The Dynamics of Click-and-Mortar Electronic Commerce: Opportunities and Management Strategies

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ABSTRACT: Many traditional brick-and-mortar businesses supplement their physical outlets with e-commerce capabilities on the Web, but there has been little empirical research on the underlying dynamics of the "click-and-mortar" business approach. This paper develops a conceptual framework that highlights the four types of synergies obtained by integrating e-commerce with physical infrastructures: cost savings, improved differentiation, enhanced trust, and market extension. Case studies of click-and-mortar enterprises provide concrete examples of these synergy benefits and of the managerial actions needed to prevent channel conflicts.

KEY WORDS AND PHRASES: Case studies, channel conflict, competitive strategy, e-commerce business models, electronic retailing.

After a slow start in Web-based retailing, many traditional brick-and-mortar retailers now have electronic commerce channels in place. Researchers on e-commerce, using terms like "click and mortar" and "cyber-enhanced retailing," consider the integration of physical and Web channels to be a distinct business model [16, 23, 28].

Despite the attention given to click-and-mortar strategies, there has been little empirical work on the sources of competitive advantage of this approach or the factors that distinguish successful and unsuccessful implementations. The present paper addresses this gap in the literature.

Review

In the business-to-consumer (B2C) area, electronic commerce is a marketing channel that can be defined as a means to interact with end-consumers. A more detailed definition of marketing channel focuses on the "array of exchange relationships that create customer value in the acquisition, consumption, and disposition of products and services" ([18], pp. 9–11). In general, firms rely on a channel mix that involves the use of multiple channels serving sales opportunities [11]. Firms pursuing channel integration attempt to tightly coordinate their use of channels, even within a single sales activity, in order to improve profitability [2, 11]. Integration of physical and e-commerce channels makes it possible for click-and-mortar firms to seek out synergies that may not be available to firms that treat these channels independently. Figure 1 graphically represents channel integration, illustrating that buyers may move

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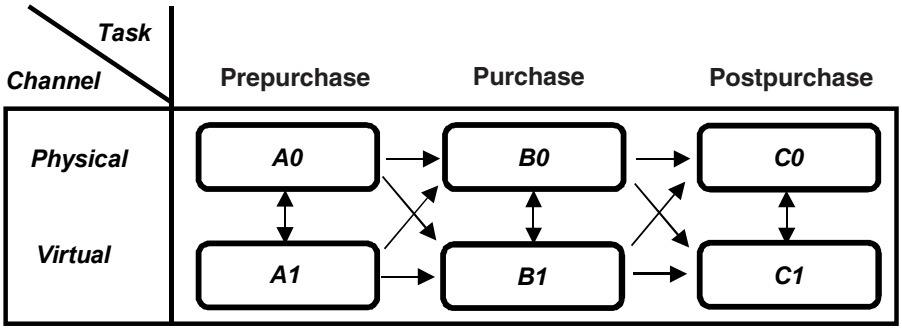

Figure 1. Use of Physical and Virtual Channels in an Integrated Click-and-Mortar Business

from one channel to another at different stages of a single transaction. They may, for example, gather information on-line and reserve an item on-line (A1), pay for and pick up the product in the physical outlet (B0), and obtain after-sales support on-line (C1). When truly integrated channels are provided, many paths are possible, including movement between physical and virtual channels at the same stage in the process (e.g., inspecting a product in a store and comparing prices on-line [A0 to A1]).

The advantages of implementing a virtual channel can be derived from the early predictions of the "death of distance" that would result from electronic commerce [30]. According to this view, the Internet was going to make distance irrelevant, in that firms would no longer need to establish a physical presence in a geographical location in order to do business there. They could, instead, use their virtual presence for all transactions with customers, relying on courier services or logistics suppliers to handle fulfillment for tangible products. As a result, they would have a better cost structure and more flexibility in adapting to the market than traditional "brick-and-mortar" establishments, which would be forced to change or go out of business.

Although the death-of-distance notion is no longer taken for granted, in part because of the failure of so many purely Internet-based firms, its underlying assumptions continue to be influential [12, 30]. The basic argument relies on an economic logic, generally linked to a theory of transaction costs. Web-based businesses are perceived to have many operational, cost, and scale advantages over firms confined to physical channels, including access to wider markets, lower inventory and building costs, flexibility in sourcing inputs, improved transaction automation and data-mining capabilities, ability to bypass intermediaries, lower menu costs enabling more rapid response to market changes, ease of bundling complementary products, ease of offering 24/7 access, and no limitation on depth of information provided to potential customers [1, 2, 8, 33, 34].

