to use, they may have quit the testing before it had even started. Therefore, ease of use can be seen as a significant expected feature of the m-advertising service which is also related to the technological character of the service.

“I first thought it will be really easy but then it turned out that we need a password and all these kind of things. We were supposed to have contacted the service provider and so on. […] We have to take care of other advertising too so we have so many things to do. So, for us it must be as easy as possible.” Nightclub 03

Many of the service features are indirectly related to the commercial effectiveness discussed in the previous section since many of the useful features can be seen as means to create more influential and effective advertising campaigns, to ultimately result in commercial utility. The heterogeneous service features were bunched together since they represent specific features of the m-advertising service examined in this study and were pointed out by the retailers as aspects that increased their expected value of using the service.

**Expected sacrifices**

Expected sacrifices refer to those investments the retailer expected to have to make in order to participate in testing, and using, the new m-advertising service. Those can be generally classified into two categories that reveal the sources of sacrifices, namely monetary and non-monetary factors.

**Monetary factors**

Monetary factors are always very important for the retailers and money seemed to be the first thing that came into their minds. Interviewees indicated that before agreeing to participate in the field experiment they had considered the cost of testing m-advertising. Hence, retailers considered it very important that participating in the field experiment was free of charge. However, some of the retailers were so enthusiastic that they would have been ready to pay for m-advertising even at this application testing phase.

“It was free of charge. It did not require money which made it easy to participate. On the other hand, even if it had cost some money I think this (m-advertising) is a something we would use anyway.” Travel agency I 04
Although testing was free, some retailers were aware of possible indirect expenses arising from, for example, using an advertising agency in designing the m-advertisements.

“We thought that making a m-advertisement with pictures and sounds would not be a realistic option for us because our advertising agency would charge 100 euros per hour and it would take like five or ten hours to design that kind of m-advertisement.” Nightclub and restaurant 05

It became evident from the interviews that at the point when the retailers did not have any experience of m-advertising, the most important thing was to minimise the monetary investment in testing the service.

**Non-monetary factors**

The first, and probably the most important, non-monetary factor that came out in the interviews was time. Retailers expected that using m-advertising would divert time either from their other everyday tasks during the working day or in some cases also from their free time, if they were for example small entrepreneurs. The perception of time required seemed to depend on the tasks of the interviewee and also on the size of the firm. In small firms the tasks of the entrepreneur (or person responsible for m-advertising) were often more varied and took a lot of time. On the contrary, in larger firms the tasks were more clearly divided which probably allowed the person responsible for m-advertising to concentrate more on that particular task. Therefore, some of the interviewees were more concerned about the time testing m-advertising would demand whereas some thought it was quite irrelevant.

“At first it was…for a small firm like us. We were wondering what it will cost and how much effort it would require, how much time it will take and so on.” Electrical supplies shop 03

“Somehow I just knew that it will not probably take so much time from my other duties. It is just another marketing task.” Health store 04

According to the interview data, some retailers expected that making and sending m-advertisements would take a lot of their time, and so they were rather dubious as to whether they would have enough time to concentrate on m-advertising. On the contrary, some thought it could be handled quickly and without any specific resources. Hence, there were also retailers involved in the field experiments that
had agreed to participate without really thinking through how much time would actually be required, and as a result did not send any m-advertisements during the test.

“We thought that it will be taken care of along with everything else. But it is not like that. We were just prepared to do it alongside our other tasks and it really was not the right approach at all.” Hobby shop 05

In addition to monetary and time factors, retailers were considering other resources that sending m-advertisements would require from them. They expected m-advertising to be difficult to use and were worried about whether they had sufficient technical knowledge to utilise it. This was related to the novelty and technological character of the m-advertising service. Therefore, the expected investments also included the effort and learning required in using the service.

“I was concerned about my own know how. I was wondering if it is so different and difficult… Do we need to make m-advertisements with moving pictures and other stuff? I knew that there are fantastic possibilities but can we utilise them? That was the biggest question and threshold for us.” Gift and decoration shop I 04

Relation to net value of an alternative

As the retailers did not have previous experience of the m-advertising service, they often based their expectations on the other advertising media they had used before. In the focal case the similar service was newspaper advertising, a type of advertising they commonly use. The previous experiences lead the retailer to expect, among other things, mass marketing value, i.e. reaching as many consumers as possible. The following quotation illustrates that even though some m-advertisers noted that m-advertising is different from more traditional advertising media, they still formed their expectations from mass communication and acted upon them.

“(I was interested in) how many (consumers m-advertising) reaches and what the reasons are that make people come, if it attracts them to visit us. If we, for example, place an ad in a local newspaper on specially priced holiday flights to Europe or somewhere else […] does the mobile advertising have the same effect? Does it [m-advertisement] attract as many customers?” Travel agency I 04
5.2.2 Customer realized value elements

Next, the examination of temporality proceeds to realized value and its sub-elements. When perceiving realized value the m-advertiser compares the expected value to the experiences gathered during the field experiment of using the m-advertising service. The dimension of realized value refers to the time after the experiment period ended. It encompasses the actual benefits and sacrifices customers perceive when they evaluate the service experiences. Thus, the evaluation of the realized value takes place in the present. The target of the evaluation is what happened in the past – the service experience. However, realized value is also oriented towards the future as it provides a basis for assessing potential value created in the future.

In line with the examination of the expected value, realized value consists of the two main value elements, benefits and sacrifices. In the following section, the sub-elements of benefits and sacrifices are carefully identified and discussed.

Realized benefits

Realized benefits refer to the utility the customer perceives from using the service and co-operating with the service provider. The sources (i.e. sub-elements) of realized benefits are identified as experience, commercial effectiveness, useful service features, service support, interaction and positive company image. They are next introduced in detail and illustrated with citations from the interviews.

Experience

The interviews indicate that the experience of the new advertising medium was one of the most important things retailers got from using m-advertising. Interestingly, experience was also emphasised in the expected benefit section, which is understandable as the novel technological service in question was new to the retailers. Thus, the retailers pointed out that it was very important for them to be able to test the service and to get to know how it works and its characteristics. Also the future dimension was involved in this sub-element – as the retailers felt that by getting to know what m-advertising currently was and how it worked at the time of testing, they could also get a sense of what it could become in the future.
"We are happy that we became acquainted with this service and how m-advertisements can be made." Clothing store III 04

"This was a test and for us a purely encouraging experience. And since it was free of charge everything was just positive. [...] And we got the benefit that we now know what m-advertising is at the moment. Of course it is interesting to think what it will be for example in five years’ time when all the mobile phones have these fancy multimedia characteristics and so on.” Physiotherapist 05

The interviews revealed that retailers were at first generally very sceptical of m-advertising, but were happy that they had the courage to really try the service and get the experience of it. Getting to know how m-advertising really works and gaining first-hand experience made it easier to accept it and understand its usefulness. Corresponding to the expected benefit section, where first-hand knowledge of the m-advertising service was considered as an expected benefit, the retailers felt it very important that they had a chance to gain their own experience of the service.

"This was interesting because we have had a chance to explore mobile marketing in the real empirical environment and for us that was the most positive thing in this.” Mobile applications 04

In addition, it became clear from the data that the retailers felt developing their own skills and know how was one significant benefit they gained from testing the new service. For them learning new things and strengthening the knowledge base of the firm was seen as a positive thing. Some thought that they had gained a direct advantage by learning to use m-advertising and they planned to use that knowledge later in their marketing. On the other hand, some thought they had gained benefits at the more general level by improving their understanding of some new opportunities in the field of marketing and simply by learning new things.

“Our goal for this (participating in the field experiment) was primarily to develop ourselves and to develop our business. And we succeeded in that, since this has brought us many new things. It is impossible even to try to count everything it has brought already and also when we think about the future… we are now many steps further on as we know better what we want to do with this thing in the future. [...] This has given us a lot of confidence
that it is possible to develop our marketing in this direction (using m-advertising). And it is a really new and huge thing that we now have confidence to do it.” Gift and decoration shop I 05

“Learning comes with it. It is nice to do something new and a bit different and learn new things. And hopefully we can also utilise it later in something else.” Advertising agency IV 04

Commercial effectiveness

Commercial effectiveness refers to the increase in sales or profit that resulted from sending m-advertisements to potential customers. In other words, it references the number of customers who see the m-advertisement, acknowledge the retailer, enter the shop and make a purchase as a result.

“At my, i.e. an entrepreneur’s, viewpoint I measure effectiveness through contact prices, number of contacts. Then the real measure of the effectiveness of advertising is cash.” Clothing store II 03

In general, retailers did not report great commercial success from their m-advertising campaigns and said that they did not notice much change in cashflow. However, there were retailers who were very satisfied with this aspect and mentioned that they actually had new customers and noted the commercial effectiveness of using the m-advertising service.

“It surpassed all expectations concerning what we invested in this and what we got from it. This was a wonderful thing, even a stunning thing. During this short test period we got new customers, which was more than we expected from the whole summer. And those customers we got were all enlightened ones. So there were many advantages and this surpassed our expectations at all levels. So I’m more than satisfied.” Gift and decoration shop I 05

“If we think that 150–200 m-advertisements were sent and approximately five customers came to our shop based on those advertisements. How many percent is it? I think it was quite good! In general, if you think of contacts per ad, it is usually like one or at the most two percent that react to it. Compared to that, this was pretty fine.” Health store 05

The interviews revealed that the retailers did not have monitoring systems to assess how effective the m-advertising had actually been. Therefore their opinions were mainly based on rough estimations or a general feeling of how many
customers were attracted by m-advertisements and made a purchase from their shop.

“Maybe we should have followed it more accurately — asked the customers where they had got this information and so on, but unfortunately we did not. Of course very few customers say that ‘Yeah, I was participating in this kind of test and got your m-advertisement’. But I think that some came here to our office because of the m-advertisement.” Travel agency I 04

Useful service features

Useful service features again refer to the group of service-related features that the retailers perceived as important and useful. In other words, specific service features are those characteristics that are specific to the m-advertising service and are closely related to the service itself and its usage, and are therefore discussed as one group of realized benefit sub-elements.

Generally, retailers pointed out very similar important features of the m-advertising service they felt useful and beneficial, although the emphasis depended on the retailer and their personal opinions. The ability to tailor a message based on the personal information of the receivers of the m-advertising was emphasised in the interviews, since this enabled the firm to reach the specific group of customers it was interested in. In addition, personalising the m-advertisement according to the information gathered from the recipient let the retailers send messages that were seen as more personal and therefore also more attractive and effective. Thus, the ability to reach a certain customer and to send personally tailored messages was a new feature that fascinated retailers since they saw it as providing an opportunity to develop more effective advertising campaigns and thus hopefully increase their sales.

“I found these basic things very useful; you can personalise it and you can choose the receiver and time you send it. That is probably the most important characteristic of this mobile thing. That the message is not sent to just anybody but depends on the customer.” Advertising agency IV 04

M-advertising also enabled the retailers to specify the time the messages were sent. This gave the retailer a whole new range of options to plan their advertising and improve its efficiency, for example, by timing the m-advertising campaign for the most suitable moment.
“It was a positive point that we could make a campaign very fast and target it extremely accurately. It has… because there is a possibility to collect information about the receivers and what they are interested in and these kinds of things, we can target it really well to the right people. And the speed, that is important. You can build a one-day campaign if you want. That is brilliant.” Health store 04

Closely related to the tailoring and personalisation some retailers highlighted the fact the m-advertising engenders a capability to follow and measure the effectiveness of certain m-advertisements. If the retailer knew who had received the message they could easily find out if the message had attracted the customer, which in turn would permit them to create more attractive and effective m-advertisements in the future.

“We could target the m-advertisements and we could also measure it at some level, because we could follow the specific customers who had received the m-advertisements. At the moment the situation with advertising is poor; if you have an advert in a certain local newspaper and you ask the customer where s/he has seen it the answer is probably some other newspaper. So these print mediums are mixed in the minds of the consumers but with this (m-advertising) you can direct it straight to the customer.” Telecommunications company 04

In addition to the above service features, technical functionality and ease of use were also reported as helpful features of the service. Some pointed out that they were very happy with the service since it was functioning well and was easy to use, whereas some had had difficulties with the service. However, this depended to some degree on the year the retailer tested the service. In the first field experiment there were more technical problems than in the third field experiment, because by that stage time had been spent on developing and improving the service. Moreover, the technical skills and equipment of the retailers varied greatly, which also influenced their perceptions.

“It was really good when it started to function and all the tools were functioning well. It was easy to use and simple, it worked just fine.” Health store 05

As a whole, the service features our retailers identified as being useful incorporate quite a varied group of m-advertising service features that forms a realized value.
The connecting factor between them is that the features discussed are specific to the m-advertising service examined in this study and were pointed out by the retailers as aspects that increased the realized value.

Service support

Service support refers to the supporting activities from the service provider to individual retailers. In other words, how the service provider helped, assisted and enabled the retailers’ usage of the new kind of service. It includes, for example, technical support and backup, adequate briefing and instructions from the service provider concerning the use of the m-advertising service.

Generally, the personal assistance and the instructions offered by the service provider were appreciated. For some retailers the personal support was extremely important in helping them get started with the service. For some it was enough to know that in the case of any problems they could have technical assistance from the service provider.

“I was so surprised that I did not feel like a fossil but I got so quickly into it! But I believe it was because you had such a good and qualified person who introduced it (m-advertising service) and showed how to use it and told what benefits it will bring to us.” Travel agency I 04

“Information was very fluent since we got numerous e-mails and phone calls and that kind of stuff. And somebody even came to show us here on-the-spot how to use the mobile tool.” Leather goods store 05

In contrast, there were also retailers who were very autonomous and self-educated and did not need any personal assistance from the service provider. They were satisfied with the written instructions and did not need any further support. However, it was emphasised in the interviews that getting all the technical documents and instructions was helpful in using the new service.

“The tools and the documentation we got were adequate for us. With this know how and skill plus that group of instructions we were given… that was enough.” Mobile applications 04

The retailers also provided positive feedback on the pro-activity of the service support – generally feeling that the service provider had been helpful and appreciating the support received. In addition, the retailers were pleased to know that they could contact the service provider with any questions and that technical
support was continuously available, and not limited to the beginning of the testing.

“I was very satisfied with the help we got. I found it great that somebody contacted me and asked “is everything ok?” and offered information on, for example, what type of files were needed and so on. They did many things for me because our own resources were so limited.” Clothing store I 05

“I think the support from the project has been… Because you have known all along that you can call if you have any technical problems. So, I think the support has been very good and worked well.” Gift and decoration shop I 05

Interaction

Interaction refers to the communication, co-operation and interaction between the retailer and the service provider. It encompasses how the interplay between the parties was handled and how the connection between them worked. The main difference compared to service support is that service support is more technically oriented and includes the evaluation of the sufficiency of the instructions, technical backup and other technical aspects, whereas interaction refers to the co-operation and the relationship between the two actors.

First, it was reported in the interviews that the flow of information from the service provider to the retailer had worked very well. This involved for example the weekly/monthly reports concerning the current issues of the field experiments and the project in general (e.g. how many m-advertisements were sent, published research reports, feedback). It also refers to the contacts between the retailer and the service provider, i.e. how easy and fast it was to get information from the service provider and how the service provider reacted to contact from the retailer.

“We got information very nicely. If somebody complains about it he is wrong. I think the information flow from the service provider to us was very fluent. And if we had something to ask or anything like that…Well, I think it worked in both ways really well.” Travel agency I 04

Retailers were very pleased that the service provider was proactive in contacting them – enquiring as to their progress and whether they needed anything. Retailers also appreciated the communication being two-way, in that they felt comfortable with contacting the service provider with any questions or comments.
“The interaction between us and the service provider was great. Clearly the project had paid attention to it and it worked well. Because it often happens that the entrepreneur is busy and might let it slide like ‘We have these other duties and have no time for m-advertising’. But then somebody came from the project and said ‘Good afternoon, I came here to see how you are doing!’ and you remembered that you need to update those m-advertisements.” Gift and decoration shop I 04

Finally, it was indicated in the interviews that the successful co-operation could even compensate for other (potential) defects in the field experiments. Therefore, by investing properly in the interaction, the service provider could increase the satisfaction of the retailers.

“We did not get any sales but the opportunity to analyse this (m-advertising) with the researchers and to get feedback from the field experiments… that makes it all worth it.” Mobile applications 04

Positive company image

Positive company image refers here to the image the firm obtained from using the new m-advertising service. It is the mental picture of the ambitious firm that is willing to continuously develop and to try new things to satisfy its customers more than its competitors. This sub-element is quite close to the pioneering image, introduced in the expected benefit section, since pioneering could be seen as a positive image. However, it differs from pioneering by emphasising the positive image of the firm as an important asset whereas pioneering is more directed towards being at the forefront of technological development.

“I believe it (participating in the field experiment) was really good for our image. I mean that customers saw it too […] and they saw that we are involved in this. That is very positive. In that sense taking part was really useful to us.” Science centre 05

Retailers emphasised that it was essential that the field experiments were publicised in the media – the local newspapers and even national television. They felt that it was good for their image to participate in the testing of the new service that gained a lot of public attention. This visibility was also supported by the service provider offering the participating firms stickers to be placed on their front doors or cash desks that announced: “We are participating as m-advertisers in the Rotuaari project”. Firms were also provided with information leaflets that
included information about the project and could be distributed to their retail customers.

“We got the communicational and high-tech value from this by telling our customers that we are using this (m-advertising) […] So, I think that it is very positive thing to our company image and in every way that we were involved. And to this city as well. To get the publicity. It has been nicely reported in the newspapers what is going on here. So it is very positive to us, surely.” Travel agency I 04

“It (the field experiment) had a lot of publicity and it has not been bad publicity at all. So, I think that it has given us good PR to be involved in this kind of thing. And also the involvement of the city, university and the Downtown Association. Being this kind of pacemaker gives goodwill and I think that is the most essential thing at this moment.” Clothing store III 03

It became evident from the interviews that although retailers did not perceive much commercial utility from being involved in the field experiments and testing m-advertising, they still felt that a positive company image and other “non-monetary” aspects were important to them and made it worth participating. Also those who were satisfied with the profit they gained from using m-advertising emphasised those other aspects as well.

Realized sacrifices

Realized sacrifices refer to those investments the retailers made during the field experiment when they used m-advertising, for example in planning the campaign or designing and implementing the m-advertisements. They are placed into two categories that reveal the sources of sacrifices: monetary and non-monetary factors.

Non-monetary factors

The non-monetary aspects consisted of the time used, the learning required and effort made to use the service. Generally the retailers perceived time as the main sacrifice. The time was expressed either as hours used by the entrepreneur or the number of people involved in designing and implementing the m-advertisements. The estimates of the time used ranged widely, from 15 minutes to three working days (a working day being about eight hours). Retailers also pointed out that in
the first phase when they started to familiarize themselves with and were learning to use m-advertising, it took a good deal of their time, but as they learned little by little to use the service it became much easier and faster. Thus, after learning to use the service the time required to make new m-advertisements decreased significantly.

