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Determining the cross-channel effects of informational web sites

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Document Version

Publisher's PDF, also known as Version of record

Publication date:

2007

[Link to publication in University of Groningen/UMCG research database](#)

Citation for published version (APA):

Teerling, M. L. (2007). *Determining the cross-channel effects of informational web sites*. [Thesis fully internal (DIV), University of Groningen]. s.n.

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5 Discussion and Conclusions

In this chapter, we provide an overview of the studies presented in Chapters 2–4, including the main conclusions, general similarities, and differences across studies. We discuss the main theoretical and managerial implications of these findings and conclude by identifying some limitations that additional research might address.

5.1 INTRODUCTION

In this dissertation, we provide various insights into the knowledge gaps identified in Chapter 1 (see Table 1-2). We focus specifically on how an informational Web site affects the offline channel at the level of individual customers. Chapter 2 deals with determining the effects at the attitudinal and behavioral levels, Chapter 3 addresses the effects of the introduction of a Web site at the customer level, and Chapter 4 studies how online and offline behavior affect each other over time. Table 5-1 lists the characteristics of the studies presented in Chapters 2–4.

TABLE 5-1 MAIN CHARACTERISTICS OF THE RESEARCH IN THIS DISSERTATION

	Chapter 2	Chapter 3	Chapter 4
Subject	Customer attitudes and behavior	Individual customer behavior	Cross-channel effects
Description	Influence of online attitudes on offline attitudes & behavior	Effects of online behavior on trips & category spending	Sequential process of online search & offline buying
Model	Structural equation model	Poisson model, multivariate Probit model	Vector Autoregressive model
Range of data	Cross-sectional, survey May 2002 behavior aggregate March '01–May '02	January 2000–May 2002, a total of 29 months	January 2000–May 2002, a total of 127 weeks
Sample size	Overall = 2,877 Moderators = 2,816 Longitudinal = 422	Five random samples of approx. 215 customers per sample.	Aggregate = 6,594 Flow = 3,233 and 3,822 Product type = 6,594 Web visits = 3,651 and 2,623
Aggregation level	Customer Yearly (March '01–May '02)	Customer Monthly	Panel, weekly Median split, weekly

5.2 SUMMARY

5.2.1 *Attitudinal Framework (Chapter 2)*

Most multichannel research has focused on the effects of an additional transactional channel on customer attitudes toward the incumbent channel or the organization as a whole. At the aggregate level, informational Web sites can have a positive effect, depending on the position of the additional channel (e.g., Deleersnyder et al. 2002; Lee & Grewal 2004). At the individual customer level, the effects of an additional informational channel remain unknown. Considering that 10 years after the introduction of the Internet for commercial purposes, online purchases remain minimal, the effects of informational Web sites represent an intriguing area for study.

In Chapter 2, we focus on the effects of an additional online informational channel and specifically investigate the effects of online attitudes and behavior on offline attitudes and behavior through structural equation modeling. We also study how these relationships hold up given a longitudinal design and whether and how these relationships are moderated.

We find that customers with a positive site attitude also have a positive store attitude. This relationship is stronger for certain customer segments, such as female and less educated customers. We offer both a general and a more Internet-related explanation for the differences caused by sociodemographics. The relationship between site and store attitude is also stronger for customers who perceive higher channel integration.

We find a negative effect between site attitude and actual behavior, which is unexpected given previous results. We indicate that the difference between our findings and previous studies may be a result from the setting of the study and the type of data used. Lastly, we find a positive effect between site behavior and store behavior. However, the association is relatively small and instable.