These economies enable Web-based retailers to undercut the prices of physical retailers, especially those that may once have faced little local competition. Despite some empirical evidence to the contrary [3, 17], there is a general expectation that prices will be lower on the Web [22]. Two studies actually

found higher or equivalent prices on the Internet. Bailey and Brynjolfsson reported, for example, that books, compact discs, and software were more expensive, on average, on the Web than in Boston-area stores [3], while Palmer found no significant difference between in-store prices and prices in Web stores, catalogs, and cable television shopping channels across a variety of products [17]. A more recent review, however, which examined the latest evidence, concluded that prices of otherwise equivalent goods are generally lower on the Internet [22]. The Web's lower operating and transaction costs are thought by some to eliminate the issues of distance and the need for a physical presence, factors that once were barriers to entry in any given geographical market [4, 15].

Recent conceptual and empirical work sharply criticizes the expectation that virtual firms will drive out physical ones and make distance irrelevant [11, 16, 24, 26, 32]. These studies emphasize the theoretical advantages of integrating e-commerce services with existing physical channels. For example, combinations of channels can be used to target different kinds of customers and offer different kinds of services cost-effectively [11]. In addition, on-line channels may have spillover effects, generating increased purchases in off-line channels [32].

A robust framework describing how the integration of physical and virtual channels yields competitive advantage can be derived from existing theory in competitive strategy, marketing, information systems, and transaction cost economics. Classic theories of competitive strategy emphasize the importance of exploiting the interrelationships between tangible and intangible assets as important sources of synergies that can drive competitive advantage [19]. These works, along with marketing theories focusing on channel coordination, direct attention to the importance of channel harmonization to bring out the benefits from potential sources of synergy, as well as to prevent damaging channel conflicts [11, 27]. Information systems research has a long history of emphasizing how electronic networks can be used to realize competitive advantages, particularly cost, differentiation, and geographic expansion benefits [5, 14, 20]. The framework draws from these prior works to highlight how such competitive advantages can be derived from the successful exploitation of the synergies between physical and virtual channels. Click-and-mortar firms also have an opportunity to avoid one of the most difficult problems facing Internet-only businesses: lack of trust. Here, research that focuses on the importance of a local physical presence in electronic commerce, as well as work in the field of economic sociology, can be brought to bear to shed light on why integration of channels can be a more successful strategy [10, 13, 24, 25, 26]. Thus, the general framework for synergy benefits includes four categories: (1) lower costs, (2) differentiation through value-added services, (3) improved trust, and (4) geographic and product market extension [23].

Lower Costs

Early theorists on competitive advantage emphasized the role of information technology (IT) in improving internal and external efficiencies, thereby lowering the costs of doing business [5, 14, 20, 31]. When virtual and physical

channels are harmonized effectively, savings should become possible in several areas, especially labor, inventory, and delivery costs. The labor cost for such activities as looking up product information, filling out forms, and providing on-line technical assistance for after-sales service, for instance, can be switched to consumers. Inventory savings arise because the physical outlet no longer needs to maintain substantial stocks of infrequently purchased goods now offered via the Internet. Delivery savings may result from using the physical outlet as the pick-up location for on-line purchases or as the initiation point for local deliveries.

Improved Trust

Lack of trust in the legitimacy of Web-based stores is often an impediment to on-line shopping [7, 9]. Click-and-mortar firms are better able to build trust because of their physical presence in the markets they serve. Consumers perceive less risk because there is an accessible location where they can return goods or register complaints. Additionally, businesses situated in a community can participate in social networks that enhance trust [25, 26]. According to Granovetter, such activities facilitate trust, permitting exchanges without expensive contracts or legal fees [13]. DiMaggio and Louch show, particularly for risky transactions, that consumers are more likely to rely on social ties as a governance mechanism [10]. Such ties are more likely to exist between geographically proximate buyers and sellers, suggesting that there may be a preference for doing business with firms that are physically present in the local market.

