

# AN EMPIRICAL STUDY ON THE USAGE OF SOCIAL MEDIA IN GERMAN B2C-ONLINE STORES

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## ABSTRACT

*Customers in electronic commerce (e-commerce) are shifting more and more from content consumers to content producers. Social media features (like customer reviews) allow and encourage user interaction in online stores. An interesting question is, which social media features are actually provided by online stores to support user interaction. We contribute knowledge to this question, by studying the social media features of the 115 highest-grossing German B2C-online stores from the years 2010 and 2011. We categorize the results of the observational study into the seven building blocks of social media to understand what areas of social media are used the most in these online stores. The results of our study show, that the average online store implements about five social media features and that the majority of the features are placed on product pages. The most common features were customer reviews and ratings and the sharing and liking of product details.*

## KEYWORDS

*Empirical study, Social media, E-commerce, Social commerce*

## 1. INTRODUCTION

More and more customers of electronic commerce (e-commerce) make use of social media, for example to get advice before purchasing online. This is demonstrated in a study of IBM, which questioned 4,000 consumers about their online shopping behavior. The results of this study show that over 50% of the 16 to 64 year old consumers use social networks to support their buying decisions [1]. Another study on the influence of social media shows similar results [2]. It states that 70% of the 1,300 questioned consumers use social media during their buying process.

The results from the mentioned studies indicate that customers are seeking for a social interaction when purchasing online, therefore it seems advisable for e-commerce websites to incorporate social media features into their systems. An interesting question is how current online stores use social media to support user interactions? To contribute knowledge to this question, we have conducted an observational study among the 115 highest-grossing German B2C-online stores from the years 2010 and 2011. We have further categorized the found social media features into the seven building blocks of social media (see Figure 1), to understand what areas of social media are used the most in the conducted online stores.

The remainder of this paper is organized as follows. In Section 2 we take a look at the existing literature of social media and its role in e-commerce. In Section 3 we highlight related studies, which researched the use of social media in online stores. Section 4 explains the methodology of our observational study. The results of the study are then presented in Section 5 and discussed in

Section 6. Finally in Section 7, we conclude our research and provide a short overview of possible future work.

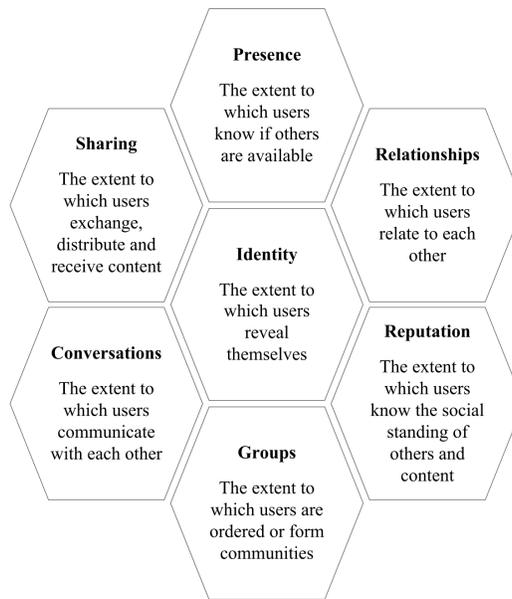


Figure 1. The seven building blocks of social media (based on [3])

## 2. BACKGROUND

The main aspect of our study is the research of the social media usage in online stores. To provide the background for our study, this section explains the term social media, its building blocks and its use in e-commerce, which is often expressed with the term social commerce.

Unfortunately there is no agreed upon definition for the term social media. An often cited definition comes from Kaplan and Haenlein. For them, "Social Media is a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of User Generated Content." [4]. Another definition of social media comes from Kietzmann et al. For them, social media is used to build interactive platforms that allow individuals to create and exchange user-generated content [3]. Although the two definitions are different, they center on the same concepts, namely the collaboration of users and the application of user-generated content.

While social media applications can be classified by above definitions, they often differ in the features they provide. This is best shown on the example of the popular social media applications Facebook (<http://www.facebook.com>) and Delicious (<http://www.delicious.com>). Although both applications conform to above definitions of social media, they focus on different facets. Facebook focuses on people and therefore provides many identity features, whereas Delicious focuses on bookmarks and provides mainly sharing features. Kietzmann et al. [3] identified these different facets and categorized them into the seven functional building blocks of social media, which are shown in Figure 1. A social media application uses at least one of these building blocks, but not necessary all of them.