Overall, this chapter indicates that “good” customers—those with positive attitudes and higher spending—tend to be good customers in both channels. Nevertheless, these good customers gain efficiency, which is noticeable in the informational Web site’s negative effect on the spending levels

5.2.2 Individual Customer Behavior (Chapter 3)

In Chapter 3, we provide insight into the effects of the use of an informational Web site on individual offline buying behavior. Within our decomposition, we model two components to determine whether the use of the informational Web site changes (1) the frequency of offline shopping trips and (2) the average amount of money spent per shopping trip in six different categories. Moreover, we determine whether category-specific site pages affect the money spent per category. Because individual customers do not shop at the department store on a daily or even weekly base, we aggregate the data into monthly periods. We focus on the effect of using the Web site on offline buying behavior in the same month.

Our results show that the majority of customers decrease their buying behavior, both in terms of both shopping trips and money spent per category, as a result of visiting the Web site. Ansari et al. (2006) and Gensler et al. (2007) obtain similar negative effects on individual customer behavior in the case of an added transactional Web site, and our results also confirm Van Baal and Dach's (2005) finding, which reveal 10% customer retention within the same organization across online and offline channels. The remaining 90% of customers use the firm's online channel to collect specific information and then go elsewhere to purchase the products; that is, they free-ride on the provided information. Hence, multiple channels provide customers with the benefits but do not necessarily offer similar benefits to the firm that introduces a Web site.

The results from studies focusing on a more general (non-firm specific) level indicate that consumers benefit from using multiple channels (e.g., Burke 2002). These studies also seem to indicate that firms' offline channels can benefit from this behavior. The findings from our study and Gensler et al. 2007, Ansari et al. 2006 and Van Baal and Dach 2005 indicate that this might not be the case. Firms may experience negative effects because customers achieve (1) more efficient decision making, (2) fewer impulse-driven purchases, and/or (3) lower switching costs when they use an informational Web site.

For a small percentage of customers, visiting the Web site has a positive impact on offline behavior. Approximately 20% of customers visit the offline store more often, and 10% buy more products. Our post hoc comparison shows that customers with positive coefficients on average spend more at the department store. Therefore, an

informational Web site can be beneficial with regard to the company's top customers. Overall, the use of an informational Web site influences the purchase patterns of customers even when the site itself does not provide customers an opportunity to buy online. Our research also demonstrates that the implementation of an informational Web site should be considered with great care, because customers benefit more than the firm from the provision of online information.

5.2.3 Cross-Channel Effects (Chapter 4)

In this chapter, we investigate the long-term cross-channel effects that take place in an informational Web site/offline store setting at an aggregate level. We focus our attention on (1) cross-channel behavior, or how online search affects offline buying and vice versa over a period of 26 weeks; (2) cross-channel marketing efforts, or how marketing efforts in channel *a* immediately affect behavior in channel *b*; and (3) how context characteristics moderate cross-channel behavior and marketing efforts.

We estimate a vector autoregression (VAR) model to capture the relationships between the different types of offline and online customer behavior. We also determine how marketing efforts in channel *a* influence behavior in channel *b*. The VAR model estimated for each median split provides additional insights into cross-channel customer behavior and the effects of marketing efforts.

At the aggregate level, we find limited long-term cross-channel behavior, but find more such effects at the median-split level. We discover that the introduction of the Web site decreases the number of shopping trips through a structural break, which indicates that customers free-ride on the information provided (Van Baal & Dach 2005), become more efficient in their decision-making process (Alba & Lynch 1997) or become less loyal over time (Gensler et al. 2007).

We demonstrate the moderator effects of product type, experience of flow during Web visits and frequency of Web visits. Our results confirm a greater search effort associated with sensory products but also show that an informational Web site provides customers with a more efficient way to retrieve initial information about sensory products. A high state of flow, though intrinsically enjoyable to the customer, does not enhance offline behavior. On the contrary, customers who experience low flow, demonstrate more cross-channel behavior and are more receptive to marketing efforts. Finally, our results confirm that

customers with a high visiting frequency prefer the online channel; we find no significant relationships between offline buying and online search.

5.3 INSIGHTS

Table 5-2 lists the main findings from various selected studies on cross-channel effects. Table 5-3 lists our main findings (Chapters 2-4).