Differentiation Through Value-Added Services

The importance of using information technology to differentiate products and services has also been highlighted by competitive strategy theorists [5, 14, 20]. Physical and virtual channel synergies can be exploited to differentiate products and add value without necessarily increasing costs [21]. Many opportunities for differentiation arise from the use of the virtual channel to offer information and services that complement the goods and services offered in physical outlets. These include prepurchase conveniences (e.g., assessment services, advance orders, reservations), giving customers virtual access to their account information, and offering complementary new services (e.g., based on organizing and synthesizing data on purchase histories) that make it easier for customers to manage their own activities and also bring in revenue. Each channel can be used to promote traffic in the other through such means as advertising and incentives (e.g., coupons). After-sale service (e.g., installation and repair, accessories, instructions and tutorials for effective use) and loyalty programs can also differentiate one provider from another while increasing lock-in.

Geographic and Product Market Extension

Information technology and the Internet have long been used to extend the reach of firms beyond their traditional physical outlets (e.g., [1, 20]). Simply

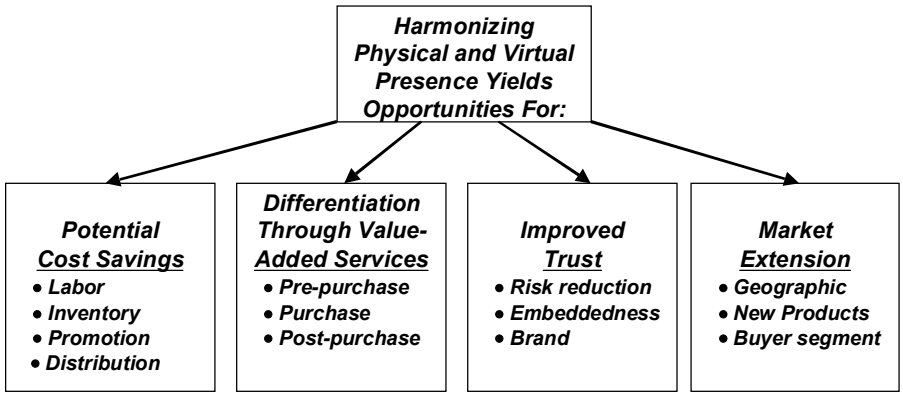

Figure 2. Framework for Identifying Sources of Benefits from Click-and-Mortar Applications

using the Internet to sell to distant customers is not a true click-and-mortar approach. It is only when distance selling builds on a firm's existing physical channels (e.g., when a retailer with a printed catalog uses the Internet to distribute an electronic catalog) that it has the characteristics of an integrated channel approach. Other types of market extension may also occur. For example, virtual channels may extend the product scope or depth available in a physical outlet.

When electronic commerce and traditional channels are integrated, there is, of course, a potential for channel conflicts [11, 32]. These conflicts occur when alternative means of reaching customers implicitly or explicitly compete with or bypass existing channels, and as such they are nothing new to e-commerce [6, 27]. However, the literature on electronic commerce often implicitly suggests that the Internet arm of a firm ought to be set up as a separate, competing entity to permit greater flexibility and innovation, unconstrained by the burdens of the traditional organization [30]. Many in the field believe that a parallel approach will not only permit rapid adaptation to changes in Internet strategy and technology, but will enhance the ability of Internet firms to raise capital and attract the best employees. As a result, some traditional firms have established parallel electronic commerce ventures without explicit linkages to their existing physical channels.

The avoidance of channel conflict is a critical element for a click-and-mortar firm if it is to achieve the benefits described above. If managers and employees in existing channels fear cannibalization, they have little incentive to work cooperatively with the e-commerce channel. Thus it is important to identify how such conflicts can be circumvented and how cooperative behavior can be encouraged.

Figure 2 provides a graphical summary of the framework, highlighting the expectation that click-and-mortar firms may obtain synergy benefits related to costs, differentiation, trust, and market extension by successfully harmonizing their physical and virtual channels.

Several case studies were conducted to explore the utility of the framework in practice, as well as to identify concrete ways for click-and-mortar firms to leverage their physical presence. The next section describes how cases were selected, the approach to collecting data, and the method of analysis.