“Well, making the first m-advertisements took a while. To get it into the right size and shape so it looked good in the final version. But once we had done it… If we think about time I guess it took altogether like two or three hours from me and Ulla to make one m-advertisement from the planning to final version. So I think it was very fast.” Telecommunications company 04

The interview data indicates that m-advertising required varying amounts of effort from different retailers. Effort here refers to all investments or use of the firm’s resources. Retailers’ perceptions of what is a reasonable and acceptable amount of non-monetary sacrifice also varied significantly. Some retailers had a large number of employees involved in the planning of m-advertising but did not consider that a big investment. To some of them, even the need to sit down to create the m-advertisement or the need for a couple of phone calls during service use was too much, as taking care of the daily business occupied all of their time. In such cases, non-routine tasks were easily put aside, no matter how fascinating.

“Well, it did not take much (resources) because we did not have any. And as I said our investment to this was quite small. We made the one m-advertisement and that was it. It was because there were those passwords and we were told to call somewhere to get it and it was so unclear. So when it gets like that and you do not have time, then you just drop it.” Nightclub 03

Time, learning and effort are very closely related to each other and actually represent different sides of the non-monetary investments the retailers reported they had made in m-advertising.

**Monetary factors**

The use of the service was free of charge since the service was only at the application stage. Therefore, the retailers did not need to make any direct monetary investments when they were testing m-advertising. However, some retailers also invested money in m-advertising by hiring an advertising agency to design and implement the m-advertisements. Some were too busy to take care of m-advertising by themselves and therefore outsourced the task to an agency,
while some were also actively involved in the planning with their advertising agency.

“Well, it took us a lot of time and cigarettes to plan it (m-advertising) plus few thousand euros for the advertising agency. In that sense we used too much resource compared to what we got from it.” Co-operative 04

In relation to the amount of sacrifices made during the field experiments, some of the retailers were satisfied and felt that it was worth it. On the other hand, some were disappointed with the service provider since they felt that they had invested too much (in the form of time, learning, effort and/or money) in relation to their return. Finally, some were disappointed with themselves because they thought they had not invested sufficient resources in the unique opportunity to test a new service.

Relation to net value of an alternative

Retailers compared m-advertising to the other advertising media and perceived many advantages in this new way of advertising. M-advertising was reported to be fast, wide-reaching, personal and easy to use compared to other media. Interviewees gave several examples suggesting where m-advertising can be seen as superior to any other medium, for instance:

“It was nice that it allowed us to personalise the message. And what I liked was the possibility to make the m-advertisements according to the weather. To say that ‘Hey, it is raining, come to the Science Centre because there is nothing to do outside just now!’ Or something like that. And the interactivity or how do you say it... The possibility to react really fast compared to newspaper advertising where you have to make the ad much earlier. Like ‘Okay, we want to advertise next Wednesday’ but how do you know beforehand what is going on then?” Science centre 05

Also the pricing of m-advertising was perceived as an advantage compared to other advertising media. When comparing the price of sending m-advertisements to the numbers of customers the messages reach, and against other media, m-advertising produced a positive result. In other words, retailers saw that due to its ability to effectively reach the receivers m-advertising was inexpensive and therefore a good option compared to other advertising media. What should be noted, however, is that the assessment of the price of m-advertising was based on
the retailer’s own estimation, since sending m-advertisements during the field experiments was free of charge for the participating retailers.

“Clearly the advantage of the m-advertising is its price. It is pretty inexpensive per customer to get the message through. When we calculate how many euros this message costs per customer... When we use m-advertising we can define the receiver very accurately. It is extremely important that we do not send the ad promoting a male stripper show to a 60-year old man. So our money goes to waste if we put the ad into the local newspaper because 60% of people reading that newspaper are adults, older men and so on.” Nightclub and restaurant 05

5.3 Potential customer perceived value elements

Finally, potential value is described by identifying the sub-elements of potential benefits and potential sacrifices. Following the definition suggested in chapter 3, potential value is the best possible net value that the customer, in the present time, can imagine being realized. It is an important value dimension in the context of emerging technology-intensive business service at the application phase of development, since the value of this type of service is mostly potential and to be realized in the future.

Potential benefits

Potential benefits refer to all aspects and factors that the retailers see as integral to the optimal m-advertising service of the future. It is a different dimension compared to expected or realized benefits since it became evident from the interviews that there are strong underlying pre-assumptions in the minds of the retailers that a potential (or optimal) service is a kind of service that is 1) commercially effective and 2) in active use along with other advertising mediums. Based on these two assumptions the retailers described what they felt could contribute to optimizing the service in terms of fulfilling those assumptions. In other words, the retailers described different sources of potential benefits needed before an m-advertising service would become a commercially effective and widely used advertising medium in the future.

Two sources of potential benefits could be identified that resemble sources of benefits identified previously within the expected and realized value dimensions
(i.e. useful service features and regular customers). In addition to those two, it became clear that the retailers had different visions of the future use of the m-advertising service. This final sub-element arose from the interview data and includes many different aspects that could not be placed under other sub-elements or temporal dimensions.

Next, the sub-elements are discussed – starting with useful service features and reaching regular customers. After that the third sub-element, – visions of future usage – is presented that is unique to the potential time dimension.

**Useful service features**

First, the useful service features refer to those specific characteristics the retailers felt would be included in the optimal m-advertising service of the future. Similar to the previous two time dimensions the useful service features are closely related to the m-advertising service itself and are therefore discussed as one sub-element involving many aspects.

It was suggested in the interview data that m-advertising would be optimal when it is context-related, i.e. the m- advertisements could be sent according to the location of the receiver. An optimal m-advertising service would also permit sending the message according to the time and place.

“It (m-advertising) could be even more focused on the location. I mean when the customer is close enough, for example 200 meters from our shop, then s/he receives the m-advertisement. To emphasise the location of the receiver. Maybe that requires that every shop has its own transmitter, but still. I think that could be a pretty big thing. It would help the customer to make the decision to come, like ‘Well, as I am here I could…” Health store 05

Ease of use was seen as a one important characteristic an optimized service would have to possess. Making the m- advertisements should not take too much time away from other duties and should be a simple task for the retailer. In addition, the actual m-advertising tool would also need to be compact and effective as well as easy and fast to use. This is in line with the useful service features brought out in the expected and realized value dimensions, but in this case the feature refers to the optimal service in which ease of use needs to be at the best possible level.

“It is great if it is made so that it functions without difficulties. For a shopkeeper like me it has to be really easy to use. It cannot take too much
time. Using it must be as simple as sending an e-mail. You just choose the
group of receivers and that is it. It has to be very easy.” Health store 04

As with other time dimensions, retailers also revealed that an optimal m-
advertising service would be capable of sending very carefully personalised
messages to certain customers at the right time. In other words, they saw the
possibility to target the message accurately according to the needs of the customer
as being at the core of an optimal service. Thus, the m-advertisement that is
personally tailored to certain customers and is sent at the right time (i.e. when the
customer is alert, open and free to receive the message and react to it) was seen as
the best possible way to utilise m-advertising.

“To get the personal message… I mean it is much more personal to get it (m-
advertisement) into your own mobile phone compared if we see the same
thing in the TV or newspaper. […] If I someday receive a personal m-
advertisement then I know the sender has made the effort to reach me. So I’m
such a valuable person the sender wants to send me the m-advertisement and
thinks I could use his services.” Dental clinic 05

“We should be able to target the message more carefully according to the
customer’s needs. So, that it begins from a need or weather or event when we
can target the message accordingly. Then the customer is more likely to make
the fast purchase decision, when there is a real concrete need.” Advertising
agency III 04

The retailers also mentioned the technical characteristics of the m-advertising
service. These were related to the possibility of using various multimedia
characteristics in the m-advertisements for example. This was basically already
possible in the version of the m-advertising service tested, but only a few retailers
used all the options available.

“Since it is a very technical device it could be used to send much more than
just a picture and text. There is a possibility to use moving pictures and these
kinds of things that we as a department would have resources to utilise. For
example sound and movies. These kinds of possibilities should be brought up.
If it (m-advertising service) would enable that kind of thing we would be
really interested in it!” Art museum 04

As a whole the service-specific features that were anticipated as being integral to
an optimized m-advertising service included quite similar aspects to those the
Retailers were already expected from the service before they had used it, and that they acknowledged as useful after using the service. However, in the case of the potential time dimension the characteristics pointed out were based on the retailers’ visions of the optimal service functioning flawlessly. There were some problems in the functioning of the service during the field experiments and although many features described here were already built into the current version of the service they did not necessarily work all the time or without issues. There were also deficiencies in the retailers’ knowledge and ability to utilise the features available. Hence, the specific service features discussed above represent the retailers’ visions for the optimal service.

**Reaching regular customers**

The sub-element reaching regular customers refers to utilising m-advertising in serving the regular customers of the retailers. Retailers stated in the interviews that the best way to utilise m-advertising in the future would be to use it as tool to advertise to existing customers, whose contact information was held in customer databases or in CRM systems. To be able to integrate with customer databases would, however, require the service to be further developed.

“For the advertiser ‘the thing’ would be the ability to send messages to their own regular customers. So that you could target it to those customers and for example, during the quiet times offer bigger discounts. And that you could control and manage it (sending m-ads) when you know who you send the messages to. You could reward better customers by sending them something special. And you could define the sending of m-ads according to the opening hours or resources.” Telecommunications company 04

Another factor indicating m-advertising’s applicability for regular customers it is the requirement for the advertiser to hold the contact information and possibly other information on the customer. It was believed that it would be easier to get permission for this kind of advertising from existing customers than from those who are not familiar with the firm. This is closely connected to the practical issues of m-advertising, for example how to get the consumers interested in m-advertising and to register them.

“For example, it could work well if we would collect a register of patients and ask them if they are willing to receive m-ads on our newest
equipment or information on for example campaign discounts. Those people who already have been in physiotherapy could be interested in those kinds of things.” Physiotherapist 05

Retailers had different visions of how m-advertising could best be utilised in regular customer advertising particularly in their firm. Some saw that it could be implemented right away, whereas some only envisaged possible utilisation scenarios. However, in general the retailers saw m-advertising as suiting existing customer advertising really well in the future.

“It could work in our websites, when we build a regular customer system there. The customers could register for the service and subscribe to kinds of m-advertisements they find interesting. That’s the way I see it. So that m-advertising will be targeted to those customers who wish to receive those messages. And that way I believe it could be a quite effective way to reach a particular group of people based on their interest areas.” Hobby shop 05

Visions of future use

The final sub-element i.e. visions of future use is different to some extent from the other two potential benefit sub-elements. It refers to all kinds of ideas the retailers imagined an optimized m-advertising service could incorporate in the future; respondents spoke of its opportunities and restrictions and how it could be used as part of their marketing mix. As a whole, it refers to all the future-oriented aspects retailers brought out in the interviews concerning the m-advertising service.

In general, retailers saw it not only possible, but very likely, that m-advertising will spread and become a commonly used advertising medium in the future. They also pointed out that it is likely that they will use m-advertising in the future in their marketing, not necessarily as the main advertising channel, but at least alongside other means of advertising. According to the interviewees it is likely that m-advertising will conquer other media, but it was mainly seen as complementary to other direct marketing channels.

“It (m-advertising) will take a bigger role in the future. At the moment our firm uses a relatively large amount of direct marketing and it is a very central question as to how much we will use mass and how much direct marketing, and the emphasis is changing towards direct marketing all the time. And m-
advertising is one means of doing direct marketing among others.” Cooperative 04

Some saw the m-advertising service in its current form as a viable advertising medium, whereas others assumed it would take a lot of time and development before they could imagine using it regularly in their marketing. However, interviewees were quite confident that m-advertising is, or will be, a medium that many firms actually use.

“I assume that it (m-advertising) will become a part of the overall communication field. Reaching the consumer does not follow only one route but you will have to break it down into pieces and figure out how and where to reach certain customers. To think of the target group who are most likely to be willing to get the m-advertisements on their mobile phones and try to reach them through that channel. Some think m-advertisements are garbage and distractive but some think it is a good service. But definitely it will be a part of the communication field.” Clothing store III 03

Some retailers put themselves into the consumers’ shoes and visualised what kind m-advertising would be appealing to them. It was suggested that m-advertising could be best used for informing tourists who are not familiar with the local shops (e.g. their services/products, opening hours, address). It was also stressed that m-advertising should be more consumer-led and they should be able to decide when, where and what kinds of m-advertisements to receive. In other words, the consumers and their wishes should be the ultimate starting point for m-advertising.

“If there was a kind of search function you could use when you walk in the city centre. You just write there (in your mobile phone) what you are looking for and then you will see different options for lunch at the defined price spread. You could see a list of restaurants or something like that. I mean you could be active in searching for information and not just receiving it.” Advertising agency VI 04

Some of the interviewees were more concerned with the firm’s perspective and envisaged the m-advertising service that would be most useful to them. These visions included for example the need for some third party who could offer an extensive database of customers willing to receive m-advertisements.
“If there were a kind of service provider who you could join. […] Like some national thing that you could join and be in actively contact with […] So that we would know that somebody is seriously recruiting receivers for this and you could send them m-advertisements and make them great offers. It should be an extremely extensive register, a nationwide register. Then it (m-advertising) would become inexpensive since the more you send m-advertisements and more receivers there would be, the more the contact prices would decrease. Of course sending m-advertisements will not be free of charge and therefore it is important to target it right. Always define it better and more accurately so that you will send the right offer to the right people at the right time.” Nightclub and restaurant 05

There were also concerns of m-advertising turning into distracting spamming. M-advertising was compared to e-mail advertising that has become very disturbing. Some even felt that m-advertising is only feasible in this phase of its development when it is new and the spamming has not spread into m-advertisements. However, generally retailers were aware that m-advertising is legal only with the permission of the receivers and therefore did not believe that spamming would be a problem.

“I think that m-advertising will be useful for our firm. On the other hand I am worried that it will be useful only at this stage when it has novelty value.” Clothing store II 03

There were also some business model suggestions that came up in the interviews of how m-advertising could be organised in the future. For example, it was suggested that the service provider could offer the consumers free phone calls or free internet access in return for receiving m-advertisements on their mobile phones. In other words, the consumers would commit themselves to accept a specific amount of m-advertising and would get some advantages in return.

“I believe that if there were, for example, free phone calls available to those consumers who then agree to receive m-advertisements from specific firms in return… Then this would definitely become an interesting medium for consumers. Then also the advertisers would be more interested in investing in m-advertising which in turn would improve the quality of the m-advertisements. That way it could become a commercially very attractive medium.” Advertising agency III 04
To sum up, it was obvious from the interviews that the retailers believed m-advertising will be a widely used advertising medium in the future. A lot of development needs to take place both on the technological front and in terms of attitude, but nevertheless, the retailers seemed to have faith in this new service.

“Definitely this will be, sooner or later, a thing that people use every day and every hour and so on.” Nightclub 03

**Potential sacrifices**

Potential sacrifices refer to those investments the retailers see an m-advertising service requiring from them in the future. Potential sacrifices are divided into monetary and non-monetary factors revealing the sources of sacrifices.

**Monetary factors**

According to the interview data the retailers were ready to pay for using an m-advertising service in the future. It was, however, emphasised that the price should be moderate in order to attract the retailers to use m-advertising as a marketing medium.

“To the certain price level we are willing to pay for it, it is not a problem. There is no such thing as a free service. At some point you will have to be ready to pay for it (m-advertising).” Dental clinic 05

It was also pointed out by the retailers that as and when the current deficiencies and problems of the m-advertising service are resolved, it will both improve their willingness to pay for the service and also raise the price level they would be happy to meet. It was also pointed out that there are certain preconditions that must be fulfilled before the retailers would be willing to pay anything for the service. These preconditions include for example technological development, general effectiveness of m-advertising or the amount of consumers registered for receiving m-advertisements improving on the relatively low number of users who tried the service during the field experiments.

“It (willingness to pay for m-advertising) depends on the price and what kind of research results we will get from this field experiment. It (m-advertising) is comparable to advertising in the print media or web or television or radio, it is a medium as well as those. But it has to be much more effective and better channel than it is now.” Mobile applications 04
Non-monetary factors also came up in the interviews. First, resources were seen as the important thing. Although resource as a concept involves monetary aspects, it is here understood in a wider sense including not only money but time and effort as essential parts of it, and so is discussed together with non-monetary factors.

It was emphasised by small entrepreneurs that when it comes to resources needed in m-advertising, there is a major difference between small firms and bigger companies, since big companies have many more resources to use on marketing. Therefore the investments are relative to the company size. For example, acquiring and managing an m-advertising service system is easier for a big company whose large marketing budget compared to a small firm allows it to assign specific marketing personnel to the task.

“The problem is, let’s say it this way, that big firms have resources to use it (m-advertising) but for us it is very expensive and huge thing to acquire a web-based m-advertising system and develop it so that it will be easy for us to use. Acquiring the system might be a bit difficult and hard group for the small firm as well as to keep up and manage it. For the big firm it is much easier and besides very practical. The procurement costs and managing the register are also very challenging things.” Nightclub and restaurant 05

The time, learning and effort required to use m-advertising were also non-monetary factors raised in the interviews that would have to be taken into account when considering m-advertising in the future. Essentially, the retailers emphasised that in the future m-advertisements need to be fast and easy to implement and deliver to the consumers and that making them should not take too much time.

“You could segment the receivers properly and reach them and utilise the ability to send the message in real time. But it of course requires a lot from the firm or from the marketing personnel to do that real time marketing. How many firms really have those kinds of resources?” Science Centre 05

The content of potential sacrifices is thus in line with the other sacrifice dimensions and includes both the monetary and non-monetary factors. However, in the case of potential sacrifices the question still remains, what degree of sacrifice and in what form is needed to develop an m-advertising service to the point of commercial viability, and beyond that, to become an optimal m-
advertising service? Obviously monetary investments are important but the non-monetary factors especially are interesting since they provide a source of innovation and play a critical role in developing the service. However, what is evident is that sacrifices are needed from all the parties involved in the service co-production before an m-advertising service could become feasible in the future. Without co-operation and common investments from all the central parties there cannot be an optimal m-advertising service.

Relation to net value of an alternative

It was pointed out by the retailers that compared to any other advertising medium m-advertising provides an option to carefully define when and where the customer receives the m-advertisement, and makes it possible to plan advertising campaigns more effectively.

“It could be very accurately targeted advertising, for example special offers of hotel rooms. They could be sent at nine p.m. when we notice that there are still rooms available. Or nightclub m-advertisements at 11 p.m. when the queue is short […] It would make it very unique compared to other means.”