TABLE 5-2 SELECTED STUDIES ON CROSS-CHANNEL EFFECTS

	<i>S?</i> ^a	<i>Channels</i>	<i>Cross-Channel Relationships</i>	<i>Result</i>
Ansari et al. 2006	N	Web site, catalog	Internet use → buying behavior	-
Gensler et al. 2007	N	Web site, tv-station	Online purchase → customer retention	-
Kushwaha & Shankar 2006		Web site, catalog	Use of multiple channels → buying behavior	+
Montoya-Weiss et al. 2003	Y	Web site, store	Online attitudes → online use	+
			Online attitudes → overall satisfaction	+
			Offline attitudes → online channel use	-
Nicholson et al. 2002	Y	Web site, catalog, store	Online search → offline buying behavior	+
			Store search → online/catalog buying	+
			Catalog buying → online buying	+
Van Baal & Dach 2005	Y	Web site, store	Online search firm <i>a</i> → offline purchase firm <i>b</i>	+
			Offline search firm <i>a</i> → online purchase firm <i>b</i>	+
Verhoef et al. 2007	Y	Web site, catalog, store ^b	Online search → offline buying behavior	+(n.s.)
			Catalog search → online buying behavior	+
			Store search → catalog buying behavior	+
Wallace et al. 2004	Y	Web site, catalog, store	Usage of multiple channels → channel perceptions	+
			Channel perceptions → satisfaction	+

a. *S?* indicates whether the data are collected through a survey (Y) or represent actual purchase behavior (N).

b. The researchers focus on both the informational and transactional purposes of channels.

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TABLE 5-3 CROSS-CHANNEL EFFECTS FOUND IN THIS DISSERTATION

	<i>S?</i> ^a	<i>Channels</i>	<i>Cross-Channel Relationships</i>	<i>Result</i>
Chapter 2	Y		Online attitudes → offline attitudes	+
			Online attitudes → offline buying behavior	-
Chapter 3	N		Online search behavior → offline buying behavior (short-term)	-
			• Majority of customer	+
			• Top customers (10%)	
Chapter 4	N	Web site ^b , store	Online search behavior → offline buying behavior (long-term)	
			• Aggregate level	+
			• Sensory products, low online visits	+
			• Structural break for store trips	-
			Offline buying behavior → online search behavior (long-term)	
			• Aggregate level	-
			• Nonsensory products	-
			• Low online flow experience	+
			• Low online visits	-

a. *S?* indicates whether the data are collected through a survey (Y) or represent actual purchase behavior (N).

b. The channel can be used only as an informational channel.

Reviewing the findings, we notice that studies that use survey data mainly find positive cross-channel effects, with the exception of Van Baal and Dach (2005), who show that the majority of consumers tend to switch to the offline channel from another firm after searching online. In Chapter 2, we provide the following insights compared with these studies:

- An informational Web site improves customer attitudes toward the offline transactional channel. Web sites do not have to offer a transaction function for the firm to benefit at the attitudinal level.
- Customers with a positive site attitude decrease their offline store spending, which indicates that free-riding behavior takes place not only for transactional Web sites, but also, as we demonstrate for informational Web sites.

Previous studies using behavioral customer data find that an additional transactional channel can have positive or negative effects. Gensler et al. (2007) and Ansari et al. (2006) both argue that customers

using multiple channels decrease their buying behavior over time and become less loyal (lower customer retention). Chapters 3 and 4 provide the following insights compared with these studies:

- Using an informational Web site decreases the number of shopping trips in the offline transactional channel in the same month for the majority of customers. Customers experiencing a positive effect from visiting the informational Web site can be categorized as more loyal, because they use both channels more than customers with a negative coefficient do. Therefore, firms can increase customer buying behavior without necessarily implementing an online transactional channel.
- The majority of customers, who are less loyal, benefit through more efficiency, less impulse buying and better decision making.
- In the long-run, the introduction of the Web site causes a structural break in the number of shopping trips. The introduction of the Web site decreases the number of shopping trips in the short and long-run.
- In addition to the decrease in the number of shopping trips, most customers spent less in the offline channel. Again, for the better customers (i.e. those who spend more), we find a positive effect on money and products.
- Offline and online marketing efforts, in the context of an informational Web site, stimulate behavior in the channel that allows the customers to purchase products.

