Don't call us, we'll call you – Performance Measurement in Multi-Channel Environments[1]

Ragnar Schierholz, Susanne Glissmann, Lutz M. Kolbe, Walter Brenner

University of St. Gallen
Institute of Information Management
Mueller-Friedberg-Strasse 8
CH -9000 St. Gallen, Switzerland

Email: ragnar.schierholz@unisg.ch

Email: susanne.glissmann@unisg.ch

Email: lutz.kolbe@unisg.ch

Email: walter.brenner@unisg.ch

Alexander Ostrowski

Jamba/ VeriSign, Inc.
Domaquarée
Karl-Liebknecht-Strasse 5
10178 Berlin, Germany
Email: aostrowski@verisign.com

---

[1] A previous version of this paper was presented at the 4th International Conference on Mobile Business in Sydney, Australia, July 11th-13th, 2005, sponsored by the IEEE Computer Society (Schierholz, Ostrowski, Glissmann, Kolbe, & Brenner, 2005)

Abstract

Typically, companies nowadays implement so-called multi-channel management strategies, i.e. they seek to offer their customers a brad variety of interaction channels for marketing, sales and services. A prominent example for such mobile initiatives is mobile marketing, where the pervasiveness and personalization features of mobile technologies such as cellular are taken advantage of. Typically these channels are in a competitive situation, competing for budgets and other resources as well as for their share in the revenue stream. CRM as an approach to balance a company's investment into a customer relationship with its economic value requires insights about the effectiveness and cost structure of different channels. Current management accounting instruments do not provide sufficient information about the performance of the different channels, though. Particularly new and innovative channels such as mobile marketing are required to prove their efficiency and thus need such instruments. This paper proposes a model for performance measurement in multi-channel environments, particularly taking into account the mobile channels. The model is evaluated in a real-world case study.

Keywords: Customer Relationship Management, Performance Measurement, Multi-Channel Management, Mobile Marketing

Introduction

In the late 1990's, at the peak of the e-commerce boom, great expectations were geared towards the next level of internet-based commerce: mobile commerce (e.g. Feldman, 2000). With the burst of the e-commerce bubble, m-commerce also failed to meet those expectations, a prominent example is the Wireless Application Protocol (WAP) (Ramsay, 2001).

Recently, mobile business (MB) and mobile commerce (MC) have begun to re-emerge as a promising field (e.g. Urbaczewski, Valacich, & Jessup, 2003). Businesses do question the effectiveness of their (mobile) activities and investments and their compliance with the corporate strategy a lot stricter than before (Schierholz, Kolbe, & Brenner, 2005). Thus, investments in MB and MC are often embedded in more general approaches and have to be justified with common accounting methods.

In particular, in the field of customer relationship management (CRM) many companies follow a multi-channel strategy and offer customers a variety of interaction channels. MC is often implemented as an additional channel within a multi channel management (MCM). Mobile marketing (MM) is one application in such a scenario and is used to create contacts with potential customers, usually called leads. These leads are often picked up in other channels such as call centers, branches or by independent agents. This is very common in financial service providers such as banks and insurances (e.g. Reichold, Schierholz, Kolbe, & Brenner, 2003).

Typically, the different channels stand in competition to each other, competing for resources such as budget and staffing but also claiming their share in the revenue stream. Financial accounting instruments for the measurement of costs and effectiveness of business activities are in existence but are not yet widely adopted for managing multi-channel environments, mostly because particularities of this application are not handled well by these models, e.g. a customer's switching of channels in the middle of a transaction is not reflected very well. Insights about the efficiency of the different channels is rarely available but would be required in order to direct customers to the most efficient channel for each interaction.

Our goal in this paper is to propose a model for the management accounting and performance measurement of marketing channels in multi-channel environments. In particular, this model will be focusing on financial services as an application field. The evaluation of the proposed model will be done in a case study at a health insurance provider.

Research Methodology and Structure

Since the research goal is the construction of a new model, we follow the approach of design science as described in Hevner, March, Park, & Ram, 2004.

> "Design science […] creates and evaluates IT artifacts intended to solve identified organizational problems. […] In the design-science paradigm, knowledge and understanding of a problem domain and its solution are achieved in the building and application of the designed artifact. […] Such artifacts are not exempt from natural laws or behavioral theories. To the contrary, their creation relies on existing kernel theories that are applied, tested, modified, and extended through the experience, creativity, intuition, and problem solving capabilities of the researcher."   (Hevner et al., 2004).

