

Analyzing Consumer Behavior at Retailers with Hybrid Distribution Channels – A Trust Perspective

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ABSTRACT

Retailers with multiple distribution channels are increasingly gaining market shares compared to Internet-only retailers. However, a lack of research explaining consumers' purchasing behavior in a multi-channel context can be identified.

This paper discusses examples of multi-channel strategies and describes in detail the case of an online retailer who aims at measuring the interrelation between the sales channel Internet and a physical branch network. Based on the analysis of the retailer's transaction data and a literature review, we derive hypotheses to explain consumer purchasing behavior. A questionnaire is presented to further test the hypotheses.

Categories and Subject Descriptors

eCommerce Management - Practitioners Track.

General Terms

Measurement, Theory, Verification.

Keywords

B2C eCommerce, New Business Models, Consumer Behavior, Trust

1. INTRODUCTION

The hybrid sales approach of combined offline and online retailing has become a distinct electronic commerce business model [30]. In this model companies - often referred to as multi-channel businesses - establish the Internet as a further sales and information channel in addition to their branch network and other sales channels. Whereas Internet-only businesses could not materialize profits anticipated from reduced transaction cost, lower operational cost and economies of scale [25], multi-channel companies entered the market lately and successfully gained

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market shares from companies that sold products exclusively on the Internet [20]. Multi-channel retailers were able to increase their online market share steadily to 67% in 2001 from 52% in 1999 in contrast to Internet-only retailers, which inversely lost market shares [4].

Information Science (IS) literature has proposed various consumer models describing purchase behavior at Internet-only retailers [16, 13, 21]. These research models typically derive hypotheses from a literature review. Our approach derives hypotheses from literature but also from the evaluation of a multi-channel retailer's transaction data. A questionnaire and a consumer trust model for multi-channel retailers is introduced that can be further tested using structural equation modeling.

Section 2 gives an overview of related work. Section 3 describes specific examples of multi-channel strategies at large retailers. Section 4 introduces the case of a multi-channel retailer and presents findings from the analysis of customers' transaction behavior. Based on this empirical evidence and a literature review, we derive hypotheses possibly explaining users' multi-channel affinity. Section 5 introduces a consumer trust model and a questionnaire that could further support the testing of the proposed hypotheses. Section 6 summarizes the results.

2. RELATED WORK

In order to deal with multi-channel businesses systematically, one needs to understand characteristics of different sales channels. We distinguish "media channels" (e.g. mail, television, the World Wide Web) and "institutional channels" (e.g. physical stores, call center, sales force). The term "media channels" refers to media available for marketing and communication tasks in order to establish customer contacts. In contrast, "institutional channels" are physical customer touch points, where a customer can also physically complete a transaction.

Furthermore, channels can be matched with three phases of customer interaction, which are *reach*, *transaction* and *service*. *Reach* characterizes the potential to promote products or services to the consumers. *Transaction* refers to the ability to execute an order on the specific medium. *Service* finally includes the ability to communicate and to serve customers' needs.

A classification of strengths and weaknesses for channels and their ability to interact with customers at each of the three interaction phases has been proposed in Table 1 [3].

Table 1. Channel Classification

Channels Phases	TV	Physical Branch	Catalogue	Internet	Call Center	Mobile Devices
Reach						
Transaction						
Service						

According to a recent study, the best channel strategy for each company depends primarily on its offered product portfolio. Entertainment-related products such as videos, music and software are suitable for being sold online. In contrast, involvement-intensive products such as furniture, apparel and footwear are determined for being sold offline. Some products such as sports equipment and home appliances are best suited for a hybrid approach [19]. In the empirical part of this paper, we particularly analyze data from a retailer that operates an Internet store and a physical store network in the consumer electronics segment, where multi-channel retailing is a successful strategy [19].

Related work also comes from IS literature. Whereas the Internet business model literature focuses primarily on the economics and strategy of pure Internet firms [30], recent work suggests that major advantages lie in the combination of sales channels [26, 10, 31]. Though multi-channel retailing has been addressed in conceptual frameworks before [25, 7], none of the authors has analyzed potential synergetic effects based on the analysis of transaction data from a multi-channel retailer.

