

Figure 2: Heterogeneity aspects

ments provided by different vendors. Today's VoIP services are on the way of achieving this. The interoperability issue can also be overcome (as shown through our research). However, in order to migrate from existing infrastructures to an integrated communication technology several points have to be considered. Firstly, a detailed analysis of the existing communication

infrastructure within a financial institution is required. Secondly, quality of service (QoS) has to be ensured within the IP network. Thirdly, the design should be future-proof to provide extendibility and allow for the integration of new and customised services. Last but not least a feasible roll-out road-map is crucial for the success of such an undertaking.

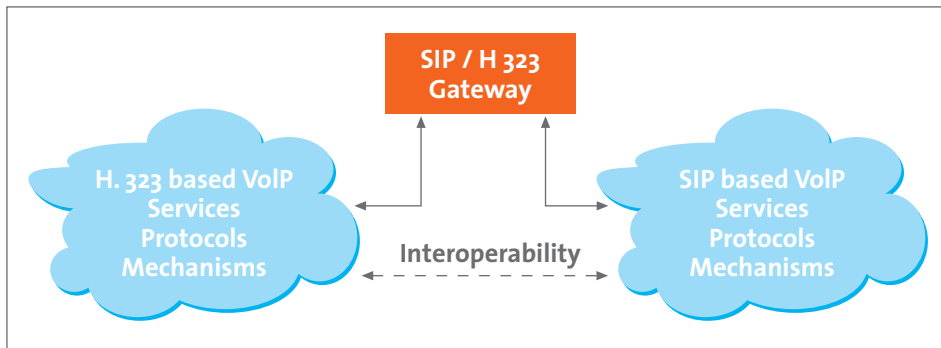


Figure 3: Gateway for interoperability of SIP and H.323 protocols

Evaluating the Impact of the Online Sales Channel on Customer Profitability in the Financial Services Industry

MULTI-CHANNEL STRATEGIES OFFER OPPORTUNITIES TO BOOST A BANK'S PROFITABILITY

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Problem Definition

So far only few studies exist which have evaluated the performance of online sales channels. These studies have all used a simple mean comparison between the average profitability of customers using the offline or online channel. The result of these studies was that online customers are more profitable than offline customers.

Based on these findings sales channel managers concluded that customers become more profitable as soon as they start using the online channel.

They therefore suggested to foster the development of the online channel and to migrate as many customers as possible to the online channel in order to increase the overall profitability of the customer base.

The problem with these simple profitability comparisons is that they neglect one very important question: where do the profitability differences really come from?

These studies simply inferred that the higher average profitability of online customers is due to the impact of the online channel. But this assumption might be wrong and lead to erroneous channel management strategies and to inefficient resource allocation. The resulting question therefore has to be whether online customers are more profitable because they started to use the online channel or whether they have always been the more profitable customers?

Aim of the Article

This article will explore two possible explanations for the profitability differences, which have contrasting strategic implications for the management of multiple sales channels: (1) a profitability increase due to the usage of the online channel (channel effect) or (2) self-selection of profitable customers towards the online channel (self-selection effect) (Figure 1).

A channel effect is present if customers become

more profitable after using the Internet (Option A). A self-selection effect exists if the online customers have always been the more profitable customers and simply have a higher likelihood to become online customers (Option B). Several factors support the hypothesis that profitability differences between online and offline customers are – at least partially – due to the self-selection effect. Research has shown that the type of person who shops online is different from someone who buys from a traditional channel. These differences in customer characteristics on the other hand might directly impact the customer profitability. For instance, several studies report that the average online customer is better educated and more affluent

than the average US household. Due to this, differences in the profitability of offline and online customers might differ systematically. It is therefore necessary to account for the differences in customer characteristics in order to evaluate the impact of the online channel on profitability.

Matching Method

One methodology to account for those differences in customer characteristics is the "Matching" - also called Twin Building - approach. The matching approach aims to build matched pairs of comparable individuals from the group of online customers and offline customers. This is achieved by grouping individuals from the on-

line and offline sample which demonstrate a high analogy in their characteristics. This is why matching is called as well twin building. Ideally, the individuals representing one matched pair are identical to each other except for their use of sales channels and their profitability. As a consequence, this approach isolates the impact of the online sales channel on the profitability of a customer by reducing observed heterogeneity between individuals of a matched pair.