A social media building block can be thought as an aggregation of several social media features. We define a social media feature as a concrete service that allows user interaction. An example would be the collaborative tagging feature that is provided in several social media applications, for example Facebook or Delicious. Collaborative tagging can be seen as part of the "Sharing" building block, because it allows a user to create tags (i.e. special keywords) that are shared with other users. Another exemplary social media feature is a message board, which allows users to communicate with each other. This feature can therefore be categorized into the "Conversations" building block.

After defining social media and its building blocks, we briefly discuss the use of social media in the context of e-commerce. In recent literature, the combination of social media and e-commerce is often called social commerce [5, 6, 7]. But because of the different disciplines that are involved in social commerce (e.g. computer science or sociology), its definition varies [5]. For this paper, we agree with the social commerce definition from Marsden [7]: "Social commerce is a subset of electronic commerce that uses social media, online media that supports social interaction and user contributions, to enhance the online purchase experience."

Another term that relates to e-commerce and social media is social shopping. The term social shopping is often used as a replacement for the term social commerce, but its meaning is different. Although there is no official definition for social shopping, social shopping sites are often considered as virtual communities that allow users to exchange shopping opinions and recommendations [8]. The difference to social commerce is that social shopping sites are not selling products on their own. They are mostly just providing a platform for social interaction and directing the user to the retailer of the product.

## **2. RELATED WORK**

In the past, some efforts were made to measure the capabilities of social interactions in online stores. In this section we highlight related studies and distinguish them from the study presented in this paper.

A study from Stormer and Frauchinger [9] from 2008 showed that most of their conducted online stores showed only a limited capability for social interactions. Half of the 12 conducted online stores were categorized with a low rating for social interactions. Merely the online store from etsy.com was rated with a high social interaction. But because of the small number of conducted online stores in this study and the rough categorization in low, medium and high social interactions, the significance of this article is rather low.

In 2009 Leitner and Grechenig [10] were looking for new ways of social interaction and collaboration in the field of e-commerce. Their sample contained 100 international social shopping websites. As we described earlier, a social shopping website can only be seen as a platform for social interaction and not as an online store. Therefore, the focus of Leitner and Grechenig's work is different to the study presented in this paper, where classic B2C-online stores were conducted that sell products on their own.

Another related study was carried out by Lackermair and Reuder in 2012 [11]. The study looked at social interaction capabilities and Web 2.0 features of 100 online stores. Two things distinguish their study from the study in this paper. For one thing the mentioned study was categorized with a focus towards Web 2.0 features and not towards social media. One category was for example the occurrence of RSS-feeds, which is not considered as a social interaction feature. Secondly, Lackermair and Reuder defined fixed categories for their analysis, i.e. they only checked the

conducted online stores against these predefined attributes. In the study of this paper, an explorative approach was chosen with the intention to find all social media services provided by the online stores.

Finally, a recent study from Huang et al. examined 20 e-commerce websites from the U.S. and Canada for social tools and applications [12]. The concept of their study is similar to this study in that it looks at social media features in B2C-online stores from a users' perspective. However, their categorization of the social media features differs from our study. They use the five categories: social connection, social communities, social media marketing, social shopping and social applications. The appearance of the category "social media marketing" is surprising, because it would be expected in a seller-focused study and not in a user-focused one.

### 3. METHODOLOGY

In this section we discuss the methodological approach for our study. We explain the steps that were carried out in order to answer our main research question: What kinds of social media features are used in German B2C-online stores?

#### 3.1. Sample selection

The sample for our study comes from the 100 highest-grossing German B2C-online stores from the years 2010 and 2011. The data basis for these two years was taken from the iBusiness website (<http://www.ibusiness.de/rankings/2101247743.html> and <http://www.ibusiness.de/rankings/2547084935.html>). By selecting the highest-grossing online stores, we assume a high degree of maturity for the chosen online stores. Furthermore, we consider these online stores relevant, because we assume that the number of sales goes hand in hand with the number of customers. Although we cannot prove this correlation, we assume that the conducted online stores have an impact on a variety of customers.