A controversial debate has emerged among practitioners and academics on whether and how different sales channels should be integrated [12]. Stern et al. [27] point out channel conflicts such as sales cannibalization resulting from the establishment of multiple sales paths from the producer to the end customer. In contrast, most recent work suggests that the close alignment of e-commerce capabilities with existing infrastructure infers performance and sales improvements [31]. Steinfield [26] claims that the integration of online and offline sales channels supports the acquisition of new customers, thereby generating increased revenues and reduced costs. The use of a common infrastructure, common operations and marketing may also represent an advantage for hybrid businesses because it can be shared for analysis purposes between e-business and the physical operation [31]. For example, a common Order Processing System could improve the tracking of customers' movements between channels and enhances the company's understanding of its customer needs on each channel. Finally, Steinfield [26] sees the major advantages of hybrid businesses in a reduction in the lack of trust that often faces Internet-only businesses.

Trust has been identified as a decisive construct influencing online sales for Internet-only retailers. Several authors [28, 8, 16, et al.] conceptualized factors that support trust in an online store and showed empirically that trust has a major influence on the customer's risk perception and the willingness to buy respectively. Doney and Cannon [8] label trust even as an order qualifier for purchase decisions. Jarvenpaa et al. [16] and Ganesan [11] empirically found that several factors such as prior, *positive*

interactions with a merchants operations, *site reputation* and *size* positively influence consumer trust.

Steinfield [25] concludes with a call for future empirical research that can test whether, and under what conditions, integrated multi-channel business models work well. Gallagher [10] also examines the effect of e-commerce on firm's distribution channels and calls for a better understanding of the interplay of channels to determine how e-commerce will affect a firm and its industry. This is of great importance for the retail industry as the seamless integration of different customer touch points such as stores, Internet and Call Centers has become a major IT expenditure for many retailers [6]. However, an analysis of the 200 top global retailers in 2001 found that many retailers with transactional Web sites still do not use all means to integrate in-store and Web sales: e.g. returning goods from online purchases back to a physical store is a common option at many retailers, whereas the practice of picking up goods or checking stock in a particular store is less common, yet [6, 19].

We explored if the concept of trust also plays an important role in the explanation of user behavior for multi-channel retailers. We focused on empirical evidence that could support the assumption that multi-channel retailers enjoy synergetic advantages over pure Internet retailers as prospective customers may have established a trustful attitude towards the company's offline activities. We analyzed and discussed if this is reflected in the customers' transaction behavior at a large multi-channel retailer.

3. EXAMPLES OF MULTI-CHANNEL STRATEGIES

In order to find clues for data sources that could indicate the success of channel integration, we looked at a sample of companies from the 200 top global retailers pursuing a multi-channel strategy [6]. The report found that "bricks-and-clicks" - the hybrid combination of online and offline distribution channels - is the norm today. Particular site characteristics providing sources for measuring multi-channel usage have been identified:

- Office Depot and Circuit City Stores Inc. offer to shop online and to choose between same-day in-store pick up and next-day delivery. Customers can pick-up products at the store 15 minutes after placing an online order. In the stores, clerks can order out-of-stock items from the Web site and have them delivered to the customer's home or office.
- Wal Mart offers an online search tool that finds offline stores according to zip codes. The user can also fill out check-boxes online to search for special services offered in the offline store such as photo or pharmacy services, opening times etc. Tracking the usage of this tool can give an important insight

into the customers' affinity towards collecting information online but completing the transaction offline.

- Germany's Karstadt Quelle offers a shopping card that allows customers to earn credit points on their card independently of the sales channel used. Those credit points can be used both in online and offline purchase situations. This allows very detailed tracking of an individual customer's shopping behavior both online and offline. Though data from shopping cards is valuable for marketing, there is a potential bias because cardholders may have a much stronger brand and store preference than the average customer.
- A further data source is to measure the usage of a web site tool that allows to check stocks at offline branches. However, this is not offered at many major retailers, yet, possibly due to expensive technical infrastructure.
- Many retailers track the number of visitors who come into a physical shop with a printout from the Web site. This represents a valuable indicator for many retailers for measuring the success of their integration strategy.

A recent study found that major retailers with transactional Web sites still do not use all means to integrate in-store and Web sales: Whereas returning goods from online purchases back to a physical store is a typical option at many retailers, the practice of picking up goods or checking stock in a particular store is less common, yet [19].

Our analysis of Web sites from large multi-channel retailers has also shown that almost all sites offer information about offline operations such as information about offline services, offline return policies or a store locator that points to the next shop in a zip code area.

4. HYPOTHESES DEVELOPMENT

For the development of hypotheses explaining purchasing behavior at multi-channel retailers, we analyzed data from a multi-channel retailer who operates an e-shop and a network of more than 5,000 retail shops in over 10 European countries. Based on the findings and a literature review, we propose hypotheses that can be further tested to identify factors influencing consumers' purchasing behavior at multi-channel retailers.

