Challenges and Opportunities in Multichannel Customer Management

Scott A. Neslin
Dartmouth College
Scott.Neslin@Dartmouth.edu

Dhruv Grewal
Babson College
dgrewal@babson.edu

Robert Leghorn
ING Life Insurance and Annuity Company
robert.leghorn@us.ing.com

Venkatesh Shankar
Texas A&M University
VShankar@mays.tamu.edu

Marije L. Teerling
University of Groningen
M.L.Teerling@rug.nl

Jacquelyn S. Thomas
Northwestern University
jakki@northwestern.edu

Peter C. Verhoef
University of Groningen
p.c.verhoef@rug.nl

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ABSTRACT

Multichannel customer management is the design, deployment, coordination, and evaluation of channels through which firms and customers interact, with the goal of enhancing customer value through effective customer acquisition, retention, and development. The authors identify five major challenges practitioners must address to manage the multichannel environment more effectively: (1) data integration, (2) understanding consumer behavior, (3) channel evaluation, (4) allocation of resources across channels, and (5) coordination of channel strategies. The authors also propose a framework that shows the linkages among these challenges, and provides a means to conceptualize the field of multichannel customer management. A review of academic research reveals that this field has experienced significant research growth, but the growth has not been distributed evenly across the five major challenges. The authors discuss what has been learned to date, and identify emerging generalizations as appropriate. They conclude with a summary of where the research-generated knowledge base stands on several issues pertaining to the five challenges.

Keywords: Customer Relationship Management; Multichannel Management; Channel Data Integration; Multichannel Retailing; Mutlichannel Shopping

Challenges and Opportunities in Multichannel Customer Management

One of the most dramatic trends in the shopping environment has been the proliferation of channels through which customers can interact with firms. The Internet, kiosks, ATMs, call centers, direct marketing, home shopping networks, and catalogs, as well as bricks-and-mortar stores, are now commonplace means by which consumers shop. This proliferation has created a challenge for firms to manage this environment effectively and opportunities for academics to produce insights that can help address these challenges. The field of "multichannel customer management" has emerged as a result. The purpose of this article is to (1) identify key challenges practitioners must address in order to manage the multichannel environment more effectively, (2) propose a framework that shows the linkages among these challenges and provides a conceptual structure of the field, and (3) summarize academic research thus far about how to address the key challenges. As a result, we hope to provide a blueprint for academics wishing to conduct research in this area and a substantive summary for managers to enhance their decision-making abilities.

By "channel," we mean a customer contact point, or a medium through which the firm and the customer interact. Our emphasis on the term "interact" reflects that we do not include one-way communications, such as television advertising, though we do include home shopping television networks and direct response advertising in mass media.

We define *multichannel customer management* as the design, deployment, coordination, and evaluation of channels in order to enhance customer value through effective customer acquisition, retention, and development. A key point is the emphasis on the customer as a strategy for creating more value for the firm (see Payne and Frow 2005 and Boulding, Staelin, Ehret, and Johnston 2005). Multichannel customer management is a customer-centric marketing function, unlike traditional sales channel research, which focuses on the firm and distributors (Rangaswamy and van Bruggen 2005). However, similar issues emerge in both research streams (e.g., channel conflict), and we discuss these as appropriate.

We proceed first to elucidate our framework. Then we identify a set of managerial challenges. Finally, we spend the bulk of the article discussing what academic research to date has taught us about these issues. We conclude with a summary and identify key research areas.

A FRAMEWORK FOR MULTICHANNEL CUSTOMER MANAGEMENT

We present in Figure 1 a framework that joins the customer's and the firm's decision processes (see Blattberg, Kim, and Neslin 2006). We assume that the customer progresses through need recognition, information search, purchase, and after-sales service. For example, a customer may realize he or she needs life insurance. The customer then searches various channels for information about life insurance, decides on which channel to make the purchase, and afterwards receives sales support (advice on increased coverage, etc.) via a particular channel.

[Figure 1 Goes Here]

Additional aspects of this process are crucial. First, customer perceptions and preferences drive channel choices (e.g., the customer may prefer the Internet for search because it is easy to use). Second, the customer learns from and evaluates his or her experiences, which feed back into the perceptions and preferences that guide his or her next shopping task (e.g., the customer may learn that the Internet search did not answer all the important questions). Third, the customer chooses both channels (A or B) and firms (k), so from the customer perspective, it is a two-dimensional choice.

Typically, the management decision process starts with data generated by the customer decision process. These data are at the customer level—what channel(s) did the customer use for which purpose, and what did he or she purchase? Consistent with the emphasis on the customer, the firm's decision process is driven by such customer-level data. After the data have been assembled, the firm evaluates its channels (are they profitable? are they serving the purposes for which they are designed?). With this knowledge in hand, the manager can specify a multichannel strategy (which channels to employ, how to design them, how to allocate resources across channels) and a marketing plan (pricing, assortment, service levels) for implementing the strategy.

FIVE KEY CHALLENGES FOR MULTICHANNEL CUSTOMER MANAGEMENT

We take the viewpoint of the firm and focus on five challenges we believe are particularly crucial for managers.

Data Integration Across Channels

The ideal position for a firm would be complete customer data integration (CDI), or an integrated, single view of the customer across channels. The ideal database would depict which channel(s) each customer accessed during each stage of the decision process, including competitors' channels. However, the less ambitious focus of CDI has been on the firm's own channels and emphasized purchase and after-sales support rather than search. In turn, CDI gives rise to questions such as the following:

- Which data need to be integrated? Is it sufficient to integrate purchase data only, or should search data also be integrated?
- Which marketing activities benefit from integration? Cross-selling is an obvious beneficiary, but what other marketing activities benefit?
- What is an acceptable level of data integration? Is 100% necessary?
- Does data integration pay off? Is it worth the investment to derive a single view of the customer?

Understanding Customer Behavior in a Multichannel Environment

Managers must understand how customers choose channels and what impact that choice has on their overall buying patterns. Therefore, key questions pertaining to customer choice include the following:

- What determines customer channel choices? What channel attributes are important? Do marketing communications influence channel choice?
- Is a multichannel approach a means to segment customers? That is, are there distinct segments of consumers who use various channels and combinations of channels?
- Do customers make channel decisions according to the channel or the firm? Does the customer first say, "I will check out a few Web sites of retailers that sell HDTVs," or does he or she say, "I will check out Best Buy's Web site, then go to the store to get a better look"? Similarly, during the search stage, do customers consider firms at all?
- What is the impact of the multichannel environment on customer loyalty?

- Does a multichannel strategy grow sales for the firm?

Channel Evaluation

When the firm has gathered data and obtained an understanding of the consumer decision process, it can evaluate channel performance. The key questions in this step include the following:

- What is the contribution of an additional channel to the firm? If the firm were to add a channel, what impact would it have on sales and profits?

- What is the contribution of each existing channel? This input can be difficult to assess when the contribution of a channel emerges during the search phase and the company lacks an integrated database of search and purchase across customers.

- What channels synergize best with others? The full impact of the firm's set of channels should be more than the sum of the parts, and synergies should exist, but which are best?

Allocating Resources across Channels

The firm's channel policy is manifested in its resource allocation. Therefore, key questions include the following:

- What is the optimal channel mix? How necessary is a Web presence? What is the impact when channels are removed or downsized?

- How should marketing resources be allocated across channels? How much should be spent designing and developing each channel, and should advertising and promotional activities be designed to drive customers to specific channels, or should they be channel neutral?