For our sample, we combined the two top 100 lists from the years 2010 and 2011. Many of the top 100 online stores from the year 2010 were also present in the top 100 from the year 2011, which gave a total number of 117 distinct online stores for these two years. After the exclusion of the two online stores from Neckermann and Schlecker, which did not exist anymore at the time of our study, the final sample comprised 115 online stores. A listing of these stores can be found in Table 1, which displays the domain names of the conducted stores. The last access to the listed websites above was made during our observation period, as described in the next section.

Table 1. Listing of the 115 conducted online stores (ordered by domain name)

adobe.com/downloads/	alternate.de	amazon.de
apodiscounter.de	atu.de	baby-walz.de
bader.de	baur.de	bonprix.de
brands4friends.de	buch.de	buecher.de
buy.norton.com	c-and-a.com	channel21.de
computeruniverse.net	comtech.de	conrad.de
cyberport.de	deichmann.com	dell.de
docmorris.de	douglas.de	dress-for-less.de
drucker-guenstiger.de	druckerzubehoer.de	emp.de
esprit.de	fab.de	fernseher-guenstiger.de
fressnapf.de	frontlineshop.de	galeria-kaufhof.de
getgoods.de	globetrotter.de	goertz.de

hagebau.de	handyshop.de	hardwareversand.de
heine.de	hm.com/de	hoh.de
hornbach.de	hse24.de	ikea.com/de
imwalking.de	innova24.biz	itunes.apple.com/de
jako-o.de	kapersky.com/de	karstadt.de
kfzteile24-shop.de	kidoh.de	klingel.de
landsend.de	libri.de	lidl.de
limango.de	logitech.com	louis.de
medion.com	medpex.de	mindfactory.de
mirapodo.de	moebel-profi.de	musicload.de
mytoys.de	nero.com/deu/store.html	notebooksbilliger.de
obi.de	office-discount.de	otto.de
pearl.de	planet-sports.de	plus.de
promarkt.de	qvc.de	real-onlineshop.de
redcoon.de	reichelt.de	reifen.com
reifendirekt.de	roller.de	rossmannversand.de
sanicare.de	schuhtempel24.de	schwab.de
sheego.de	shop.haufe.de	shop-apotheke.com
software-download.mediamarkt.de	soliver.de	sportscheck.com
staples.de	store.apple.com/de	tchibo.de
telekom.de	thalia.de	thomann.de
tomtom.com	t-online-shop.de	toysrus.de
unimall.de	vente-privee.com	viking.de
voelkner.de	walbusch.de	weltbild.de
wenz.de	westfalia.de	westwing.de
www8.hp.com/de/de	yves-rocher.de	zalando.de
zooplus.de		

Because the assortments of the conducted online stores are very heterogeneous, we grouped them into 10 categories, which allows a more detailed segmentation of the results later. The assortments and their total occurrences are shown in Figure 2. Assortments that occurred at least five times were grouped together, while every other assortment was put in the category Miscellaneous. The three most often occurred assortments are: "Full range of products", "Clothing, textiles, shoes" and "Computer, consumer electronics, cellphones, accessories". Well known representatives of these assortments include for example amazon.de, notebooksbilliger.de or esprit.de.

