# Cluster III in 2008

"Customer Management in the Financial Service Industry"

1   MOTIVATION

The research of Cluster 3 is driven by the idea that customers should be treated as assets. That requires the measurement of the value of a customer ("customer lifetime value") and the value of the customer base ("customer equity"). It also requires identifying opportunities to grow that value and to measure the return of the investment into customers (calculation of "return of investment"). Furthermore, employees have to act in line with this value creation. This requires to accordingly report the development of the value of the customer base and to appropriately align incentive systems to this value creation.

Figure 1: Vision of Cluster III "Customer Management in the Financial Service Industry"
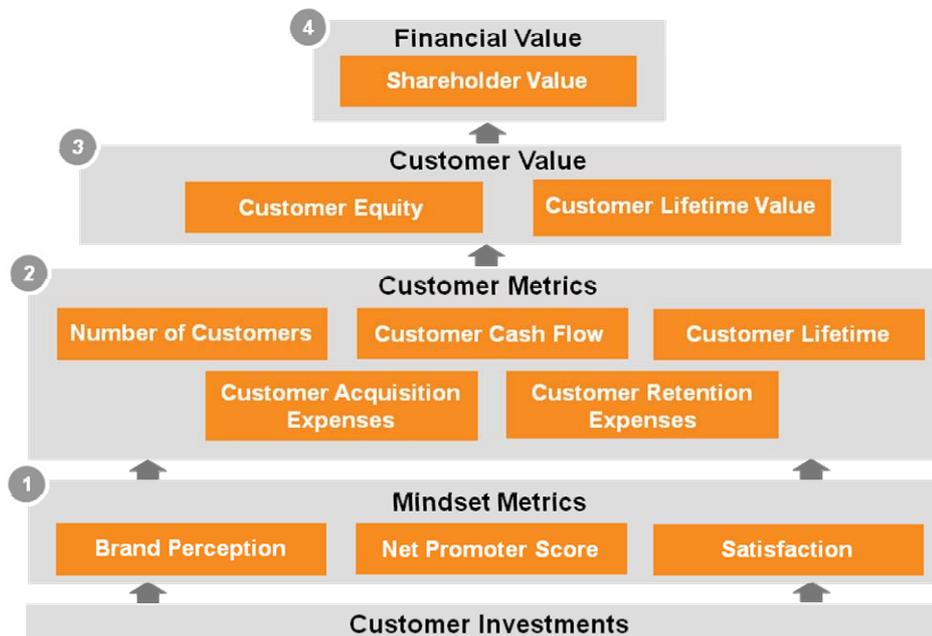
In Module 1, we measure the impact of investments in customers on mindset metrics such as the brand perception, word-of-mouth effects such as those measured by the net promoter score and customer satisfaction.

In Module 2, we focus on the five key customer metrics for financial service institutions. The reason is that multiplying the number of customers with the cash flow per customer leads to the current (short-term value of) profitability. The consideration of customer lifetimes allows for measuring the long-term values of customers. The two key investment measures are acquisition and retention (including customer development) expenditures per customer. We develop models to appropriately measure those five customer metrics and analyze the interdependencies among those key metrics. We then identify the effects of customer investments and mindset metrics on those customer metrics. Thereby, we distinguish between acquisition, retention, cross-selling and customer recovery activities. Among others, we develop optimal customer acquisition strategies, such as for example for search engine and affiliate marketing, analyze multi-channel systems, improve pricing structures and focus on Web 2.0 activities.

In Module 3, we analyze how to link those customer metrics to customer value metrics, such as customer lifetime value or customer equity. In particular, we appreciate the help of the partners of the E-Finance Lab that allow us to compare different models in an empirical setting.

Our research in Module 4 links customer value to shareholder value as the key success metric of financial markets. In contrast to most popular discounted cash flow models, we use the five key customer metrics as the building blocks of our shareholder value model.

In addition to those activities, we focus on Grid computing. In particular, we analyze the German Grid Computing market, identify success factors that drive adoption and usage and determine optimal pricing structures.