- What determines the equilibrium channel structure in an industry? Should all firms offer the same channels to customers? Will firms differentiate their channel strategies?

Coordinating Channel Strategies

The most difficult task for managers is to coordinate the objectives, design, and deployment of channels to create synergies. Questions pertaining to this stage include the following:

- Should channels be independent or integrated? This basic question does not have a simple answer.

- Which aspects of channel design should be integrated? Should prices be the same in all channels; should channels carry the same products? In a related issue, how should the organization be integrated with regard to channel management?

- How can the firm design synergies in its channel strategy? If the argument in support of an integrated channel strategy relies on synergy, how can these synergies be achieved?

- Should channels be designed around segments or functions? For example, one strategy might encourage customers to use the Internet for search, the bricks-and-mortar store for purchase, and the call center for after-sales support, which would represent a functional channel strategy. In contrast, a segmentation channel strategy would recommend that the customers in Segment A use the Internet for all stages of their decision process, those in Segment B use the store for all stages, and those in Segment C use the call center. Obviously, intermediate combinations are possible.

- How can firms manage the research shopper phenomenon, whereby the customer searches on Channel A, but purchases through Channel B (not necessarily from the same firm)? Does a firm's superior search capability confer a competitive advantage that grows sales and profits?

- How should firms manage their relationships with channel partners when applying a multichannel strategy?

DATA INTEGRATION

Data integration is a prerequisite for successful multichannel customer management, but very little research has addressed it. A survey of customer relationship management (CRM)-oriented companies with more than 1000 employees indicates that 64% had a single view of the customer (CDI Institute 2004). However, it is particularly difficult for retailers to achieve an accurate single view through bricks-and-mortar stores, in which many customers purchase without providing any identifying information (e.g., they pay cash) and it is costly to match each store purchase to the customer database. It is therefore not surprising that a Forrester survey (Yates 2001) found that 48% of 50 retailers had learned "nothing" about cross-channel shoppers.

The key question in this context is can data integration increase earnings, and if so, in what ways. Ridgby and Leidingham (2005) suggest that successful CRM applications do not necessitate full data integration and its associated costs. Yet, the banking industry has invested substantially in full data integration to construct a single view of the customer. Enhanced cross-selling appears to be a prime beneficiary of these efforts (see Knott, Hayes, and Neslin 2002)

Zahay and Griffin (2002) provide indirect evidence that CDI (Customer Data Integration) might pay off using a survey of 208 business-to-business executives, in which they find that "CIS Development" (the quality and availability of the Customer Information System) yielded better customer-based performance (retention,

selling effectiveness, lifetime value, and marketing return on investment) and ultimately company performance (growth in income and sales). However, Zahay and Griffin do not specifically measure data integration in developing their CIS Development scale.

To show the factors that come into play in determining the appropriate level of CDI, we propose a model to examine the potential payoff (in customer lifetime value LTV) of investing (I) in a higher single view percentage (c). Presumably, firms can leverage the insights generated from a higher single view percentage to increase customer value through, for example, better service or add-on selling, which would then result in either a higher contribution per customer per period (M) or a higher retention rate (r). We write the model as follows:

$$LTV = M(c)\frac{1+d}{1+d-r(c)} - I, \tag{1}$$

$$c = \begin{cases} 100 \times (1 - e^{-K_1 I}) & if\ I \geq I_{min} \\ 0 & if\ I \leq I_{min} \end{cases}, \tag{2}$$

$$M(c) = M_0 + M_1(1 - e^{-K_2 c}), \text{ and} \tag{3}$$

$$r(c) = r_0 + r_1(1 - e^{-K_3 c}), \tag{4}$$

where:

LTV	=	lifetime value of the customer;
c	=	single view percentage, or the percentage of customers for whom the firm has an integrated view of their behavior across channels ($0\% \leq c \leq 100\%$);
I	=	investment per customer in achieving the single view percentage c;
M	=	profit margin per customer per period (a function of c);
R	=	retention rate (a function of c);
d	=	discount rate;
K_1	=	efficiency parameter reflecting how quickly investments in CDI result in higher single view percentages;
M_0	=	profit contribution per customer per period if the firm does not have a single view of any of its customers (i.e., $c = 0$);
M_1	=	parameter reflecting the additional profit contribution per customer per period if the firm achieves a higher single view percentage;
K_2	=	efficiency parameter, reflecting how quickly increasing the percentage of single view customers increases profit contribution;
r_0	=	retention rate per customer per period if the firm does not have a single view of any of its customers (i.e., $c = 0$);
r_1	=	parameter reflecting the incremental retention rate per customer per period if the firm achieves a higher single view percentage; and

K_3 = efficiency parameter, reflecting how quickly increasing the percentage of single view customers increases the retention rate.

Equation (1) is the "simple retention" formula for LTV, from which we subtract CDI investment per customer to compute net LTV. Equation (2) translates CDI investment into single view percentage. We assume a fixed cost I_{MIN}, the minimum investment required to begin increasing the single view percentage. Equations (3) and (4) translate single view percentage (c) into contribution and retention rate. Note also the assumed decreasing returns to scale.[1]

Figure 2 illustrates the relationship between CDI investment (I) and LTV and single view percentage (c) for hypothetical parameter values and shows that LTV slightly decreases until the firm makes a minimum investment (I_{MIN}). Profit then increases to its maximum when the investment equals $38 per customer. At that level, the single view percentage is not 100% but only around 83%. That is, with decreasing returns for contribution or retention as a function of single view percentage and decreasing returns for single view percentage as a function of CDI investment, the goal should not be to have a single view of each customer, which would require, according to Figure 2, $80 per customer investment. In other words, our illustration shows that in a world of decreasing returns to investment in CDI, the optimal level of CDI is less than 100%. However, we emphasize that this example is just one illustration; the model parameters undoubtedly would differ across companies, potentially yielding different results, and research is needed to estimate them.

[Figure 2 Goes Here]

In summary, some companies have achieved "complete" CDI, whereas others, especially retailers, have difficulty achieving a 100% single view of the customer. Furthermore, some evidence suggests that investments in customer databases pay off (Zahay and Griffin 2002), but the specific contribution of a single view of the customer investment has not been investigated. Finally, a simple model of CDI investment suggests that a 100% single view will not always pay off.

[1] These functions are adapted from Blattberg and Deighton (1996). We believe the assumption of decreasing returns is reasonable, but it is an assumption. For evidence of decreasing returns of customer acquisition rate, customer duration, and profitability with respect to marketing expenditures, see Reinartz, Thomas, and Kumar (2005).

UNDERSTANDING CONSUMER BEHAVIOR

How Does a Multichannel Environment Affect Customer Loyalty?

If a multichannel environment is, at worst, loyalty neutral, businesses could grow through multichannel strategies by acquiring more customers or selling more to each customer. However, a multichannel environment might erode loyalty, whether to firms or to the brands offered by these firms, because it encourages extensive search, which may lead to purchases from different firms. In addition, many modern channels (Internet, ATM, call centers) entail little human contact, which can erode loyalty itself (see Ariely, Lynch, and Moon 2002). However, more channels also suggest better service, which often leads to greater loyalty.