Methods

A series of case studies were conducted in the spring and summer of 2000 in the Netherlands to investigate specific click-and-mortar approaches. The objectives were threefold:

1. Identify the range of synergy applications used by click-and-mortar firms. Synergy applications were defined as instances of the cooperative usage of virtual and physical channels (e.g., placing a store-locator function on a Web site).
2. Identify the benefits sought by firms that implement synergy applications. Benefits were defined as the way managers perceived their synergy applications as improving efficiency and effectiveness and conveying competitive advantage.
3. Identify strategies firms used to avoid channel conflicts and promote cooperation as they implemented the synergy applications.

Selection of Cases

Because of the relative scarcity of click-and-mortar approaches, trade literature, articles in the popular press, and consulting reports were used to find cases to interview. Once a list of firms was compiled, their Web sites were scanned to confirm whether they were indeed attempting to integrate their physical and Web channels, through such applications as store locaters, return policies that used physical outlets, and on-line coupons redeemable in stores. Thus the sample does not represent all electronic commerce firms but only those likely to reveal information about the nature of click-and-mortar approaches. This approach to sampling enabled the identification of applications, but not a comparison of performance gains with non–click-and-mortar firms. Nor did it allow comparisons of the performance of click-and-mortar firms before and after their entry into e-commerce, since each firm had already introduced its virtual channel by the time of the interviews.

Criteria were developed to select firms displaying a wide range of applications, benefits, and managerial strategies. In order to qualify as click-and-mortar, firms had to have both physical and e-commerce channels. Prior research suggests that the role of electronic commerce would differ according to product characteristics and, especially, the extent to which products or services could be transported over networks [8]. Researchers on e-commerce typically differentiate between firms selling to businesses (business to business, or B2B) and to end-consumers (business to consumer, or B2C) [1]. Prior research also suggests that a firm's size and resources would influence its

ability to develop and use new technologies [29]. In light of these factors, the selection of cases was designed to ensure variability across industry/product type, type of customer, and firm size. The specific criteria for case selection included:

- *Retail or other physical presence*. The selected firms had a physical presence in the Netherlands, either as a retail outlet or through sales personnel or field representatives.
- *Electronic commerce*. The selected firms had initiated e- commerce activities that appeared to make use of both physical and virtual assets.
- *Product/Industry*. The selected firms were engaged in selling physical goods (perishable and nonperishable, large durables and small items), information goods, or information services. Firms selling goods and services with a greater amount of Web-based sales (e.g., financial and travel services, books, music, electronics equipment) were particularly targeted.
- *Type of customer*. The selected firms sold either to other businesses (B2B) or to end-consumers (B2C).
- *Size*. To the extent possible, the selected firms in each product/industry area included large multiple-location firms as well as small and medium-sized enterprises. Often both firms were large, but one had a secondary position in the market.

A total of 18 click-and-mortar cases were selected (*see Table 1*),[1] and the managers most responsible for e-commerce were interviewed between March and July 2000. Where possible, managers of physical channels were also interviewed to obtain their perspectives. The interviews were all conducted on-site, and least two researchers attended each interview. Unless interviewees objected, the interviews were recorded and a transcript was produced. Otherwise, interview notes were used to produce a transcript. To ensure accuracy, the transcripts were sent back to the interviewees for review.

Interview Protocol

The interviews were semistructured because of the exploratory nature of the subject. Open-ended questions were used to guide discussion about each firm's development of an e-commerce channel, outcomes from e-commerce, internal organizational issues related to the introduction of e-commerce, and specific applications that involved integration of physical and e-commerce channels.

Analysis

The transcripts were reviewed to extract references to three themes:

1. *The ways firms used their physical and virtual channels to support each other*. A list of the synergy applications reported by the various firms

Description	Nature of product features	Market focus	Firm ownership	Subsidiary	Number of employees	Turnover* in 1999
Business-to-Business (B2B), wholesale selling to business						
Office products	Physical goods	B2B	Public parent	Yes	2,081	446 mil.
Mobile telecom operator business center chain	Physical goods	B2C / B2B	Public parent	Yes	3,432	583 mil.
Telecom operator business center chain	Physical goods	B2B	Public parent	Yes	36,829	9.132 bil.
Business-to-Business (B2B), involving wholesaler/producer and dealer with end-customer relation						
Bicycle wholesaler	Physical goods	B2C	Private		5	682,000
Network equipment manufacturer	Physical, information goods	B2B	Public parent		850-1000; 38,000 global	21.864 bil. globally
Automobile import organization and dealer	Physical goods	B2B / B2C	Private	Yes	5,625	3.4 bil.
Travel planning and agency chain	Information services	B2B / B2C	Public parent	Yes	2,400	1.5 bil.
Business-to-Consumer (B2C)						
Telecom operator consumer retail chain	Physical goods	B2C	Public parent	Yes, including franchised stores	36,829	9.132 bil.
Telecom business/ consumer retail chain	Physical goods	B2C / B2B	Public parent	Yes	550	182 mil.
Grocery chain	Physical, perishable goods	B2C	Public parent	Some franchises	55,000	5.297 bil.