Following Hevner et al., 2004, we begin with the description of the problem space (i.e. the environment in which the identified problem exists) as well as the knowledge base used in the design process (i.e. the set of established constructs, theories and methods the new model will be based upon). Section two describes the concepts of CRM, MCM, MB and MM as the problem space and gives an overview of the most relevant existing management accounting theories and methods in this field as the knowledge base. Section three first describes the requirements of performance in multi-channel environments and discusses the previously introduced management accounting methods. Subsequently, the proposed model is introduced and explained. Section four describes the evaluation of the proposed model's utility in solving the problem. This is done, in conformity with Hevner et al., 2004, by applying the proposed model in a real-world case at a health insurance provider. Finally, in section 5 we derive conclusions of our research and point out future research directions.

Background

Customer Relationship Management and Multi-Channel Management

Following Shaw & Reed, 1999, we define Customer Relationship Management (*CRM*) as an interactive process that achieves an optimum balance between corporate investments and the satisfaction of customer needs to generate the maximum profit. A classification and description of business processes in the CRM field can be found in Geib, Reichold, Kolbe, & Brenner, 2005. In this paper we will focus on the CRM delivery processes, in particular campaign management and sales management. In the framework by Romano & Fjermestad, 2003 our research spans the areas of markets (transactions), business models (communication channels), and technology (media).

All CRM delivery processes require interaction and communication between companies and customers, which typically happens via multiple channels and media. The coordination and management of this channel mix is often referred to as Multi-Channel Management (*MCM*)(Stone, Hobbs, & Khaleeli, 2002). In particular, Holmsen, Palter, Simon, & Weberg, 1998 point out the necessity to manage channels due to their potential of competition and cannibalization among each other.

From the companies point of view channels are organizational units such as a field service organization or a call center (Coughlan, Anderson, Stern, & El Ansary, 2001, p. 3). These can be distinguished from access media such as telephone, PC or PDA (personal digital assistant). This logical separation leads to two areas of MCM:

- *Interaction management* deals with the question which means of communication provides the best possible support for several customer processes
- *Channel management* is concerned with the internal design and the coordination of multiple channels

Both areas are linked together, since one goal of the design and coordination of channels is to guide each interaction into that channel, which is suited best for it (e.g. because of best quality or lowest price of interaction).

Mobile Business and Mobile Marketing

Technological advancements in mobile communications enable new ways of doing business (Raisinghani, 2002), often referred to as "mobile business" (*MB*) or "mobile commerce" (*MC*). While Turowski & Pousttchi, 2003 do not distinguish between the two but rather use the term "mobile commerce", Lehner, 2003 and Zobel, 2001 define "mobile business" as the application of mobile technologies to improve or extend business processes and open new market segments and distinguish it from "mobile

commerce". The latter is rather a subordinate field of *MB*, focusing on the handling of transactions. We follow the more general understanding of Lehner, 2003 and Zobel, 2001 and concentrate on the application of mobile technologies to support customer-oriented business processes.

In this paper, we focus on the application of mobile technologies in the context of *MCM*, where mobile networks and devices are one channel among others, such as the World Wide Web (WWW) or call centers. One prominent example is mobile marketing (*MM*), i.e. the application of *MB* technologies in marketing processes. *MM* takes advantage of the pervasiveness of mobile devices and the typically very personal nature of communication using those devices (as perceived by their owners) (Balasubramanian, Peterson, & Jarvenpaa, 2002, Reichold et al., 2003).

Managerial Accounting Instruments

In order to direct the customer interaction into the most efficient channels, it is of crucial importance to have an analytical instrument which gives insight to the cost and effectiveness characteristics of the different channels. The field of managerial accounting has provided multiple approaches and theories which aim at providing such information to managers (Horngren, Sundem, & Stratton, 2002, p. 4-7). Usually the information is condensed into operating figures to ease interpretation by management. Generally, an organization is divided into several units and each unit is accounted for its costs and its effectiveness. In multi-channel sales organizations these units often coincide with the channels. Typically, effectiveness is classified in three categories (Armbruster-Reif, 2003): *direct effects* such as contract closures and associated revenue generated in a unit, *spill-over effects* such as additional revenue caused by one unit but realized in another and *corporate effects* such as a gain in reputation or awareness for a brand.

For cost accounting there are multiple approaches to define and classify costs. The following approaches are broadly applied in practice or have particular relevance in the problem space analyzed here:

- *Absorption Costing (AC)* (also referred to as *Standard Costing*), based on Harrington Emerson and G. Charter Harrison (see Sowell, 1973), "deducts manufacturing costs from sales to compute a gross margin and deducts non-manufacturing costs to measure profit" (Horngren et al., 2002, p. 247).
- *Contribution Margin Analysis (CMA)* (Fremgen, 1964, Swalley, 1974) "deducts variable costs from sales to compute a contribution margin and deducts fixed costs to measure profit" (Horngren et al., 2002, p. 246).
- *Activity-Based Costing (ABC)* (Cooper, 1988, Cooper & Kaplan, 1992) focuses on activities and processes in organizations instead of products or organization units and accounts the fix as well as variable costs to identified activities.