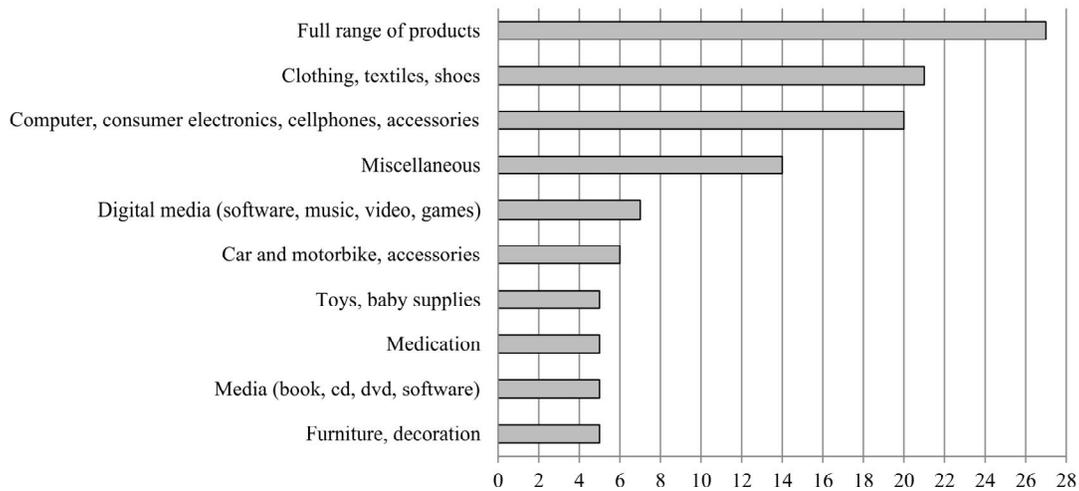


Figure 2. Distribution of the assortment for the conducted online stores

### 3.2. Observation and data collection

The observation for our study started on October 15, 2012 and ended on November 6, 2012. We used the web browser Mozilla Firefox (version 16.0.2) to observe the social media features of the conducted online stores. We observed the websites in a standardized way to achieve reproducibility. For each online store, we carried out the following steps, which are explained below:

1. Open website of online store and create a user account (if possible)
2. Observe start page and user profile page
3. Observe product pages

When visiting an online store for the first time, we looked for a possibility to create a user account for that store. This was done to make sure that all social media features can be observed, even the features that are only available for registered users. For five online stores, the creation of a user account was not possible, because they either required sensitive information that we did not want to provide (for example a credit card number) or they only allowed a registration as part of an order process. Therefore it is possible that not all social media features were observed for these online stores.

After the creation of a user account, we looked at the start page to find possible indicators for social media features, for example links to blogs or discussion boards. We followed these links to inspect the characteristics of the social media features. If we found a link to a site map on the start page, we also analyzed the links on the site map for possible social media features. We then looked at our user profile page (if a registration was possible), to find interaction or identity features.

Finally, we observed the product pages of the online store. As the central element of every online store, a product page is suitable for providing interaction features, like customer reviews or other sharing features. Based on the assumption that the structure and the interaction features of product pages are identical for every product, we chose to observe random product pages. When the start page of the online store provided links to categories like "top-seller" or "best-seller", we chose to

select a random product from these categories, because we assumed a higher customer interaction for these products, for example more customer reviews or comments.

During our observation we collected and noted all social media features that were found. Every feature was modeled as a dichotomous attribute, i.e. a feature is either present or not present in an online store. We later categorized the social media features into a common and product area. The common area contains features that were found on the start page or the user profile page. The product-specific area contains only features that were found on product pages.

Finally, it must be noted that the above method for finding social media features was only applied in a pre-purchase context, i.e. without actually buying anything from the conducted online stores. Therefore potential social media features that could be part of the post-purchase process (e.g. sharing a purchase with friends over a social network) are not included in our study. Furthermore, we limited the study to social media features that actually involve user interactions. Therefore we excluded features of the online store that are based on other users' behavior, for example product recommendations that were based on other customers' preferences.

#### 4. RESULTS

In this section we will present the results of our observation. A discussion of these results can be found in the next section.

First of all, we consider the number of the social media features that are used by the 115 conducted online stores. The total number of used social media features for all online stores is 581, which leads to an average number of implemented social media features of 5.05. There are six online stores with no social media features at all, while one online store had a maximum of 14 social media features. However, this maximum can be considered as an outlier in regard to the box plot shown in Figure 3. Besides the box plot, Figure 3 also shows a histogram for the distribution of the social media features. A summary of the distribution, including quantiles and mean value, is displayed in Table 2.

Table 2. Summary for the distribution of the social media features

Minimum	1. Quartile	Median	Mean	3. Quartile	Maximum
0	3	5	5.05	7	14

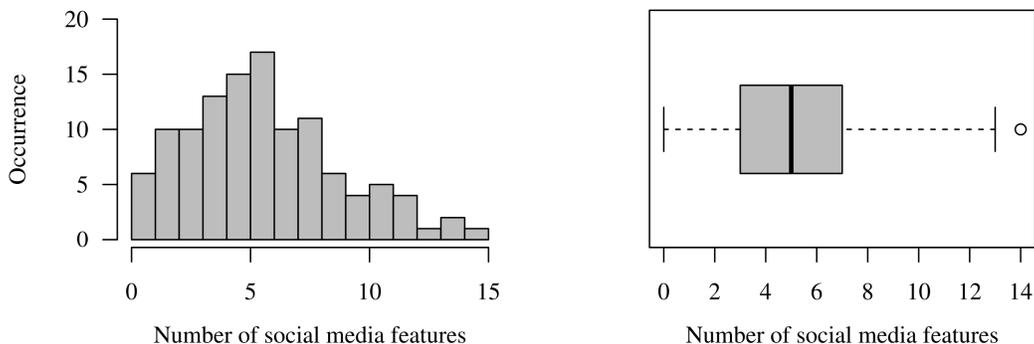


Figure 3. Histogram and box plot for the distribution of the social media features

As discussed in the previous section, we separated the found social media features into a common area and a product area. From the total number of 581 social media features, 127 were found in the common area and 454 were found in the product area. In the next paragraphs we present the results for these two areas.