Research results are mixed though generally lean toward the finding that a multichannel environment enhances loyalty. Wallace, Giese, and Johnson (2004) find that multichannel usage is associated with higher perceptions of the firm's channel offerings, which in turn are associated with higher customer satisfaction and greater loyalty. Shankar, Smith, and Rangaswamy (2003) reveal that Internet usage is associated with greater loyalty, and Danaher, Wilson, and Davis (2003) find that Internet usage benefits the loyalty enjoyed by high-share brands offered by an e-tailer. However, with regard to the banking industry, Wright (2002, p. 90) states that the addition of new channel technologies has "loosened the banker–customer relationship," and Ansari, Mela, and Neslin (2005) find a negative association between Internet usage and loyalty.

In summary, the interesting initial research on multichannel approaches and customer loyalty point to three main impacts: (1) the multichannel environment as a whole on customer loyalty, (2) adding channels on customer loyalty toward the firm, and (3) individual channels on customer loyalty.

Does a Multichannel Strategy Grow Sales?

Research on whether a multichannel strategy grows sales has generated the provocative generalization that multichannel customers have higher expenditure levels than do single-channel customers. The key question is why.

Evidence for the generalization comes from a variety of sources. According to Table 1, which shows purchase volumes at a major U.S. retailer (DoubleClick 2004b), single-channel customers purchase less than dual-channel customers, who in turn purchase less than triple-channel customers. Similarly, Kumar and Venkatesan (2005) find that multichannel customers buy more, and Myers, Van Metre, and Pickersgill (2004, p. 1) report that "[m]ultichannel customers spend 20 to 30 percent more money, on average, than single-channel ones do." Kushwaha and Shankar (2005) report that multichannel shoppers buy more often, more items, and spend more than single channel shoppers. Thomas and Sullivan (2005b) report that multichannel customers spend more on average but also note two subtleties. First, single-channel customers buy more items but do not spend as much in total. Second, not all multichannel combinations are associated with higher sales than all single channels. For example, catalog users spend more than customers who shop at a bricks-and-mortar store and on the Internet. However, for a given firm's channel A, customers who purchase on A plus any channel B yield more sales than those who purchase on A alone. Kushwaha and Shankar (2006) find that customers who shop through any two of three channels (direct mail, store, and Internet) spend more than twice as much as customers who shop at any one channel alone, and that customers who shop through all the three channels spend more than three times as much as customers who shop at any one channel.

[Table 1 goes here]

While the above shows an intriguing *association* between multichannel purchasing and total sales levels, the key question is what are the underlying causes of this relationship? Multichannel customers may spend more because of their higher loyalty, self-selection, or as a result of marketing. Higher loyalty does not provide a definitive explanation because it is not yet a generalization that multichannel purchasing breeds higher loyalty. However, the evidence we discussed previously, that multichannel shopping may breed higher loyalty, makes this explanation plausible.

The self-selection explanation is that heavier users decide to use multiple channels. Kumar and Venkatesan (2005) find that multichannel B2B (Business-to-Business) customers are likely to be larger companies. However, Ansari, Mela, and Neslin (2005) rule out this explanation and find instead through a longitudinal comparison that catalog-loyal and multichannel/Internet-loyal customers started with equal sales

levels at the beginning of the period of observation, but the latter group demonstrated higher sales levels at the end.

Marketing provides another potential explanation for the sales levels of multichannel customers. Ansari, Mela, and Neslin (2005) report that the multichannel/Internet-loyal customer received more marketing and tended to respond to it more strongly in terms of purchase incidence. Kumar and Venkatesan (2005) indicate that multichannel customers received more contact from the company through a variety of channels. A simple view might argue that multiple channels are a type of extended distribution; in the same way that more soda machines increase soda sales, more channels increase firm sales, following a pure availability effect.

In summary, we know that multichannel customers buy more, but we are not sure why. Existing support, though neither unequivocal nor generalizable, indicates it may be due to higher loyalty, customer self-selection, or increased marketing exposure. Additional insight can be found in profiles of the "multichannel-prone" customer. For example, Kumar and Venkatesan (2005) find that multichannel customers have innately higher sales levels, come from particular industries, are more likely to partake in cross-buying, make a medium number of product returns, receive more marketing contacts, have been customers for a longer period of time, and purchase more frequently. This multichannel customer might also be profiled in terms of his or her attitudes toward various channels for search, purchase, and after-sales support (Burke 2002).

What Determines Customer Channel Selection?

Perhaps the most heavily researched area of multichannel customer management is what determines customer channel choice. Table 2 summarizes six basic determinants: firm marketing efforts, channel attributes, channel integration, social influence, situational variables, and individual differences.

[Table 2 Goes Here]

Marketing Efforts: Knox (2005) and Ansari, Mela, and Neslin (2005) find that e-mails and catalogs both influence channel choice; e-mails seem especially effective at channeling customers to the Internet. Various promotions can also encourage customers to use a certain channel (Burke 2002; Myers, Van Metre, and Pickersgill 2004; Teerling, van Nierop, Leeflang, and Huizingh 2005).

Channel Attributes: Table 2 provides an extensive list of channel attributes found to correlate with channel selection. Importantly, attributes play different roles depending on the channel and stage of the customer decision process. For example, Verhoef, Neslin, and Vroomen (2005) find that privacy concerns have a stronger impact on using the Internet to purchase than on using a store. They also find that enjoyment is an important determinant of searching a catalog (i.e., customers like to browse through catalogs) but does not influence their propensity to purchase from it.

Channel Integration: Montoya-Weiss, Voss, and Grewal (2003) as well as Bendoly and colleagues (2005) find that well-integrated channels encourage desirable customer behaviors. For example, if the firm allows products ordered on the Internet to be picked up at the store, it encourages Internet users to use the store as well. Burke (2002) points out that if the Internet promotes the store by providing store location information, it prompts customers to use the store.

Social Influence: Verhoef, Neslin, and Vroomen (2005) find that customers' selection of channels is influenced by the belief that people similar to them use the channel. Keen and colleagues (2004) apply the "social norm" construct from attitude theory. Nicholson, Clarke, and Blakemore (2002), in field research, find that a mother bought an outfit for her child at a bricks-and-mortar store rather than from the Internet simply because the higher effort required to use the store was commensurate with the mother's care for her child.

Situational Factors: Nicholson, Clarke, and Blakemore (2002) also identify five "situational factors" that can determine channel selection: physical setting (weather, crowding), social setting (shopping with friends), temporal issues (time of day, urgency of the purchase), task definition (type of product; see also Thomas and Sullivan 2005a and Burke 2002), and antecedent state (mood).

A few studies have focused on task definition. Mathwick, Malhotra, and Rigdon (2002) hypothesize that certain channels will be amenable to goal-directed shopping tasks, whereas others are suited for experiential tasks. A few papers have emphasized the role of the type of product being purchased. Gupta, Su, and Walter (2004) argue that search goods are more likely to be bought on the Internet, whereas experience goods are more likely to be purchased at a store. Mahajan, Srinivasan, and Wind (2002) posit that digital, existing (not new-to-the-world), search, and customizable products are more likely to be purchased on the Internet. Inman, Shankar,

and Ferraro (2004) posit that customers develop category/channel associations based on previous experience with buying category *j* on channel *k* and the presumed assortment of category *j* in channel *k*. They do not measure category/channel associations directly but find that previous experience and assortment factors determine channel usage. Kushwaha and Shankar (2005) find that channel category associations drive the choice of multichannel vs. single channel shopping.