Advertising agency III 04

It was also suggested that an optimal m-advertising service would enable the recipients of m-advertising to be more active parties to the advertising. Instead of the traditional way to advertise involving firms being active and the customer only passively receiving the advertisements, m-advertising could start to reverse those roles. This concept would include not only collecting the personal information about the customer and targeting the m-advertisements accordingly, but also the customers subscribing to m-advertisements from the firms they are interested in.

“It would be great if the people could choose themselves from who they want to receive m-advertisements. That way it would be easier for us to send our m-advertisements to those people who are interested in us and health-related things.”

Physiotherapist 05

There were also different ideas of how m-advertising campaigns could be built utilising the special features of the new advertising channel. Retailers felt that m-advertising provides interesting opportunities compared to other media like print
media advertising, and that it could be used to implement wholly different types of campaigns than they were using.

“It would be great to have an m-advertisement which could be followed by other, complementary m-advertisements. Since we always aim to sell clothes that fit together and this could be used to support that. First there could be an m-advertisement for a suit and in the next m-advertisement shoes to match it. To create a harmonious image by using different m-advertisements that are connected to each other. Since images are what we sell, totally. Something like that to be utilised, a kind of series of m-advertisements… “to be continued in the next m-advertisement”—type of thing.” Clothing store III 05

In relation to the price, retailers compared m-advertising to other advertising media and indicated that the price deemed appropriate would be partly dependent on what m-advertising will be able to deliver compared to other channels. In other words, the willingness to pay for m-advertising depends on the result of comparison to other media in terms of e.g. contact rates and effectiveness.

“When it some day provides something that the other media does not. Better price-quality relation or targeting or something else, and when it has proven its effectiveness. Then, according to all marketing laws anyone will be willing to pay for this service that provides benefits that other media do not. But I think it is not yet in that point.” Shoe store 04

5.4 Revised framework

Based on the above discussion a framework of customer perceived value in emerging technology-intensive business service can be revised. From the section on the context-related background, factors influencing the value perceptions of the network producing the service was replaced by co-operation with other actors. The latter emphasises the importance of interaction and co-operation between different actors around the new technology-intensive business service. The framework is also broadened by the addition of different sub-elements of expected, realized and potential value elements. In figure 13 these revisions have been made to the theoretical framework suggested in chapter 3.

Unfortunately, the revised framework still seems to leave an imprecise and only partially-complete picture of the customer perceived value phenomenon in this specific context. Therefore, questions arise from the above discussion: what
influences the temporal value perceptions? Are the different temporal dimensions somehow connected to each other? At this point the role of learning in customer perceived value became interesting. Could it be that learning plays some kind of role in linking the past, present and future perspectives of customer perceived value? These questions led to an analysis of the learning of the retailers reported below in chapter 6.

![Figure 13. Revised framework of customer perceived value of emerging technology-intensive business service.](image)

<table>
<thead>
<tr>
<th>Context-related factors</th>
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<td>• Technological character of the service</td>
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<td>• Novelty and developmental phase of the service</td>
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<td>• Co-operation with other actors</td>
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**CUSTOMER PERCEIVED NET VALUE OF EMERGING TECHNOLOGY-INTENSIVE BUSINESS SERVICE**

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<tr>
<th>Expected value dimension</th>
<th>Realized value dimension</th>
<th>Potential value dimension</th>
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<td>+ Experience</td>
<td>+ Experience</td>
<td>+ Useful service features</td>
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<td>+ Commercial effectiveness</td>
<td>+ Commercial effectiveness</td>
<td>+ Reaching the regular customers</td>
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<td>+ Pioneering</td>
<td>+ Useful service features</td>
<td>+ Visions for future usage</td>
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<td>- Monetary</td>
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<td>- Non-monetary</td>
<td>+ Positive company image</td>
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<th>Expected sacrifices</th>
<th>Realized sacrifices</th>
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**Fig. 13. Revised framework of customer perceived value of emerging technology-intensive business service.**
6 Learning in relation to the temporal dimensions of customer perceived value

The question of what connects and influences the temporal value perceptions leads to analysing the learning of the retailers. In this chapter previous research on organisational learning and learning in the context of technological services is reviewed to create understanding of the learning phenomenon that can be used as a basis for exploring its role in customer perceived value. After that, learning is explored in relation to different temporal value dimensions, i.e. expected, realized, and potential value. The chapter concludes with the final framework of customer perceived value of the technology-intensive business service involving temporality and learning as essential parts of the customer perceived value concept.

6.1 Learning in customer perceived value

6.1.1 Defining the organisational learning concept

Learning is a broad and widely studied phenomenon that involves several different definitions, constructs, epistemologies and approaches which make it very complex and confusing to understand and study. The phenomenon of organisational learning has been explored in numerous diverse research domains. These include new product, and more recently, new service development, information systems, organisational change, human resource management, market orientation and market channels (see e.g. Bell et al. 2002). Due to the focus of this study on customer perceived value in the context of new technology intensive business service, attention is focused on the field of learning that best corresponds to the context in the study’s purview – information systems, and more broadly, the learning documented in technological services literature. First, however, the roots of the phenomenon are briefly examined in order to specify how learning is defined and understood in the present study.

According to Lewin (1952: 65) learning in the broad sense means doing something better than before. Similarly, Bell et al. (2002), Nevis et al. (1995) and Senge (1990) refer to learning as capacity, mechanisms or processes that improve organisational understanding or performance based on experience. Learning has been linked to organisational outcomes such as innovation, entrepreneurship and
creation of new industries and it has been seen as a primary motive for establishment of research and development consortia (Van Deusen & Mueller 1999). In addition, learning requires effort (e.g. Trkman & Baloh 2003) from the organisation, i.e. it cannot be achieved without making some sacrifices. Learning is also closely connected to time as it always draws on previous experiences and influences future action. Although temporality is always implicitly present in the learning concept, the existing research has not focused on the issue. A recent exception is Styhre (2006) who studied virtuality and time in workplace learning. He stresses that temporality is a central aspect of learning as the individual acquires new skills and knowledge through continuous interaction, recollection and anticipation regarding past, present and future. Temporality can be seen as a critical component of learning because it is its location within time that makes the object of learning meaningful. In other words, without fully understanding how a certain practice is dependent on previous experiences and potential future events, learning becomes very difficult in relation to that practice.

Learning has been studied at several different levels: individual (e.g. Bostrom et al. 1990), intraorganisational (e.g. Senge 1990, Slater & Narver 1995, Argyris & Schön 1996), dyadic (e.g. Kodama 2001), interorganisational (e.g. Lane & Lubatkin 1998) and network levels (e.g. Powell et al. 1996). According to the seminal article of Levitt and March (1988), organisations learn in two ways: through their own (past) experiences and through the experiences of others. In the current turbulent business environment the sources of innovation and the creation of future-oriented value based on radical technological innovation are more often found in collaboration between several players with specific capabilities, e.g. firms, universities, research laboratories, suppliers and customers (Powell et al. 1996, Möller 2006). Learning is thus a multilevel phenomenon encompassing dynamics of both intraorganisational and interorganisational learning (Holmqvist 2003, 2004). In this study the focus is on a firm-level approach to learning and therefore the concept of organisational learning is used.

Organisational learning refers to the capacity or processes within an organisation to maintain or improve performance based on experience (Nevis et al. 1994). In other words, it enables the firm to adapt to external change and to improve its current processes (Gupta & Thomas 2001). One often-cited definition of organisational learning that also takes into account temporality is “the development of insights, knowledge and associations among past actions, the effectiveness of those actions and future actions” (Fiol & Lyles 1985: 811).
Based on the above, learning is related to changes in thoughts, attitudes and/or processes and is based on experience. Learning also requires effort and is closely related to the past, present and future dimensions of time. In addition, learning is firmly linked to the concept of customer perceived value as defined in this study. Customer perceived value by definition is a subjective perception of the trade-off between multiple benefits and sacrifices, relative to a net value of an alternative. Learning can be seen as a form of sacrifice since it requires time and effort to be realized. Specifically in the context of emerging technology-intensive business service, learning can be seen as a sacrifice that is needed from the customer to be able to use the new service and utilise its special features. Thus, it is important to explore its role in more detail in the customer perceived value and particularly in the context of an emerging technological service.

6.1.2 Learning in the context of new technology-intensive service

Two types of organisational learning can be identified: adaptive and generative (Senge 1990, Slater & Narver 1995). Adaptive learning is the most basic form of learning and occurs within a set of recognized and unrecognized constraints that reflect the organisation’s assumptions about its environment and itself. As a result, this type of learning is usually focused on opportunities that are within the traditional scope of the organisation’s activities. Generative learning, on the contrary, occurs when an organisation is willing to question its long-held traditions or assumptions and focus on interrelationships and dynamic processes rather than on linear cause-effect chains. Closely related to this, exploitation and exploration can be categorised as two processes of organisational learning (March 1991). Exploitation which comes close to adaptive learning refers to actions whose goal is to improve organisational efficiencies and it involves selection, implementation, control, refining and extending existing skills and capabilities. Exploration resembling generative learning refers to the pursuit of new opportunities – activities with a goal of learning about the environment and discovering novel ways of creating value or solving problems. It is about improving and renewing the organisation’s expertise and competences (see also Revilla et al. 2009, Subramani 2004). In short, exploration means seeking new ideas and exploitation means incorporating them into business (Gupta & Thomas 2001). Exploration and exploitation are also associated with different time horizons. Exploitation is linked with current viability, i.e. making current decisions upon past experiences and routines, while exploration is pursued to
ensure future viability (see also Van Dusen & Mueller 1999). These two must be balanced, because too much reliance on exploitation may not lead to generative learning, whereas too much reliance on exploration is expensive and may lead to uncertain results (March 1991). A recent study of Bröring and Herzog (2008) suggests that incremental innovations (i.e. targeting the existing needs with minor technological changes) are exploitative and build on existing knowledge, whereas radical innovations are explorative and involve fundamental changes in technology. They propose that a firm needs to effectively balance these two in order to ensure their short-term and long-term profitability. Möller and Rajala (2007) suggest that in the emerging business environments where pervasive uncertainty is a typical condition, exploration and sense-making of the emerging opportunities is critically important.

Slater and Narver (1995) also point out the importance of active unlearning in situations when the organisational memory constrains generative learning and encourages ineffective learning. This kind of situation may occur when new procedures are more effective than the old ones but the organisation is unwilling to reject the “safe and familiar” ways of thinking or operating. Also Lewin (1952) and Bhatt (2000) acknowledge the significance of unlearning as a critical aspect in learning new procedures.

When discussing learning in the context of technological innovations the concept of absorptive capacity is commonly used to describe the ability of a firm to recognize the value of new, external information, assimilate it, and apply it commercially (Cohen & Levinthal 1990). Absorptive capacity can also be seen as the foundation for technical learning within an organisation (e.g. Lane & Lubatkin 1998, Lin et al. 2002). In brief, it is suggested that ease of learning and technology adoption is affected by the degree to which an innovation is related to the pre-existing knowledge base of the firm. In other words, the firm’s absorptive capacity is built on prior experience. Learning is greatest when the object of learning is related to what is already known and it becomes more difficult in novel or unknown domains. As a result, firms with high levels of absorptive capacity will tend to be proactive and willing to exploit emerging technological opportunities (Cohen & Levinthal 1990). In the context of the present study, the existing knowledge base of the firm and thus its capacity to learn (i.e. its absorptive capacity) represent a potential explanation for customers’ ability or inability to learn to use a new service, which in turn affects the ability to perceive value from the service. In other words, to be able to learn to use the new
technology-intensive service requires the appropriate absorptive capacity from the customer firm.

What also strongly influences learning in the context of new technology-intensive service is the object of learning. Here it is reflected within the context of the study, i.e. technology-intensive business service. Firstly, the object of learning can be the new technology itself. For example, Wastell (1999) suggests that in the field of information system development (ISD), learning is a problematic process due to its inherently stressful nature that stems from the high degree of technical complexity and high level of risk and uncertainty. Therefore, the users of IS need to engage in an intensive learning experience to reflect on current practices and to obtain an understanding of the potential of IT. In relation to this, it is critical that the customer of a technology-intensive service provider learns to use the technological features of the new service in order to perceive value. Secondly, in order to learn to use new technological systems or innovations the customer needs to understand their essence and specific characteristics. Thus, specifically in the m-advertising service setting the special features of the new service play a critical role in learning. In addition to learning to use the technological interface required to send the m-advertisements the retailer has to learn to utilise the various opportunities this new form of advertising offers. Thus, to successfully utilise the service requires the customer to adopt new ways of thinking and to learn to exploit the service efficiently (Komulainen et al. 2007). Thirdly, unlearning previous irrelevant experiences is also important in this particular context, since those experiences can prevent the customer from learning to utilise the new service (e.g. Bhatt 2000, Lewin 1952). Previous experiences based on outdated understanding and concerning other services need to be replaced with the relevant up-to-date knowledge of the new service at hand, because only in that way is it possible to learn the new ways of thinking and be able to fully utilise the new service.

Based on the literature review, learning cannot take place without investments (e.g. of time and/or of effort) and thus, learning can be seen as a sacrifice. It is a sacrifice that is needed to be able to use and utilise the new technological service and its specific features. Thus, its role as a sacrifice is not as simple and straightforward as the “normal” sacrifice merely decreasing the customer perceived value and, therefore, it deserves to be further empirically explored. In addition, learning can be exploitative or explorative and the target of learning can vary from technology to special features of the new service to unlearning previous (irrelevant) experiences. With this understanding, the study continues to search
for a conceptualisation of customer perceived value which takes in both the temporality and role of learning. This is done by carefully re-analysing the empirical data collected from field experiments testing a new m-advertising service.

### 6.2 Learning in relation to temporality of value in the case of new m-advertising service

Based on the literature review and the pre-understanding of learning created, the concepts of unlearning, exploitative learning, explorative learning and absorptive capacity were identified as starting points for re-analysing the data. In addition to those pre-defined concepts, all other learning-oriented aspects were also carefully extracted from the interviews.

When re-analysing the interviews secondary empirical data (i.e. the m-advertisements made during the three field experiments) were also reviewed to provide a more complete picture of the learning in relation to the value perceptions of the retailers. The interviews were individually cross-matched to the m-advertising record of each firm. The number of m-advertisements each firm had sent during the specific field experiment and also who had implemented the m-advertisements (the firm itself, its advertising agency or the service provider i.e. Rotuaari project) were the factors revisited. This was important as the interview questions asked were to some extent different for those who had implemented the m-advertisements by themselves (in that there were specific questions about the implementation process) and for those who had outsourced that task. In addition, this comparison revealed if the firm did not send any m-advertisements in the field experiments, an important influencer of their learning processes and value perceptions.

The findings were then classified into groups called learning categories, taking into account all the aspects that emerged during the analysis. Finally, the categories describing value were cross-checked with categories describing learning to create a temporal picture of customer perceived value in relation to types and objects of learning. As a result of the cross-checking and analysis it was possible to examine learning within three temporally-loaded categories: 1) learning in relation to the past/expected value dimension, 2) learning in relation to the present/realized value dimension and 3) learning in relation to the future/potential value dimension.
6.2.1 Learning in relation to the past/expected value dimension

As discussed when exploring the expected value dimension above, the expected value is related to past events on the one hand, so the m-advertiser’s previous experiences, and on the other hand it is also directed towards events in the near future – thus emphasising the future orientation of the concept. In the case of a new service there cannot be previous experiences of the service, so experiences from similar services in the past are used. In the case studied, the similar service on which retailers based their expectations was newspaper advertising, a type of advertising commonly used by the local retailers. Alternatively, retailers could have used their experiences of television advertising as a starting point since they tended to think it resembled m-advertising in being an electronic communication device. This comparison to other advertising media in turn distorts the retailers’ expectations of the m-advertising since the previous experiences lead the retailer to expect, among other things, mass marketing value, i.e. reaching as many consumers as possible. This is supported by Folkes (1994) who suggests that memories of past service experiences can bias expectancy. Therefore, in this case unlearning (see e.g. Bhatt 2000) previous experiences became an important issue. The following quotations illustrate that even though some retailers noted that m-advertising is different from more traditional advertising media, they still formed their expectations from information about mass communication and acted upon that.

“If we place a television advert during C.S.I, where 25,000 locals can see it, and compare it to the number (that the m-advertising reached during the field trial), well, there is a big difference.” Shoe store 04

Hence, in the case of expected value the most relevant type of learning is actually unlearning the old expectations based on traditional advertising and replacing them with a new understanding and ideas. In the case of expected value the object of unlearning is the former expectations and attitudes based on an irrelevant understanding of a different kind of service. This is in line with the studies of Bhatt (2000) and Slater and Narver (1995) suggesting that unlearning is a critical aspect in learning new procedures. In this study, m-advertising represents a new service that enables more innovative and personal advertising. If the firm is able to unlearn the former experiences based on traditional advertising, it is possible to perceive more realistic expected value from the novel service.
Although unlearning can be identified as the most prominent type of learning in the expected value dimension, a secondary type of learning was also identified within that category. Some retailers were very enthusiastic and prepared to learn new things and new procedures to continuously develop their business. They pointed out that all developments taking place within their business field were of interest. Hence, their thinking and actions were directed towards the future and to improving their chances in forthcoming business situations. Thus, the explorative type of learning (March 1991) seemed to be intrinsic for some of the retailers involved in testing m-advertising. In the case of expected value, explorative learning refers mostly to the open-minded and innovation-oriented attitude and motivation of the retailers, since they did not have actual learning experience at the point of the experiment.

“We have quite a few different businesses here in the city centre and our target group is highly diversified. Therefore we were very keen to be getting involved and learning from this new thing (m-advertising).” Co-operative 04

“Of course we were interested in what happens in Oulu city centre and were willing to be involved in developing new things. In a nutshell you could say: we want to be involved and we want to develop.” Restaurant I 03

In the case of the m-advertising service, the aim of the explorative learning was to develop the knowledge base and capabilities of the firm to better respond to future developments. The object of learning could be seen as the new service itself. By participating in the testing, the retailers expected to get to know what kind of service m-advertising actually is and how they could use it in their marketing in the future.

“Of course it is important to know beforehand what kind of medium this is and how it could be utilised when it, very likely, will be in common use in the coming years.” Advertising agency I 04

Explorative learning and motivation to develop their own businesses should also be viewed in relation to the retailers’ willingness to invest in learning. In other words, the retailers felt that being involved in the recent development trends also requires sacrifices from them that will pay off in the future, in the form of their own development. Without making any sacrifices, for instance of time and effort, it would be impossible to learn anything new and hence they might be less competitive in the future. Some retailers emphasised that they were well aware
that making certain sacrifices was essential in order to gain something valuable from participating in the field experiments.