As shown in Table 3, we found 11 distinct social media features among the conducted online stores that are related to a common area. The most often used feature is a blog, which is used by almost a third of the conducted online stores. A blog lets users interact on content that is published by the online store. In two online stores it is also possible for users to create their own blog. About 26% of the online stores allow the sharing of a product wish list. A product wish list is a user generated list, which contains products of the online store that the author of the list would like to have. In one online store it is possible to rate the wish lists of other users. Discussion platforms (e.g. message boards) are used by about 18% of the online stores. In about 16% of the cases, the creation and maintenance of a public customer profile is possible. About 9% of the online stores have a system for the reputation of users, for example a list of top reviewers. The customer interaction features for managing contacts, sending messages and determine the online status of other customers are used by about 2%, 3% and 1%, respectively. One online store offers a feature to manage events and important dates in a calendar and share them with other users.

Table 3. Results for the dichotomous attributes of common area (ordered descending by occurrence)

<b>Attribute</b>	<b>Occurrence</b>
Blog	33.04%
Sharing of a products wish list	26.09%
Discussion platform for customers (e.g. message boards)	18.26%
Public customer profile	15.65%
People-based reputation system (e.g. top reviewer)	8.70%
Sending messages to other customers	2.61%
Manage contacts inside the online store	1.74%
Users-created Blog	1.74%
Determine online status of other users	0.87%
Manage events and dates	0.87%
Rating the wish lists of other users	0.87%

For the product area we found 14 distinct social media features, which are displayed in Table 4. The two most common features in the product area are customer ratings and customer reviews. Customer ratings are used by about 69% and customer reviews are used by about 66% of the online stores. A customer rating is a feature that allows a customer to rate a product on a specified scale (often a 5-star scale). A customer review allows a customer to express his opinion about a product in a written text. Customer ratings and reviews were used together in about 65% of the cases. Only about 4% of the online stores offered a customer rating or a review system separately.

Exactly 40% of the online stores also had a feature to rate the helpfulness of customer reviews. This feature is used to determine the quality of a customer review and can be used in people-based reputation systems (for example to determine top reviewers). One online store also offers a feature to thank an author for a review and uses that information in the reputation system. Another feature regards the commenting of customer reviews, which is possible in about 9% of the cases. A detailed customer rating (additionally to the overall rating) was possible in about 18% of the conducted online stores. Detailed customer ratings allow users to rate multiple, predefined attributes of a product, for example the attributes "sound quality" or "wearing

comfort" for an MP3 player. In contrast to predefined attributes, about 10% of the online stores allow users to add advantages or disadvantages to their customer review as free text. To increase the usefulness of reviews, about 9% of the online stores also allow users to share some personal information in their reviews (for example their age or their type of skin).

Almost 60% of the online stores provide a product recommendation via e-mail, where a user can forward the URL of the product page to a friend. The sharing of product details via social networks (e.g. Facebook or Twitter) is possible in about every second online store. About 49% of the online stores include a button for users to express their support for a given product, a so called "like" or "recommend" button from social networks like Facebook or Google+. Only one online store (amazon.de) provides a custom "like" button, which is maintained by the online store itself and not by an external social network. The creation and assignment of user generated keywords, so called tags, is possible in about 3% of the cases. Tags are often used to allow a user generated categorization of content. About 10% of the conducted online stores allow a contribution of user generated media, for example uploading product pictures.