The company sells more than 10,000 electronic consumer articles online where customers expect high pre- and after-sales services. The products' complexity and prices are diverse and could attract a variety of customer types ranging from bargain shoppers to quality-oriented high-end buyers.

The retailer suits the needs of our multi-channel analysis sufficiently: the company operates an e-shop and a network of retail shops across Europe. Thus, the business model provides a hybrid distribution network that allows a thorough analysis of the interrelation between the two channels.

The e-shop records about 250,000 unique visits in less than a month with an average of ten page impressions per visit. The general conversion rate (proportion of visits that end with a purchase) is less than the average of US retailers who were able to increase the conversion of online visits into orders up from 2.2% in 2000 to 3.1% in 2001 [4]. We investigated an anonymized data

sample from 13,653 customers who bought online over a period of a couple of months.

The regarded online retailer offers various transaction options for payment, delivery and returns. As soon as a customer buys on a Web site, there are several options for payment and delivery. They can be selected in almost any combination both online and offline. Payment options include payment either online by credit card or offline via cash on delivery, or payment at a physical store. Delivery, pick-up and returns can take place via mail or at a physical shop. Customers' delivery, payment and return preferences are recorded for each transaction. This allows a thorough analysis of the customers' transaction preferences indicating multi-channel affinity.

4.1 Payment and Delivery Preferences

We differentiated transaction groups according to their delivery and payment preferences. We found groups with high affinity for online, offline and hybrid payment and delivery preferences.

In 71% of the transactions, online customers preferred picking up products at a physical store. This seems to be a surprisingly high number. However, it corresponds with research conducted by the research company Jupiter: the study found that three times as many online consumers would prefer to pick up an order in a local store than meet a retailer's minimum order threshold for free shipping [18].

One might assume that this behavior was caused by delivery costs. However, in the case of the regarded multi-channel retailer, delivery costs were ceased in 65% of the transactions when an order exceeded a specific price minimum. Thus, delivery costs may represent a significant but not a major reason for customers to pick up products offline. Another explanation of this behavior would suggest that users prefer looking at a product before buying it. However, surveys claim that a customer's preference to see the product physically before buying it represents a minor impediment for online purchases [9, 19].

In order to find explanations for this behavior, we looked at related IS literature. In literature about consumer models, risk has been identified as an important construct influencing consumers' willingness to purchase online [16, 21]. Jarvenpaa [16] understands risk perception as "beliefs about likelihoods of gains and losses" and found that a low perception of risk positively influences the consumers' attitude to purchase online. Ring and Van de Ven [23] classified risk as *technology-driven risk* derived from the underlying infrastructure and *relational risk* resulting from the trading partner. On the Internet, *relational risk* arises because Web retailers have the chance to behave in an opportunistic manner by taking advantage of the distant and impersonal nature of e-commerce [21]. *Technology-driven risk* mainly exists because neither the retailer nor the consumer have full control of the Internet technology. Though most web sites use encryption, authentication, and firewalls, there is still a possibility for third parties to compromise the transaction process. In fact, surveys suggest that the perceived lack of online security is a main reason for the small usage of online payments [1]. However, in contrast to Internet-only retailers, consumers at a multi-channel retailer have the choice to decrease both technology and behavioral risk: on the one hand, offline payment reduces technology-driven risk as the customer avoids the use of Internet technology for payment purposes. On the other, personal pick-up

at a store may decrease relational risk as the customer has direct and personal contact in a store for order fulfillment instead of the distant and impersonal relation in the case of Internet-only retailers. Thus, a likely reason for the observed offline-affine user behavior is a lower level of perceived transaction risk at offline stores – represented in the personally perceived risk assessment of payment and delivery. Thus, we hypothesize:

H1: Delivery to an offline store reduces a consumer's perceived risk to purchase online.

H2: Payment at an offline store reduces a consumer's perceived risk to purchase online.

4.2 Returns

At the regarded retailer, customers returned products in 10% of the transactions. We did not further differentiate if customers returned the complete order or just parts of it. In 13% of all returns, customers preferred returning the products via mail whereas 87% returned the products at the local shop. In all of the transactions where customers returned the products via mail, they had chosen online payment and direct delivery when they bought the product.

An explanation for the high number of transactions where customers return products at a physical store could be that the return process often requires a more intense level of communication. The customer may want to discuss the reasons for the return and may also prefer the service and familiarity of a local retailer who handles the return shipping. A similar argumentation as in section 4.1 may apply. Thus, a likely reason for the observed return behavior could be a lower level of perceived risk at the company's offline operations. Therefore, we hypothesize:

H3: Return at an offline store reduces a consumer's perceived risk to purchase online.