To analyze market interactions and structures *Transaction Costs Economics (TCE)* (Coase, 1937, Williamson, 1998) are a useful framework. *TCE* are at the intersection of business organization theory and economics and follow the approach of the New Institutional Economics. *TCE* take into account that relying on market mechanisms also causes costs and maps these costs to different stages of a market transaction (Picot, Dietl, & Franck, 1999, pp. 67).

A Model for Performance Measurement in Multi-Channel Environments

Requirements of Performance Measurement in Multi-Channel Environments

Management accounting in multi-channel environments has the purpose of creating transparency about which channels fulfill their communication purpose most effectively as well as about the associated costs of each channel. The effectiveness of channels can be measured by counting the contracts closed in a certain channel, but also softer figures have to be taken into account, such as the economic value of the acquired customers (e.g. young, healthy customers are typically more valuable for a health insurance provider) or the brand image. To account for the flexibility of choice the customers have in a multi-channel environment, a proper accounting of effects to all involved channels is also crucial. This is especially important for mobile and electronic channels for two reasons. Firstly, mobile channels usually cannot support all transaction stages, e.g. due to necessity of manual signatures for contracts. Hence, mobile channels hardly produce direct effects. Secondly, due to failures such as WAP (Ramsay, 2001) mobile initiatives are evaluated more skeptically than activities of traditional channels.

Similarly, the (fix as well as variable) costs must be accounted properly to each channel, a requirement typically hard to fulfill for general fix costs such as costs for buildings and infrastructure. The resulting figures should be aggregated enough to allow for an easy analysis by management but still allow for a multi-dimensional drill down, e.g. analysis of effectiveness of marketing campaigns in terms of fit of acquired customers into the strategic target group or analysis of side-effects among the different channels (cannibalization as well as spill-over effects).

Technically, the model should also be easy to implement and to be supported by IT. The complexity of data collection is expected to be high, thus a reasonable amount of automation in data collection is necessary. A lack of automation would most likely also affect the data quality negatively. Integration into CRM tools is also desirable to allow for the use of the resulting figures in analytical CRM to realize a closed knowledge loop as proposed in Geib et al., 2005.

Discussion of Existing Managerial Accounting Instruments

Typical criticism towards the *AC* approach is that fix costs are accounted to the production units and thus changing production volume distorts the figures. Also, not all costs in an organization can be uniquely accounted to a single unit. Such general costs have to be accounted proportionally to multiple units, using a key. These keys often can't properly represent the cost structure, are assigned more or less arbitrary and hence fudge the information given to management.

The *CMA* approach introduced the idea of relative general costs, which accounts for the fact that depending on the separation of units certain costs can be general or unit specific. E.g. if the units are product lines, costs for sales channels which sell all products are general costs and have to be keyed to all products, while if the units are sales channels these costs are specific costs for each unit. If the units are broken down to a detailed level, they can be aggregated in multiple ways and thus be used for a multi-dimensional analysis. The involved complexity calls for IS support in the data collection as well as in the aggregation and analysis. Criticism against the *CMA* approach often focuses on the negligence of fixed costs, which leads to too low pricing. Since especially in the insurance industry the product prices are rarely based on accounting figures but on complex statistical models, this only applies in limited ways to the context analyzed here. Another issue is the complexity of *CMA* implementation and the disputability of the assignment of the classification into general and unit specific costs. Since unit managers know that *CMA* is used to measure profitability, they will try to move costs into higher aggregation levels.

The *ABC* approach tries to reach a proper accounting of general costs to organizational units by associating the costs with processes and activities conducted by these units. This allows a better accounting in process intensive industries such as insurance where customer service is a major cost driver, but manufacturing costs are hard to define. Issues of *ABC* systems' implementation include the general costs in support and administrative processes and the complexity of cost measurement in activities. Costs for activities can be measured e.g. by observation of employees performing those activities which requires high efforts and also might distort the results due to different employee behavior under observation.

TCE does not originate in accounting, but in economics and describes the costs associated with the usage of market mechanisms. In the context of marketing, the focus on market processes and the proposed classification into transaction stages can be a valuable instrument. Picot et al., 1999 suggest the transaction stages as described in table 1. The *TCE* approach also allows to account for cost savings or convenience improvements on the customers' side and to give credit to the channel which caused the improvement.