Health food Web portal	Physical, perishable goods	B2C	Private		2	50,000
Health food store	Physical, perishable goods	B2C	Private		8	568,000
Single-location bicycle retailer	Physical goods	B2C	Private		Unknown	Unknown
Single-location auto mobile dealer	Physical goods	B2C / B2B	Private		125	45 mil.
Music retailer chain	Information goods	B2C	Public parent	Yes	1,150	208 mil.
Book retailer chain	Information goods	B2C	Two public parents	Yes	1,073	1.077 bil.
Upscale book retail chain	Information goods	B2C / B2B	Private, 33.4% owned by public firm	Yes, employs franchisers	827	173 mil.
Multiple location book retailer	Information goods	B2C / B2B	Private, firm partly owned by employees		37	6 mil.
Financial services/banking providers	Information services	B2C / B2B	Cooperative, customers are owners		53,147	6.806 bil.

Table 1. Summary Information on Case Study Firms.

*Turnover and number of employees are based, in most cases, on data from parent firm. Figures are in euros.

was compiled. Where possible, additional synergy applications were identified, and the reported ones were corroborated from the firm Web sites (e.g., if an interviewee reported allowing returns of goods purchased on-line to physical shops, this policy was looked up on the firm's Web site).

2. *The resulting benefits claimed by interviewees*. The interviews attempted to assess such measurable outcomes as the revenues attributed to synergy applications, but in most cases no data were available because the firms had not yet adopted methods for collecting them. Therefore the interviews mainly dealt with the perceived benefits of the e-commerce applications.
3. *Managerial strategies to prevent channel conflict, promote cooperative behavior, and improve the likelihood that each channel would support the other.* Any discussion of problems faced in carrying out these strategies was also recorded.

The four categories of click-and-mortar competitive advantages outlined in Figure 2 (i.e., cost, differentiation, trust, and market extension) were used to organize the applications and associated benefits mentioned in the transcripts.

Findings

Table 2 summarizes the results of the case studies, noting the type of firm, the primary ways in which virtual and physical channels cooperated, and the benefits that motivated firms to pursue the synergy application. The table does not include every synergy application for each firm, only those that best summarize the firm's basic approach. Note, too, that not every firm in the case study was successful in pursuing click-and-mortar applications. Several of the interviewees seemed dissatisfied with e-commerce integration and described the difficulties it had caused their firms.

Basic Click-and-Mortar Business Approaches

The cases in this study represented three basic value chain relations common among click-and-mortar businesses. One set of firms were primarily wholesalers or business service providers selling to business customers through both physical and virtual (e-commerce) channels. This group is labeled "B2B wholesale" in Table 2, and the fact that these firms used both physical and virtual channels jointly to serve business customers is reflected by the area numbered 1 in Figure 3. A second set of B2B firms were primarily suppliers or wholesalers to other retailers or dealers (e.g., auto or bicycle). This group differed from the first in that these firms maintained an e-commerce channel to provide information and to accept orders or provide value-added services to end-consumers. However, rather than bypass dealers with these services, they typically worked together with an external retailer/dealer network that delivered or maintained the actual physical products. This relation is represented by