Note that situational variables are distinct from channel attributes. Belk (1974, p. 157) defines *situational variables* as "all those factors particular to a time and place of observation which do not follow from a knowledge of personal (intra-individual) or stimulus (choice alternative) attributes." Situational and non-situational variables can be related, as demonstrated by Inman, Shankar, and Ferrarp (2004), because the purchased product is a situational variable (particular to a time and place), but their theory is based on personal experience and channel attributes (e.g., assortment).

Individual Differences: Internet experience, which differs substantially across customers, is clearly a determinant of Internet usage (Montoya-Weiss, Voss, and Grewal 2003), though demographics such as gender, age, education, income, family size, and region also influence choice (Ansari, Mela, and Neslin 2005; Gupta, Su, and Walter 2004; Inman, Shankar, and Ferraro 2004; Kushwaha and Shankar 2005; Verhoef, Neslin, and Vroomen 2005), as does the stage in the customer lifecycle (Thomas and Sullivan 2005a).

In summary, there is ample evidence for six basic determinants of channel selection, which is good news to managers, because many of them are actionable. For example, one situational variable is the purchase task. If the Internet tends to be used for gift purchasing, the firm can offer features like free gift wrapping or gift cards.

Are There Clearly Defined Channel Segments?

Because individual differences influence channel choice, it is natural to suppose that there are clearly defined channel segments. Keen and colleagues (2004) posit four segments: "generalists" who care about all issues, "formatters" who have particular channel preferences, "price sensitives" who care primarily about price and select channels accordingly, and "experiencers" who inertially tend to use the same channel they used the

previous time. Thomas and Sullivan (2005a) identify five such segments according to the impact of product type, customer lifestyle, and price sensitivity on the consumers' channel choice. Knox (2005) finds that customers develop preferences for various channels over time and that, in equilibrium, there are clearly defined multichannel versus single-channel segments. Kushwaha and Shankar (2006) find that distinct customer segments based on preferred channel(s) of shopping exist.

The preceding suggests that multichannel customer segmentation exists, but researchers have not settled on a single segmentation scheme. If managers want to pursue a segmentation-based multichannel strategy, they should use segmentation variables relevant to their product and the actions they can take at the segment level. Thomas and Sullivan (2005b) also indicate how, given a segmentation of the market, better communication strategies can be developed.

CHANNEL EVALUATION

The key questions revolve around the economic contribution of each channel to the firm. Three studies investigate whether the addition of the Internet cannibalizes sales from existing channels, and find generally it does not. If this finding turns out to be a generalization, it is extremely important, because it suggests that multichannel strategies are a vehicle for growth.

Deleersnyder and colleagues (2002) offer a time-series analysis of whether the addition of an Internet version of a newspaper took away from its circulation or advertising growth rate or level. For most newspapers, the introduction of an Internet channel had no impact on any of the dependent variables. For example, of 67 newspapers for which circulation data were available, the parameter representing the impact of the Internet on growth rate was negative 35 times and positive 32 times. Of the 35 negative signs, 5 were statistically significant; of the 32 positive signs, 10 were significant. The number of significant effects is too high (22%) for all to be Type I errors. The authors elaborate that the newspapers that suffered declines had high content overlap between the hard-copy and online versions. That is, the Internet will not cannibalize sales, and might even enhance sales, if its content is different than the incumbent channel, but if the content is similar, there could be cannibalization.

Biyalogorsky and Naik (2003) examine the experience of Tower Records, which added an Internet channel to accompany its bricks-and-mortar store channel. The authors constructed a latent variables time-series model, which modeled offline sales as a function of lagged offline sales and current and lagged visits to the new Internet channel. The coefficient for the impact of online visits on offline sales was negative but not statistically significant.

Coelho, Easingwood, and Coelho (2003) investigate 62 U.K. financial services companies by creating a "sales" measure consisting of customer acquisition, market share, and sales growth, and a "profit" measure consisting of customer retention, profit, customer service, and cost control. They found that multichannel companies enjoyed higher sales levels but lower profits. Upon further examination, though significant only at the 15% level, the authors also found that the multichannel companies suffered especially in terms of customer service and customer retention. In other words, providing good, coordinated service is a challenge for multichannel companies, and a multichannel offering may erode loyalty rather than enhance it.

The preceding suggests that (1) the addition of the Internet may enhance total sales, but (2) if the Internet completely duplicates the current channel, cannibalization may occur, and though sales may increase, long-term profits may decline due to decreases in service levels and retention.

Five studies provide additional perspectives. Geyskens, Gielens, and Dekimpe (2002) examine the stock market response to a firm's announcement of the addition of an Internet channel for 98 European newspaper companies and find that the Internet addition has a positive effect on stock price. Lee and Grewal (2004) consider 83 retailers that adopted the Internet through the impact of the speed of adoption on Tobin's Q, a stock market–based measure of firm performance. They find that faster adoption of the Internet as a communication medium enhances performance, but adoption for purchase has no effect, except for firms with preexisting catalog operations. Evidently, the market was concerned that the addition of an Internet purchase channel might duplicate the firms' sales efforts. Ward (2001) studies the human capital consumers invest in learning to use a channel by considering the purchases of 10,000 consumers in a broad variety of categories. He finds relatively high correlations in human capital investments between the Internet and direct (catalog) channels but lower correlations between these channels and retail. That is, the Internet and catalogs may be

more directly substitutable and hence more open to cannibalization. Chu, Chintagunta, and Vilcassim (2005) analyze the PC industry using an economic model of pricing competition coupled with a consumer demand model that includes choice of firm and channel. The authors find for example that the retail channel is especially valuable to Compaq and HP, and that Dell's exit from the retail channel was economically justified. Srinivasan and Moorman (2005) find that the ability the effectiveness of CRM efforts is best enhanced when the firm has *moderate* experience (not very high or very low) in either bricks-and-mortar or online channels. They argue for example that moderate bricks-and-mortar experience provides a critical level of expertise without the problems that can occur due to inertia or concerns about channel cannibalization.

The above work provides an excellent start to evaluating the profit contribution of various channels. For example, there is promising evidence that adding an Internet channel increases company sales. However, more research is needed. For example, none of the above studies considers the role of marketing in determining channel value, and the nature of the contribution of each channel in terms of acquisition versus retention.

ALLOCATING RESOURCES ACROSS CHANNELS

For allocation decisions, the key issues are not only how to invest marketing and other resources across channels but also which channels to employ. This area has received little research attention, with two exceptions: First, Verhoef and Donkers (2005) and Villanueva, Yoo, and Hanssens (2003) both found the important result that the long-term value of a customer differs depending on the acquisition channel. This means that firms must balance this long-term value with the cost of acquisition in a particular channel to allocate their acquisition funds properly. Second, Kushwaha and Shankar (2006) have investigated the allocation of resources across channel-customer segments.

Verhoef and Donkers (2005) study customers acquired by an insurance company and find that the channel by which the customer was acquired is associated with his or her retention and receptivity to future cross-selling efforts. For example, the direct mail channel led to customers who offered low retention rates and were not receptive to cross-selling, Internet-acquired customers yielded mixed results, and outbound telephone and magazine acquisitions tended to have high retention rates and were receptive to cross-selling. Thus, they

provide clear evidence of a relationship between the acquisition channel and subsequent customer behavior that can be correlated with customer value.