“For me it was very clear from the beginning – and all the entrepreneurs have to understand – how exceptional this project is. In a way, we cannot assume that now we will get everything ready for us and we can demand this and that. We have to understand that this is a pioneering work for all parties involved and also the entrepreneurs have to take it that way. And we all have to invest and somehow make sacrifices at this point so that it will bear fruit in the future.” Gift and decoration shop I 04

Evaluation of the expected value is thus related to both past experiences (i.e. in the form of unlearning) and also future events (i.e. in the form of explorative learning). Specifically in the context of new technology-intensive service, unlearning previous experiences and irrelevant expectations and beliefs (see Bhatt 2000, Slater & Narver 1995) becomes important in perceiving expected value. If the retailers use their previous experience of traditional media as a starting point for their expectations of m-advertising it may result in problems in seeing the advantages and utilising the new opportunities m-advertising offers. Explorative learning also emerged from the interviews as a significant type of learning. Some of the retailers were very open-minded and future-oriented and stressed their interest in trying new things and developing their business in novel ways. They felt it was important to learn the features of the new m-advertising service and how it could be utilised in their advertising in the future. Thus, the aim of the learning was to keep up with future developments.

6.2.2 Learning in relation to the present/realized value dimension

Next, learning is explored in the present time dimension. When perceiving realized value the m-advertisers evaluated what had happened in the past, i.e. the service experience, and compared the expected value to the experiences they had gathered. However, realized value also takes in a future dimension by providing a basis for evaluating a potential value created in the future.

Effective organisational learning is necessary for any firm to remain competitive in the long run (see e.g. Gupta & Thomas 2001). Moreover, Wastell (1999) suggests that an effective learning process is particularly critical to the success of information system (IS) development, and inadequate and superficial learning lies behind many IS failures – a finding that should have some bearing
on the current study. When exploring the retailers’ use of the new m-advertising service, the success or failure of the retailer’s learning process may significantly influence the perceived realized value from the service. The empirical data indicates that learning to utilise the service increased the customer perceived realized value. This is illustrated in the following quotation:

“It was great that we had clear instructions. It was up to us to make time to familiarize ourselves with it (m-advertising service) and to think how we are going to use it. […] But I can say that we got multiple benefits in return compared to what we invested in it.” Gift and decoration shop I 04

On the other hand, inadequate learning may, in the worst case, prevent the customer from perceiving any value in the new service. The inadequate learning may be due to the different problems in adopting a new technology-intensive service, e.g. poor training on the part of the service provider, problems with technical aspects of the service or other uncertainties related to the novelty of the service (see also Wastell 1999).

When exploring the effectiveness of learning the absorptive capacity of the customer firm (e.g. Cohen & Levinthal 1990) could be a useful way to approach the issue. If the existing knowledge base and capacity to learn (i.e. absorptive capacity) of the firm in relation to a new m-advertising service is incomplete it may at some level also explain possible deficiencies in learning. As a result of not adequately learning to use the service, the retailers were not able to utilise the special features of the service and therefore could not derive value from it. It was also clear for some of the retailers that the lack of absorptive capacity could hinder the learning derived from using and utilising the service as the following quotation illustrates:

“I think that even the m-advertisers themselves did not internalize and understand what it (m-advertising) is all about… The knowledge and skills clearly were not at a sufficient level.” Co-operative 04

Based on the analysis of the interviews and actual m-advertisements made, three versatile groups of retailers could be identified (see table 2). The data concerning the m-advertisements was examined to find out the number of m-advertisements sent by each retailer (and whether there were any m-advertisements from the specific retailer) and who had implemented them (i.e. the retailer itself, the research project or an advertising agency). This categorisation is, however, a tentative and suggestive one and the groups are not inclusive in the sense that not
all the retailers can be classified into a certain category. Instead, the aim is to
describe how the absorptive capacity of the firms may have influenced the
effectiveness of their learning in relation to the m-advertising service. The three
basic groups and their typical characteristics are introduced next.

The first group of retailers were those who signed on for the field
experiments but were not very keen on investing in learning to use the new
service. Some had difficulties in seeing the value of the new m-service for their
business and therefore found it difficult to commit any resources to it. However,
in most cases the main problem was their inexperience with m-advertising and
technological services in general. In addition, they did not have sufficient human
resources to deploy to learn all the new things, since taking care of the daily
business took all of their time. Time and other resource restrictions made them
very impatient m-advertisers. Therefore, anything that hindered their use of m-
advertising or any technical problems made them frustrated and ready to give up
using the service.

“You will have to remember that we (retailers) are not interested in the
technical stuff at all. We do not have time to pay attention to those things. We
have to know the tax legislation and labour legislation and all that, and if we
should learn those mobile applications and other stuff… Well, I say no.”
Nightclub 03

“At the moment we do not have internet here in the office. So basically I
cannot make these m-advertisements but it has to be done by phone. So, I
advised Eija, who works at the main office, by phone how to do it. But what
was really difficult was that we did not succeed in putting the picture there
as it was in the instructions […] So we could not do it. And somehow our
motivation ceased.” Clothing store 1 03

For these retailers the absorptive capacity was low, as was their motivation to
invest in learning. Since these retailers were not ready or able to make sacrifices
did not actually place any m-advertisements in the field experiments. This in
turn influenced their perceptions of realized value from the m-advertising service
which inevitably remained very low. In relation to this group of retailers
exploitative learning was the more prevalent than explorative learning, since they
were focused on utilising the existing knowledge instead of actively pursuing new
opportunities.
Secondly, there were retailers who were basically very interested in trying the new service and also had the motivation to invest in learning to use it. However, as with the first group of retailers they also had difficulties in implementing the m-advertisements, either because of poor technical resources or inadequate skills, and therefore all their energy went into overcoming those problems. Some retailers also chose the easiest way to use m-advertising and made simple text messages that did not require much technical skill or planning. As a result, the retailers made some investments in learning, but due to their relatively low absorptive capacity these investments were not enough to utilise the full potential of the new m-advertising service. In other words, they learned to use the service at some level and ran a few m-advertisements during the field experiments but did not learn to fully utilise the special features or new opportunities offered by the service. So, they also did not perceive the best possible value.

"Uncertainty in the beginning was a bit irritating, it all was so confusing. Because we do not have time or interest to examine it in detail and read all the stuff. Those technical things and others. It was such a new thing for us. […] So we put just a few lines there. We did not have any pictures or anything. We thought that it is suitable for us that it is simplified. Just a few words and contact information. Because I do not even know what you could put in it (m-advertisement)." Furniture shop 04

“Well, we were not very active. And our special offers were not very successful. But it is always difficult in the beginning. […] What was really good in this particular test was that it was enough to make a text message m-advertisement. We only had text messages. You could have put there also voice and pictures and everything else but it was impossible for us. We did not have that level of resources.” Nightclub and restaurant 05

Finally, a third group of retailers were very motivated and enthusiastic in trying the new m-advertising service. They also seemed to favour consciously explorative type of learning. Those retailers also had good technological skills and a prior understanding of new technologies or innovative services. They made several m-advertisements during the field experiments and reported how they had utilised the different novel features of the m-advertising service (e.g. targeting, personalisation or different technical possibilities such as sound or moving pictures). It seemed that these retailers had succeeded in learning to use the m-
advertising service and had also utilised (at some level) its specific features in their m-advertisements.

“I think everything depends on your ability to adopt new things. That is the starting point. We are ready to try new things and not to always choose the well-known, easy, traditional solution. We kind of like to jump from the comfort zone. […] And we tried to do this better than the ‘average advertiser’ and really think over what we did. I mean we used moving pictures and these kinds of advertising elements. We were not doing the same things we do in print media.” Co-operative 04

“I knew something about this (m-advertising) before this test. On the television there was a documentary saying that they were planning this kind of thing in the USA. So I have been aware that it is possible to advertise like this […] For me it was easy to use and it worked. And we got new customers.” Health store 05

Thus, retailers with high absorptive capacity, an explorative learning orientation and willingness to invest in learning were more likely to perceive higher value from the service than the other groups of retailers. Of course, not all were completely satisfied but as a whole, it was typical that these retailers perceived a higher value for the service and were more optimistic about future use.

It should be noted, however, that some of the retailers outsourced the implementation of the m-advertisements to the service provider or the advertising agency. Therefore, their absorptive capacity only indirectly influenced the effectiveness of the learning. In other words, those retailers who did not implement the m-advertisements themselves did not have to learn to use the technical interface or other technical details of making the m-advertisements. However, they still had to participate in planning, and in some cases also designing the m-advertisements, by giving instructions for the service provider or advertising agency on how they wanted their campaign to be organised and implemented. This also required learning on the part of the retailers in understanding the essence of m-advertising.

Table 2. The relation between absorptive capacity, sacrifices and perceived value.

<table>
<thead>
<tr>
<th>Retailer type</th>
<th>Absorptive capacity</th>
<th>Sacrifices</th>
<th>Perceived value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Group 2</td>
<td>Relatively low</td>
<td>Moderate</td>
<td>Relatively low</td>
</tr>
<tr>
<td>Group 3</td>
<td>High</td>
<td>High</td>
<td>High</td>
</tr>
</tbody>
</table>
In summary, the empirical data suggests that there is a certain connection between the absorptive capacity of the firm, its willingness to invest in learning and its perceptions of value. The retailer’s absorptive capacity influenced the effectiveness of its learning at least at some level. If the absorptive capacity was low and the motivation to invest in learning was also rather low, then the retailer’s learning was not effective. This was in relation to the exploitative type of learning. As a result, the retailer did not learn to use the m-advertising service (i.e. to implement it technically) and hence did not perceive much value from it. On the other hand, if the firm’s absorptive capacity was rather low but it was motivated to invest in learning, the firm was more likely to learn to use the service. However, due to a relatively low absorptive capacity, the firm did not learn to fully utilise the specific features of the new service. This in turn meant that the opportunities provided by the new service also eluded them and therefore the learning was not as effective as it could have been. Thus, also the perceived realized value was not at the highest level. Finally, some retailers clearly had a high level of absorptive capacity and strong motivation to invest in learning which enabled them not only to learn to use the service at the basic level but also to utilise its specific features efficiently. Due to the high absorptive capacity and effective learning, it was possible for the firm to perceive a high realized value from the service. This seemed to be in connection to the explorative type of learning. To conclude, learning as a sacrifice is required from the customer to perceive realized value. Depending on the level of absorptive capacity of the firm, whether there is explorative or exploitative learning and the retailer’s investments in learning, the perceived realized value can vary significantly.

6.2.3 Learning in relation to the future/potential value dimension

Potential value is the best possible net value that the firm, at the present time, can imagine will be realized, but that is not possible to achieve at the moment. The perception of potential value involves learning that has to take place between the present time and an uncertain future time before the potential value can become expected or realized value. To be able to picture the possible utilisation scenarios for the new service and to have a vision of the potential value related to it requires that the customer has gained experiences of the service and learned to utilise it. Without understanding the essence of the current service it is not possible to visualise an improved, optimal version of the service.
Visualising potential value involves an intrinsically explorative type of learning that is targeted towards the future and involves searching for new opportunities and knowledge (March 1991, McGrath 2001). Many retailers felt that m-advertising will be a widely used form of advertising in the future. They emphasised their willingness to use it in their own marketing and expressed their enthusiasm for it. The explorative type of learning was clearly revealed by the interviews, since the retailers were keen to learn to utilise m-advertising and ready to invest in their learning in order to find new ways to advertise and to develop their operations, thus ensuring the future viability of their businesses.

“When it will be developed a bit further we are prepared to invest in it more and more. I am so sceptical of the old print media. Something new needs to overcome them. […] This test has given us faith that we cannot stay out of this (m-advertising). And we are also ready to be involved in developing things in the future.” Dental clinic 05

In relation to explorative learning the retailers pointed out the different characteristics and special features they visualised as part of an optimized m-advertising service. These features were closely related to the development of technology and things they thought would be brought about by future development.

“Things develop so fast all the time. So, you will have to keep your eyes open because in a year our brand-new gif-animation will not necessarily be so hip anymore. Technologies develop so fast and we will have to do a kind of groundwork all the time to stay in touch with the upcoming trends […] I think the moving picture and sound will be the thing… I mean it (m-advertisement) will really be like a movie. And there will be better possibilities for targeting that enables sending more exciting and funnier m-advertisements.” Advertising agency IV

In the case of potential value of the optimal service created in the future, learning does not concern only the single firm using m-advertising but is closely related also to the other important actors in the m-advertising network: the consumers as receivers of m-advertisements, advertising agencies, infrastructure providers, software developers, telecoms operators and the convergence of technology in general. The actors need to learn how to use the new service and the technology needs to advance so that it will be available to all actors and different
technologies can work together. The following quotation stresses the need for learning from all the actors involved in mobile advertising.

“There are problems in the implementation of the new media, both from the content providers’ and consumers’ perspectives. In the future, it [the mobile phone] will be very important and I believe that for us, it will definitely be the media to reach the consumers. However, we still have a lot of learning to do and the consumers’ habits also have to change somehow and that is a long-term task. It does not happen overnight, we still have quite a lot (to learn) in designing the advertisements and implementing them, as well as targeting and utilising the media, so ….” Mobile applications 04

Retailers saw the current situation as unsatisfactory and suggested that all parties needed to actively develop the new medium from their own sides, to make it more functional and effective in the future. Some retailers stressed that there was a need for increased co-operation between themselves that could not only boost the development of the m-advertising but be useful to them in the form of new contacts and networking. They felt that doing things together and tightening the local collaboration between different actors would benefit all the parties involved.

“When thinking about the future there are lots of positive things in this (m-advertising). For instance, increased co-operation between different parties and learning.” Gift and decoration shop I 05

In summary, to be realized in the future, potential value requires learning from both the customer and the other actors of the network which produce the new technology-intensive business service. All the network actors’ expertise, skills and knowledge are needed in order to create an optimal service, since only an optimal service can provide potential value. Therefore, it can be argued that potential value cannot be accomplished by minimizing all sacrifices, but the situation is in fact the reverse. Increased sacrifices from all actors are required to achieve the potential value.

6.3 Concluding remarks on the types and objects of learning in relation to different temporal value dimensions

Based on the above discussion different types of learning can be identified in relation to the temporal value dimensions of expected, realized, and potential
value. In addition, different objects of learning were found according to each learning type.

In the case of expected value, unlearning old attitudes is a prerequisite and thus the most relevant type of learning. Unlearning involves both abandoning irrelevant expectations and replacing them with new understanding based on updated knowledge. A secondary type of learning can also be identified, namely explorative learning. In this case it refers to the innovative attitude and high motivation of the retailers to explore new opportunities to develop their business and also themselves as modern marketers. The object of explorative learning is the new kind of service.

Secondly, in the realized value, the absorptive capacity of the firm becomes vital. The learning of the customers can be exploitative or explorative based on their absorptive capacity. If their existing knowledge is not sufficient, it may hinder the customers’ attempts to learn to use and utilise the new technology-intensive service. Therefore, absorptive capacity influences the effectiveness of learning which in turn influences the realized value. The object of learning in this case is related, first, to the technology and technical aspects of using the service that the retailer needs to handle to be able to use the service properly and second, to the special features of the new m-advertising service needed to utilise the service effectively.

Finally, in the case of potential value, explorative learning that fosters discovering new knowledge and ensuring future viability is emphasised. This not only concerns the retailer as the user of the new service, but also other actors from the network producing the new technology-intensive business service. The object of learning is related to visualising the aspects of the optimal service that together would provide the best possible value the customer could imagine in the future.

Although explorative learning is here strongly emphasised, it is important to note that exploitative learning also plays an essential role in customer perceived value. It is linked with current viability and making decisions based upon past experiences and is needed in incorporating and applying the existing knowledge and new ideas into existing business operations. Thus, rather than focusing only on exploration, a balance between exploration and exploitation is preferable.

In figure 14, the types and objects of learning identified are brought together in relation to the different temporal value dimensions. In this figure a simplified version of the theoretical framework is used in order to emphasise the learning-related aspects discussed in this chapter.
**Fig. 14. Types and objects of learning in relation to temporal value dimensions.**

<table>
<thead>
<tr>
<th>Expected value dimension</th>
<th>Realized value dimension</th>
<th>Potential value dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LEARNING</strong></td>
<td><strong>LEARNING</strong></td>
<td><strong>LEARNING</strong></td>
</tr>
<tr>
<td>1) Preliminary type of learning: Unlearning</td>
<td>1) Type of learning: Explorative/exploitative learning based on absorptive capacity</td>
<td>1) Type of learning: Explorative learning</td>
</tr>
<tr>
<td>Object of learning: Previous experiences</td>
<td>Object of learning: Technology and special features of the new service</td>
<td>- firm level</td>
</tr>
<tr>
<td>2) Secondary type of learning: Explorative learning</td>
<td></td>
<td>- network level</td>
</tr>
<tr>
<td>Object of learning: new kind of service</td>
<td></td>
<td>Object of learning: Different aspects of the optimal service</td>
</tr>
</tbody>
</table>
7 Findings and discussion

This chapter presents the main findings and outcomes of this study. First, the temporality of customer perceived value is presented with the aid of three time-sensitive dimensions — expected value, realized value and potential value — and the sources of benefit and sacrifice (i.e. the sub-elements) that form the essence of the customer perceived value concept. Then the temporal value elements are further elaborated on by comparing and evaluating different temporal sub-elements, exploring the varying value perceptions of the different customers and lastly discussing the complex interaction between benefit and sacrifice sub-elements. Thereafter the role of learning in customer perceived value is examined by emphasising learning as a sacrifice increasing customer perceived value and connecting the different temporal value dimensions. Finally, the empirically grounded framework on customer perceived value of emerging technology-intensive business service is presented and discussed.

7.1 Temporality of customer perceived value

7.1.1 Expected value

Expected value refers to the trade-off between the benefits and sacrifices the customer expects to incur before using the service. It is also relative to a net value of an alternative. The sources of benefits are identified as experience, commercial effectiveness, pioneering and useful service features. The sources of sacrifice are classified into two categories: monetary and non-monetary factors. The essence of these benefit and sacrifice sub-elements is briefly summarised below.

First, experience refers to getting to know the new service, testing it, learning to use it and seeing how it works. Retailers expected practical, first-hand knowledge of the new service, so they could be prepared for the future by getting experience of the service before it is in common, commercial use. Indeed, simply getting experience of a new kind of service may have been the only expectation from participating in the field experiments.

Secondly, commercial effectiveness refers to financial gains and improved sales the retailers expected from using the service. For some retailers getting new customers and increased revenue was the only reason to start using the new
service, some expected that using the service would primarily improve the public’s awareness of the company and then result in increased sales later.

