



Torsten J. Gerpott/Nima Ahmadi

**Regaining drifting mobile communication customers:
Predicting the odds of success for winback efforts using survival analysis**

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Abstract

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Regaining drifting mobile communication customers: Predicting the odds of success of winback efforts with competing risks regression

Mobile network operators (MNOs) make considerable efforts to reduce customer defection (= churn) by trying to motivate customers who announced to cancel their contract at the next legally possible date to withdraw their notification and to sign another postpaid contract or at least to accept a prepaid offer in case that they are unwilling to completely revoke their cancellation. Nevertheless, empirical evidence on factors significantly associated with the odds of success of an MNO's reactive winback attempt is scarce. As a consequence, this study explores the capability of socio-demographic, contract and service usage characteristics of MNO subscribers as well as their stated primary reason for contract termination to predict the likelihood of a fully successful winback at the individual customer level. In a sample of 305,466 postpaid residential customers of the German subsidiary of a multinational MNO, competing risks regression analysis suggests that younger customers with above average service usage levels who were already in a tariff plan bundling mobile voice and Internet access services, yet had received a subsidized device from their current provider in the past, had not originally signed their contract in the firm's own outlets and stated they cancelled their contract as a precautionary move or due

to tariff level/structure reasons exhibit the highest prospects of full restoration. Moreover, the analysis reveals that the covariates studied and the competing risks regression technique achieve a satisfactory performance in predicting the outcome of the MNO's customer winback efforts. Results are discussed in terms of basic entry points of MNOs for improving both their reactive winback as well as their new customer acquisition strategies.



Univ.-Prof. Dr. Torsten J. Gerpott

Chair of Corporate and Technology Planning, Mercator School of Management, University Duisburg-Essen, Lotharstr. 65, D-47057 Duisburg.



Dipl.-Kfm. Nima Ahmadi

Research assistant at the Chair of Corporate and Technology Planning, Mercator School of Management, University Duisburg-Essen, Lotharstr. 65, D-47057 Duisburg.

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1. Introduction

The worldwide demand for mobile communication services (MCS) such as voice telephony, text messaging and mobile Internet (MI) access has been growing rapidly since the early 1990s. At that time, competition between various mobile network operators (MNOs) started to replace the former monopoly system prevailing in this sector for decades in most countries. Nevertheless, in the recent past developed markets for MCS are increasingly characterized by penetration rates stagnating at high levels. For instance, in the European Union the number of SIM cards per 100 inhabitants already amounted to 132 in 2013 (European Commission, 2014). Furthermore, the markets experience a shift in the usage of established highly profitable voice and text messaging services toward MI-based surrogates provided by applications such as Skype or WhatsApp (e.g., Dialog Consult & VATM, 2014; Ofcom, 2014). As a result, most MNOs at least in Europe face a decline in average revenue per user (ARPU) while at the same time being forced to invest in their infrastructure in order to cope with soaring MI data traffic (Cisco Systems, 2014, p. 5). In addition, an operator's room for maneuver to compensate for higher network costs by raising end-user prices is limited since "commoditization" (Nguyen & Pupillo, 2012, p. 319) of MCS, pressure from competitors amplified through the portability of mobile phone numbers, flexible service plans and market-wide technology standardization make it easy for customers to switch between MCS suppliers (Keramati, Jafari-Marandi, Aliannejadi, Ahmadian, Mozaffari & Abbasi, 2014).

As a result, customer acquisition in developed markets for MCS mainly corresponds to "poaching" (Fudenberg & Tirole, 2000, p. 634) among the subscribers of competitors. Successful customer acquisition requires substantial investment in

customer data collection and analysis capabilities, as well as in designing and executing marketing campaigns. Such campaigns frequently entail substantial initial cash outlays (e.g., reduced prices during a "welcome period", subsidized handset). Consequently, MNO practitioners and scholars alike frequently emphasize that the acquisition of new subscribers costs about ten times more than retaining existing customers (e.g., Keramati & Ardabili, 2011; Kim, Jun, & Lee, 2014). Consequently, MNOs make considerable efforts to reduce subscriber defection.

In academia, quite a number of researchers have sought to identify variables contributing significantly to the discrimination of churning MNO subscribers from their staying counterparts (e.g., Ahn, Han, & Lee, 2006; Benedek, Lublóy, & Vastag, 2014; Keramati & Ardabili, 2011; Kim, Lee, & Johnson, 2013; Rehman & Ali, 2014; Seo, Ranganathan, & Babad, 2008). MNOs exploit findings of this kind of studies to improve their customer retention management programs. Such programs include *preventive* measures to identify the most likely churners in advance and then develop offers, which address their unmet expectations (Lee, Lee, Cho, Im, & Kim, 2011). The offers are typically presented during a "churn avoidance call" (e.g., Boenigk, 2011).

However, since preventive measures do not avoid all contract terminations, most MNOs additionally call customers in the period after the receipt of a cancellation notice and before the date the cancellation becomes effective. This phone contact aims at figuring out reasons to quit and convincing the customer to withdraw the cancellation (e.g., Florl, 2000; Griffin & Lowenstein, 2001; Lopes, Brito, & Alves, 2013; Naß, 2012; Pick & Kannler,

2009; Rauchut, 2009; Stauss & Friege, 1999; Richter, Yom-Tov, & Slonim, 2010; Schöler, 2011; Thomas, Blattberg, & Fox, 2004; Tokman, Davis, & Lemon, 2007). Knowledge regarding success drivers of such *reactive revival* or *winback* measures supports MNOs in developing tailored winback policies. The targeted design of such policies requires that empirically derived weights of antecedents of the outcomes of winback attempts are used to predict for each subscriber who has announced to quit whether an attempt will lead to a cancellation of the termination or not. Winback measures can then be directed at subjects for whom the forecast indicates that they will respond positively to retention offers. This procedure helps to save considerable resources by reducing scattering losses. Empirical work that investigates winback success drivers for MNOs is scarce. In addition, findings concerning *proactive* customer retention measures are of limited usefulness for directing reactive customer winback steps because of differences in their initial context: Preventive measures try to strengthen the commitment of customers before it is dropping to a level which makes a subscriber quit. Winback activities, in contrast, face the challenge of convincing customers to actively withdraw a notification after their commitment is already low and after they have already invested time and cognitive effort to quit the contract.

Against this background, this work empirically examines various customer, contract and MCS usage characteristics as well as termination circumstances in order to identify factors with significant impacts on the odds of success of winback attempts. It uses data drawn from the customer management and billing systems of the German subsidiary of a large multinational MNO. The dataset covers

305,446 residential postpaid subscribers of MCS who announced to cancel their contract during the 11-month period from April 2012 to February 2013.

The remainder of this article is structured as follows. Section 2 lays the foundation of our empirical analysis by structuring earlier customer churn and winback studies based on their contribution toward explaining the contractual status of MCS customers. Building on this, our research question is developed. Section 3 describes the dataset and the statistical methods applied in the present study. Section 4 reports the empirical results. Conclusions of the results for management practice are discussed in Section 5, which also derives areas requiring further research from the limitations of our investigation.