Villanueva, Yoo, and Hanssens (2003) support Verhoef and Donkers' (2005) finding that the quality of an acquired customer differs by channel. They show how this finding, along with their finding that acquisition costs differ substantially by channel, could be incorporated into an optimization model for allocating acquisition dollars across channels to maximize profit for a given budget. The key equations are the profit function and the customer acquisition function, as follows:

$$\underset{x_k}{Max}\, \Pi = \sum_k m_k c_k(x_k) - B, \tag{5}$$

$$c_k = \alpha_k + (s_k - \alpha_k)(1 - e^{-\beta_k x_k}), \text{ and} \tag{6}$$

$$\sum_k x_k = B, \tag{7}$$

where

m_k = contribution per customer acquired through channel k;
c_k = number of customers acquired through channel k;
s_k = ceiling level – maximum number of customers that could be acquired through channel k;
α_k = number of customers acquired through channel k even if the firm spends no money on it;
β_k = efficiency parameter for the acquisition function;
x_k = amount of money spent acquiring customers through channel k; and
B = budget.

To maximize profits (equation (5)), acquisition expenditures (x_k) must be allocated correctly across channels. Profit reflects the contribution per customer (m_k) times the number of customers acquired (c_k) through each channel. The acquisition function (equation (6)) translates acquisition expenditures into the number of customers acquired. Equation (7) provides the budget constraint. Villanueva, Yoo, and Hanssens' (2003) analysis provides measures of the m_k's but not the acquisition function, which would have to be estimated using previous data (Reinartz, Thomas, and Kumar 2005) or judgmentally. The authors illustrate their model using assumed values for the parameters of the acquisition channel. They show, for example, that budget allocations differ significantly according to differences in customer contribution and acquisition costs across channels.

Kushwaha and Shankar (2006) develop an approach for optimal allocation of marketing efforts across multiple channel-customer segment (based on different combinations of channels of purchase). Their approach comprises three customer response models, the first for the probability or timing of purchase, the second for frequency or quantity of purchase, and the third for the monetary value of purchase, and an optimization model. Their model includes customer returns. They illustrate their model by analyzing customer level purchase, cost, and marketing promotional data on about 800,000 customers over a two-year period for a large marketer of shoes and apparel accessories across multiple channels, namely, the direct mail, the store, and the web. They estimate the marketing response models using a MCMC (Markov Chain Monte Carlo) approach and solve the optimization model using simulations. Their optimization model results indicate that profits can be increased by realigning the current marketing efforts across the different channel-customer segments. In particular, they show that more product and promotional catalogs should be mailed to customers who shop at all the three channels and to those who shop at the store and direct mail channels and to those who shop at the store and web channels.

The preceding descriptions illustrate how optimal allocation can work in a multichannel context. The necessary information managers must have pertains to (1) the relationship between the investment and some desired outcome (e.g., customer acquisition, customer retention) and (2) the value of that outcome for the firm (e.g., the value of a customer acquired through Channel X).

Another basic issue of resource allocation is what channels the firms should employ. This depends not only on the marginal contribution of a firm adding a channel, but on competitive response as well. For example, the provision of multiple channels in the name of better customer management may simply mask the harsh reality of a prisoner's dilemma, as illustrated in Figure 3. The studies reviewed in the "Channel Evaluation" section suggest adding a channel increases a firm's sales, thus supporting the off-diagonal cells in Figure 3. The question is what happens in the lower right cell? Firms might compete more intensively and decrease prices while incurring higher channel costs. Alternatively, the proliferation of channels may increase industry sales, possibly benefiting all firms, or enhance opportunities for firm differentiation. For example, Jindal and colleagues (2005) find that when one firm uses a differentiation strategy and another uses a low-cost

strategy, they are more likely to use multiple channels. See also our discussion of Zettelmeyer (2000) in the section "Coordination across Channels and Stages of the Decision Process".

[Figure 3 Goes Here]

Competition in a multichannel envirnoment has been analyzed using game theoretic models. These models often employ a Hotelling framework, where the consumer utility function can be expressed as a function of the "distance" of customer *i* from channel *j*, where distance represents the accessibility or availability of the channel to the customer..

Based on this framework, Balasubramanian (1998) analyzes competition between a direct marketing firm and several bricks-and-mortar retailers and finds that when a direct marketing firm enters the market, each bricks-and-mortar firm competes directly against that channel rather than against its neighboring retailer. Pan, Shankar, and Ratchford (2006) examine the case of a bricks-and-mortar retailer competing against a pure-play e-tailer when firms decide on price and level of service. Their results show that if customer heterogeneity in willingness to pay for service is sufficiently large compared to heterogeneity in channel preference, the bricks-and-mortar retailer provides better service at higher price, and earns greater profits than the pure-play e-tailer. Pan, Shankar, and Ratchford (2002) begin with a bricks-and-mortar firm competing against a pure-play e-tailer. They find that if the bricks-and-mortar firm can launch an Internet channel perceived as superior to the pure-play e-tailer (e.g., because of synergies between the Internet channel and the bricks-and-mortar channel), the bricks-and-mortar firm will launch the Internet channel, offer more services, and charge higher prices than the pure-play retailer. The authors find empirical support for the pricing part of their hypothesis. Ancarani and Shankar (2004) find that multichannel retailers have higher average prices than pure e-tailers, regardless of whether the price refers to the posted price or includes shipping costs; similarly, for DVDs, Tang and Xing (2001) indicate that multichannel retailers had significantly higher prices than did pure e-tailers (14% on average).

COORDINATING CHANNEL STRATEGY

Our framework in Figure 1 suggests channel coordination can take two forms: (1) coordinating across channels at a given stage in the customer decision process (e.g., should purchase prices be the same across channels?) or (2) coordinating across channels and across stages of the customer decision process (e.g., profitably managing the research shopper phenomenon).

The degree of coordination can range from the complete separation of channels to full coordination. For example, some firms may treat their Internet operations essentially as a separate company, whereas others might coordinate their Internet and bricks-and-mortar store operations fully by using the Internet as a search service to funnel customers into the store (see Gulati and Garino 2000). There are several benefits and costs to coordination; we start with the potential benefits:

- Economies of scale (e.g., order fulfillment).
- Ability to differentiate offerings by channel (Zettelmeyer 2000).
- Higher margins by avoiding channel conflict and possibly charging higher prices (Tang and Xing 2001; Zettelmeyer 2000).
- Better information about customers (Stone, Hobbs, and Khaleeli 2002).
- Improved intraorganizational communication.
- Reinforced relationship between the customer and the firm.
- Prevention of channel partners from becoming competitors.
- Higher entry barriers (new entrants must have several coordinated channels).
- Better service levels (Sousa and Voss 2004; Stone, Hobbs, and Khaleeli 2002).
- Decreased potential for channel conflict because efforts are coordinated and agreed upon across channels (Berger, Lee, and Weinberg forthcoming 2006).
- Ability to compensate one channel's weakness with another channel's strength (Achabal, Badgett, Chu, and Kalyanam 2005).

The costs of channel coordination include the following:

- Loss of strategic flexibility (especially with regard to newly emerging channels).
- Large capital investments (e.g., information technology to obtain a single view of the customer).
- Increased fixed costs to provide coordinated activities such as service (e.g., management coordination time) (Sousa and Voss 2004).
- Decreased incentives for non-owned intermediaries and partners.
- Increased expertise needed to manage the different channels.
- Inability to move quickly in the marketplace.

