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## Customer segmentation in e-commerce: Applications to the cashback business model

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### ABSTRACT

This paper presents a segmentation of cashback website customers. The segmentation is based on customers' commercial activity and role within the site's social network. In this social network, customers profit from the transactions they make on affiliate websites. Mixing traditional marketing strategies with word-of-mouth recommendations is crucial for the success of this business model because these recommendations boost new customer acquisitions and strengthen the loyalty of existing customers. This study shows how the customer's role within the cashback website's social network determines the customer's behavior and commercial activity on the website. The segmentation presented describes the customer journey in terms of customer profitability and seniority. The findings explain customer behavior in e-commerce and the value of applying personalized retention strategies to each cluster rather than generic strategies or customer acquisition strategies. This paper describes how customers move between clusters, enabling practitioners to increase customer loyalty and long-term profitability.

### 1. Introduction

With millions of competing commercial websites, attracting and retaining high-quality customers is critical for success. To gain an edge over competitors, these websites adopt different marketing methods, many of which are based on updated, Internet-oriented versions of traditional marketing strategies (Libai, Biyalogorsky, & Gerstner, 2003; Rapp, Trainor, & Agnihotri, 2010). Hoffman and Novak (2000) defines working out what customers' need and how to satisfy them as a "work in process." New theoretical and empirical applications continually enrich the literature. Zhang, Hu, Guo, and Liu (2017) and Hair, Hult, Ringle, Sarstedt, and Thiele (2017) focused on applying traditional methods to e-commerce sites and extending these methods. In studies of cashback sites, such applications are yielding promising results.

Cashback websites are based on a specific type of affiliate marketing, which is "...a web-based marketing practice in which a business rewards one or more affiliates for each visitor or customer brought about by the affiliate's marketing efforts" (Ryan, 2016, p. 206). In the case of cashback websites, affiliate websites attract customers in exchange for a reward per visit, transaction, or use of a third party's website. The largest cashback website in the US, Ebates, hosts more than 2000 shopping sites and has more than 2.5 million customers, who spent more than 2.3 billion USD in 2013. TopCashback, the largest UK cashback store, lets customers interact with more than 4000 stores,

including some of the country's principal stores.

As with all other aspects of Internet marketing, activities related to community building and constructing social networks are crucial for success. A small core of engaged individuals can increase the returns of any strategy, especially in affiliate marketing, where trust in recommendations is a key issue (Weber, 2009). As Ashley and Tuten (2015), Stephen and Galak (2012), and Naylor, Lamberton, and West (2012) have shown, social media is important for sales, as is the ability to attract new customers and keep them engaged with the brand. Analyzing these interactions is a growing research area because of its academic and practical relevance.

Academic analysis of cashback websites began only recently. The earliest relevant studies are those of Ballestar, Grau-Carles, and Sainz (2016) and Ballestar, Sainz, and Torrent-Sellens (2016), who focused on how size and make-up of a user's network relate to that user's online behavior, brand loyalty, and profitability. Vana, Lambrecht, and Bertini (2017) empirically studied the effect of cashback offers on customers, showing that financial rewards induce customers to purchase and then make larger acquisitions. Ho, Ho, and Tan (2017) developed a game theory model that analyzes pricing strategies of cashback firms depending on their brand value, providing insights for practitioners.

This study enriches the literature by showing how different customer roles within social networks determine customers' behavior and commercial activity on the cashback website. The empirical analysis

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reveals eight clusters of customers who differ in terms of their profitability and seniority. The method helps practitioners understand customers' e-commerce behavior. The study shows the value of applying personalized digital marketing strategies to retain customers.

## 2. Theoretical background

Cashback websites encompass a wide range of merchants that offer rewards to customers for transactions or visits. These sites thereby facilitate the purchase process and provide financial rewards to customers (Ballestar et al., 2016). Understanding digital marketing: marketing strategies for engaging the digital generation. The success of this business model lies not only in the structure and marketing strategy, but also in the mix of customer-centric strategies, including word-of-mouth as a tool for developing customer's social networks through recommendations attached to financial incentives.

Ballestar et al. (2016) confirmed the success of this strategy mix by showing that customers' revenues grow as customers become more engaged with the cashback website and their social network of referees grows. Customers behave significantly differently depending on the nature of their social network because customers enrolled in the cashback website make more transactions and are more multi-transactional. The marketing strategy of instant financial rewards for social network activity offers an incentive for customers to join and develop their social networks (Swamynathan, Wilson, Boe, Almeroth, & Zhao, 2008).