Type of company	Forms of physical/virtual cooperation	Anticipated benefits
Business-to-Business (B2B), wholesale selling to business customers		
Office products	• serve new small and medium-sized enterprises via Web	⇒ lower cost to serve market and enter new market; lower labor costs
	• experience serving distant customers	⇒ shorter implementation phase, lower set-up costs, fewer customer complaints
Mobile telecom operator business center chain	• off-load in-store staff by offering routine tasks on-line	⇒ engage more in higher-margin sales activities; increase client satisfaction
	• specialization across channels by focusing on advice off-line and offering product information and ordering capabilities on-line	⇒ lower operating costs of off-line channels, such as store and call-center employees, offer value-added services
Telecom operator business center chain	• extensive product information and usage tutorials on-line, purchase off-line	⇒ reduction of printing and in-store labor costs; no delivery charges
	• direct customers to affiliates on-line and off-line affiliated dealers	⇒ reduced conflict with dealers; offers more convenience; increase trust
Business-to-Business (B2B), involving wholesaler/producer and dealer with end-customer relation		
Bicycle wholesaler	• on-line feature for real-time build-to-order bicycles	⇒ added value services; learn customer preferences; improved demand planning; enrich relationships with existing customers; build brand reputation
	• transmit requested custom bicycle to local physical dealer for construction and sale	⇒ avoid dealer retaliation; low-cost fulfillment; outsource labor costs for assembly and after-sales services costs; greater trust; reduce buyer risks
Network equipment manufacturer	• off-load field representatives by moving routine tasks to Web	⇒ higher-margin sales activities; enhance customer value
	• customer on-line account management, on-line access to purchase history	⇒ more convenience; lower labor costs; reduce cost of administrative tasks
	• sharing customer data across channels	⇒ improve internal channel coordination

(*continued*)

Type of company	Forms of physical/virtual cooperation	Anticipated benefits
Automobile import organization and dealer	• remind buyers by e-mail when their vehicles require servicing	⇒ strengthen customer loyalty; more convenience
	• in-depth product information on-line, schedule appointment with sales agent at local showroom	⇒ additional promotion and lower cost of printing brochures; lower labor costs for off-line dealers; avoid delivery problems
	• direct on-line customers to specific physical local dealer	⇒ ensure cooperation of dealers; enhance trust; improve convenience
Travel planning and agency chain	• allow each agency to customize its own Web page	⇒ highlight local agency features and expertise
	• marketed travel videos on-line	⇒ offer new marketing capability
Business-to-Consumer (B2C)		
Telecom operator consumer retail chain	• off-load in-store staff by moving routine tasks/ standard offerings on-line	⇒ engage more in higher-margin sales activities; increase client satisfaction
	• use previous systems for serving distant customers	⇒ quicker implementation; offers more customer convenience
Telecom business/consumer retail chain	• allow in-store pickup and payment	⇒ increase trust; offer more value-added services; lower logistical costs
	• store locator on home page	⇒ enhance trust and convenience; drive in-store foot traffic
Grocery chain	• use shops as local inventory	⇒ lower fulfillment costs
	• specialized pickup and delivery unit combined with dedicated distribution centers	⇒ make home delivery affordable; greater service control; 24/7 home delivery
Health food Web portal	• build alliances with one local store in a city; alliance based on strong cohesion and understanding in niche market	⇒ enhance consumer trust; stores join alliance quite easily and quickly without need for extensive contracts
	• target under-served rural consumers	⇒ solve market area inefficiencies
	• transmit on-line orders to local affiliated stores for fulfillment	⇒ avoid extensive investment in dedicated regional distribution centers

Health food store	• alliance with Web firm; on-line sales credited to offline organization	⇒ access to IT skills; generate additional business
	• experience with home delivery	⇒ easier implementation
Single-location bicycle retailer	• selling to cross-border customers based on geographical market proximity	⇒ reach new customers in new market where physical pickup was unavailable
Single-location automobile dealer	• use Web to improve liquidity of trade-ins and used cars	⇒ turn formerly unprofitable critical services into profitable ones
	• client to interact with dealer representatives by Web-cam	⇒ increase trust; greater convenience; order generation
	• establish contact with incoming customers for after-sales services	⇒ enlarge market reach; order generation; customer loyalty; more convenience
Music retailer chain	• offer items on-line to reduce need to carry low volume goods; vacant store space used to offer complementary products	⇒ lower financial risk on in-store inventory; value-added services
	• real-time download and burned to order in the store	⇒ lower cost of inventory; offer new product, more convenience
	• target non-local but former patrons who moved and/or were lost	⇒ enhance market reach; more convenience; greater added value
Book retailer chain	• unstocked items on Web, inventory extension with in-store kiosk	⇒ low-cost inventory extension
	• pickup and payment in the store	⇒ facilitate trust, no delivery charges
	• meetings with off-line store managers to create consensus	⇒ avoid conflict with physical stores