Coordination at One Stage of the Customer Decision Process

Should the firm charge the same price in each channel? Managers often refer to this in terms of "channel price integrity." A compelling reason to offer different prices is price discrimination. If an Internet

shopper is less price sensitive than a traditional store shopper, the firm should charge lower prices in the traditional store; research already suggests price sensitivity is lower online than offline (e.g., Lynch and Ariely 2000; Shankar, Rangaswamy, and Pusateri 2001).

Shoppers may find a multi-price strategy policy confusing and unfair, and competitors can subvert the policy by positioning themselves as price consistent across channels and offering lower prices than those available at the firm's store. However, there are at least three ways a firm can charge different prices across channels. First, a manufacturer may charge the same price across channels, but a bricks-and-mortar retailer may choose to discount the product, effectively lowering prices in that channel. Second, firms can add surcharges for the use of certain channels. For example, an airline can sell tickets through its Web site, call center, bricks-and-mortar travel agents, and online travel agents. Although it maintains the same ticket price across channels, the net price is higher if the customer uses a value-added channel, for example, a $10 fee might be added for the service provided by a live agent on the telephone. The airline might communicate this clearly when customers contact its call center, both in the interest of perceived fairness as well as the desire to save costs by encouraging customers to use the Internet.[2] Third, a manufacturer can sell different products in different channels, so prices are not directly comparable.

In conclusion, there are good reasons to suspect firms may want to charge different prices across channels, but research is needed to examine the extent to which this occurs, why it occurs, and what mechanisms firms use most effectively to achieve price differences.

Berger, Lee, and Weinberg (forthcoming 2006) offer an optimization model to analyze how a firm should coordinate its communication expenditures between the Internet and other channels. They consider three strategies: (1) "separation," in which the Internet is completely separate, such as with an independent distributor; (2) "partial integration," in which the firm considers the Internet a separate entity but is willing to pay some of its advertising cost; and (3) "full integration," in which the firm considers the Internet completely a part of its own operation. The authors develop separate optimization formulations for each scenario. Although they do not estimate the response functions that drive this analysis, using plausible values for the parameters,

[2] We thank an anonymous reviewer for this insight.

they find that full integration is more profitable than partial integration, which in turn is more profitable than separation. This finding is intriguing, but additional work needs to determine if it generalizes, both theoretically and empirically.

Coordination across Channels and Stages of the Decision Process

Zettelmeyer (2000) considers channel coordination between the Internet and an offline channel when firms can decide on the pricing (relevant for purchase) and the level of information provided (relevant for search). His theme is that information provision is a means for firms to differentiate, which leads to different levels of information provided across firms and channels. For example, if a medium number of customers have access to the Internet (e.g., many but not all customers prefer to use the Internet for shopping), firms adopt the same information and pricing strategy in both channels but differentiate themselves in terms of the information they provide, as well as price.

Zettelmeyer's (2000) analysis shows that the existence of two channels, heterogeneous customer preferences, and two stages in the consumer decision process (search and purchase) provides firms with the flexibility to differentiate themselves. This very encouraging result relies on a sensible basic intuition, but empirical testing of the theory would be a welcome addition to the literature.

Another issue that has attracted significant attention is the research shopper phenomenon. In Table 3, we provide data on the frequency with which research shoppers use various channels for their search and purchase (DoubleClick 2004a). The table suggests that the most common link pertains to using the Internet for search and then buying at the retailer store—43% of all research shoppers follow this route. In fact, a survey conducted by the Dieringer Group estimates "83.4 million U.S. consumers made offline purchases influenced by online information in 2004" (CrossMedia Services 2006). Van Baal and Dach (2005) find that 20.4% of offline purchases took place after the customer had consulted the Web site of a different retailer, but find the reverse process was a bit more common – 24.6% of online purchases took place after the consumer had consulted an offline channel of a different retailer.

[Table 3 Goes Here]

Research shopping presents both an opportunity and a concern. The opportunity relates to the firm's ability to encourage customers to search on its Web site and then use that site to direct the customer to the retail store. Once in the store, the customer has lower service demands and can more readily be exposed to cross-selling. However, the concern is that the customer will use Firm A's Web site for search but purchase from Firm B's store. For single-channel Internet retailers, the concern is particularly acute because they offer no store to which they can route the customer.

Verhoef, Neslin, and Vroomen (2005) delineate three factors that contribute to research shopping: (1) channel attributes, (2) lack of lock-in, and (3) cross-channel synergy. Channel attributes may cause research shopping because the Internet may be perceived as superior in terms of search-related attributes, such as ease of comparing prices, whereas the store might be perceived as better in its purchase-related attributes, such as speed of obtaining the product. Lock-in refers to the ability of a channel, separate from its attributes, to hold on to the consumer for both search and purchase and might be considered an inertial or one-stop shopping effect. Verhoef, Neslin, and Vroomen find that the Internet has a very low lock-in, whereas the store channel has very high lock-in. Finally, cross-channel synergy means that the customer has higher utility from searching on Channel A and buying on Channel B, apart from the obvious channel attributes. For example, searching on the Internet before going to the store may enable the customer to learn about trading off product attributes and hence make him or her better able to select the right product when in the store. Verhoef, Neslin, and Vroomen find cross-channel synergy between the Internet and store, but it was not highly significant.

One approach to managing research shopping is to employ an information-only Web site that is highly integrated with the store (Bendoly et al. 2005). Teerling, van Nierop, Leeflang, and Huizingh (2005) uncover some important findings in reference to this strategy; more Web site visits initially are associated with fewer store visits (possibly due to the consumer searching at various Web sites), but eventually, more Web site visits translate into more store visits. Teerling and Huizingh (2005) also find that online and store satisfaction reinforce each other and lead to more store and Web loyalty. In turn, these loyalties reinforce each other, such that the more loyal the customer is to the Web site, the more loyal he or she becomes to the store. These loyalties then translate into higher sales levels. The search-only Internet/purchase store strategy can work as

exhibited by Teerling's findings, but it would be risky in an environment in which most competitors' websites provide both information and the ability to make purchases.

Managing Channel Conflict with Channel Partners

When coordinating channels, firms also must consider coordinating with channel partners, especially firms that sell through intermediaries. One important coordination issue in this case is the collection and integration of customer data. Adding direct channels can have significant impact on intermediaries, such as in the air travel market, in which the advent of the Internet channel led to direct sales by airlines, and decreased sales by travel agents. A firm's use of both its own and independent channels is also referred to as "concurrent" channel use. Concurrent channels can benefit customers, but they also might create conflict through intrabrand competition between independent and direct channels. Vinhas and Anderson (2005) study the use of concurrent channels in a B2B setting and show that when the products are highly standardized, customer behavior is variable, and product lines tend to be purchased as a group, firms are less likely to use concurrent channels. The effect of multichannel customer systems on multichannel conflict, and its resultant impact on channel and firm performance, has received no attention (Rangaswamy and van Bruggen 2005), though it is important to know how firms can mitigate such potential channel conflict problems, such as through incentive structures or offering different product lines in different channels (e.g., Vinhas and Anderson 2005).

SUMMARY

In summary, we have (1) identified five key challenges practitioners face in multichannel customer management, (2) proposed a framework that links the challenges together and provides a conceptual structure of the field, and (3) summarized the knowledge base that academic research has generated to date about the five challenges.

The five challenges we identify are as follows:

- Data integration,
- Understanding customer behavior,
- Channel evaluation,

- Allocating resources across channels, and
- Coordinating channel strategies.