Stage	Examples for associated costs
initiation	identification of transaction partners, e.g. marketing (on the vendor's side) and product search and comparison (on consumers' side)
negotiation	consulting and administrative costs for contract closure
settlement	costs for service delivery and management of the exchange of goods
monitoring	monitoring of quality and timeliness of transaction execution
adjustment	modification of contracts according to changes in requirements

Table 1: Transaction stages (Picot et al., 1999, p. 67)

All these approaches have potential to address certain elements of the previously outlined requirements; each by itself falls short though. Thus a combination of the approaches should be considered.

A Proposed Combined Model

The proposed model targets the following benefits, in compliance with the previously defined requirements:
- Functional segmentation of accounting along the channels of a multi-channel marketing and sales organization,
- Detailed break-down of marketing and sales activities into multiple channels and multiple transaction stages,
- Accounting of relative specific costs to the appropriate units,
- Accounting of general costs according to process-based principles,
- Derivation of operational figures including contribution margins and reflecting influences from non-accounting measures and
- Multi-dimensional analysis of results with IT support.

The proposed model divides the problem space along two dimensions: First, the goal is to compare different channels, thus they are units of analysis. Second, TCE suggests dividing a transaction into separate stages, which in an MCM environment can be each carried out using a different channel. This leads to a matrix of channels and transaction stages. Then a contribution margin is calculated for each field in the matrix applying CMA. To assess the costs which occur at a particular transaction stage and in a particular channel, an ABC approach is used. Each activity in each channel is associated to a transaction stage according to the definitions in TCE. ABC provides multiple methods to measure or estimate costs, such as self-logging, relative values, pre-determined time standards, etc. Figure 1 visualizes this model.
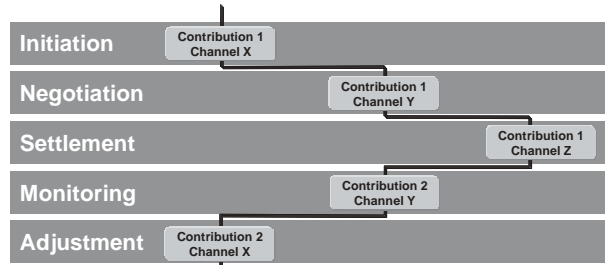
Figure 1: The Proposed Model

This approach allows reflecting the channel of choice in each stage and activity for each customer or lead. The revenue that a customer produces can be properly accounted to each involved channel according to its contribution in the process. Hence, mobile channels which only contribute via spill-over effects are represented more properly.

Accounting Item	*TCE* mapping	Marketing/sales mapping
Revenues - Debtor losses		
= Earnings	(Earnings)[1]	
- Production Costs		
= Contribution margin I	(Production)[2]	Non-Sales
- Direct initiation costs - Channel-specific costs in lead generation		
= Contribution margin II	Initiation	Marketing
- Direct negotiation costs - Channel - Specific costs in consulting		
= Contribution margin III	Negotiation	Sales
- Direct settlement costs - Channel - Specific costs in settlement		
= Contribution margin IV	Settlement	Back-Office
- Management costs		

---

2   Earnings and Production are not transaction stages, but map on a similar level here.

= Contribution margin V	Monitoring	Channel management
- General channel - Specific costs		
= Contribution margin VI		Contribution margin per channel
- General marketing & sales costs		
= *Contribution margin VII*		*Contribution margin marketing & sales*

Table 2: Proposed accounting model

Equally costs which occurred during the transaction can be accounted properly to each customer, each channel and each transaction stage. Table 2 shows the proposed accounting model. It is to be applied to each channel.

Starting point for the calculation is the channel-specific revenue. The proper calculation of this figure requires a tracking of the channel used by each lead from the first contact on, ideally including the marketing campaign the lead came from. Each channel can then be accredited proportional to its contribution to a contract closure. Similarly, the costs caused by the customers have to be accounted in the same proportionality to each channel. Subsequently, the costs in the channel associated with the different transaction stages are deducted and a separate contribution margin is calculated after each stage.

The different contribution margins at each transaction stage reflect the effectiveness of the channel. Founding the calculation on channel-specific revenues and deducting the channel-specific costs incorporates the economic value of customers acquired by each channel in the model. This is reflected in contribution margin I. Each subsequent contribution margin reflects the channel's (financial) effectiveness at each stage. Spill-over effects are implicitly incorporated by reflecting the hand-over of customer processes between channels at different transaction stages. Thus, e.g. the spill-over effect as produced by a lead generated by one channel but closing a contract using another is taken into account by breaking up the revenues according to the channels' involvement in the different stages of the transaction.