Overall, the three studies presented in this dissertation lead to the following conclusions:

- A positive experience online benefits attitude toward the store. Customers clearly appreciate access to and the use of multiple channels.
- Customers decrease their offline buying behavior in response to an informational Web site. The majority of customers free-ride on the information provided online. They also may become more rational and improve their decision-making process because of online information.
- Customers become more efficient in their shopping behavior after the introduction of an informational Web site. That is, customers

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decrease the number of shopping trips they take, but also may increase spending per shopping trip.

- The firm's top customers with regard to purchases, improve their offline buying behavior because of the informational Web site.
- Higher perceived channel integration increases cross-channel synergies. Customers who indicate that they use online information to go offline to purchase items experience a stronger relationship in their channel attitudes.
- Sensory products benefit more from an informational Web site than do nonsensory products.
- A strong experience of online flow and frequent online visiting decrease the number of cross-channel relationships, signaling lower perceived channel integration and/or a preference for the online channel.
- Online marketing efforts, in the context of an informational Web site, may stimulate offline buying behavior. Specifically, the introduction of an informational web sites increases offline buying behavior in the week of the promotion.
- The models developed in this research project can determine the effects of an added (informational) channel. Moreover, using multiple models allows insight into the differences across (1) types of data (survey versus actual behavior), (2) unit aggregation levels (individual versus entire customer panel), and (3) temporal aggregation levels (weekly versus monthly or yearly).

In conclusion, we note that the different models used in Chapter 2-4 show both consistency in the results and additional insights due to the differences. Table 5-1 already shows several reasons for some of these insights, such as variation in the sample size. In addition, the aggregation across units and time provide additional insights into the results (see e.g., Tellis & Franses 2006 on a discussion of temporal aggregation). The aggregation across units fails to take customer heterogeneity into account. Hence, the models in Chapter 3 provide a deeper insight into the differences across customers.

Additional insights are gained through the differences in the type of effects, i.e., same-period effects (Chapter 3) versus next-period effects (Chapter 4) or immediate effects (Chapter 3) versus cumulative (26 weeks) effects (Chapter 4). Lastly, in Chapter 3 we focus on money

spent in a particular category, while in Chapter 4 we focus on money spent per product in general, that is, not with a specific category. A negative impact on money spent in a product category does not need to imply that money spent per product cannot increase. If customers buy the more expensive items but also buy less items from a particular category, then combining the results from Chapters 3 and 4 provides additional insight into the buying behavior of customers.

5.4 MANAGERIAL IMPLICATIONS

Understanding the possible functions and benefits of an informational Web site is necessary to determine how to use the Internet as part of a multichannel strategy. This dissertation provides new insights into the effects of informational Web sites that managers can use in three main areas, namely, (1) to strategically implement (informational) Internet activities, (2) to use the methodology to gain firm-specific insights and (3) to manage the effects of informational Web sites.

First, managers already likely realize that ignoring the Internet is no longer an option. Consumers use the Internet during several stages of their decision-making process to improve their knowledge of the marketplace, increase their efficiency and minimize their impulse buying. Consumers appreciate and often expect multiple channels, so the question becomes how managers can implement Internet activities that benefit overall firm performance. The first question they confront is whether to implement an informational or a transactional Web site. This depends on the incumbent channels; for example catalog retailers could easily implement a transactional channel because the logistical processes needed to deal with remote orders are already available. Other factors to take into consideration include competitors, the type of products, purchase frequency and previous experiences with implementing additional channels. In terms of the type of product and purchase frequency, Van Baal and Dach (2005) show that retention across transactional channels is higher for infrequently purchased products. Moreover, we show that customer retention, in the context of an informational Web site, is greater for sensory products. More important, managers should carefully consider if their online activities should be available to all customers. Previous research shows that customer retention diminishes as a result of an Internet application (e.g. Gensler et al. 2007), and our findings further imply that Internet

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activities benefit the firm only when it comes to the firm's top customers. Therefore, firms may differentiate themselves by offering their best customers, for instance through exclusive access to, an (informational) Web site.