The framework in Figure 1 shows how the challenges are inter-related: Data integration enables managers to understand consumer behavior and evaluate channel performance. This in turn provides the means to formulate strategy, particularly as it pertains to channel coordination and resource allocation. An important contribution of the framework is that it marries consumer and firm decision processes, which means that multichannel customer management entails managing customers as they progress through their decision process and using channels to enhance each stage of that process.

For each of the five challenges, we have generated several key research questions,. In Figure 4, we summarize the extent of research progress in each and provide brief summary comments. Note that most of the research to date has focused on three main channels: catalogs, bricks-and-mortar stores, and the Internet. Clearly there is a need in all the areas listed in Figure 4 to consider more channels, ranging from bank ATM's to telemarketing to direct selling, and in fact to develop a typology for organizing the many types of channels.

[Figure 4 Goes Here]

As we suggest with Figure 4, most research has been conducted to understand customer behavior. We have a good idea of what determines channel choice and a generalization that multichannel customers buy more. We just do not know why—is it enhanced loyalty, self-selection of desirable customers, or increased marketing exposure? There is evidence to support each hypothesis, but no definitive conclusions can be drawn at this time.

Figure 4 also suggests that data integration is the least researched area. Ironically, integration is where companies are probably spending the most money and may be the most concerned. One study suggests IT investments for CRM can pay off (Zahay and Griffin 2002), but that work does not consider CDI specifically. Our model, if parameterized, could help managers decide about the optimal level of data integration; we also highlight that a single view of 100% of the firm's customers may not be optimal. Another issue is measuring customer activity with competitors' channels. See Du, Kamakura, and Mela (2005) for promising work on

measuring customers' total purchase activity with competitors across all channels. It may be possible to adopt their method to search, after-sales, as well as purchase, and to specific channels.

Allocating resources across channels also has not received much attention, though good work has been conducted that could form the basis for optimal allocation across channels for acquisition.

Channel evaluation and coordinating channel strategies have received more attention than data integration and resource allocation but less than understanding consumer behavior. Adding an Internet channel may not completely cannibalize other channel sales, but the related studies need further development and should include variables such as the impact of marketing. Channel coordination has received its attention particularly in the area of research shopping. We know, for example, that this phenomenon exists (Table 3), and some evidence suggests that the search-Internet => buy-store route is the most common research shopper consumer strategy. We also have some idea about the determinants of research shopping (perceived attributes, lack of channel lock-in especially for the Internet, and perceived consumer synergies between searching on one channel and buying on another).

In conclusion, there are plenty of challenges and issues to be investigated by academics. The academic world has begun to make good progress toward answering some of these questions, but much work remains. Researchers need to investigate the issues identified in this paper and generalize findings across a variety of industries, including retail, B2B, and services. This article, we hope, will serve to stimulate that research.

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Table 1

Purchase volume of the Multihannel Shopper*

Channels Used for Shopping			Average Annual Expenditure Per Customer
Internet	**Retail**	**Catalog**	
√			$157
	√		$195
		√	$201
√		√	$446
√	√		$485
	√	√	$608
√	√	√	$887

* Source: DoubleClick (2004b)

Table 2
Determinants of Channel Selection

Determinant	Variable	References
Marketing	e-mail	Ansari et al. (2005); Knox (2005)
	Catalog	Ansari et al. (2005); Knox (2005); Kushwaha and Shankar (2005, 2006)
	Incentives	Myers et al. (2004); Burke (2002); Teerling et al. (2005), Kushwaha and Shankar (2006)
Channel Determinants	Ease of Use	Keen et al. (2004); Nicholson et al. (2002); Burke (2002); Montoya-Weiss et al. (2003); Teerling and Huizingh (2005)
	Price	Keen et al. (2004); Jiang and Rosenbloom (2004); Verhoef et al. (2005); Burke (2002); Thomas and Sullivan (2005a); Morton et al. (2001); Ancarani and Shankar (2004); Pan et al. (2002); Tang and Xing (2001); Teerling and Huizingh (2005)
	After-sales	Jiang and Rosenbloom (2004); Verhoef et al. (2005)
	Search convenience	Verhoef et al. (2005)
	Search effort	Verhoef et al. (2005); Burke (2002); Gupta et al. (2004)
	Information quality	Montoya-Weiss et al. (2003); Teerling and Huizingh (2005)
	Aesthetic appeal	Montoya-Weiss et al (2003); Teerling and Huizingh (2005)
	Info. comparability	Verhoef et al. (2005); Gupta et al. (2004)
	Service	Verhoef et al. (2005); Burke (2002); Montoya-Weiss et al. (2003); Teerling and Huizingh (2005)
	Risk	Verhoef et al. (2005); Montoya-Weiss et al. (2003); Gupta et al. (2004)
	Purchase effort	Verhoef et al. (2005); Keen et al. (2004)
	Negotiability	Verhoef et al. (2005)
	Speed of purchase	Verhoef et al. (2005); Burke (2002); Gupta et al. (2004)
	Privacy	Verhoef et al. (2005); Burke (2002)
	Assortment	Verhoef et al. (2005); Burke (2002); Bendoly et al. (2005); Teerling and Huizingh (2005); Inman et al. (2004)
	Enjoyment	Verhoef et al. (2005); Nicholson et al. (2002); Teerling and Huizingh (2005); Nicholson et al. (2002)
	Security	Burke (2002); Montoya-Weiss et al (2003)
	Channel category associations	Inman et al. (2004); Kushwaha and Shankar (2005)
Channel Integration	Ease moving from Channel A to B	Montoya-Weiss et al. (2003)
Social Influence	Subjective norm	Keen et al. (2004); Verhoef et al. (2005); Nicholson et al. (2002)
Situational Factors	Physical setting	Nicholson et al. (2002)
	Social setting	Nicholson et al. (2002)
	Temporal issues	Nicholson et al. (2002)
	Shopping task	Nicholson et al. (2002). Burke (2002); Mathwick et al. (2002); Gupta et al. (2004); Inman et al. (2004); Thomas and Sullivan (2005a); Kushwaha and Shankar (2005)
	Antecedent state	Nicholson et al. (2002)
Individual Differences	Demographics	Gupta et al. (2004); Ansari et al. (2005); Verhoef et al. (2005); Inman et al. (2004); Kushwaha and Shankar (2005); Pauwels and Dans (2001)
	Previous experience	Keen et al. (2004); Meuter et al. (2000); Inman et al. (2004)
	Stage in lifecycle	Thomas and Sullivan (2005a)