2   CUSTOMER MANAGEMENT PROJECTS

In 2008 the Cluster III will focus on the following work packages.

2.1   Market Analysis: German Retailbanking Market

"Typologie der Wünsche Intermedia" (TdWI) is published by Burda Community Network and under license by 19 partners in the advertising media. This survey provides data on a regular basis on German consumer behavior and covers the financial service industry. It is based on the German-speaking population from the age of 14 belonging to private households in Germany. The participants are sampled by their addresses selected at random. The sampling scope is about 20.000 households. The survey is based on personal interviews and a written questionnaire. Interviews are carried out using a structured questionnaire; the written part of the survey is based on instructions provided by the interviewer. The survey is conducted once a year and we have got the data for a time period of 3 years.

Based on these data it is possible to conduct several analyses. For example, market shares for different product categories can be determined as well as the cross-selling rates of different financial institutions can be evaluated and compared. It is the aim of this project to provide several analyses of the German Retailbanking market to provide the partners of the E-Finance Lab with additional information.

This project has already started in 2004. A yearly analysis will be done to provide the partners of the E-Finance Lab with new trends and developments in the financial services industry.

2.2   Acquiring Customers via Search Engine Marketing

The aim of this project is to develop models for optimal search engine marketing, e.g., via search engines such as the one from Google. New entrants like ING-DiBa showed that online marketing allows to successfully build up a large customer base. Among online advertising, search engine marketing has a market share of approximately 40%. That form of online advertising requires determining optimal prices, i.e., optimal bids that are submitted to the auction system of the search engine provider. Additionally, the project aims at identifying optimal compensation plans for search engine marketing agencies.

2.3   Share-of-Wallet's Mediating Role in Determination of Customer Profitability in Retail Banking

Many financial institutions collect substantial information regarding the interaction with their customers and their customers' attitudes. But the common belief that customer satisfaction or customer recommendation itself should lead to higher customer profitability may not always be true as share of wallet is supposed to be a proxy variable for measuring customer profitability. Understanding the relationships between different customer attitudial metrics, customers' share of wallet, and relationship performance metrics are essential for a successful customer relationship management. To shed some light on these relationships, it is the objective of this project to examine on an individual customer level the mediating role of share of wallet testing the underlying relationships of several customer attitude metrics, share of wallet and various relationship performance metrics. Our study identifies the impact of share of wallet, which is necessary for its integration and usage in customer relationship management. The obtained findings can help managers to evaluate the utility of different customer attitudial metrics against their costs of data collection. Furthermore, our project explores the appropriate concept of unrealized potential as a management approach to segment customer base.

Partner: Postbank

2.4   Financial Intermediaries on Electronic Credit Marketplaces

Banks' traditional consumer credit business is challenged by electronic lending marketplaces. On these markets, new financial intermediaries emerge as leaders of groups who perform typical functions of commercial banks such as borrower screening and risk evaluation.

This project aims to assess the impact of such emerging intermediaries on the market place and their influence on credit pricing.

2.5   Electronic Lending Marketplaces as a Source for Education Finance

Lending marketplaces for private customers have established as an additional source for private customers' education finance. It is the objective of this project to examine, whether these market places deliver additional value in contrast to traditional sources of education finance like governmental agency credits. Hence, the project examines in how far traditional banks are challenged by these alternative suppliers of educational credits.

2.6   Web 2.0 Applications in Financial Services

Applications and technologies which are considered as "Web 2.0" are spreading on the Internet and slowly, retail banks are beginning to adopt technologies such as communities or other interactive applications. The project aims to study in how far consumers' purchasing decisions are influenced by their usage of Web 2.0 applications. Subsequently, this project explores the role of Web 2.0 applications in the online sales of financial services.

2.7   Customer Acquisition through Affiliate-Programs

This work package will enhance the effectiveness of Affiliate-Marketing for customer acquisition.
Affiliates-Programs effectively use a network of untied agents that receive commissions for referring (buying) customers to a bank's website. Even though commission-levels are crucial for the success of Affiliate-Programs, there exists no known mechanism to determine the optimal commission-levels for a bank.
It is our goal to replace the heuristic processes as they are applied today with an analytical model which determines the optimal commission level to maximize the bank's profits.