Second, for firms already using multiple channels, we provide several models they might use to determine cross-channel effects for their unique situations. Aggregate-level analyses, such as firm sales, do not indicate what happens at an individual customer level. Although sales models provide valuable insights into the overall performance of a firm (possibly compared with competitors), the contribution of channels, and the general effectiveness of marketing efforts, they cannot show whether individual customers become more loyal. Improved sales levels might indicate simply that additional channels have expanded the customer base. However, models at the customer level might tell a different story. Our research shows that models at the individual customer level provide valuable insights into customer heterogeneity and clarify that customers react differently to the use of multiple channels, as well as to the marketing efforts used across these channels. Therefore, managers should combine aggregate-level models with customer-level models to determine how their channels are performing. Managers can gain further insights by investigating attitudes versus behavior and effects over time or by combining our proposed models with cost analyses for each channel. Finally, we stress that collecting individual customer data related to search and buying behavior can greatly enhance managers' understanding of customers, though the collection of such data remains problematic.

Third, we provide some implications in terms of managing the effects of informational Web sites, such as free-riding behavior. Managers can minimize free-riding by increasing channel integration, because customers enjoy using multiple channels, and beneficial cross-channel effects increase when customers perceive channels to be integrated. Managers can stimulate channel integration by (1) providing consistent messages across channels; (2) allowing customers to integrate the use of channels, such as ordering online but picking up the product in the offline store; and (3) stimulating customers to use multiple channels. In addition to improving channel integration, managers should focus their online activities on their best customers; informational Web sites can reinforce relationships with these customers. Personalizing the content of Web sites to the best customers

might even reinforce the relationship further. Finally, we stress that the “new” multichannel environment makes “old” marketing practices, such as differentiation, even more crucial. In conclusion, this dissertation provides the following managerial implications.

- Carefully consider what type of Web site is suitable given the organization’s incumbent channels, competitors, type of product, purchase frequency and previous experience.
- Carefully consider whether the Web site should be accessible to all customers or a selection of customers.
- Combine aggregate-level models with customer-level models to determine channel performance.
- Minimize free-riding behavior through channel integration.
- Improve customer perceived channel integration through consistent messages, the possibility of integrated channel use, and stimulation of using multiple channels.
- The ‘new’ multichannel environment makes ‘old’ marketing practices even more crucial.

5.5 LIMITATIONS AND FUTURE RESEARCH

This research provides several insights into the effects of informational Web sites in a multichannel environment. As with any research, however, it contains limitations, and we recognize that we fail to address several issues. We review some of the issues related to cross-channel effects, multichannel empirical generalizations, and omitted variables in the following sections.

5.5.1 *Cross-Channel Effects*

This dissertation focuses on the cross-channel effects of an online informational channel and an offline transactional channel for a specific firm. Neslin et al. (2006) refer to some interesting initial research about multichannel approaches, but various aspects pertaining to cross-channel effects also warrant further research.

First, our study is limited to one Web site for one organization, which makes it hard to clarify to what extent these results are generalizable to other organizations or Web sites. To generalize our insights about cross-channel effects, more research is needed to elaborate on these effects for other firms, industries/branches, and other (online) channels, such as brand communities (e.g., Muniz &

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O'Guinn 2001). For example, an experimental setting could be used to investigate the effects of Web site design on customer behavior. Moreover, further research could investigate whether these effects differ across Web site type, i.e. comparing transactional and informational Web sites.