Table 3

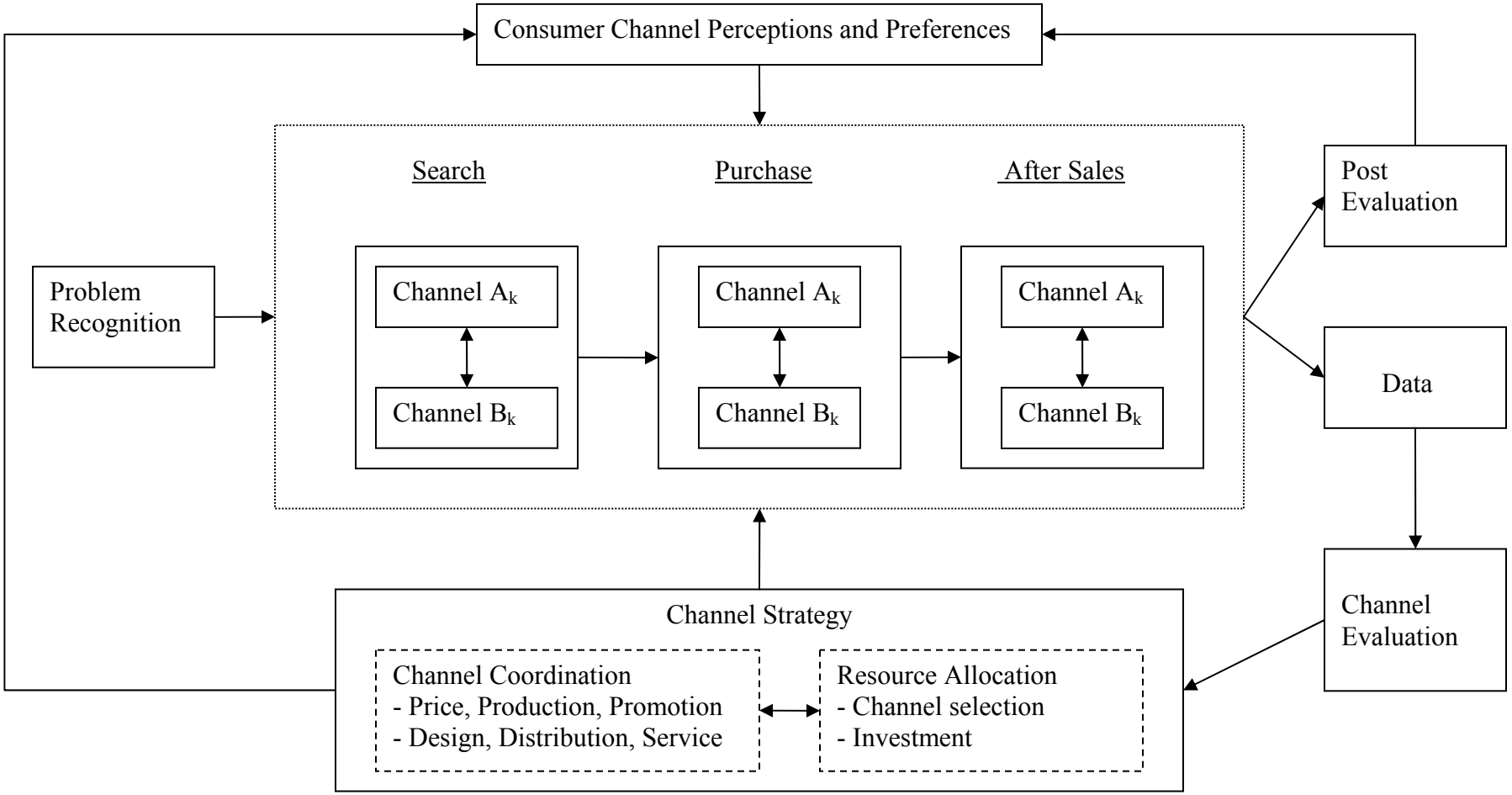
Research Shopping*

Browsing Channel	Purchase Channel	Percentage of Customers Who Utilize Each Pattern
Catalog	Internet	11%
Catalog	Retail	19%
Internet	Catalog	6%
Internet	Retail	43%
Retail	Catalog	5%
Retail	Internet	16%

* Source: DoubleClick (2004a)

Figure 1

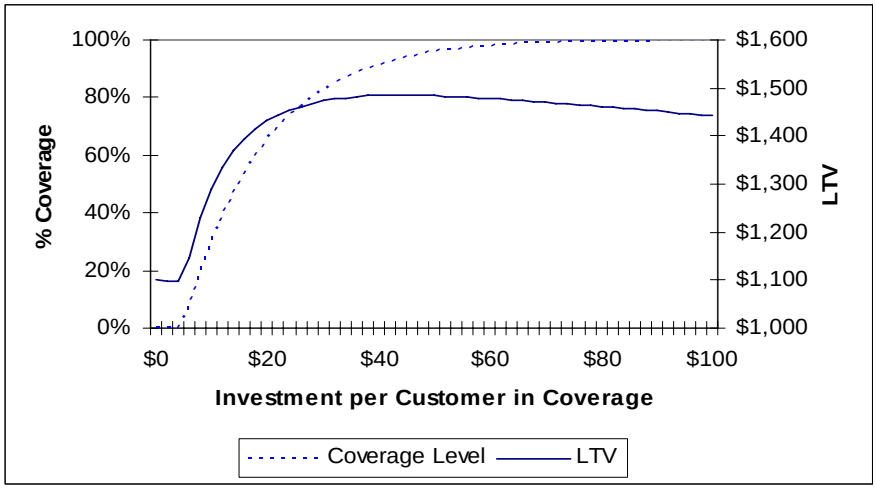
A Framework for Multichannel Customer Management[1]



1. Adapted from Blattberg, Kim, and Neslin (2006)

Figure 2

Customer Lifetime Value and Coverage as a Function of Investment in Customer Data Integration



Notes: See equations 1–4; $M_0 = \$400$, $M_1 = \$200$, $K_1 = 1.5$, $r_0 = 0.7$, $r_1 = 0.2$, $K_2 = 0.02$, $d = 0.1$, and $I_{min} = 5$.

Figure 3

The Potential Prisoner's Dilemma in Adding New Channels

		Firm B	
		Do Not Add	Add
Firm A	Do Not Add	Status Quo	Firm B gains customers
	Add	Firm A gains customers	Firms A and B compete for customers on a broader front and possibly grow market.

Figure 4
Summary

Challenge	Topic	Research Progress[1]	Comments
Data Integration	Does integration pay off?	**	Some indication that CRM IT pays off, but no study of CDI.
	What is an acceptable amount of integration?	*	No formal research; see equations 1-4 for framework.
	What data should be integrated?	*	No formal research.
	What activities benefit from integration?	**	Some evidence that cross-selling benefits.
Understand Consumer Behavior	Impact on brand loyalty	***	Mixed results regarding impact of multichannel.
	Does multichannel grow sales?	***	Clear generalization that multichannel customer buys more.
	What determines channel choice?	****	Much research on attributes, situational factors, etc. See Table 2.
	Are there channel segments?	**	Segmentation definitely exists, but no universal scheme.
	Do consumers decide by channel or firm?	*	No formal research.
Channel Evaluation	What is the contribution of an additional channel?	***	Appears Internet usually does not cannibalize other channels.
	What is the contribution of each channel?	*	Initial work suggestions contribution varies by channel and firm.
	What channels synergize best with others?	**	Some findings that Internet and store can synergize.
Allocating Resources across Channels	Which channels should the firm employ?	*	No formal research
	How allocate marketing across channels?	**	Some methodological studies; no substantive generalizations.
	What determines equilibrium channel structure	*	Little formal research – is it a prisoner's dilemma?
Coordinating Channel Strategies	Should channels be independent or integrated?	**	Some work suggests integration is better, but not definitive.
	Which aspects should be integrated?	**	Some related work but no clear conclusions.
	Should prices be consistent across channels?	*	May be opportunity for price discrimination. More research needed.
	How develop channel synergy?	**	Promotions and information available in Channel A => purchase in Channel B may work.
	Use channels to segment or for different functions?	*	No formal research
	How do we manage research shopping?	***	Can change channel attributes, achieve lock-in, use promotions.

1. Amount of research progress made regarding each topic, ranging from one to potentially five *'s.