Thirdly, pioneering refers to the status of being among the first companies to use a novel service, and so reflects the willingness to be among the forerunners. Related to this is the expectation that using the service delivers an image of a future-oriented company, well aware of the current development trends. It is different from getting experience of the service in that pioneering is concerned with the image of the modern firm, whereas experiences are more practical level benefits associated with the usage of the new service.

Fourthly, useful service features refer to the potential benefits directly related to the m-advertising service, its usage or features. These features include improved ability to reach customers, sending personally-tailored messages, and targeting and timing the m-advertisements accurately. In addition, the service was expected to be very simple and easy to use. Based on these features the retailers expected m-advertising to be a very powerful and effective way to reach the right target group and send them interesting messages that are personally tailored, and therefore to become very influential.

The expected sacrifice sub-elements anticipated before starting to use the service are classified into monetary and non-monetary. Monetary factors refer to direct or indirect costs of using the new service. Since the use of the service was free of charge, only indirect costs arising from using an advertising agency for instance were considered. It was seen as very important that participating in the field experiment was free of charge although some retailers would have been ready to pay for m-advertising even at this stage of its development.

The retailers also pointed out some non-monetary factors they expected to have to consider when using m-advertising, namely time, effort and learning. Some retailers expected that making and sending m-advertisements would take a lot of their time, while some thought it could be handled quickly and without any specific resources. The anticipated investments also included the effort and learning required to be able to use the service, since some retailers expected m-advertising to be difficult to use and were worried about their technical skills in utilising it. It was obvious that at this point, when the retailers did not have any experience of m-advertising, they were not willing to make big investments (neither monetary nor non-monetary) in testing the service.

These sub-elements are connected to the context of this study and also to each other. Experience refers to gaining first-hand experience of a new service. This brings in the importance of learning to use and utilise the new service and its
specific features. Commercial effectiveness can relate to business services more generally too, since ultimately, customers always expect commercial utility from the services they use. Commercial effectiveness is also connected to the two other sub-elements, namely pioneering and useful service features. Pioneering refers to the forerunner status in the eyes of the customers conferred by using a new technological service. Expecting pioneering status also implicitly refers to expecting commercial utility enhanced by this kind of image. Useful service features are a sub-element that is also closely related to the technology-intensive business service (in this case specifically m-advertising). It is also connected to the commercial effectiveness since the features pointed out in the interviews refer to those aspects of the service that are expected to enhance commercial utility.

Sub-elements of expected sacrifices identified in this study are more universal in nature and can be more easily generalized to other business services as well. However, due to the developmental phase of the emerging technology-intensive service the monetary factor (price) that is usually seen as the primary form of sacrifice is not included (see e.g. Pura 2005, Ulaga 2003). Finally, the expected value consists of the trade-off between sub-elements of benefits and sacrifices compared to a net value of an alternative, in this case other advertising media.

### 7.1.2 Realized value

Realized value refers to the trade-off between benefits and sacrifices the customer perceives from using the service, relative to a net value of an alternative. The sources of benefits have been identified as experience, commercial effectiveness, useful service features, service support, interaction and positive company image. The sub-elements of sacrifices are again classified into two categories: monetary and non-monetary factors. The paragraphs below summarise the substance of the sources of benefits and sacrifices.

First, as was the case with the expected value dimension, realized value experience was also revealed to be a very important sub-element of benefits. To be able to test the novel service and get to know how it works and its characteristics was seen as the central thing the retailers got from using m-advertising. In addition, the opportunities to prepare for the future and to develop their own skills were significant advantages gained from testing the new service.

Secondly, commercial effectiveness refers to improved sales from using the service. It occurs when a number of customers see the m-advertisement,
acknowledge the retailer, enter the shop and make a purchase as a result. Generally, the retailers did not notice much change in their cash flow. However, some were very satisfied and some were disappointed depending on their prior expectations of the outcome of participating in the field experiment.

The third source of benefits was **useful service features**. Personalising and tailoring the m-advertisements according to the information gathered from the m-advertisement receivers enabled the retailers to send messages that were seen as more personal and therefore also as more attractive. Other service-related, useful factors were seen as the ability to follow and measure the effectiveness of specific m-advertisements and to define the sending criteria (e.g. timing) which enabled the creation of more effective m-advertisements.

Fourthly, **service support** refers to the ways in which the service provider helped, assisted and enabled the retailers’ usage of the new kind of service. It includes providing adequate briefings and instructions as well as technical support for the use of the m-advertising service. The need for service support varied a lot since for some retailers thorough, personalised assistance was vital, whereas some were more autonomous and self-educated. The service support sub-element was seen as important in the phase of starting to use the service and in problem situations.

The fifth sub-element was **interaction**, which refers to the co-operation and the relationship between the customer and the service provider. It is different from service support in that service support is clearly more technically oriented (e.g. instructions and support in technical problems), whereas interaction refers to the success of communication and co-operation between the parties. The retailers reported that the flow of information from the service provider to the retailer worked very well, and the service provider not only responded to contact from the retailers, but was also proactive in contacting them. Furthermore, successful co-operation was seen to have the potential to compensate for other possible shortcomings, like any technical functionality issues.

The sixth and final realized benefit sub-element was **positive company image**, referring to the image the firm acquired from using new the m-advertising service. It is quite close to the pioneering element discussed in the expected benefit section, but differs by emphasising the positive image of the firm as an important asset rather than the importance of being a forerunner in the field of technological development. Overall, the retailers felt that it was good for their image to participate in the testing of a new service that gained a lot of public attention. They also stressed that although they did not perceive much commercial
utility, a positive company image and other “non-monetary” aspects were important to them and made it worthwhile to participate in the field experiments.

The sub-elements of realized sacrifice are classified as the monetary and non-monetary factors the customers perceived when using the service. Monetary factors refer to the direct or indirect costs of using the new service. The use of the service was free of charge since the service was only at the application phase and being tested in the field experiments. Therefore, the retailers did not make any direct monetary investments when they were using the m-advertising service. However, some retailers invested money in m-advertising by hiring an advertising agency to design and implement the m-advertisements and thus did register actual monetary sacrifices.

The non-monetary factors consisted of the time used, learning required and effort made to use the new service. Time, learning and effort were very closely related to each other and actually represent different sides of the non-monetary investments. The retailers mainly perceived time to be the central investment made. It was also pointed out that in the first phase when they started to learn to use m-advertising, it took quite a lot of their time, but as they learned to use it, it became much easier and demanded less time. Furthermore, the retailers’ perceptions of a reasonable and acceptable amount of non-monetary sacrifice varied significantly. Some of the retailers were satisfied with the amount of investments they had made during the field experiments, but some were disappointed since they felt that they had invested too much in relation to their return. Some were disappointed with themselves and admitted that it would have been worth investing more to fully utilise the unique opportunity to test this new service.

M-advertising was also compared to other advertising media and the retailers saw m-advertising as a fast, wide-reaching and personal advertising medium in comparison. Also the pricing of m-advertising was perceived as its advantage compared to other means of advertising.

As was the case with expected value, these sub-elements are also closely related to the context of this study – a technology-intensive business service – and to each other. Firstly, the retailers felt that experience gained from using the totally new kind of technological service was useful, not only for being able to prepare for the future but also for developing their business based on new understanding. Thus, experience is related to learning and also indirectly connected to positive company image since participating in testing this kind of
emerging service got plenty of publicity, so enhancing the positive company image of those involved.

As in the expected value dimension, it was also the case with realized value that there was a link between commercial effectiveness and two other sub-elements – useful service features and positive company image. From the wider viewpoint these sub-elements, at least indirectly, enhance commercial utility. Furthermore, the lack of commercial effectiveness could be compensated for by other sub-elements of realized benefits, for example positive company image.

Service support, as in technical support, and interaction as in the degree of co-operation in the relationship between customer and service provider, are also connected since they both basically support the usage of the new technological service. Sub-elements of realized sacrifices are again more general and applicable to other business services although the absence of price differentiates them from commercial services. To sum up, the realized value consists of the trade-off between sub-elements of benefits and sacrifices compared to a net value of an alternative, in this case other advertising media.

7.1.3 Potential value

Potential value refers to the trade-off between benefits and sacrifices the customer expects the optimal service will include in the future, relative to a net value of an alternative. It is the best possible net value that the customer, in the present time, can imagine being realized. It refers to the value the customer foresees the optimal m-advertising service providing in the future. It is a critically important value dimension in the context of emerging technology-intensive business service at the application phase, since the value of this type of service is to be realized in the future.

This is slightly different from the other temporal value dimensions, since it involves a strong underlying assumption in the minds of the retailers that the optimal service will be both commercially effective and in active use along with other advertising media. Thus, the retailers described different future-related factors they thought would be required before an m-advertising service could be commercially effective and widely-used in the future. The sources of benefit are useful service features and regular customers. In addition to these normal sub-elements, there is a source of benefit that involves different visions of the future usage of the m-advertising service. The sub-elements of sacrifice are again
classified into two categories: monetary and non-monetary factors. The essence of these benefit and sacrifice sub-elements is described next.

First, the *useful service features* refer to those specific characteristics the retailers felt an optimized m-advertising service would include in the future. This sub-element is quite similar to that already discussed within the previous two time dimensions. It was suggested that the optimal service would be context-aware and capable of careful definition of when and where the customer receives the m-advertisement, which in turn would make it possible to plan m-advertising campaigns more effectively. In addition, the possibility of targeting the message accurately according to the needs of the customer was seen as being at the core of the optimized service. Ease of use and smooth functioning were also pointed out to be important characteristics the optimal service would need to fulfil. Technical characteristics of the m-advertising service attracted a good deal of attention from the retailers, as they referred to the possibility of using different multimedia characteristics in the m-advertisements, among other things. Finally, some suggested that in the optimal situation, customers could subscribe to m-advertisements from the firms they are interested in.

Secondly, many retailers pointed out that the best way to utilise m-advertising in the future would be by *reaching regular customers*. This sub-element thus refers to utilizing m-advertising in serving the existing regular customers of the retailers, those customers whose contact information is already in their CRM or other databases. The advantages related to addressing regular customers were seen as the advertiser already having the contact information and possibly also other information on the customer. In addition, it would be easier to get the permission for this kind of advertising from those who are already customers, than it would from those who are not familiar with the firm.

Thirdly, *visions for future usage* can be seen as the final potential benefit sub-element, although it differs slightly from the other sub-elements discussed earlier. It refers to all kinds of ideas the retailers imagine an optimal m-advertising service could be in the future, what kind of possibilities and restrictions it could contain and how it could be used and utilised in the marketing mix. These visions included different ideas in relation to, for example, using m-advertising primarily as a tourist information channel, bringing in a stronger consumer-orientation (i.e. using consumers’ wishes as the ultimate starting point for m-advertising) and using m-advertising to complement other direct marketing channels. Different business models and visions of the role of the service provider were also suggested. In summary, the retailers believed m-advertising will be a widely used
advertising medium in the future. A lot of development needs to take place on both technological and attitude levels but nevertheless, the retailers seemed to have faith in this new service.

Finally, potential sacrifices refer to those investments the retailers envisage an m-advertising service requiring from them in the future. Similarly to the previous sacrifice elements, the potential sacrifices could also be divided into monetary and non-monetary factors. The retailers clearly expressed their willingness to pay for using an m-advertising service in the future. However, paying would require some preconditions to be fulfilled, for example technological development would have to advance, market penetration of “smart phones” would need to increase, and the general effectiveness of m-advertising, as well as the number of consumers registered for it, would have to increase too. The non-monetary factors raised by the retailers were basically the same as in the other time dimensions – time, learning and effort. It also became evident, that sacrifices are needed from all parties involved in the service co-production for the m-advertising service to become a feasible service in the future.

In comparison to other advertising media, m-advertising provides interesting opportunities. It could be used to implement radically different types of campaigns than were possible previously; it could also allow its advertisers to carefully define when and where the customer receives the m-advertisement, and so make it possible to plan advertising campaigns more effectively. The retailers’ willingness to pay for m-advertising depends on the result of the comparison with other media, for example in terms of contact rates and effectiveness.

All the sub-elements of potential benefits are closely related to the context of technology-intensive business service and to each other. Useful service features can actually be seen as forming the basis for two other sub-elements. Reaching regular customers is partly dependent on the specific (technical) features of m-advertising which can serve this consumer segment better by sending targeted m-advertisements. Also visions for future usage are to some extent based on the specific useful service features, since they access new ways of advertising in different situations. In the case of potential value, sub-elements of sacrifice are slightly different from the other two dimensions since there was a strong assumption that m-advertising will carry a price-tag in the future. The service tested was only at the application phase of development, and therefore the price issue was not important, but it was self-evident that the optimal service of the future could not be totally free of charge.
7.1.4 Further elaboration on temporal value elements

In the following, the sub-elements of expected, realized and potential value are compared to each other and reflected against the theoretical insights presented in chapter 3. Then the varying value perceptions of the customers are discussed to illustrate that different customers perceive certain value sub-elements as more important than others, which may influence their willingness to participate in co-production of the service and thus co-creation of value. Finally, the complicated nature of the trade-off between benefit and sacrifice sub-elements is discussed.

Comparing and evaluating different temporal sub-elements

Based on the above discussion it can be said that expected and realized value sub-elements resemble each other, whereas potential benefit sub-elements were more different. This is due to the fact that potential value is strongly directed towards the future and therefore the nature of the sub-elements is more speculative and uncertain, making them different from expected and realized sub-elements. However, in the case of a technology-intensive business service that is at the application phase and yet to be made commercially available, understanding the value potential of the service is extremely important since the service needs to be developed towards meeting the future demands of the customers. It has been acknowledged in the research focusing on new service development that it is very problematic to ask for customers’ ideas concerning emerging potential technological services since it is difficult for them to envisage applications of a technology they have never experienced (Matthing et al. 2006). It is not enough to understand what sub-elements the customers expected before using the service and what kind of value they actually perceived, since the service was not in its final form at the time of asking. Instead, the way it is developed to match the requirements of the customers (i.e. developing it towards an optimal service defined by the customers) becomes critical.

However, the expected and realized values form the basis for imagining the potential value and for further developing the service towards an optimal one, and are therefore important. Interestingly, the expected and realized sub-elements resembled each other quite closely. Experience, commercial effectiveness and useful service features were identified as sub-elements of benefits in both time dimensions and although their content varied, the essence was largely the same.
Therefore, it can be said that in this sense the sub-elements of expected value became realized value sub-elements, so the expectations were mainly realized.

There were also different sub-elements in the expected and realized value dimensions. Pioneering was identified only as an expected benefit sub-element and did not come up in the other dimensions. However, in the realized value dimension positive company image was identified as a sub-element that corresponded to an extent with pioneering, although the emphasis placed on these two sub-elements was different. This implies that the conceptualisation of the benefit changed shape, and pioneering in the expected dimension became realized as a positive company image.

Furthermore, in the case of realized benefit there were two sub-elements that did not come up in the other time dimensions, namely service support and interaction. Both of these are closely connected to the value of the relationship with the service provider (see e.g. Lindgreen & Wynstra 2005). Thus, these factors were not seen as important in the phase before the service usage (i.e. the expected dimension) but their meaning was emphasised in the actual usage phase (i.e. realized value dimension). Also in the potential value dimension the relationship-related factors, e.g. in the form of reaching regular customers, were thought important when envisaging the future usage of the m-advertising service.

In the potential value dimension, there were three benefit sub-elements, of which one – useful service features – was similar to the other two dimensions. In addition to that, reaching regular customers was seen as an important way to use m-advertising in the future. This shows that the retailers were thinking about the future applicability of the service and felt that this could be one way to truly utilise the potential of an m-advertising service. The third benefit sub-element – visions for future usage – is also strongly oriented towards the future and the way the optimal service could be used and utilised effectively. Although it is not a benefit in the traditional sense, it includes different aspects that are needed of the service for it to become commercially viable in the future.

The sacrifice sub-elements were categorised in a similar way in all the time dimensions, into monetary and non-monetary factors. Again, in the expected and realized value dimensions the factors included basically the same aspects but in the potential value dimension the content of the sub-elements was a little different. In other words, they were directed towards the future and included preconditions to be fulfilled before the retailers would be willing to invest in the service. It can also be said that in the expected and realized value dimensions the non-monetary factors (i.e. time, learning and effort) were emphasised more,
whereas in the potential value dimension the monetary factors were stressed. This is probably due to the fact that using m-advertising was free of charge in the field experiments but the retailers felt it only natural that it would cost some money in the future when it is in actual commercial use.

As the discussion above reveals, the sub-elements of benefit and sacrifice include many different aspects. According to Lindgren and Wynstra (2005) customer perceived value can be related to a single purchase of goods or a service, or to a relationship between a supplier and a customer. For example, useful service features are closely related to the service itself whereas the interaction and service support are relationship-specific sub-elements. However, as suggested in the theoretical part of this study (in chapter 3), the empirical findings support the idea that in the case of technology-intensive business service and a new m-advertising service in particular, the customers’ value perceptions can also be related to both the service and the relationship with the service provider. This can be seen both at the level of the single benefit sub-elements and also at the level of different value dimensions. For example, a sub-element that includes aspects related to both the service and the relationship in which it is produced is experience. In other words, it can be seen to be mostly related to the service but it also includes evaluation of the relationship. Furthermore, in the realized value dimension the benefit sub-elements include experience, useful service features, service support, commercial effectiveness, interaction and positive company image. Some of these are clearly related to the value of the service (e.g. useful service features) and some to the value of the relationship (e.g. service support and interaction). Hence, customer perceived value is affected by the evaluation of both the service and the relationship in which it is produced, and thus contains elements of both the exchange and relational value (see also Möller 2006).

Existing studies suggest that value can be perceived at two levels: process and outcome (Lapierre 1997, Komulainen et al. 2007). The process level refers to the co-creation of value taking place in the service and relationship processes conducted between counterparts, whereas the outcome level refers to value that is created after the service and relationship processes, in the customer’s own value-creation processes. The sub-elements suggested in this study can be classified according to these levels although some of them have features of both levels (see table 3). Clearly process level benefits are service support and interaction which both take place in the relationship between the customer and service provider. On the other hand, the outcome-level benefits include pioneering, commercial
effectiveness, positive company image and reaching regular customers. Experience, useful service features and visions of future usage are difficult to explicitly categorise into either, since they include elements from both the process and outcome levels.

Table 3. Process and outcome level sub-elements.