Some initial studies (e.g., Kushwaha & Shankar 2005) offer consumer behavior findings across multiple firms, but most studies have employed a single-firm perspective when they use behavioral data and a more general perspective when they use survey data. The majority of multichannel studies refer to a retail setting, which leaves limited insights into the multichannel effects in the service industry or business-to-business channels. In addition, most current studies focus on the following channels:

- Catalog,
- Store (offline), and/or
- The Internet (transactional Web sites).

Admittedly, collecting customer behavior data for transactional channels is easier than collecting data from customers who use informational channels, but our research shows that the effects of informational channels are not necessarily the same as those of other channels. Therefore, further investigation into the effects of channels other than “classic” transactional channels is warranted.

Second, we note that knowledge is limited about several specific cross-channel effects. For example, relatively little is known about how channel attitudes influence each other and behavior over time. Our research shows relatively consistent effects of attitudes on behavior, but our survey data are limited to two observations over time (2001 and 2002). To determine how channel attitudes affect each other and behavior over time, further research might consider, in addition to longitudinal effects, cross-category effects, channel-switching behavior, and other stages of the decision-making process.

Although we cannot demonstrate that information search in category *a* influences purchases in category *b* across different channels, prior research shows that sales levels and marketing activities for different categories can influence one another (e.g., Manchanda et al. 1999). The question therefore becomes whether searching for a particular product category in a channel influences purchase behavior in another product category in a different channel. If it does, how

should managers use their marketing instruments? Finally, further research should attempt to determine how customers switch between channels during the different stages (e.g., information collection, purchase, after sales) in the decision-making process. Another interesting avenue of research is to determine how consumers their technology preferences influence the cross-channel effects. More specifically, what factors cause customers to switch channels within or across firms? To what extent is across-firm channel switching different from just switching firms?

5.5.2 *Generalizations*

Multichannel behavior as a field of research has emerged because of the increase in the number of shopping channels available to consumers. Although the field remains relatively new, some studies offer overviews of the state of knowledge (see e.g., Rangaswamy & Van Bruggen 2005; Neslin et al. 2006). Because multichannel research comprises various topics that have received extensive attention, generalizations are valuable and could create synthesis for the field..

For example, as Neslin et al. (2006) show, several researchers have focused on the determinants of channel choice and found ample evidence of six basic determinants of channel selection (Neslin et al. 2006). The extents to which these determinants are conclusive and apply in various circumstances represent relevant research avenues for a meta-analysis. Such a study should also take into account pre-and post-hype effects. Porter (2001) indicates that the effects of Internet after the hype could be substantially different. These effects may also differ considering the faster Internet connections and a more diverse Internet population.

Other topics that need further investigation to achieve empirical generalization include (1) the effects of multiple channels on customer buying behavior, (2) cross-channel synergies and channel cannibalization, (3) the contribution of an additional channel, or (4) the effects of channel integration versus channel separation. Within each of these topics, further research is needed to determine under which circumstances certain effects occur.

5.5.3 *Omitted Variables*

We were able to collect only a limited number of variables, and most of these pertain to customer behavior offline or online. Hardly any

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variables related to marketing instruments other than the Web site, such as prices and advertising expenses, were available. Similarly, most current multichannel research focuses on how customer behavior varies across channels and how different channels affect one another. To obtain conclusive insights, further research should include the effects of marketing instruments other than channels on customer behavior.

Any organization is subject to competition, on which we also unfortunately have no data. Because we deal with many product categories sold in the department store, the potential competitors are many. Furthermore, the competitive profiles of the 58 outlets of the department store differ, which makes it impossible to collect data about all potential competitors. Therefore, additional research should improve our insights by determining how cross-channel behavior varies when customers use multiple providers to search for and purchase particular products. Obtaining actual individual consumer search and buying behavior in multiple channels for multiple organizations will be a great challenge but also a great advance of existing research.