(*continued*)

Table 2 (*continues*)

Type of company	Forms of physical/virtual cooperation	Anticipated benefits
Upscale book retail chain	• stores are used as local inventory and delivery point	⇒ low-cost fulfillment strategy; lower delivery charges
	• in-store specials and events on the Web; in-store advertising	⇒ low-cost cross-promotion; drive foot traffic to stores
Multiple-location book retailer	• form alliance with non-competing bookstores and merge Web databases	⇒ sharing IT investments; consumer convenience; inventory expansion with complementary products
	• in-store specials and events highlighted on Web	⇒ drive foot traffic to the stores; order generation
	• target non-local but former patrons who moved and/or were lost	⇒ more convenience; greater market reach; lower labor costs
Financial services/banking provider	• apply pricing incentives to encourage efficient channel use	⇒ lower labor costs; reduce cost of maintaining physical outlets
	• set up regional portals in markets with physical offices; Internet access and hosting arranged by local branches	⇒ enhance bank's position in local community; trust-building; strengthen customer loyalty; revenue-generating value-added services
	• centralize follow-up on Web customer inquiries to smooth transaction hand-off between on-line and off-line channels	⇒ improved order generation and follow-up; decrease labor costs; more convenience
	• credit on-line transactions to off-line branches	⇒ more shareholder value; branches work cooperatively with on-line channels

Table 2. Case Study Findings.

Note: Several B2C firms also sold products to businesses, including the telecom business/consumer retail chain, the single-location automobile dealer, the financial services/banking provider, the upscale book retail chain, and the multiple-location book retailer customers. However, in these cases, the interviews largely focused on end-customer relations and not on business-to-business relations. .

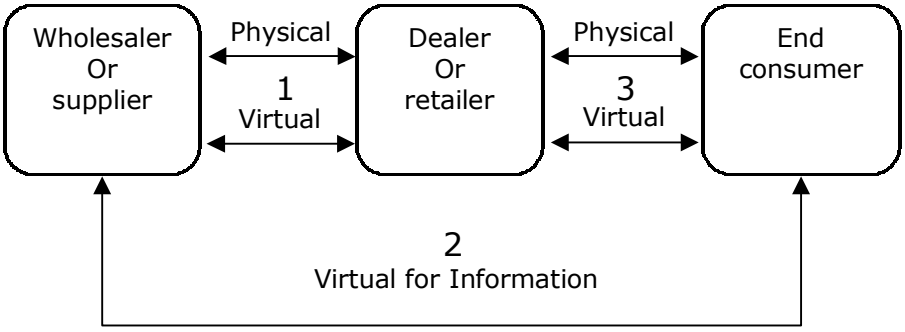

Figure 3. Click-and-Mortar Relations in the Value Chain

areas 1 and 2 together in Figure 3. Finally, the third group of firms were primarily B2C retail firms, with both physical and virtual channels to end-consumers. This set of relations is represented by area 3 of Figure 3.

Synergy Applications and Benefits

There were no apparent major differences in the way firms in the three groups leveraged their physical presence. The click-and-mortar approach applied as much to B2B as B2C trade in the sample. One major difference was that B2B firms, such as the telecom business services provider or the network equipment operator, were more likely to rely on field representatives and emphasize longer-term relations with customers. Their use of the virtual channel was directed more toward labor savings, enhancing the profitability of sales personnel, and providing long-term services to clients. The synergy applications and benefits in the four areas from the framework in Figure 2 are described below.

Lowering Costs

Across all three business types , the case firms were either using the combination of channels to lower costs or were planning services that would do so. In this category, the primary focus was on using both channels to offer a current product or service less expensively than via either channel alone. Four different areas of cost reduction were discussed in the interviews:

- **Inventory.** A few case firms had reduced or planned to reduce their inventory holdings in local physical outlets while using the e-commerce channel to offer the full set of goods and services to customers. These were mostly B2C firms that had retail outlets in expensive, high-traffic areas, such as the book and music retailers. Savings were anticipated from the reduced duplication in inventory holdings across outlets, reduced depth of inventory in each outlet, and smaller size of physical stores. The reduction in the amount of low-volume items carried allowed increased space for high-volume or new items.