Table 4. Results for the dichotomous attributes of product area (ordered descending by occurrence)

<b>Attribute</b>	<b>Occurrence</b>
Customer ratings	68.70%
Customer reviews	66.09%
Product recommendation via e-mail	59.13%
Sharing product details via social networks (e.g. Facebook)	53.91%
Liking product details via social networks (e.g. Facebook)	48.70%
Rating the helpfulness of reviews	40.00%
Detailed customer ratings (additional to the overall rating)	18.26%
Add custom advantage/disadvantage to reviews or ratings	10.43%
Uploading user generated media (e.g. product pictures)	10.43%
Comments in customer reviews	8.70%
Add personal information to reviews or ratings	8.70%
User defined tags	3.48%
Custom Like-functionality for a product	0.87%
Thank author for review	0.87%

Finally, we look at the average numbers of social media features divided into assortments, which are displayed in Table 5. Only the following four assortments have an average number of social media features that is higher than the overall mean of 5.05: "Full range of products", "Media (book, cd, dvd, software)", "Miscellaneous" and "Toys, baby supplies". Because the number of conducted online stores varies for the assortments, the significance of the average values also varies. To better assess the significance, Table 5 also contains the number of online stores that were conducted in the respective assortment.

Table 5. Average number of social media features divided into assortments

<b>Assortment</b>	<b>Number of features</b>	<b>Stores</b>
Car and motorbike, accessories	1.83	6
Clothing, textiles, shoes	4.86	21
Computer, consumer electronics, cell phones, accessories	4.95	20
Digital media (software, music, video, games)	2.86	7
Full range of products	5.74	27

Furniture, decoration	3.6	5
Media (book, cd, dvd, software)	6.8	5
Medication	3.4	5
Miscellaneous	6.71	14
Toys, baby supplies	6.2	5

## 5. DISCUSSION

In this section we discuss the results of the previous section. We further categorize the found social media features into the seven building blocks of social media and discuss its implications. From the 25 distinct social media features that were found, 11 features were found in the common area of the online store, while 14 features were found on the product-specific page. Additionally, from the total number of 581 features that were found for all online stores, 454 features (about 78%) were found in the product area. These results indicate that the conducted online stores focus on product pages as a primary target for their social media features.

From the 454 features in the product area, alone 250 features (about 55%) regard customer ratings and reviews (including related features like rating the usefulness of a review). This shows that in the conducted online stores, customer ratings and reviews are by far the most popular social media features. It can also be assumed that most of the conducted online stores see customer ratings and reviews as complementary features, because of all 80 online stores that provide either customer ratings or reviews, 75 online stores (about 94%) use customer ratings together with customer reviews.

A surprising result is that tagging features are only used by about 3% of the conducted online stores. From our point of view, tagging can be helpful in e-commerce, because it allows a flexible categorization of products via multiple keywords. Tagging can also be used for cross-referencing products, for example when a customer clicks on a products' tag and sees other products that were also tagged with the same keyword. An interesting question for future research could be, why tagging is not used more often in the conducted online stores.

As we have mentioned in Section 3, the study of [12] is similar to our study. Despite their similarity it is difficult to compare these two studies, because of their different methodological approach and their different categorization of the results. Nonetheless, the most used social media features in both studies are similar. The most used features in the online stores from the study of [12] are ratings, reviews, sharing and "like" buttons. This is similar to the findings in our study, where the most common features in the product area also include customer ratings, reviews and the sharing and liking of product details (see Table 4).

To provide a better categorization of the found social media features, we assign them to their respective social media building block as shown in Table 6. The table shows only six of the seven building blocks, because there were no features found for the social media building block "Groups". From Table 6 can be inferred that the building blocks with the most features are "Reputation", "Sharing" and "Conversations". Each of the other three building blocks have only one assigned social media feature.

Table 6. All found social media features and their assigned social media building block

<b>Building block</b>	<b>Social media feature</b>
Conversations	Blog
	Comments in customer reviews
	Discussion platform for customers (e.g. message boards)

	Sending messages to other customers
	Users-created Blog
Identity	Public customer profile
Presence	Determine online status of other users
Relationships	Manage contacts inside the online store
Reputation	Add custom advantage/disadvantage to reviews or ratings
	Custom Like-functionality for a product
	Customer ratings
	Customer reviews
	Detailed customer ratings (additional to the overall rating)
	Liking product details via social networks (e.g. Facebook)
	People-based reputation system (e.g. top reviewer)
	Rating the helpfulness of reviews
	Rating the wish lists of other users
	Thank author for review
Sharing	Add personal information to reviews or ratings
	Manage events and dates
	Product recommendation via e-mail
	Sharing of a products wish list
	Sharing product details via social networks (e.g. Facebook)
	Uploading user generated media (e.g. product pictures)
	User defined tags

It may be surprising that the "Reputation" building block contains the most social media features, but according to Kietzmann et al. [3], reputation is not necessarily restricted to people, but can be applied to any kind of content that can be rated. The main type of content in every online store is the product. Customer ratings, reviews or other "like" buttons are used to modify and determine the reputation of a product. Other reputation features are for example the rating of the usefulness of reviews or the rating of product wish lists.