According to the defined primary goal of creating transparency within the multi-channel management for marketing and sales, general marketing and sales costs which are channel independent are omitted in the model. Keys for the association of these costs to channels would likely be rather arbitrary than indicating effectiveness. These costs would need to be included in the model to gain relevance for corporate reporting.

Implications for IS support

Obviously the proposed model requires a substantial amount of

information from the operational business processes. This information can not be collected manually due to its volume and the required level of detail. Therefore the application of the proposed model imposes some requirements on the IT infrastructure. To allow for a detailed and fair (in regard to a channels contribution to the revenue) association of revenues to each channel it is necessary to track the entire customer contact history from the first contact at least until contract closure, ideally across the entire contract lifetime. Per definition, each customer interaction is conducted via a channel, hence each interaction can be considered as a channel's contribution to the customer relationship and thus to the revenue. For better analysis, all customer interactions in all channels should be tracked in a single system. If this customer contact history is also available to the operative staff in the channels (e.g. call center agents) or analytical CRM (e.g. in the planning of marketing campaigns) positive side effects can be realized. E.g. call center agents can consult the customer better if they have full information about previous interactions (Salomann, Dous, Kolbe, & Brenner, 2005) and marketing campaigns can use the preferred channel for each customer.

Similarly, all costs for each channel need to be tracked. This includes the production costs for the product units the channel sells as well as the costs for the service the channel delivers to the customers. The service costs also need to be mapped to each transaction stage (see table 1). Often, these costs are not available in one central system, since production (at least in industries producing physical products) is planned and carried out in different units than customer services. Ideally, the service costs should be tracked by activity to allow for a direct usage of the data in an *ABC*-like accounting as in the proposed model.

To allow for a comprehensive analysis of all these gathered data, their integration into a central system is necessary. Since the data about each customer should span the whole contract lifetime (including the acquisition phase) a system which can track and analyze data across timelines is required. Additionally, the analysis of the data regarding different units of analysis should be possible. E.g. the model proposed here takes the channel as the unit of analysis; synergies could be leveraged though if other reports focusing e.g. on products or customer segments could access the same integrated data source. All these requirements are well handled by enterprise data warehouse systems (Winter, 2001).

Data warehouse implementations are typically large and expensive projects. The introduction of performance measurement in multi-channel management alone might not allow for a suitable business case to justify such a large investment, nevertheless it is hardly possible without it as outlined before. Thus we explicitly suggest taking into consideration possible synergy effects with other usage of the functionality as indicated before.

Evaluation of the Proposed Model with a
Health Insurance Provider

The proposed modelhas been evaluated using the criteria of utility, quality and efficacy (according to Hevner et al., 2004). As evaluation instrument we used a case study, as suggested by Hevner et al., 2004.

As the application scenario, we had the opportunity to cooperate with one of our corporate research partners, a large health insurance provider in Switzerland. For confidentiality reasons, we will refer to it as SwissHealth in the following. SwissHealth pursues a multi-brand strategy to address different target groups individually. We'll call these brands SwissHealth, SwissFit, WomanHealth and EasyHealth to reflect the brands' target groups.

- *Swiss Health* – the oldest brand, associated in the market with tradition, reliability and high customer service,
- *Swiss Fit* – focuses on young customers, pursues an innovative image and offers extremely low premiums,
- *Woman Health* – focuses on the particular needs of female customers and
- *Easy Health* – is exclusively available via electronic channels.

The offered channels are independent sales agents, branch offices, a call center, a web-based online platform and recently a mobile marketing initiative. Initiated by the Head of E-Channels as an experiment for the SwissFit brand only, the mobile marketing campaign is challenged to prove its efficiency as compared to other channels before being implemented in the whole group.

For management purposes, the marketing and sales unit is subdivided into one division for each channel, plus general units across all channels for sales support and sales management. Internal reporting, in contrast, only views the branches and the call-center as sales channels, since technically only these can close a contract due to the necessity of manual signatures on contracts. As a consequence, the figures delivered by internal reporting offered little help for MCM in marketing and sales. To solve this dilemma, the proposed model has been introduced.

First, the units of analysis were to be defined. The selected units were aligned with the channels:

- *Direct Marketing (DM)* – outbound call centre activities
- *E-Marketing (EM)* – web-based activities
- *M-Marketing (MM)* – activities using MB
- *Branch Offices (BO)* – activities in local offices
- *Key Account Management (KAM)* – targeting corporate customers
- *Independent Agents (IA)* – activities of external agents and
- *Inbound Call Center (ICC)* – picking up incoming contacts from leads generated by the other channels.