4.3 Demographic Data

The third analysis is based on both transaction and demographic data. We analyzed if the physical presence of a shop influences the utilization of the sales channel Internet. Therefore, we looked at the customers' distances from their order zip code to the next local shop to analyze if the proximity to the next offline store influences multi-channel shopping preferences.

In order to calculate this multi-channel indicator, the correlation between the customer density in a zip code area and the distance to the next shop location was measured and normalized with the population density.

The following assumptions were made to estimate the correlation between online customers and shops:

- Customer, shop and population are located in the center of each zip code area. An acceptable average calculation error of $\varepsilon=7.4$ km had to be taken into account.
- Home address and shipping address were assumed to be the same.
- The online purchase probability is equally distributed among the population.

Our sample of 13,653 customers was spread over an area of approximately 80,000 square kilometers. Data was acquired that links a zip code area to a longitude/latitude value in a format such as (ZipCode;Longitude;Latitude)=(01234;12.1234;56.7654). For most countries, geographical data is also available on the basis of street and household levels. However, for the purpose of a first approximation and demonstration of the measuring technique, data as granular as the five-digit postal code was regarded to be sufficient.

We then calculated minimal distances between customer zip code and shop zip code.¹ The mean distance was $x_{\min}=10.01$ km with a standard deviation of $s_{\min}=9.32$ km. For the number of customers per zip code area, it was found that $x_{\text{cus}}=2.98$ with $s_{\text{cus}}=2.81$.

The mean population density for zip code areas was $x_{\text{pop}}=12,469$ with a standard deviation of $s_{\text{pop}}=58,891$. Then, the correlation was measured between the number of customers from each zip code area and their distance to the next shop.

It has been found that a negative correlation of $R=-0.3$ (Pearson) exists between the number of customers per zip code and the distance to the next shop. In contrast, the correlation between population density in a zip code area and the next shop was $R=-0.01$. For both results, coefficients were highly significant with an error probability of $p<0,001$. In other words, under the premises set forth, the closer an online customer lives to a physical shop, the higher the purchase probability.

The findings indicate that online consumers seem to be influenced by the presence of physical stores at the specific retailer under the premises set forth. Analogous to Jarvenpaa [16], we assumed that *company reputation* and *size* have an influence on consumers' purchase behavior. As consumers are more likely to purchase online if they live close to a physical store, we suggest to differentiate the constructs *perceived reputation* and *perceived size* in Jarvenpaa's consumer trust model not only for a company's e-shop but also for its offline operations. Hence, we hypothesize:

H4: A consumer's trust in an Internet shop is positively related to the offline stores' perceived size.

H5: A consumer's trust in an Internet shop is positively related to the offline stores' perceived reputation.

H6: A physical store network's perceived size is related to the Internet shop's perceived reputation.

¹ $\text{MIN [D(km) = ARCCOS (SIN (Latitude CustomerZIP * PI / 180) * SIN (Latitude ShopZIP * PI / 180) + (COS (Latitude CustomerZIP * PI / 180) * COS (Latitude ShopZIP * PI / 180) * COS ((Latitude ShopZIP - (Longitude CustomerZIP)) * PI / 180))] * 6370 (=earth radius in km)}$

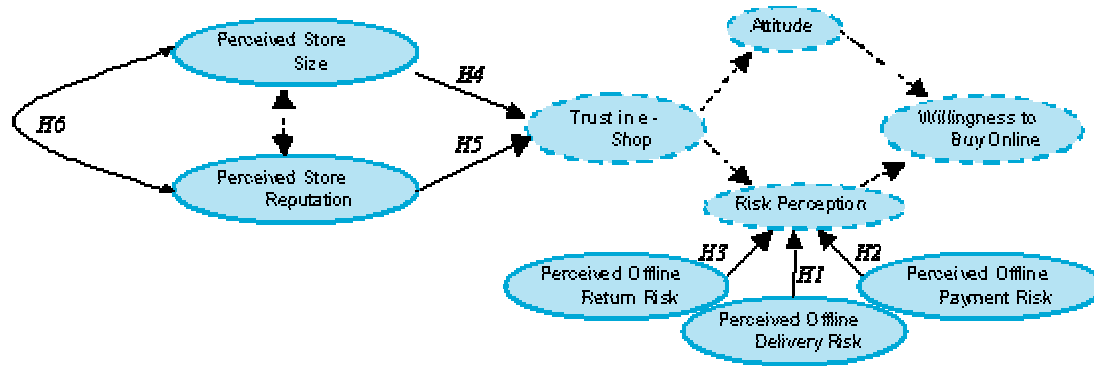


Figure 1. Enhancement of a Consumer Trust Model

5. RESEARCH MODEL AND QUESTIONNAIRE

Based on the empirical analysis and the brief literature review, we suggest to enhance the consumer trust model proposed by Jarvenpaa [16] for retailers with multiple distribution channels (Fig. 5).