2.8   Linking Customer and Financial Metrics to Shareholder Value

This work package establishes a firm link between marketing and financial metrics: It connects customer metrics (customer cash flow, retention rate etc.) and financial metrics to shareholder value. We apply the model to real world data over the lifetime of a company. Through this, the model shows how (changes in) marketing and financial metrics jointly determine shareholder value. The model is useful to determine the value of banks and to allow banks for determining the value of their customers.

2.9   Measuring Retention Rates with Respect to Heterogeneity

Recently several studies proposed to estimate the value of the customer base for analyzing the value of a firm. Those models do not account for heterogeneity in retention rates and, thereby, underestimate the value of the customer base. In this research we extend a model to allow for heterogeneity of retention rates.

3   FINGRID-PROJECTS

3.1   Project 1: Empirical Requirements and Market Evaluation of Grid

Both the fast-growing number of transactions in the area of private banking as well as the increasing need for managing and reporting financial risk makes computational systems increasingly important for many financial applications. Traditional techniques are constantly being improved and developed as a result of the power of modern computer systems. Nevertheless, many problems can not be solved in a reasonable time due to missing computational power.

Although grid computing could be a promising tool to solve this problem, several aspects might hinder its application and have to be analyzed in further depth. Therefore, we want to evaluate the current market situation and address the following questions with this working package:

−   Which requirements must be fulfilled in the eyes of practitioners (customers & providers) to speed up the adoption of the grid paradigm?

−   Which tasks in the financial service industry can be eased with a financial grid?

−   What are the new challenges? Which market opportunities arise with this new technology?

Making a move to grid computing represents a cultural shift for both IT-department and its clients within an organization. Regarding IT, administrators must tackle a new, complex administrative task whereas developers must adopt a new programming paradigm. Managers have to consider new challenges in vendor relationships or must manage the use of open source applications like Globus. Customers have to recognize the capabilities and limitations of grid computing and must also adhere to the new accounting measures that are put in place to pay for the grid services.

Moreover, in two-sided markets demand and supply must be strong enough to solve the "chicken-and-egg" problem. While on the supply side the lack of monetary incentives could hinder the build-up of an adequate infrastructure, we expect organisational, privacy and trust concerns to be main obstacles of a fast adoption.

As a first step, expert interviews should address these questions and build the base for a large-scaled field study. This field study can be used to evaluate the current state of the market and can thus be used to build up a project database in the financial service industry.

In the second half of the project, we aim to repeat the field study. Both success stories and failed projects can help us to identify crucial success factors and to derive implications for the application of grid technology.

In 2009 this project will focus on the following working packages.

3.1.1 Market Analysis 1: Evaluation of the German grid market

In this working package it should be measured to what extent grid technology is deployed in German companies. Based on expert interviews a field study was developed to analyze how many companies have implemented grid technology, which applications are running in a grid network and which pricing mechanisms are deployed in present. Additionally based on the current IT-infrastructure, which is also collected with the field study, it will be evaluated if there is a market potential for grid technology in the companies that have not adopted till now.

3.1.2 Adoption of grid technology

This working package will investigate the adoption process of grid technology in organizational environments. Grid technology can be deployed in intra- and interorganizational environments. Depending on the environment of implementation, we assume that the influencing factors on grid-adoption differ in their strengths. For evaluating the different environments the drivers and inhibitors have to be located and structured in an adoption model.

– The first objective of this work package is to conceptualize an adoption model based on expert interviews and literature research.

– The second objective of this work package is to empirically validate the assumed structure of the adoption model to identify the main influencing factors in the adoption process of grid technology in different environments.

3.1.3 Case Study

We identify in close collaboration with our partners tasks that can benefit from the application of grid technology. In addition to existing grid which we analyze in case studies, we tend to apply our solution to new problems that have not been solved yet or have only been solved insufficiently.