Accounting Item	*TCE* mapping	Marketing/sales mapping
Premium yield - Debtor losses		
= Earnings	(Earnings)	
- Insurance claims - Compensation payments		
= Contribution margin I	(Production)	Non-Sales
- Direct initiation costs - Channel - Specific costs in lead generation		
= Contribution margin II	Initiation	Marketing
- Direct negotiation costs - Channel - specific costs in consulting		
= Contribution margin III	Negotiation	Sales
- Direct settlement costs - Channel - specific costs in settlement		
= Contribution margin IV	Settlement	Back-Office
- Management costs		
= Contribution margin V	Monitoring	Channel management
- General channel-specific costs		
= Contribution margin VI		Contribution margin per channel
- General marketing & sales costs		
= Contribution margin VII		Contribution margin marketing & sales

Table 3: Implemented accounting model

Secondly, the basis for the cost model was laid out. Relevant processes in the marketing and sales were identified, primarily processes describing the path of a customer from lead acquisition through contract closure according to the transaction stages and with defined switching points with all available channels at the point (e.g. for contract closure only *BO* and *ICC* are available to retail customers). As such most costs for marketing and sales activities could be associated as direct costs to the respective channel and transaction stage. Since the call center provides services to the *DM* channel and acts as an independent channel for inbound calls, here the activity-based costing was used to classify costs as service to *DM* or as service to *ICC*.

The following adjustments have then been made to the proposed model to make it fit to Swiss Health's environment (see table 3): General costs e.g. for building infrastructure have not been incorporated into the model, since these are considered as fix costs and can't be influenced by MCM. An additional deduction was made prior to the calculation of contribution margin I, reflecting the compensation payment between health insurance providers to balance different risk bases for the standard health plan, a requirement by Swiss health insurance regulation. An average contribution margin I was used across products, even this distorts the effectiveness. Exact data about channels involved in the acquisition and service to each customer could not be pulled out of the corporate data warehouse in time, but is generally available.

The tracking of customer interactions is implemented in Swiss Health's CRM system. This system is a standard product from a mid-size Swiss software vendor and SwissHealth as the largest customer could take major influence on the specifications. Each customer interaction is recorded in the system and is linked to the customer record. It also contains a reference to the channel which was used, e.g. differentiating a call to the call center from a contact request on the website (where customers can request an individualized contract offer for a basic health insurance plan[3] by filling out a form). Obviously the information about the interaction can sometimes be tracked automatically, e.g. in the case of a web request, and sometimes it must be entered manually, e.g. in the case of the call center agent.

The mobile marketing campaign consisted of a mobile premium calculator by which the customers can receive an offer for a standard health insurance plan via SMS (Short Message Service) within seconds. To request an offer a customer simply sends an SMS message containing a two-letter code, followed by his age and the zip code of the city he lives in. Optionally the current health insurance provider can be added. The response is a personalized offering for a basic health insurance plan. The procedure to receive the offer is marketed via classical marketing mechanisms such as posters, flyers in public transportation, give-always at public spots, which SwissHealth utilizes in general campaigns anyway. Each of these media has a separate two-letter code. E.g. a 30 year old customer living in Zurich might be instructed to send "pt 30 8000" when reading a poster in a railway. The same customer is instructed to send "pg 30 8000" when reading a flyer in public transportation or "ps 30 8000" when reading an ad in a newspaper. This code then allows for an even more detailed analysis of the channel efficiency. The different codes allow a tracking of which media (e.g. newspaper, poster, flyer) attracts most customers. Following the later stages of the customer lifecycle, it even provides insights which media brings the highest rate of appointments, the highest rate of contract closures and finally, in the long run, the most profitable customers. It can of course

---

3   The conditions of this plan are regulated by Swiss law, thus the plan is not subject to consulting.

be argued, that the later the analyzed stage is the more other distorting factors also influence a customer's profitability and thus it can not exclusively be accounted to the marketing media which attracted the first attention.

For the calculation of the figures in the evaluation stage, an Excel spreadsheet was used, importing data from reporting sources or entering them manually, e.g. from the CRM system.

Figures calculated for each channel using the proposed model include

- *Contribution to Production* – the contribution to acquired contracts
- *Appointment Ratio* – appointments over generated leads
- *Lead Ratio* – contract closures over generated leads
- *Costs per Closure* – average costs per closed contract and
- *Penetration* – leads over customer base (as reported by market research).