The dashed lines represent hypotheses and concepts that have been proposed and tested in previous work [16, 8, 28]. Analogous to Jarvenpaa [16] we expect that perceived reputation and size are related. However, while Jarvenpaa tested the model for Internet-only players, we suggest to differentiate the constructs *perceived size* and *reputation* for the distribution channels physical stores and e-shop. We assume that the constructs are related and influence each other.

Product attributes and price might also have a decisive influence on consumers' purchase behavior. For example, standardized products typically have a positive influence on the willingness to buy. However, due to the variety of products offered on the web site – ranging from simple DVD's to complex sound systems – we did not differentiate product and price characteristics.

Table 2 introduces the questionnaire. The attributes will be measured using a rating scale ranged from 1 to 5, with 1 indicating an attribute was "very weak / likely" and 5 "very strong / likely". Demographic information include age, gender, Internet experience and questions about previous purchases online and offline. Measures for trust and reputation were adapted from Jarvenpaa [16]. Some modifications were adapted from Heijden et al. [12]. For example, we replaced the word "Internet" with "This website" to make the answers from real users of the website more concrete. In the construct "willingness to buy", we changed the specific time horizons "three months" and "the next year" to the broader terms "short term" and "the longer term". We also modified the items in the construct "Perceived Physical Store Size" to specify the offline context.

A preliminary version of the instrument has been reviewed by faculty and doctoral students for precision and clearness. The hypotheses will be further tested using the proposed questionnaire. We expect to find an influence on trust through the consumers' perception of the offline stores' size and reputation. We also expect a lower level of perceived risk because of the options to pick up, return and pay products at a physical store.

Table 2. Scales, Items and Sources

Scale and Items	Source
<i>Willingness to Buy</i>	Heijden 2001, (based on Jarvenpaa 1999)
w1. How likely is that you would consider purchasing from this store in the short term?	
w2. How likely is it that you would consider purchasing from this store in the long term?	
w3. For this purchase, how likely is it that you buy from this store?	
w4. How likely is it that you would return to this store's web site?	
<i>Perceived Physical Store Size</i>	Modified items according to Doney and Cannon 1997, Jarvenpaa 1999
s1. This retailer's store network is spread all over the country.	
s2. This retailer's store network is relatively small in its home market.	
s3. The retailers' stores belong to a large network.	
<i>Perceived Physical Store Reputation</i>	Doney and Cannon 1997
r1. This store is well known.	
r2. This store has a bad reputation in the market. [reverse]	
r3. This store has a good reputation.	
<i>Store Trustworthiness</i>	Jarvenpaa 1999
t1. This store is trustworthy.	
t2. This store wants to be known as one who keeps promises and commitments.	
t3. I trust this store keeps my best interests in mind.	
t4. I find it necessary to be cautious with this store. (strongly disagree / strongly agree) [reverse]	
t5. This retailer has more to lose than to gain by not delivering on their promises.	

t6. This store's behavior meets my expectations.	
t7. This store could not care less about servicing a person from Australia. [reverse]	
<i>Attitude towards online purchasing</i>	
a1. The idea of using this website to buy a product of service is appealing. (modified)	Heijden 2001 (modified)
a2. I like the idea of buying a product or service on this website. (modified)	Jarvenpaa 1999)
a3. Using the website to buy a product or service at this store would be a good idea. (modified)	
<i>Risk perception</i>	
k1. How would you characterise the decision to buy a product through this website? (a very small risk - a very big risk)	
k2. How would you characterise the decision to buy a product through this website? (high potential for loss – high potential for gain) [reverse]	Jarvenpaa 1999
k3. How would you characterise the decision to buy a product through this website? (a very negative situation – a very positive situation) [reverse]	
k4. What is the likelihood of your making a good bargain by buying from this store through the Internet? (very unlikely – very likely) [reverse]	

6. CONCLUSIONS

The proposed analysis was developed to facilitate an evaluation of a multi-channel retailer's channel strategy and to determine the interdependencies of hybrid sales channels. Specific online shopping preferences have been observed and hypotheses have been derived based on users' transaction behavior and a literature review. Based on the empirical results the enhancement of an existing consumer trust model has been suggested for multi-channel retailers. A research questionnaire has been introduced that can be used to further test the hypotheses.

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