<table>
<thead>
<tr>
<th></th>
<th>Process level</th>
<th>Outcome level</th>
<th>Both process and outcome levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benefits</td>
<td>+ Service support</td>
<td>+ Pioneering</td>
<td>+ Experience</td>
</tr>
<tr>
<td></td>
<td>+ Interaction</td>
<td>+ Commercial effectiveness</td>
<td>+ Useful service features</td>
</tr>
<tr>
<td></td>
<td>+ Positive company image</td>
<td>+ Visions for future usage</td>
<td></td>
</tr>
<tr>
<td></td>
<td>+ Reaching regular customers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sacrifices</td>
<td>- Non-monetary</td>
<td>- Monetary factors</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Learning</td>
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</tr>
</tbody>
</table>

In the case of sacrifices, monetary factors can be generally classified to the outcome level although there can be also process level costs taking place in the service and relationship processes. Non-monetary factors (i.e. time, effort and learning) can generally be classified to the process level since they mostly take place during the service co-creation processes. However, learning can be seen as an exception in the sense that at the process level it is clearly a sacrifice, yet its influence on customer perceived value actually takes place at the outcome level, in the customer’s own value-creation processes.

Customers’ varying value perceptions

The empirical data of this study showed that the importance of the value sub-elements discussed above may differ quite radically for different customers. Some considered commercial effectiveness as the most critical aspect in testing the new service, whereas for some it was not that important but they emphasised other aspects, perhaps pioneering or gaining experience of a new service. The same phenomenon is discussed in Komulainen et al. (2007) in which it is suggested
that there are what are called threshold benefits that influence the customer’s willingness to use the service. In other words, customers need to be convinced that their threshold benefit (i.e. the sub-element they perceive to be critically important) will be realized. The threshold benefit is a subjective perception differing between customers. A customer expecting the threshold benefit to be realized, will be willing to start using the service and more importantly, be active in the service process. Thus, it is suggested that the more value is expected from the service the more the customer seems to get involved in co-producing the service. This, in turn, also positively influences the value perceived from the service. To summarise, participating in the co-production of a service and thus also in value co-creation (see also Lusch & Vargo 2006) depends on the threshold benefit and influences the value perceived from a new technology-intensive business service.

If there is a sub-element that is very important (e.g. commercial effectiveness) but which the customer does not expect will be realized, then that customer becomes unlikely either to start using the service at all or, if they start, unlikely to participate actively in co-producing the service. In other words, if an important sub-element is not likely to be realized then the customer is not willing to invest in co-producing the service – something that may decrease the value perceived. On the contrary, customers who expect their threshold benefit to be realized, are likely to be active in service co-creation (see also Komulainen et al. 2007).

This also brings in the critical role of sacrifices in service co-production and also in value co-creation. In the empirical part of the study, when exploring the role of learning in customer perceived value, it was found that learning as a sacrifice was needed for the customers to perceive value from the new technological service. This is supported by the theoretical examination of customer perceived value in chapter 3, which revealed that in order to co-produce the service and thus co-create value (e.g. Lusch & Vargo 2006) in the context of emerging technology-intensive business service, a certain amount of sacrifice is needed from the customer. Thus, making investments in the form of learning may actually positively influence customer perceived value.

*The trade-off between benefit and sacrifice sub-elements*

It became obvious from the empirical investigation that in the case of customer perceived value of emerging technology-intensive business service, the trade-off
between benefits and sacrifices is not as straightforward as the existing research often assumes. The commonly accepted view suggests that benefits increase the perceived net value and the sacrifices decrease it. In line with this, value can be increased by increasing the customer perceived benefits or by reducing the customer perceived sacrifices (e.g. Ravald & Grönroos 1996). However, in this study it was noticed that the role of benefits and sacrifices is not that simple. Value elements have a complex interaction in service value co-creation since certain sacrifices may increase the benefits and some benefits may increase sacrifices.

First, as suggested in the previous section, exploration of the role of learning in determining customer perceived value reveals that learning can be seen as a sacrifice that actually increases benefits. This, in turn, may result in higher customer perceived value. In other words, without making a sacrifice (in the form of learning to use the new technological service), the customer cannot fully utilise the service and thus perceive the highest possible value from it. Thus, learning can be seen as a major sacrifice that is required from the customer to perceive value. However, it is a sacrifice on the process level, i.e. when it requires investment from the customer. At the outcome level it can be seen as a benefit that actually increases the customer perceived net value.

On the other hand, temporality of value also makes the trade-off between benefits and sacrifices complicated. For example, if the customer expects a certain benefit but does not receive it, then the expected benefit may actually decrease the net value perceived. This was also the case in the study of Komulainen et al. (2004) where technical service quality and interaction were identified as two value elements. However, m-advertisers experienced sizeable problems with these elements and, hence, the expected benefits associated with these value elements in fact decreased the realized value, proving that benefits may actually have a negative impact on the net value perceived by the customer.

A similar effect was observed in the case of the m-advertising service explored in this study. The expectations of commercial effectiveness of some retailers were not met, and they felt that some of their investments were in vain. Then new investments were required in order to receive any benefits and consequently, the sacrifices made were perceived as even greater. Thus, when the expected benefits do not become concrete, they may actually turn into sacrifices that decrease the realized net value.
Hence, the benefits may actually have a negative impact, and on the other hand, the sacrifices may have a positive impact on the net value perceived by the customer.

7.2 The role of learning in customer perceived value

7.2.1 Learning as a sacrifice increasing value

Although learning as a sacrifice was already touched on in the previous sections, it is discussed here more specifically and in relation to three different temporal value dimensions. First, in relation to the expected value dimension (or past) explorative learning was found to be an important form of learning in the context of the present study. Closely related to this type of learning and motivation to develop their own business was the retailers’ willingness to invest in learning. It was suggested that without making sacrifices, it would not be possible to learn anything new or develop their business — hence competitiveness could suffer in the future. Thus, only by investing time and effort in learning would it be possible to learn to utilise the new service.

Secondly, in the case of the realized value dimension (or present) the role of learning in the customer perceived value was also emphasised. It was noticed that the customers’ motivation to invest in learning to use and utilise the new technological service varied a lot which seemed to be in relation to their absorptive capacity as well as perceived value. If the absorptive capacity of the firm was low, this often also implied low motivation to invest in learning and further to lower perceived value. In other words, if the customer did not invest in learning and did not learn to use the service even on a purely technical level, then the value perceptions remained low. On the contrary, if the absorptive capacity and willingness to invest in learning were high, then the value perceived from the service was also higher. In this case the customer was more likely to have invested in learning, and learned not only to use the service but also to utilise its special features which increased the value perceptions. Thus, it was discovered in the empirical examination that the perceived realized value varied significantly depending on the level of absorptive capacity of the firm and its willingness to invest in learning. Thus, it can be suggested that learning as a sacrifice is required from the customer to perceive high realized value.
Finally, in the potential value dimension (or future) the explorative form of learning was again emphasised. Related to that, the customers’ willingness to invest in learning in order to find new ways to advertise and to develop their businesses was also stressed. Furthermore, learning not only concerned the individual firm using m-advertising, but was also closely related to the other important actors in the m-advertising network. Only by making mutual investments in learning, is it possible to create an optimal service providing potential value in the future.

To conclude, learning plays a significant role in the customer perceived value of emerging technology-intensive business service. To be more specific, learning can be seen as a sacrifice that actually increases the customer perceived value. Furthermore, its role is not limited to that, but it also aids in understanding how the different customer perceived value dimensions are connected to each other. Those connections are explored in the following section.

7.2.2 Learning connecting different temporal value dimensions

The concept of learning supports the creation of a multidimensional conceptualisation of customer perceived value in emerging technology-intensive business service by linking the past, present and future perspectives of customer perceived value. In other words, the concepts of expected, realized, and potential value are connected to each other through the learning of the customer that varies according to its type and object within different time dimensions.

First, in the case of expected value, unlearning previous, irrelevant experiences is a prerequisite for the customer to be able to perceive realized value from the new service. If the customer is able to unlearn the experiences gathered from traditional advertising, it is possible to perceive more realistic expected value from the novel service. Otherwise biased expectations based on fundamentally different services may prevent the customer from perceiving the expected value from the new service. Further, explorative learning is important in the case of the expected value dimension, since it influences the motivation of the customers to start searching for novel ways to do things and develop their businesses. This increases their willingness to use the new service and invest in learning to utilise it, which in turn influences the perceptions of realized value. Thus, unlearning and explorative learning can be seen as forming the basis for customers to perceive realized and potential value. On the other hand, lack of
unlearning and explorative learning may distort the realized and potential value perceptions.

Secondly, in the case of realized value, learning can be either exploitative or explorative depending on a firm’s absorptive capacity. That is what influences how effectively customers learn to use the service (i.e. the technical aspects of the service) and whether they also learn to utilise the service (here, the special features of mobile advertising). Only when end-users can effectively both use and utilise the service will they be fully capable of visualising the optimal future version of the service, so as to be able to perceive the greatest possible potential value. Thus, learning in the realized value dimension forms the basis for seeing the potential value.

Finally, in the potential value dimension, explorative learning both at the firm and the network level is emphasised. Explorative learning aims to discover new knowledge and ensure the future viability of the firm. It requires investment in the form of learning from all the parties involved in co-production of a service. Thus, explorative learning is required from both the customer and other network actors in order to co-produce the optimal service providing potential value.

7.3 Empirically grounded framework on customer perceived value of emerging technology-intensive business service

This section presents the empirically grounded framework of the study (figure 15). The main elements of the framework will now be briefly restated to form a complete picture of the multidimensional character of customer perceived value in terms of emerging technology-intensive business service.

Technology-intensive services have become a major topic of interest and a key priority for a growing number of business organisations, and understanding customer perceived value in this emerging context is very important. The starting point for this research work has been that it is not enough to examine customer perceived value in a technology-intensive business service field already commercially marketed, but that analysis should be extended to a service field that is only at the application phase of development to be able to scrutinize the essence of the phenomenon. Therefore, the m-advertising service explored in this study provides an excellent context for exploring customer perceived value and its underlying dimensions.

First, the context-related factors forming the background for the understanding of customer perceived value in emerging technology-intensive
business service are identified as 1) the technological character of the service, 2) the novelty and the developmental phase of the service and 3) co-operation with other actors. These three broad aspects are related to the specific context of this study, i.e. an emerging technology-intensive business service and are here referred to as background factors influencing the customer perceived net value. Measuring or defining this influence was not the focus of this study although the discussion in chapter 5.1.4 makes suggestions as to what kind of influence they might have on customer perceived net value. What should be noted is that the value sub-elements identified within each temporal dimension may involve similar types of aspects, for example useful service features. However, the context-related factors are more general level factors of the technology-intensive business service, whereas specific service features focus on describing the useful characteristic of the specific m-advertising service.

The concept of customer perceived value is at the heart of the present study. The definition adopted in this study regards it as a subjective perception of the trade-off between multiple benefits and sacrifices, relative to a net value of an alternative. In this study, sources of benefits and sacrifices are categorised and referred to as sub-elements of benefits and sacrifices, since their combination is essential to a customer’s value perception. Thus, the “expected benefits” suggested in the framework refer to the sources of benefit (i.e. the sub-elements) and the same logic is also used in other value dimensions. This study found that value elements actually have a complex interaction in service value co-creation, since certain sacrifices may increase benefits and some benefits can increase sacrifices. Hence, the benefits may actually have a negative impact, and the sacrifices may have a positive impact on the net value perceived by the customer. The relation to an alternative is difficult to define in the present study, since no alternative m-advertising service providers existed at the time the m-advertising service was introduced to the retailers and the empirical data was gathered. However, the retailers compared the value of the m-advertising service to the value of the traditional means of advertising they were more familiar with and therefore the comparison is often referred to in this study as “comparison to alternative media”. The comparison to an alternative has been omitted from figure 15 for the sake of simplicity, but it is inherent in the customer perceived value concept used in this study.

In addition to initiating a discussion on the complicated nature of the trade-off between benefits and sacrifices, this study also emphasises the importance of temporality in the essence of the customer perceived value concept. Emerging
technology-intensive business service includes value creation that changes and takes different forms during the service delivery and usage process, i.e. before the actual service consumption, during it, and even afterwards. Hence, a three-dimensional temporal conceptualisation is presented, in which the past, present and future dimensions of value are acknowledged. In other words, customer perceived value includes three different time dimensions that are labelled as expected, realized and potential value. Each of them is a result of the complicated trade-off between different sub-elements of benefits and sacrifices relative to the net value of an alternative. In addition, benefits and sacrifices are seen as having these different temporal dimensions, that is, both the benefit and the sacrifice sub-elements change when evaluated at different points of time.

Finally, learning is seen as an important factor in customer perceived value. On the one hand, when looking at learning at the process level, it is a sacrifice that is required from the customer in order to learn to use the service and utilise its specific features; however, when looking at learning at the outcome level, it can be seen as a benefit that increases customer perceived net value. Furthermore, learning connects the concepts of expected, realized, and potential value. It is discussed in detail in section 7.2.2 above, but is summarised here. First, in the expected value dimension, unlearning previous experiences as a primary type of learning and explorative learning focused on a new kind of service as a secondary learning type, form the basis for customers to perceive realized and potential value. Then in the realized value dimension the absorptive capacity of the customer becomes important. The learning of the customer may be exploitative or explorative based on absorptive capacity. This also influences the effectiveness of the learning concerning the use of the new service (e.g. its technological features) and utilisation of the specific service features which, in turn, are a basis for perceiving the potential value of the optimal service in the future. In that way the learning connects the different temporal value dimensions with each other.
Fig. 15. Empirically grounded framework of customer perceived value of emerging technology-intensive business service.
8 Conclusions

In this final chapter of the thesis the contribution of the study is discussed in relation to the relevant theoretical, managerial and methodological aspects. First, the main points of the study are summarised through revisiting the objectives and research questions presented in the first chapter. Next, the theoretical, managerial and methodological contributions are discussed. Then the research is evaluated and in the last section of this chapter the limitations and suggestions for future research are presented.

8.1 Summary of the study in relation to the objective and the research questions

The general purpose of the study was to conceptualise customer perceived value in the context of emerging technology-intensive business service. The research problem was defined as “How can customer perceived value of emerging technology-intensive B2B service be conceptualised? This problem was approached by searching for answers to five specific research questions concerning the different aspects of the phenomenon. In the following, each research question is revisited and answered separately.

The first question was defined as “What are the specific features of technology-intensive business service that influence value perceptions?” It dealt with the specific context of the study and aimed to create a theoretical pre-understanding of how it may influence business customers’ perceived value. In chapter 2, the specific features of technology-intensive business services were carefully explored, as were the features of the m-advertising service in particular. After that the specific features were re-evaluated in the empirical part of the study by reflecting the theoretical insights in the empirical data. As a result, three main context-related factors influencing customer perceived value were identified as 1) technological character of the service, 2) novelty and the developmental phase of the service and 3) co-operation with other actors.

The second research question was “How is customer perceived value conceptualised in the existing research on services and business relationships?” The purpose of the question was to explore and clarify the complex nature and essence of the concept and to create a more profound understanding of the customer perceived value concept. This theoretical question was dealt with in chapter 3, where a literature review on customer perceived value was presented.
The phenomenon was discussed by focusing on the existing studies in the field of services marketing (specifically in relation to the business services) and in the business relationships within the interaction and network approach. It was found that customer perceived value is a multifaceted concept including numerous definitions and categorisations which make the field of research very fragmented. It was also noted that the existing studies do not sufficiently cover the issues the specific context of this study introduces, and therefore this study provides novel insights that are critical to theory development within the value discussion.

According to the definition of value used in this study, customer perceived value consists of a trade-off between benefits and sacrifices, relative to the net value of an alternative. Further, the benefits and sacrifices are divided into sub-elements that reveal the sources of value in detail. Due to the specific context of this study the focus was shifted onto the value co-creation perspective, emphasising that in relationships and in service production there are two active parties (i.e. customer and service provider), co-operating with each other. Hence, the customers in this study are viewed as participants in the co-production of the service and thus involved in the co-creation of value. Due to the complex value co-creation processes taking place in the context of emerging technology-intensive business service, it was noted that sacrifices are needed from both parties (customer and service provider) in order to co-produce the service and co-create value. In relation to that finding, it was also noted that the trade-off between benefit and sacrifice sub-elements is not necessarily straightforward but certain sacrifices are actually needed, and they can increase the perceived benefits, and then also customer perceived net value.

Furthermore, it was found that customers perceive value both in relation to the service and to the relationship in which it is produced, and these two elements cannot be separated when examining the value perceptions. It is also suggested that the sub-elements of value can be categorised at the process and outcome levels and, thus, the perceived value involves evaluation of the factors in relation to the service co-production process and the outcome of the service usage. All these aspects discussed in the third chapter of the thesis enable better understanding of the concept of customer perceived value.

The third question “How does temporality appear in customer perceived value?” is both theoretical and empirical in nature. It attempts to explore the relationship between temporality and the customer perceived value concept. The study reveals that, in the context of emerging technology-intensive business service, value creation changes and takes different forms before the actual service
consumption, during it, and even afterwards. Based on the theoretical and empirical examination (in chapters 3 and 5), a three-dimensional temporal conceptualisation was presented that acknowledges the past, present and future dimensions of value. In other words, customer perceived value inherently includes three different time dimensions that are labelled as expected, realized and potential value, each forming as a result of the trade-off between different sub-elements of benefits and sacrifices. Both expected value and realized value have to some extent been discussed in the existing research (e.g. Woodruff 1997, Parasuraman 1997) but in the specific context of this study, the potential value in particular becomes critical. As the service is at the application phase and being developed towards a commercially viable service, the value related to it is even more dynamic in nature than it would be with an established service. This requires that future orientation in the form of the value potential of the service is included in the customer perceived value concept. Focusing on the potential value directs the study towards an evaluation of the aspects that are important in developing the service towards an optimal one providing the best possible value for the customer.

The fourth question was defined as “What kind of value do customers perceive from new technology-intensive business service in different time dimensions?” This question was answered in chapter 5 based on the empirical data collected from the field experiments. Based on the categorisation presented in chapter 3, the sources of benefits and sacrifices were analysed from the interviews with the retailers according to past, present and future time dimensions. In the expected value dimension the sources of benefit are identified as experience, commercial effectiveness, pioneering and useful service features. Sources of sacrifice are categorised as monetary and non-monetary, the latter referring to time, learning and effort. In the realized value dimension the sources of benefit are experience, useful service features, service support, commercial effectiveness, interaction and positive company image. As with the expected sacrifice dimension, the sources of sacrifice are monetary and non-monetary, the non-monetary factors being time, learning and effort. Finally, in the potential value dimension sources of benefit include useful service features, reaching regular customers and visions of future usage and the sources of sacrifice are again classified as monetary and non-monetary. The content of the different sub-elements is discussed in detail in chapters 5 and 7. Based on the complex trade-off between these different sub-elements of benefits and sacrifices, expected, realized and potential value form the temporal dimensions of the net customer...
perceived value. They thus describe the factors comprising the customer perceived value of emerging technology-intensive business service.