Results for MCM included that the anticipated cost efficiency of *MM* is actually not reached due to low volume on the channel and thus large effects of channel-specific fixed costs. The anticipated higher effectiveness of *MM* as reaching the target group more precisely could be confirmed, while the higher economic value of these customers could not be confirmed due to the average contribution margin I neglecting different claim levels in different channels. The lead ratio, the appointment ratio and the penetration of *MM* were significantly higher than in other channels, leading to the conclusion that the effectiveness of *MM* in the initiation stage is higher than that of other channels. Also, the analysis showed that the price for a lead as billed to independent agents was not covering the internal costs for generating the lead. Currently SwissHealth views this low price as differentiator against competitors, but the gap between typical market prices and Swiss Health's price still leaves room for margin improvement. The non-monetary effect of the low price on the perception of SwissHealth by the independent agents is to be researched and then to be taken into account as well, of course. As a consequence, Swiss Health's management decided to extend the *MM* campaign across all brands and to a larger geographic region. It is expected that the performance is increased since the ratio of fixed costs will be lowered. Also, *MM* is now considered a first choice channel for the initiation stage of transactions.

The utility of the model is perceived as high by the SwissHealth management, since assumptions could be confirmed or rejected and unanticipated effects could be discovered. The quality of the model is generally assessed as good, the lack of information about the filed claims per channel leading to the use of an average contribution margin I impacted the quality though. This reinforces the requirement of tight IT integration of the model. The efficacy could not fully be evaluated, since in the available time frame no derived management measures could be launched or even analyzed in terms of effectiveness. The gained insights in the efficiency structures promise to allow for a more efficient multi-channel management though.

Conclusions and Further Research

The environment of SwissHealth serves as a good example for the necessity of a multi-dimensional performance measurement tool in CRM. In order to manage sales and marketing units towards usage of channels such as mobile marketing where they are most efficient requires a detailed internal reporting. Existing management accounting approaches do not offer sufficient instruments for this task, but provide a solid basis for the design of a new model.

The model as proposed in this paper addresses the multi-dimensional needs of performance measurement in multi-channel environments, in which mobile marketing typically is embedded. The application of the model in a case study revealed interesting misperceptions of the marketing and sales management (such as the cost efficiency of mobile marketing), confirmed other assumptions and pointed out completely new aspects as well.

Limited applicability of the model for external accounting (due to non-compliance with legal requirements) is explicitly accepted, since the instrument is meant to be used for internal accounting only. Lack of design and flexibility for other mobile initiatives in other business areas than marketing and sales are anticipated by the authors, more detailed requirements in other business areas need to be collected and incorporated into the model in future research. Also, soft factors such as customer satisfaction still have to be taken into account separately or have to be associated with "virtual" costs or earnings, which is generally seen as rather arbitrary.

References

Armbruster-Reif, K. (2003). Multi-Channel Commerce: Hybridstrategien und Controlling. In W. Uhr, W. Esswein & E. Schoop (Eds.), *Wirtschaftsinformatik 2003/Band I* (1 ed., pp. 553-571). Heidelberg: Physica-Verlag.

Balasubramanian, S., Peterson, R. A., & Jarvenpaa, S. L. (2002). Exploring the Implications of M-Commerce for Markets and Marketing. *Journal of the Academy of Marketing Science, 30*(4), 348-362.

Coase, R. H. (1937). The Nature of the Firm. *Economica, 4*(16), 386-405.

Cooper, R. (1988). The Rise of Activity-based Costing - Part One: What Is an Activity-based Cost System? *Journal of Cost Management, 2*(2), 45-54.

Cooper, R., & Kaplan, R. S. (1992). Activity-Based Systems: Measuring the Costs of Resource Usage. *Accounting Horizons, 6*(3), 1-13.

Coughlan, A., Anderson, E., Stern, L. W., & El Ansary, A. (2001). *Marketing Channels* (6th ed.). New Jersey: Prentice Hall.

Feldman, S. (2000). Mobile Commerce for the Masses. *IEEE Internet Computing, 4*(6), 74-75.

Fremgen, J. M. (1964). The Direct Costing Controver - An Identification of Issues. *The Accounting Review, 39*(1), 43-51.

Geib, M., Reichold, A., Kolbe, L. M., & Brenner, W. (2005, 03.01.2005). *Architecture for Customer Relationship Management Approaches in Financial Services*, Big Island, Hawaii.

Hevner, A. R., March, S. T., Park, J., & Ram, S. (2004). Design Science in Information Systems Research. *MIS Quarterly, 28*(1), 75-105.

Holmsen, C. A., Palter, R. N., Simon, P. R., & Weberg, P. K. (1998). Retail Banking: Managing competition among your own Channels. *The McKinsey Quarterly*(Issue 1), 82-92.