Partner: Deutsche Bank Private & IBM **(to be confirmed by Deutsche Bank)**

3.2 **Project 2: Pricing Mechanisms for Financial Grid Services**

The build-up of a financial business Grid heavily depends on economic incentives for prospective participants. In the absence of incentives companies will not adopt the new technology. Hence, companies will only invest when expecting a benefit in the medium or long term. This means that provided services need to be measured and priced to enable a business application of Grid technology.

In doing so, the pricing mechanisms must allow for both an efficient resource allocation and a planning reliability for customers and providers. Usually these goals cannot be attained at the same time. While static pricing mechanisms like posted prices offer a high degree of planning reliability, dynamic pricing (e.g. auctions) enables for a more efficient resource allocation.

Therefore, the aim of the intended research is to determine the prospective participants' preferences by conducting a survey and measure allocation efficiency experimentally and in simulations. Several market types have been proposed that enable a price finding process in a Grid to calculate prices dynamically for the tasks on the business application layer. This should take into account the willingness-to-pay of the Grid services customers and the prospected Grid resource load. Such mechanisms should be integrated in the project's prototypes as well as in the resulting real world applications.

3.2.1   Static pricing

Methods of price differentiation (e.g. by QoS), peak load pricing, and price bundling are promising pricing mechanisms in the domain of static pricing. Electricity suppliers and telecommunications industry often apply peak load pricing since demand varies with time and an increase in quantity demanded is usually associated with an increase in cost. Price bundling is a common method for complexity reduction, consideration of complementarities and can finally generate higher profits. It can be used to build predefined bundles of Grid resources like CPU, network bandwidth, memory and disk capacity and sell it for a posted price as a take-it-or-leave-it-offer (see Internet Service Providers offering bundles of allowed traffic, web space, email-addresses and network bandwidth).

We examine different static pricing strategies. We start with a systematic analysis of the design space of static pricing mechanisms and their capabilities for pricing of Grid Computing Services. Then, we address these different mechanisms with normative models before we test them empirically in laboratory experiments.

3.2.2   Dynamic Pricing

Dynamic pricing mechanisms are better to control fluctuation in demand and supply over time and allow for a more efficient allocation of resources. Two widely-used methods are yield management and priority pricing. Yield management utilizes statistical forecasting methods that measure the expected demand (and supply) on the base of past periods. While yield management is very popular in the airline industry, priority pricing has been suggested for multiple service networks. Priority pricing improves efficiency by serving customers in the order that conforms to the cost (implicit or direct) incurred from the shortage or deferral.

We approach this package similar to the latter with definition of the design space, normative modelling, laboratory experiment and final field experiments.

3.2.3   Optimal Tariffs for Financial Grid Services

In this package we address the question of optimal tariffs for financial Grid services. Building upon the knowledge about static pricing mechanisms, we elaborate optimal tariff structures for financial Grid services. To achieve this aim, it is crucial to determine the willingness-to-pay for Grid services and learn how usage uncertainty influences tariff choice. We apply different methods to estimate willingness-to-pay and to determine the influence of usage uncertainty for the development of optimal tariff models. We would like to especially learn from the behavior of consumers in the telecommunication industry to apply innovative tariff models like three-part tariffs (fixed fee, usage fee and monthly allowances) and Roll-Over-Minutes. The calculation of optimal tariffs is computational expensive and we also wish to develop adequate algorithms for the optimization of tariffs. Finally, we characterize optimal optional tariff structures for financial Grid services.

4   PROJECT ON SURCHARGING WITH DR. MALTE KRÜGER

Retailers are able to surcharge from customers when accepting certain means of payments like credit cards. While surcharging wasn't allowed in many countries, a new directive enables surcharging in most countries in the EU.

First, this project addresses retailers' and consumers' attitude towards surcharging. Hypotheses about the factors which influence surcharging are proposed and tested with the results of a conducted survey.

Second, the project investigates appropriate methods for estimating willingness-to-pay and analyzes if there are differences between willingness-to-pay and willingness-to-accept regarding payment guarantees.

Third, the project considers the implications of the abolishment of the No-Surcharge-Rule for payment service providers and its influence on the profitability of the issuing and acquiring business.