Simple Example

Consider the following highly simplified example for illustration purposes (Table 1). A bank compares the average profitability of online and offline customers. The comparison reveals that online customers have an average profitability of 14 units and offline customers of 9 units. Many studies would now conclude that the Internet has a positive impact on customer profitability of five units. But considering the differences in customer characteristics of online and offline customers reveals a different picture. In this example, we have used for reasons of simplification only the level of income and the level of education as matching variables. We see that only customer "4" of the offline customers and customer "11" of the online customers match each other. These two customers are identical in their observable characteristics except for their channel usage. Comparing the profitability between these two customers provides a rough estimate for the profitability impact of the Internet, assuming for the purpose of this simplified example that all relevant variables have

Online-Banking Customers			
Customer ID	Income	Education	Profitability
10	3	High	8
11	4	High	14
12	6	Low	20
∅			14

Offline-Banking Customers			
Customer ID	Income	Education	Profitability
1	2	High	1
2	1	Low	7
3	4	Low	12
4	4	High	10
5	3	Low	15
∅			9

Table 1: Example of online and offline banking customers

been used for matching. The illustrative example shows a difference of four units between the profitability of these two customers. The channel effect of the Internet is therefore four units. Based on these figures, it is even possible to calculate the self-selection effect. The self-selection effect is determined by the difference of the channel effect and the average difference (5 units - 4 units = 1 unit). A positive self-selection effect means that profitable customers are more likely to use the Internet than unprofitable customers. (It has to be borne in mind that reliable results can only be expected for $N > 5,000$.)

Empirical Study

In order to evaluate the profitability differences between online and offline customers, an empi-

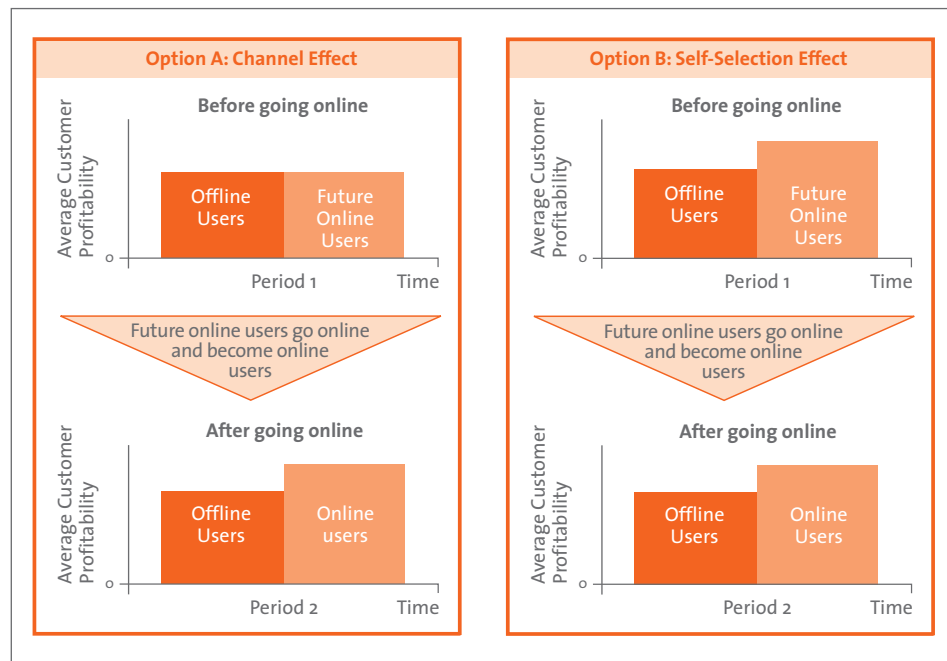


Figure 1: Explaining the channel and self-selection effect

Mean Comparison		
Performance Measure	Offline Customers	Online Customers
Profitability A	100 %	96 %
Profitability B	100 %	101 %

rial study was conducted in the financial services industry. The study was carried out by using a pooled data set of a large German retail bank with about 200,000 customers. The data set includes information about customer demographics, customer product portfolios, the transactional behavior of customers, and customer profitability.