The fifth and final question was “What kind of role does learning play in the customer perceived value concept?” It is a question that goes to the heart of the role of learning in customer perceived value. Firstly, learning was found to be an important sacrifice that is needed from the customer to be able to use the new service and utilise its special features effectively. Participating in service co-production and value co-creation requires sacrifices from the customer, who when learning at the process level, is making a sacrifice. However, when looking at the outcome level, it can be seen that it is the very sacrifice that actually influences customer perceived value positively. Secondly, learning is a critical factor in customer perceived value since it connects the different time dimensions, the concepts of expected, realized, and potential value, to each other. Unlearning former experiences and explorative learning in the expected value dimension form the basis of perceiving realized and potential value. In the case of realized value exploitative and explorative types of learning are based on the customer’s absorptive capacity which in turn influences how effectively customers learn to use the service (i.e. the technical aspects of the service) and whether they also learn to utilise the service (i.e. the special features of mobile advertising). This is important for the customer to be able to envisage the optimal service, which provides a platform to perceive potential value. Thus, learning in the realized value dimension forms the basis for perceiving the potential value from the emerging technology-intensive business service. Finally, both firm and network level investments in explorative learning are needed in the potential value dimension to be able co-produce the optimal service with the highest possible value potential.

8.2 Theoretical contributions of the study

The purpose of this study was to create a more comprehensive understanding of the customer perceived value, i.e. to conceptualise customer perceived value in the context of emerging technology-intensive business service. This was done by focusing on value research conducted first, within services marketing and in B2B services in particular and secondly, within B2B relationships studied by the interaction and network approach. This study contributes to the existing research within these theoretical bases by exploring customer perceived value of a new
technology-intensive business service, by extending research to areas previously under-researched.

More specifically, this study brings three theoretical contributions to the customer value discussion by 1) exploring the complex interaction between benefits and sacrifices and by identifying 2) temporality and 3) learning in the essence of the customer perceived value concept. These theoretical insights are connected to the context of the study – emerging technology-intensive business service.

Firstly, this study identifies the sources of value in the under-researched context of emerging technology-intensive business service. Hence, this study brings a context-specific understanding of what kind of value customers perceive from an emerging technological service. It also enriches the existing research by identifying that value consists of sub-elements within both benefits and sacrifices instead of categorising value directly to its sources (e.g. Lapierre 1997, Liu et al. 2005, Pura 2005). This encourages a more profound understanding of customer perceived value.

The study also reveals that value sub-elements have a complex interaction in service value co-creation, since certain sacrifices may increase the benefits derived, whereas some benefits can increase the sacrifices and thus reduce the customer perceived net value. Thus, the trade-off between benefits and sacrifices is not as straightforward as is generally suggested in value discussion (e.g. Flint et al. 1997, Ravald & Grönroos 1996). Instead, this study agrees with the logic used in the Transaction Cost Analysis approach (e.g. Gosh & John 1999, Rokkan et al. 2003, Ringfleisch & Heide 1997) which implies that sacrifices may actually increase benefits, resulting in higher customer perceived value. Hence, this study advances the idea that maximising the customer perceived net value involves finding the best combination of sacrifices and benefits.

Furthermore, this study also suggests new aspects to the understanding of value co-creation and the service co-production view (e.g. Lusch & Vargo 2006, Grönroos 2006) studied within services marketing and recently also within the interaction and network approach. This study adds to the previous research by emphasising that by making sacrifices (e.g. in the form of learning) and thus by actively participating in service co-production the customer may influence the perceived net value positively. In contrast, if the customer is not willing to invest in some sacrifices and does not participate in service co-production, value co-creation does not take place and the customer cannot perceive value from the
service. In other words, by making sacrifices the customer may actually increase the benefits and thus perceive higher value from using the service.

It was found that in this context customer perceived value involves an evaluation of both the service itself and the relationship in which it is produced. Previous studies have often suggested that these are evaluated separately (e.g. Lindgreen & Wynstra 1995). Moreover, sources of value can be categorised into process and exchange levels (see Lapierre 1997). This means that the perceived value includes evaluation of the service co-production process and the outcome of the service usage. Altogether, this understanding is important to theory development since it shows that customer perceived value takes place at various levels and consists of different objects of evaluation. It also provides important information for the service providers producing the service together with their business customers.

Secondly, existing research often discusses value as a static concept (e.g. Menon et al. 2005, Liu et al. 2005, Ulaga 2003) and those studies that acknowledge the temporality of the concept usually focus on the expected and perceived value (e.g. Flint et al. 1997, Parasuraman 1997, Woodruff 1997). The concepts of expected value, realized value and potential value identified in this study enable deeper understanding of the temporality of customer perceived value. The concepts emerged not only from existing theory but also from the empirical data of this study. In this study the past expectations, the present experiences, and the future expectations of the retailers who tested the new m-advertising service and reflected these time dimensions in their interviews, form the main source of empirical data. The service explored was at the application phase of development and intended for commercial introduction in the future. It was this specific status that enabled the study of different aspects than the existing research had been able to focus upon, most importantly the potential value that is to be realized in the future. This study thus emphasises the future aspects of value by bringing the potential value dimension into the customer perceived value concept. Together the concepts of expected, realized, and potential value assist in better understanding the temporally-loaded perceptions of customers assessing value.

Thirdly, this study contributes to the existing understanding of customer perceived value by exploring the role of learning in relation to it. This study reveals learning to be a sacrifice when looking at the process level, but a benefit at the outcome level, which also amplifies the customer perceived net value. Learning is needed on the customers’ part to be able to use the new technological
service and utilise it effectively. This in turn means they tend to perceive higher value from the service. This logic is in line with the view on service co-production and value co-creation (e.g. Lusch & Vargo 2006) arguing that the customer is a co-producer of the service and a co-creator of value. Thus, by making a sacrifice in the form of learning the customer may positively influence the net value.

Moreover, the temporal dimensions of value are connected to each other through the learning of the customer that varies according to its type and object at different points in time. In the case of expected value the most relevant type of learning is unlearning old attitudes and expectations and replacing them with new understanding and ideas. This is in line with the studies of Bhatt (2000) and Slater & Narver (1995) suggesting that unlearning is a critical aspect in learning new procedures. In the case of expected value, the objects of unlearning are former expectations and attitudes based on the irrelevant understanding of a different kind of service. As a secondary type of learning, explorative learning encourages retailers to discover new ways to operate and develop their businesses. Thus, unlearning and explorative learning form the basis for the customer to perceive realized and potential value. In the case of realized value, the absorptive capacity of the customer (Cohen & Levinthal 1990) becomes important since it influences the effectiveness of the customer’s learning. The learning of the customer may be either exploitative or explorative based on absorptive capacity. If the existing knowledge base (i.e. the absorptive capacity) of the customer is not at a sufficient level and the customer is more interested in the exploitative type of learning, it may hinder the customer in learning to use and utilise a new technology-intensive service which in turn may distort the perceived realized value and also the potential value. On the contrary, learning in the expected and realized dimensions makes it possible for the customer to envisage the optimal service that would create potential value in the future. In the case of potential value, explorative learning that aims to discover new knowledge and ensure future viability is emphasised, both at the level of the customer firm and the network producing the new technological service. This is in line with Möller (2006) stressing the importance of learning in the entire network related to the new service. The object of learning is related to visualising the features of the optimal service.
8.3 Managerial implications of the study

Innovations in information technology are changing the current business environment and opening up areas for new kinds of technology-intensive business service. In this field it has been typical that new innovative products and services have swiftly followed new technological development. Then the innovations have been brought to market as quickly as possible to exploit the novelty value of the innovation before competitors take market share (Blazevic et al. 2003). Unfortunately, many such innovations have turned out to be “falling stars” and have failed commercially. One reason for that may be that value creation in this type of emerging context is still to a great extent unknown. The value potential of the service is undefined, the different actors do not know how to create value together and the service providers may not understand the value perceived or expected by their customers. From the managerial point of view, technology-intensive service represents an increasingly important and growing business, and research in this area provides useful knowledge for those numerous business organisations operating in the emerging field. Value creation is a central element in all business relationships, and especially in the context of new technology-intensive business service, it can be seen as a critically important issue as the value related to the service and its production strongly directs the viability and future success of the service. Hence, service providers must understand what kind of value their customers perceive from the specific emerging service and even more importantly, what kind of expectations they have for the service in the future. Only with such critical information will the service providers be able to develop the service (and their relationship with the customer) in a direction that will ensure that technology-intensive business service becomes a profitable business sector in the future. Based on this study, the following implications for service providers, and specifically managers working in the mobile telephony services field, are suggested.

Firstly, it is important for the service providers to emphasise that in new service development the first customers have to understand that they will need to make some sacrifices in order to learn to use the service, as that will be vital to deriving any value from its particular features. Only this way will they perceive the best possible value from it. A corresponding suggestion is that service providers make the value of the emerging technology-intensive business service explicit for the customers, in order to encourage them to invest in learning.
Therefore, the service provider needs to be aware of all the changing aspects of the new service and to be able to effectively inform the customers of them.

It is also crucial that the service provider is willing and able to help the customer to learn to use the service. It is important to understand that customers differ according to their willingness and ability to use a novel technology-intensive service. Therefore, the amount of service support needed may vary significantly depending on the customer’s technical resources and knowhow as well as absorptive capacity. This also influences the value perceptions of the customer. Thus, the service provider needs to find the best solution to serving the different types of customers according to their specific needs. This means that a trade-off is needed between the amount of resources invested in serving the customers and the choice of the target customer base.

Furthermore, the key to organisational learning is to learn from service failures (e.g. La & Kandampully 2004). This concerns not only customers but also service providers. In the focal case where a new m-advertising service was tested in the field experiments there were various problems with the service, for example with technical malfunctions. It is essential that service providers react to the problems and failures and try to learn from them since this kind of learning is vital to developing and improving a new service that has the potential to provide value for the customer in future.

When focusing on the m-advertising service specifically, there are many different aspects the service providers need to take into account. Since m-advertising includes numerous special features, the service providers need to ensure that retailers are aware of all the opportunities the novel service offers. Firstly, retailers must be made aware that the commercial potential of m-advertising is different from that of traditional advertising and therefore, it is not helpful to assess m-advertising by applying the same criteria as applied to traditional advertising (see Tähtinen 2006). For example, the essence of m-advertising lies in personalised interaction, not in reaching mass audiences. Therefore, unlearning is required from the retailers concerning their misleading expectations, and service providers should support this by providing relevant information and training to their customers.

Secondly, using m-advertising, retailers can reach niches that the traditional marketing channels cannot easily access (e.g. young men interested in technology). Furthermore, m-advertising is a cost-effective way of communicating with regular customers. Further, finding new target groups and creating more effective m-advertising campaigns becomes possible if the retailer
monitors the response to its m-advertising campaigns, and investigates the types of consumers reacting to its m-advertisements. The service provider needs to make sure its customers are aware of all these aspects and utilise these features effectively, since this enables the customer to perceive higher value from the service.

M-advertising also enhances a retailer’s public image as a modern and future-oriented company, which may attract certain customers. Moreover, the receivers of m-advertisements may forward the most useful or entertaining m-advertisements to their friends and family. By reaching a key person in a social network, an m-advertisement may be forwarded rapidly to other individuals interested in it. Somebody reliable sending the m-advertisement and recommending it may increase the secondary recipient’s trust and willingness to receive m-advertising in the future. The service providers through their own actions, like providing examples for the advertising agencies and its customers or encouraging the implementation of imaginative campaigns, can also increase the usage level of m-advertising and improve its attractiveness as a modern and entertaining advertising medium.

M-advertising, like any form of traditional advertising, should be integrated and evaluated as part of the retailer’s overall marketing communications strategy. Therefore, the service provider should inform the customer of the way m-advertising could be used to complement other advertising media and to make sure that the retailers can set specific and realistic objectives for the media. Without this understanding, value creation in the m-advertising service relationship may be obstructed.

It is important for service providers to take account of the other network actors co-producing the new technological service, since they influence the realized and potential value perceptions of the customer. For example, specifically in the case of a new m-advertising service the role of consumers becomes highly important. They have to be willing to provide their personal contact and profile information and to interact with the m-advertiser to make sure that the messages are targeted appropriately and are valuable to them. Only this way can the m-advertiser (i.e. the customer) tailor the message and also utilise the other special features of the new medium, and consequently, perceive more value from using the service. Feedback provided by consumers is another important contributor for m-advertisers to be able to develop their m-advertising campaigns to better respond the consumers’ needs and wishes. Moreover, the role of advertising agencies and other content providers is emphasised, since they have the
responsibility for planning and designing advertising messages that attract the
target consumers. Also the network operators and software firms need to
participate in developing this emerging business field to correspond to the
requirements of the other actors. The actions and interaction between all these
actors is critical to enhancing the potential value for the customers. To summarise,
the retailers will perceive value in using an m-advertising service only if the
service providers, retailers and consumers learn to exploit the opportunities of the
new service.

A service provider can influence the actions of the other actors in the service
network in many different ways. It can, for example, take a central role in the
network and plan and organise the functions fulfilled by the various other parties.
So, service providers may choose to incentivise consumers to submit their contact
information and to participate actively in m-advertising by providing them with
some benefits in return, perhaps, with the co-operation of the network operators,
consumers accepting m-advertisements could get free phone calls. Another option
available to service providers is to create different group solutions for their
business customers that could include access to an extensive register of
consumers willing to receive m-advertising, for example, and such data access
could further be bundled with a web-based tool for designing and targeting m-
advertisements for those consumers. Service providers will also play an important
role in developing the service further to correspond to the needs of their
customers. For example, developing software that enables retailers to connect
their CRM databases to the m-advertising service system would be an important
enhancement that would allow retailers to integrate m-advertising into their
marketing plans. More generally, service providers could spread information on
the unique opportunities offered by m-advertising and thus increase the general
public’s interest in it.

Finally, in relation to the dynamic nature of the emerging technology-intensive business service, it is important to understand that it is not sufficient to
focus merely on the current perceptions of value, but that the value potential of
the service is essential too. Therefore, service providers need to concentrate on
determining the aspects that are critical for the future success of the service and
aim to fulfil those expectations. However, the expected and realized values also
merit careful attention, since they form the basis for the future development of the
service. By managing the expectations of the customer, the service provider can
influence the realized value in a positive manner, thus improving the chances that
the customer continues to use the service.
Due to the emerging, complex and context-dependent nature of the research phenomenon, a case study design and qualitative methods were chosen for this study. The empirical setting organised to acquire data is a qualitative real-life experiment that consists of three field experiments. They were organised by the research project to gain understanding of the usage of different developing technological services that are not yet in commercial use. This kind of empirical research setting represents a very unique way to conduct qualitative research and it is certainly one of very few studies (if there are any) that have adopted a similar approach. It is understandable in the sense that organising and conducting such an extensive field experiment(s) requires a large research project with a great amount of resources and participants with multidisciplinary backgrounds and diverse complementary knowledge. However, organising such a setting provides a novel and multifaceted research platform that is very rewarding not only from the methodological perspective, but also in the light of the richer and more versatile research results obtained.

The advantage of this kind of research setting was that it provided the opportunity to explore a totally new, developing service and to gain an in-depth understanding of the value potential of this type of service. It is hard to imagine that this future-related understanding could be attained using other methods. If the research had been conducted in the more conventional manner, for example interviewing the retailers using a service that is already available in the market, it would have resulted in a very different kind of understanding of the phenomenon. It would not have been possible to explore the temporality of the value concept and the role of learning in such a profound, participatory and longitudinal manner as was the case in this study. In addition, the researcher’s intense involvement in organising and participating in the field experiments brought a deep and extensive understanding of the phenomenon. The form of the research is closely tied to gaining new understanding of customer perceived value with a future-oriented emphasis.

There are a few studies that come quite close to the approach used in this study. For example, pilot testing has been used as a way to explore prototypes of different kinds of products or services. There are also studies focused on new service development that utilise the experiences and co-operation of customers participating in developing new services during and after development (Johne & Storey 1998). However, they differ from this study in that they have a strong
service development perspective, whereas in this study the focus is on a detailed exploration of the phenomenon of customer perceived value. The qualitative experiment used in this study also involves a far larger number of test users compared to pilot testing or new service development.

From the methodological perspective this study represents a novel way of conducting experimental research. Instead of testing hypotheses and examining causal relationships in a way that experiments are used for in a traditional setting, using a qualitative experiment enables the researcher to get deep into the core of the phenomenon under research and extract diverse multifaceted data. Of course the fundamental ontological principles between quantitative and qualitative research are radically different and not comparable. However, taking an experimental research setting into the qualitative study provides a new way to explore phenomena utilising both the advantages the experimental platform provides and a collection of profound and comprehensive qualitative data.

8.5 Evaluation of the research

All research should be evaluated in terms of its results and their significance. In addition, scientific research should also be evaluated as a research process that involves an assessment of the methods applied, data gathering and the analysis of the data. This requires that the research design is carefully planned and followed during the research process as well as reported thoroughly in the research report. The criteria often used for evaluating qualitative research are internal validity, construct validity, external validity and reliability. Gibbert et al. (2008) suggest a framework of criteria mainly based on the studies of Yin (1994) and Cook and Campbell (1979). It includes the above mentioned evaluation criteria that can be used to investigate the methodological rigor of a case study and it is also appropriate for this study.

Firstly, internal validity (or content validity) refers to the extent to which the data provides adequate coverage of the topic researched. Although this type of validity is relevant mainly for explanatory and causal studies (Yin 1994) in this study it was ensured by choosing a large amount of interviewees who were evidently able to provide important and interesting insights on the issues studied. The process of choosing the interviewees was very carefully designed to generate multifaceted and versatile data (for a detailed description, see chapter 4). Internal validity was also pursued by using previous research and theories as a frame of reference.
Construct validity is a conceptual rather than an empirical issue and it refers to an assessment of how coherent the logic of conclusions and the chain of evidence in the study are (Yin 1994). Construct validity needs to be considered during the data collection stage (Gibbert et al. 2008). Thus, it involves establishing correct procedures and can be increased by using multiple sources of evidence while collecting data. In this study construct validity was enhanced in different ways. First, it was assured by using data triangulation (Gibbert et al. 2008) i.e. using various types of empirical material including interviews, personal notes based on observations, e-mails and various types of research documents, project reports and other archival material to complement each other. In addition to data triangulation, having key informants review a draft report as suggested by Yin (1994) was also considered, but due to the tight schedules of the retailers it was not possible. However, the research results were presented in several seminars organised by the research project where the interviewees were invited to comment on the results. This made it possible to check the accuracy of the interpretations made based on the interviews and to confirm the validity of the conclusions. Construct validity was also fostered by presenting a clear chain of evidence, explaining how access to data was acquired, reflecting on how the actual course of the research influenced data collection and following the clarifying data analysis procedure as suggested by Gibbert et al. (2008).