The "Sharing" building block can be divided into internal and external sharing. Internal sharing means the sharing of content with other users of the online store, for example uploading user generated media or creating tags. External sharing means the sharing of content with external users, for example the sharing of product details via a social network or via e-mail. It can be inferred from Table 4 that external sharing is far more common than internal sharing, which leads to the assumption that most of the conducted online stores are more interested in acquiring new customers through external sharing features than to build a social network-like platform for existing customers.

After to the assignment of the found features to their respective building block we highlight the total usage of the building blocks in Figure 4. The figure shows what percentage of the 115 conducted online stores used each building block. The building blocks with the most found features (see Table 6) are also the building blocks that are used by most of the online stores, namely the "Reputation", "Sharing" and "Conversations" building block. The most often used building block is "Sharing", which is used by 93 online stores (about 81%). The building blocks "Presence", "Relationships" and "Identity" are only used by a minority of the conducted online stores, whereas the building block "Groups" is never used.

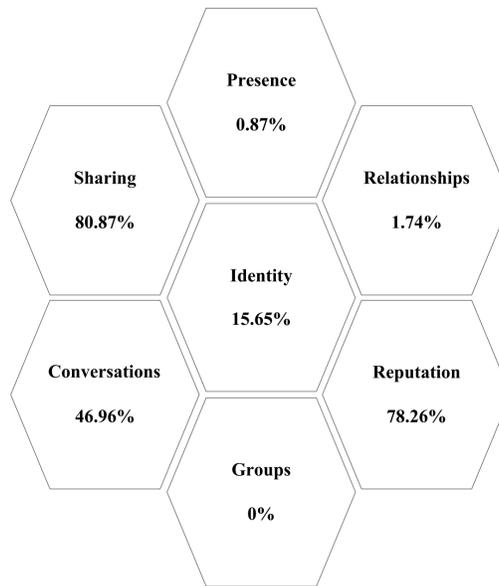


Figure 4. Usage of the seven building blocks of social media in the conducted online stores

Finally, there are some limitations of the study that need to be addressed. First, the study looked only at the highest grossing B2C-online stores and is therefore not representative for all German online stores. Another study would be necessary to determine whether the characteristics of smaller online stores differ from the conducted online stores in this study. Second, the results of the study say nothing about the actual usage of the found features. Although the study discovered that sharing features are used the most in the conducted online stores, this does not necessarily mean that these features are also used by most of the customers. This customer behavior would need to be investigated in a separate study.

## 6. CONCLUSIONS AND FUTURE WORK

The study in this paper highlighted the usage of social media features in German B2C-online stores. The average of the 115 conducted online stores implements about five social media features, while only six online stores offered no social media feature at all. The study showed that the majority of the features were found on the product pages. The most common social media features were customer reviews and ratings and the sharing and liking of product details. The connection to external social networks (e.g. Facebook) is very popular here, where about half of the conducted online stores have features to share and like product details via at least one social network.

The found social media features of the study were then categorized into the seven building blocks of social media, which were defined by Kietzmann et al. [3]. The most often used building block is "Sharing", which is used by about 81% of the conducted online stores. The two building blocks "Reputation" and "Conversations" are also frequently used, while the other building blocks are only used by a minority.

Based on the knowledge of the most common social media features, further studies can be conducted to investigate whether these features are in line with the features that customers actually want to use. It would also be interesting to find out how online stores of other countries use social media. We encourage authors of other countries to carry out a similar study based on

the methodology described in this paper. This could lead to an interesting comparison between different countries regarding the usage of social media in online stores.

In our future research we are looking for new ways to use social media in the field of e-commerce. As the study has shown, there are a lot of areas in the seven building blocks of social media that are not used by online stores. We will concentrate our future research efforts on the tagging feature, which was surprisingly only used by about 3% of the conducted online stores.

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