Two distinct profitability measures are available for each customer, which have been calculated based on several revenue and cost drivers. The measure "Profitability A" has been calculated without catering for the differences between costs of interaction for the sales channels. The measure "Profitability B" compensates for this disadvantage by introducing a cost component which takes these differences in costs of interaction per sales channel into account. All variables are available for a time period of 24 months. The first step of the empirical study is to conduct a simple mean comparison between offline and online customers of the bank. A comparison using the profitability measure A in order to compare offline and online customers shows that online customers are less profitable than offline customers (-4%). This lower profitability of online customers is mainly due to additional costs such as opening an additional online banking account and maintaining this account (e.g. mailing of TANs).

A different picture is drawn when the costs of interaction of the specific sales channels are being considered. In this case, online customers can benefit from the lower costs of interaction per Internet transaction. The comparison of profitability measure B therefore shows that online customers are slightly more profitable than offline customers (+1%).

Matched Comparison		
Performance Measure	Offline Customers	Online Customers
Profitability A	100 %	104 %
Profitability B	100 %	104 %

Yet the question remains whether the observed differences between online and offline banking customers are due to self-selection or due to a channel effect.

We therefore applied the matching approach in order to isolate any differences in customer characteristics if present. As can be seen, the results of comparing the average profitability of offline and online customers have changed. Accounting for differences in customer characteristics through matching has revealed that the Internet has a positive channel effect on both profitability measures (+4%). These results show that the profitability of banking customers can be improved by four percent when starting to use the online sales channel.

These results appear to be contradicting at the first glance as they show online customers to be more profitable in one comparison and less profitable in another comparison.

As was explained in the proceeding example accounting for differences in customer charac-

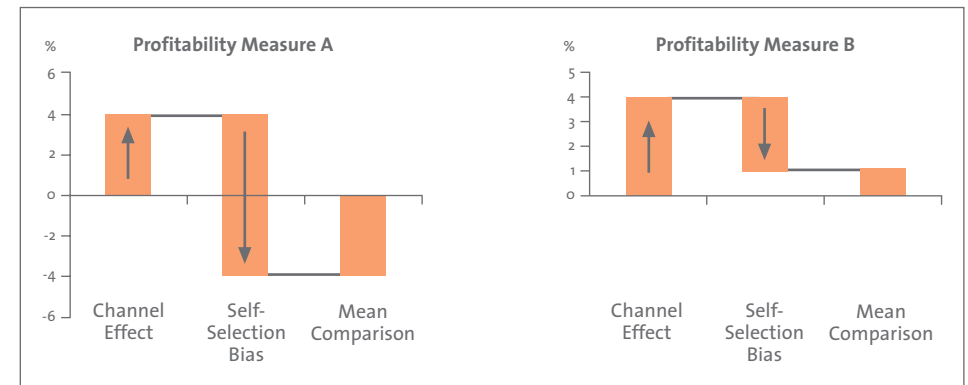


Figure 2: Relationship between channel effect, self-selection effect and mean comparison

teristics allows to measure the true channel effect. The results for profitability measure A show that the Internet has on average a positive impact on customer profitability of 4%. In other words, customers become more profitable by 4% when starting to use the online channel. Nevertheless, the mean comparison has revealed earlier that online customers are less profitable by 4%. This difference can be explained by the self-selection effect. Calculation shows that there is a negative self-selection effect of 8% ($104\% - 96\% = 8\%$). This negative self-selection effect means that the online channel attracts customers which are less profitable than the average. One explanation might be that the Internet primarily attracts younger customers which are still less profitable than the average customer.

As can be seen from Figure 2, the self-selection effect dilutes the positive effect of the online sales channel. In the case of profitability measure A, the self-selection effect completely eliminates the positive effect of the online sales channel and in addition pretends a negative impact of the online sales channel. A similar pic-

ture is drawn for profitability measure B.

Conclusion

Several conclusions for multichannel managers can be drawn from these results. The empirical study has demonstrated a positive channel effect of the online channel. This suggests that customers become more profitable when using the Internet. Multichannel managers should therefore try to migrate as many customers as possible to the online channel in hope to favorably change their profitability. The negative self-selection effect of the online sales channel suggests that especially customers with a low profitability are more inclined than other customer groups to use the online channel. This negative self-selection effect is mainly due to the lower average age of online customers. This information can be used for customer segmentation purposes. Products and services can be tailored to better suit the needs of this distinct customer segment and to extract larger profits.

Finally, it becomes apparent that accounting for the self-selection bias is essential when determining the profitability impact of a sales channel.