External validity refers to establishing the domain to which the findings can be generalized (Yin 1994). When it comes to this type of qualitative study where the aim is not to make statistical generalizations of the quantitative research findings but rather to create in-depth understanding of the phenomenon studied, generalization in its traditional meaning is not relevant. Instead, it is more appropriate to use the term “analytical generalization” instead of “statistical generalization”. That means that generalization is concerned more with understanding how successfully the study provides new insights into the phenomenon studied (Tsoukas 1989). In this study the objective has been to model and conceptualise customer perceived value that is applicable to the specific setting of emerging technology-intensive business service. An empirically grounded model is tied to that specific context and the results of the study are context-bound. Thus, analytical generalization comes from the aim to add novel insights arising from the context of the study (i.e. emerging technology-intensive business service) to the existing value research within services marketing and the interaction and network approach. The contributions of the
study (both in terms of theoretical and managerial contributions) are presented in detail in chapter 8.

Reliability refers to the extent to which measurements are repeatable. It aims to answer the question “If the investigation had been carried out by someone other than the author, using his methods, would the same results have been obtained?” (Gummesson 2000:185). Yin (1994) suggests that when operational procedures, for example data collection, can be repeated with the same results, the study is reliable. In the evaluation of the present study the reliability in terms of replicability is challenging to prove since qualitative research includes a great deal of interpretation. Furthermore, the results obtained are strongly dependent on the interaction between the researcher and informants – in this case the retailers interviewed. However, the reliability of this study has been ensured by careful documentation and reporting of the empirical research process. Further, the purpose of transcribing each interview word-by-word was to increase the reliability of the research. Other researchers were also involved in the same research project and the empirical data collected was discussed and analysed together with them. For example, a group of researchers participated in writing several research reports, conference papers and journal articles together, which fostered the reliability of the empirical analysis.

Besides the above procedures that were followed to enhance the validity and reliability of this study, it has also been exposed to the critical assessment of others during the entire research process. Parts of this study have been presented at several conferences between 2003–2007, as part of which they have undergone a double blind review process from the experts. The research plan has been presented in national and international doctoral tutorials where it has attracted comments and suggestions. The constituent parts of the manuscript have also been regularly presented at the department’s research seminars where numerous different commentators with doctoral degrees have commented on the research. Moreover, journal articles with multiple review processes have been published concerning the issues examined in this thesis. All this has improved the research process and provided additional support for the result.

8.6 Limitations of the study and avenues for future research

When evaluating any study certain shortcomings can always be found. In order to keep the focus of the research clear and explicit this study also engenders some limitations, both theoretical and empirical. Due to the nature of the technology-
intensive business service there is a need for co-operation and interaction between several different actors. Exploring the thoughts of all the actors and their interrelated relationships is not within the scope of this study. Instead, this study chooses to focus on the central and key party in the network, the m-advertiser. Therefore, the present study is limited to exploring the business customer’s perceived value and to viewing value from the customer’s perspective. This study acknowledges the network surrounding the customer firm as well as its focal relationship with the service provider, but the focus is to study how the customer perceives value derived from a novel technology-intensive service, excluding other processes the relationships may encompass, like social or monetary exchanges, the development process of the service or the roles the different actors may play in the interaction. Hence, this research does not examine how other actors in the network producing a technology-intensive business service create or perceive value, although their role in the service production may influence the customer’s value perceptions. Taking the customer firm’s perspective as the central viewpoint enables examination of the multidimensionality of the value concept in greater depth, and confining the viewpoint to the customer does not influence the conceptual analysis of the study. However, it would be interesting to also explore the above mentioned issues – the roles of different network actors or the actual service development process in future studies.

Secondly, limitations in relation to the empirical part of this study can be found. Due to the relatively short periods of the field experiments the retailers did not have much time to learn what m-advertising is and how to utilise it effectively. However, the situation is the same for any innovative and multifaceted service in a market-creation phase. Therefore, similar value sub-elements as were found in this study can be expected to appear in any novel technology-intensive business service.

Another empirical limitation of this study is that the data was acquired from retailers who used a novel m-advertising service without making direct monetary sacrifices in the form of cost. Therefore, when evaluating the value, i.e. benefits and sacrifices, monetary sacrifices in the form of cost are not included in the evaluation. The rationale for this is that the empirical setting of the present study consists of three field experiments conducted by a research project. In other words, the research project organised experiments in which a new m-advertising service was tested in a real-life context with actual retailers as m-advertisers and consumers as receivers of the m-advertisements. Compared to an authentic business setting, the lack of a price might be seen as a problem but on the other
hand, this kind of experiment represents a unique way of studying a service that is at the application phase of development and is not available in the market. In fact, this is the only way of exploring this type of service and its value potential. Hence, it is actually an advantage of this study. Furthermore, the aim of this study was to conceptualise customer perceived value, not to measure it or determine how valuable the service was as such for the retailers. Therefore, the price issue and the field experiment nature of the service setting do not threaten the validity of the study.

This study draws heavily on interview data collected from the retailers. Although the focus of the study is on different temporal aspects, the interviews were conducted after each field experiment. Thus, when identifying the sources of expected benefits and sacrifices they are based on the interviewees’ answers to the questions concerning their expectations. In other words, the different time dimensions are interpreted from the interviews. However, interviewing each retailer before, during and after the field experiments would not have been possible. First of all, getting time for even one interview was difficult since many retailers were small entrepreneurs and their time was very limited. Secondly, the benefits that could have been obtained from doing more rounds of interviews were not seen as meriting the investment required. However, a wider use of other sources of information or simply a more creative interviewing plan could have helped avoid those problems. What was actually done to overcome this limitation, was a careful planning of the interview questions to reveal the different time perspectives and the data was meticulously analysed and interpreted to gain understanding of the different temporal aspects.

Another limitation in relation to the interview data was that the interviews had to be kept short and concise as the smaller retailers’ time in particular was very valuable. However, the 401 pages of interview data gathered from the 55 interviews with the retailers participating in the field experiments provide a rich picture of the perceptions of those retailers. In addition to interview data other sources of information (e.g. personal notes based on observations and diverse documentary data) have been used to complement the picture of the studied phenomenon.

When thinking about future research, there are important aspects related to the temporal character of the customer perceived value concept that need to be further addressed. It was found out in this study that considering time as circular, i.e. containing feedback loops that connect the past, present and future to each other would be highly beneficial for forthcoming theory development. In this
study the perspective on time was simpler although indications of the circular nature of time were noticed during the research process. The view adopted in this study was chosen to be able to explore the customer perceived value concept in-depth and this way set the scene for deeper and more complex exploration of temporality in customer perceived value in the future.

In future, it would also be interesting to explore expected, realized and potential value longitudinally at the different stages of new service development and compare them to see how they change and relate to each other. This would require longitudinal research strategies, which of course are time and resource consuming. However, such settings can be organised within large research projects. Since this was an exploratory study in the retailing context, more research on new technology-intensive business services would be welcome in order to elaborate on the sub-elements of customer perceived value in this context and others.

In the case of technology-intensive business service and the m-advertising service in particular, the customer’s relationship with the service provider may change, firstly, as the relationship matures and secondly, as the technological development advances. At some point it is possible that the service will be entirely produced via an electronic interface (probably a web page) and the relationship between the buyer and service provider may become more transactional. Future studies are needed to determine whether the elements of value remain the same, and if not, how they change if the interaction becomes mostly electronic. Also the role of the service provider may change quite radically and this too represents a potentially interesting research topic. Researchers in the future may wish to question what kind of role there will be for the service provider if the service is produced via electronic interface.

As this research deals with a new m-advertising service that is not yet in commercial use it would be important to conduct research on customer perceived value in already commercialized technological services. That would enable a fuller assessment of the role of sacrifices in the perception of value. It is also important to explore the dynamics of value in other empirical contexts, e.g. existing non-technological services. Furthermore, it can be expected that in long-term relationships the temporal conceptualisation of value suggested in this paper, would aid in understanding the dynamics of the relationships as well.
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Appendix 1 General interview themes

The following is a generic list of interview themes used in all interviews. However, they were tailored for each interview situation to better suit different types of retailers.

1. Background information of the company
2. Objectives for and expectations / assumptions of m-advertising
3. Experiences in m-advertising
   - quality of training
   - guidance in designing and implementing m-ads
   - usage of m-advertising service system
4. Effectiveness and usefulness of m-advertising
5. Proposals for improvement of the service
6. Interest in using this kind of service again
## Appendix 2 Interviews

### Table 4. Interviews after the 1st field experiment.

<table>
<thead>
<tr>
<th>Line of retailing</th>
<th>Date</th>
<th>Duration</th>
<th>Interviewee(s) position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bakery I</td>
<td>21.10.2003</td>
<td>15 min.</td>
<td>Office Manager</td>
</tr>
<tr>
<td>Book store I</td>
<td>20.10.2003</td>
<td>15 min.</td>
<td>Shop Manager</td>
</tr>
<tr>
<td>Café and pub</td>
<td>15.10.2003</td>
<td>15 min.</td>
<td>Restaurant Manager</td>
</tr>
<tr>
<td>Clothing store I</td>
<td>13.10.2003</td>
<td>25 min.</td>
<td>Shop Manager</td>
</tr>
<tr>
<td>Clothing store II</td>
<td>14.10.2003</td>
<td>20 min.</td>
<td>CEO</td>
</tr>
<tr>
<td></td>
<td>16.10.2003</td>
<td>15 min.</td>
<td>Advertising Manager</td>
</tr>
<tr>
<td>Clothing store III</td>
<td>13.10.2003</td>
<td>30 min.</td>
<td>CEO and Administrative Manager</td>
</tr>
<tr>
<td>Design shop</td>
<td>22.10.2003</td>
<td>15 min.</td>
<td>Shop Manager</td>
</tr>
<tr>
<td>Electrical supplies shop</td>
<td>21.10.2003</td>
<td>20 min.</td>
<td>Shop Manager</td>
</tr>
<tr>
<td>Hairdresser I</td>
<td>16.10.2003</td>
<td>20 min.</td>
<td>Hairdresser (responsible for the m-ads)</td>
</tr>
<tr>
<td>Insurance company</td>
<td>13.10.2003</td>
<td>20 min.</td>
<td>Communication Manager</td>
</tr>
<tr>
<td>Jeweller’s</td>
<td>20.10.2003</td>
<td>20 min.</td>
<td>Two Shop Managers</td>
</tr>
<tr>
<td>Leather goods shop</td>
<td>14.10.2003</td>
<td>30 min.</td>
<td>Shop Manager</td>
</tr>
<tr>
<td>Nightclub</td>
<td>21.10.2003</td>
<td>40 min.</td>
<td>CEO</td>
</tr>
<tr>
<td>Oriental restaurant</td>
<td>15.10.2003</td>
<td>15 min.</td>
<td>CEO</td>
</tr>
<tr>
<td>Restaurant I</td>
<td>20.10.2003</td>
<td>20 min.</td>
<td>Trainee (responsible for the m-ads)</td>
</tr>
<tr>
<td>Restaurant II</td>
<td>30.10.2003</td>
<td>20 min.</td>
<td>Restaurant Manager</td>
</tr>
<tr>
<td>Restaurant chain</td>
<td>7.10.2003</td>
<td>30 min.</td>
<td>CEO and Marketing Secretary</td>
</tr>
<tr>
<td><strong>IN TOTAL</strong></td>
<td><strong>6h 25 min</strong></td>
<td></td>
<td>18 interviews,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>21 interviewees</td>
</tr>
</tbody>
</table>
Table 5. Interviews after the 2nd field experiment.

<table>
<thead>
<tr>
<th>Line of retailing</th>
<th>Date</th>
<th>Duration</th>
<th>Interviewee(s) position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advertising agency I</td>
<td>23.11.2004</td>
<td>30 min.</td>
<td>Assistant (responsible for the m-ads)</td>
</tr>
<tr>
<td>Advertising agency II</td>
<td>30.11.2004</td>
<td>30 min.</td>
<td>Owner</td>
</tr>
<tr>
<td>Advertising agency III</td>
<td>16.12.2004</td>
<td>35 min.</td>
<td>CEO</td>
</tr>
<tr>
<td>Advertising agency IV</td>
<td>1.12.2004</td>
<td>45 min.</td>
<td>Copywriter and Graphic designer</td>
</tr>
<tr>
<td>Advertising agency V</td>
<td>1.12.2004</td>
<td>30 min.</td>
<td>Owner</td>
</tr>
<tr>
<td>Advertising agency VI</td>
<td>2.12.2004</td>
<td>35 min.</td>
<td>Art Director and Director</td>
</tr>
<tr>
<td>Advertising agency VII</td>
<td>26.11.2004</td>
<td>35 min.</td>
<td>Owner</td>
</tr>
<tr>
<td>Advertising agency VIII</td>
<td>25.11.2004</td>
<td>25 min.</td>
<td>Managing Director</td>
</tr>
<tr>
<td>Art museum</td>
<td>19.11.2004</td>
<td>35 min.</td>
<td>Press Officer and Assistant</td>
</tr>
<tr>
<td>Clothing store II</td>
<td>3.12.2004</td>
<td>25 min.</td>
<td>Advertising Manager</td>
</tr>
<tr>
<td>Clothing store II</td>
<td>8.12.2004</td>
<td>30 min.</td>
<td>Administrative Manager</td>
</tr>
<tr>
<td>Co-operative</td>
<td>3.11.2004</td>
<td>45 min.</td>
<td>Communication Manager</td>
</tr>
<tr>
<td>Furniture shop</td>
<td>26.11.2004</td>
<td>30 min.</td>
<td>Owner</td>
</tr>
<tr>
<td>Gift and decoration shop</td>
<td>19.01.2004</td>
<td>60 min.</td>
<td>Owners (two persons)</td>
</tr>
<tr>
<td>Health store</td>
<td>25.11.2004</td>
<td>30 min.</td>
<td>Shop Manager</td>
</tr>
<tr>
<td>Leather goods shop</td>
<td>24.11.2004</td>
<td>30 min.</td>
<td>Shop Manager</td>
</tr>
<tr>
<td>Mobile applications</td>
<td>8.11.2004</td>
<td>45 min.</td>
<td>Manager</td>
</tr>
<tr>
<td>Mobile phone store</td>
<td>25.11.2004</td>
<td>30 min.</td>
<td>Shop Manager</td>
</tr>
<tr>
<td>Movie store</td>
<td>24.11.2004</td>
<td>15 min.</td>
<td>Shop Manager</td>
</tr>
<tr>
<td>Music store</td>
<td>27.11.2004</td>
<td>25 min.</td>
<td>IT-support</td>
</tr>
<tr>
<td>Oriental restaurant</td>
<td>30.11.2004</td>
<td>30 min.</td>
<td>Owner</td>
</tr>
<tr>
<td>Shoe store</td>
<td>25.11.2004</td>
<td>40 min.</td>
<td>Shop Manager</td>
</tr>
<tr>
<td>Telecommunications company</td>
<td>30.11.2004</td>
<td>40 min.</td>
<td>Office Manager</td>
</tr>
<tr>
<td>Travel agency</td>
<td>25.11.2004</td>
<td>25 min.</td>
<td>Customer service manager</td>
</tr>
<tr>
<td>IN TOTAL</td>
<td>25.11.2004</td>
<td>13 h 5 min.</td>
<td>24 interviews, 28 interviewees</td>
</tr>
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</table>
Table 6. Interviews after the 3rd field experiment.

<table>
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<tr>
<th>Line of retailing</th>
<th>Date</th>
<th>Duration</th>
<th>Interviewee(s) position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Book store I</td>
<td>20.10.2005</td>
<td>30 min.</td>
<td>Shop Manager</td>
</tr>
<tr>
<td>Clothing store I</td>
<td>12.10.2005</td>
<td>45 min.</td>
<td>Shop Manager</td>
</tr>
<tr>
<td>Clothing store III</td>
<td>12.10.2005</td>
<td>50 min.</td>
<td>Administrative Manager</td>
</tr>
<tr>
<td>Dental clinic</td>
<td>13.10.2005</td>
<td>30 min.</td>
<td>CEO</td>
</tr>
<tr>
<td>Gift and decoration shop</td>
<td>13.10.2005</td>
<td>45 min.</td>
<td>Owners (two persons)</td>
</tr>
<tr>
<td>Health store</td>
<td>17.10.2005</td>
<td>30 min.</td>
<td>Shop Manager</td>
</tr>
<tr>
<td>Hobby shop</td>
<td>16.11.2005</td>
<td>30 min.</td>
<td>Marketing Manager</td>
</tr>
<tr>
<td>Insurance company</td>
<td>13.10.2005</td>
<td>30 min.</td>
<td>Communication Manager</td>
</tr>
<tr>
<td>Leather goods shop</td>
<td>12.10.2005</td>
<td>30 min.</td>
<td>Shop Manager</td>
</tr>
<tr>
<td>Nightclub and restaurant</td>
<td>3.11.2005</td>
<td>40 min.</td>
<td>Restaurant Manager</td>
</tr>
<tr>
<td>Physiotherapist</td>
<td>20.10.2005</td>
<td>45 min.</td>
<td>Marketing Manager</td>
</tr>
<tr>
<td>Science centre</td>
<td>21.10.2005</td>
<td>60 min.</td>
<td>Trainee (responsible for the m-ads)</td>
</tr>
<tr>
<td>Travel agency II</td>
<td>12.10.2005</td>
<td>30 min.</td>
<td>Customer service manager</td>
</tr>
<tr>
<td>IN TOTAL</td>
<td>8 h 15 min.</td>
<td>13 interviews,</td>
<td>14 interviewees</td>
</tr>
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</table>


### Appendix 3 List of all retailers and the field experiments they participated in

<table>
<thead>
<tr>
<th>Line of retailing</th>
<th>1&lt;sup&gt;st&lt;/sup&gt; FE</th>
<th>2&lt;sup&gt;nd&lt;/sup&gt; FE</th>
<th>3&lt;sup&gt;rd&lt;/sup&gt; FE</th>
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</thead>
<tbody>
<tr>
<td>Accounting company</td>
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<td></td>
</tr>
<tr>
<td>Advertising agency I</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advertising agency II</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advertising agency III</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advertising agency IV</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advertising agency V</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Advertising agency VI</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advertising agency VII</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Advertising agency VIII</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advertising agency IX</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Art museum</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bakery I</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bakery II</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Beauty salon</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Book store I</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Book store II</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Café and pub</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clothing store I</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clothing store II</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clothing store III</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Clothing store IV</td>
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<td></td>
<td>X</td>
</tr>
<tr>
<td>Coffee shop</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Co-operative</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Dental clinic</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Department store</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Design shop</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Electrical supplies shop</td>
<td></td>
<td></td>
<td></td>
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Hanna Komulainen

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