Not all enrolled customers are equally engaged. Their role within the social network is the key to understanding their purchase behavior and commercial activity on the website, as well as their loyalty. Social network analysis offers insight into relationships among users and the complex structure of business organizations and markets. Social network analysis enables analysis and quantification of these interactions (Monaghan, Lavelle, & Gunnigle, 2017). The advantage of social network analysis is that it uses direct data on behavior, which avoids problems of surveys and thereby increases accuracy (Conway, 2014). In this framework, the research hypothesis is as follows:

**H1.** The purchase behavior of customers depends on their role within the social network.

As an application of word-of-mouth to e-commerce, online communities offer an effective way for social interactions and information sharing to be translated into purchasing tools (Dennison, Bourdage-Braun, & Chetuparambil, 2009). Sharing knowledge allows for more informed decisions, shifting the power from retailers to customers because a more collaborative and social approach allows for better-informed marketplaces (Stephen & Toubia, 2009). Zhang, Lu, Gupta, and Zhao (2014) developed a research model according to which customers' interest in participating in social networks is given by how they interact or socialize within the network.

**H2.** Customers who are more involved in the social network make more transactions that require payouts. These customers are more profitable to the brand because they generate a greater volume of cashback.

Electronic commerce has undergone a fundamental change. The rise of social commerce has allowed online customers to share experiences, share advice, and examine and buy goods and services (Mardsen, 2010). Pavlou, Liang, and Xue (2007) showed that uncertainty in online markets has decreased because of aspects such as trust and social presence, which encourage transactions. Qiu and Rao (2017) showed that involvement and profitability are related to social applications and cashback services.

**H3.** Customers who are more involved in the social network are more multi-transactional. These customers make more kinds of transactions, indicating that they are more engaged and thus more loyal to the brand.

Aral and Walker (2011) showed that the characteristics of online social networks tend to remain constant over time, with strong peer

effects and homophily. Bapna and Umyarov (2015) found that peer effects diminish with the number of connections, concluding that in social networks, greater involvement means a greater effect on co-users. We extended this empirical analysis and drew upon Aral's (2011) study by examining the participation of highly involved users in the social network.

## 3. Data collection

We used data from one of the largest cashback websites in continental Europe. This website operates in 14 countries, has more than two million customers, and has annual sales of more than 20 million Euros. Observations were gathered from January to March 2015. The data collection procedure enabled simplification without losing representativeness. Data on all transactions by customers and their roles within the social network were collected. To avoid sample bias, new customers who enrolled in the website during this period were excluded because these customers had insufficient time to develop their social networks.

Customers can join the cashback website social network proactively or as a referee following existing customers' recommendations in a word-of-mouth marketing strategy. The cashback policy stipulates that customers receive direct cashback for all transactions they make and network cashback for click and visit transactions by users in their network of referees up to second level. The level in the social network reflects the degree of the relationship between referrer and referee. First-level referees joined following recommendation from the referrer. Second-level referees joined following recommendation from users in the first level. The average size of the network for customers in the sample was 32.8 referees per customer (13 in the first level and 19.8 in the second).

The 12,548 customers in the sample had each made at least one transaction. The sampled customers made 687,682 transactions altogether, receiving 90,876 Euros in direct cashback and 4868 Euros in network cashback from referees' transactions. Men accounted for 59.55% of the sample (mean age 35.3 years). Women accounted for 40.44% of the sample (mean age 36.4 years).

The data were aggregated at the customer level in a single table with 12,548 records, and 60 variables were calculated to measure customers' commercial activity and role within the social network. Of these 60 variables, 8 were relevant for the empirical analysis. Data mining was performed in MySQL and SAS. Descriptive analysis is detailed in Subsections 3.1 and 3.2.

### 3.1. Customer transactionality

Customers made an average of 55 transactions during the period of observation. These transactions can be divided into five types. For each customer, the number of each type of transaction was captured in a numerical variable. The five types of transactions are as follows:

#### 3.1.1. One-click or visit transactions

These transactions do not require payouts. This type of transaction consists of activities such as watching videos, becoming a fan in social networks, and so forth. In the sample, 80.90% of customers had made at least one transaction of this kind. These transactions represented 97.76% of total transactions and generated 13.23% of total direct cashback (0.02 Euros average cashback per transaction).

#### 3.1.2. Registration

Registration occurs when a customer sets up a user account with an affiliate merchant. This transaction does not require payouts. In the sample, 6.69% of customers had made at least one transaction of this kind, which represented 0.15% of all transactions and generated 13.78% of total direct cashback (12.48 Euros average cashback per transaction).

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