Horngren, C. T., Sundem, G. L., & Stratton, W. O. (2002). *Introduction to Management Accounting, Chapters 1-19* (12 ed.): Prentice-Hall International.

Lehner, F. (2003). *Mobile und drahtlose Informationssysteme: Technologien, Anwendungen, Märkte*. Berlin: Springer.

Picot, A., Dietl, H., & Franck, E. (1999). *Organisation: Eine ökonomische Perspektive* (2 ed.). Stuttgart: Schäffer-Poeschel.

Raisinghani, M. (2002). Mobile commerce: Transforming the vision into reality. *Information Resources Management Journal, 15*(2), 3.

Ramsay, M. (2001). Mildly irritating: A WAP usability study. *Aslib Proceedings, 53*(4).

Reichold, A., Schierholz, R., Kolbe, L. M., & Brenner, W. (2003, 01.09.2003). *M-Commerce at Helsana Health Insurance: Mobile Premium Calculator.* Paper presented at the Dexa '03, Prag.

Romano, N. C., & Fjermestad, J. (2003). Electronic Commerce Customer Relationship Management: A Research Agenda. *Information Technology and Management, 4*(2-3), 233-258.

Salomann, H., Dous, M., Kolbe, L. M., & Brenner, W. (2005). Rejuvenating Customer Management: How to Make Knowledge For, From and About Customers Work. *European Management Journal, 23*(4), 392-403.

Schierholz, R., Kolbe, L., & Brenner, W. (2005). Strategy Alignment of Mobile Solutions in Customer-oriented Business Processes. *Wirtschaftsinformatik, 47*(1), 17-24.

Schierholz, R., Ostrowski, A., Glissmann, S., Kolbe, L. M., & Brenner, W. (2005, 11.07.2005). *Performance Measurement of Mobile Marketing in Multi-Channel Environments.* Paper presented at the Proceedings of the Fourth International Conference on Mobile Business (mBusiness).

Shaw, R., & Reed, D. (1999). *Measuring and valuing customer relationships: How to develop the measures that drive profitable CRM strategies*. London: Business Intelligence.

Sowell, E. M. (1973). *The Evolution of the Theories and Techniques of Standard Costs*. Alabama: University of Alabama Press.

Stone, M., Hobbs, M., & Khaleeli, M. (2002). Multichannel customer

management: The benefits and challenges. *Journal of Database Marketing, 10*(1), 39-52.

Swalley, R. W. (1974). The Benefits of Direct Costing. *Management Accounting, 56*(3), 13-16.

Turowski, K., & Pousttchi, K. (2003). *Mobile Commerce: Grundlagen und Techniken*. Berlin: Springer.

Urbaczewski, A., Valacich, J. S., & Jessup, L. M. (2003). Mobile Commerce - Opportunities and Challenges. *Communications of the ACM, 46*(12), 31-32.

Williamson, O. E. (1998). Transaction Cost Economics: How it Works; Where it is Headed. *De Economist, 146*(1), 23-58.

Winter, R. (2001). *The Current and Future Role of Data Warehousing in Corporate Application Architecture.* Paper presented at the Proceedings of the 34th Hawaii International Conference on System Sciences.

Zobel, J. (2001). *Mobile Business und M-Commerce - Die Märkte der Zukunft erobern*. München: Hanser.

About the Authors

Ragnar Schierholz is a Research Associate at the Institute of Information Management at the University of St. Gallen, Switzerland. His research interests include the application of mobile technology and mobile business concepts in customer relationships as well as issues regarding privacy and trust in the field of customer relationship management (CRM).

Alexander Ostrowski works as a controller in the Business to Business department of Jamba/ VeriSign, Inc., Berlin, Germany. Jamba is Europe's market leader in mobile entertainment providing platforms and content to it's customers. Prior to this employment he completed his master, majoring in accounting/ finance at the University of St.Gallen and worked as an assistant researcher at the Institute of Management of the University of St.Gallen in the field of performance and profitability of mobile business technology in CRM.

Susanne Glissmann is a Research Associate at the Institute of Information Management at the University of St. Gallen, Switzerland. Her research focus is performance measurement of mobile business technology in the field of customer relationship management (CRM).

Lutz Kolbe heads the Competence Center Customer Management at the Institute of Information Management and teaches at the University of St. Gallen, Switzerland. His research interests are customer relationship management, security management as well as advanced technologies in the residential environment.

Walter Brenner is Professor of Information Systems at the University of St. Gallen and Managing Director of the Institute of Information Management. His research focus is on integrated information management, customer relationship management and innovative technologies.