- **Labor.** Another major cost savings resulted from greater labor efficiencies. Several B2C firms were using the Web as a complementary channel for off-loading much of the work of the in-store staff onto customers. Customers managed their own searches for product information and input their own orders on-line or through in-store kiosks. Self-service of this kind lowers costs and can also increase customer satisfaction. Physical outlets may thus be able to reduce the size of local staffs or, as more commonly reported, have them engage in sales and marketing efforts, and other nonroutine tasks. The bank and most of the B2B firms were especially focused on increasing the amount of time sales personnel devoted to higher-value activities.
- **Distribution/Delivery.** The B2B firms that sold through dealer networks tended to use their allied partners as the distribution and delivery point for goods ordered on-line. The physical stores of several B2C retailers served as pickup and delivery points for goods ordered on-line. This had cost-saving advantages because many firms had been looking for ways to make home delivery affordable. If customers pick up the goods themselves, which many seem willing to do, the firm saves the cost of distribution/delivery. If items ordered on-line are shipped to stores, cost savings accrue from the ability to aggregate multiple orders and combine such shipments with regular stock-replenishment shipments. Originating home delivery from a local point of presence can sometimes enhance the cost-effectiveness of distribution.
- **Marketing/Promotion.** For both B2B and B2C firms, a combined channel strategy offered opportunities for synergy in product marketing and promotion. The Web presence was used as a mechanism to promote goods and services, and to highlight specials and events in the physical site. Similarly, company literature and displays in the physical site, as well as existing advertising, were used to promote the Web channel. Marketing literature that formerly was printed and mailed, such as product catalogs, was offered electronically at substantial savings. Incoming customer contact was less expensive over the Web than through traditional call centers or in-person visits.

It is important to note that these efficiency and cost-reduction opportunities can have a broad impact on the companies that apply them. Reducing the cost of maintaining physical outlets, for example, may permit firms to add or maintain stores in smaller markets, or to have smaller shops in areas heretofore too expensive to serve. Formerly unprofitable services may now add to profits rather than function as a necessary cost of doing business.

Differentiation Through Value-Added Services

When used in complementary ways, the combined-channel approach enables firms to offer new types of services that enhance customer value and help

differentiate the firm. Some value-added services are revenue-generating in their own right, contributing directly to profitability. Differentiation synergies in the interviewed firms can be broadly grouped into whether they focus on the prepurchase/information phase, the purchase phase, or the postpurchase phase of transactions.

- **Prepurchase/Information Phase.** Interviewees in all three groups felt that having both channels benefited customers in this phase. Customers could inspect products in the physical store and then order them electronically. They could use the virtual channel for information gathering and then visit the store for final product inspection. The ordering process could occur in the physical outlet or at the customer's home via the Internet. This capability was relevant for both B2C and B2B firms. In one of the B2B cases, the telecommunications operator business center, the purpose of the physical outlet was to show off products that were then ordered via on-line channels. Firms can also use the electronic channel to complement in-store sales by offering in-depth product information on-line.
- **Purchase Phase.** This phase includes instances where on-line services supported off-line purchases. For example, when on-line ordering is offered in addition to traditional in-store sales, customers gain from the added convenience and flexibility, even when pick-up occurs in the store. In several B2C cases, retailers notified consumers when goods were ready to be picked up, saving on unnecessary trips. An increasingly common approach mentioned by interviewees from B2B firms working with dealer networks was the use of on-line channels to permit "build-to-order" services. This value-added customization service was used, for example, by the bicycle parts provider, which transmitted the requested custom bicycle parts to a local physical dealer for construction and sale.
- **Postpurchase Phase.** Further opportunities to exploit on-line/off-line synergies occurred after initial sales were made. In all three case study groups, firms that sold physical products requiring maintenance, installation, or repair relied heavily on a combination of virtual and physical channels to offer after-sales services. Customers of the network equipment supplier used virtual channels to arrange for installation and service through a network of service points. The car dealer, for example, planned to use its Web site as well as e-mail to remind buyers when their vehicles required servicing and to schedule service visits. Obviously, the service would take place at the dealership.

Enhancing Trust

A subset of differentiation opportunities relates to use of the physical channel to engender greater trust in the Web channel. This type of synergy is especially critical for B2C retailers that deal with more ephemeral customer rela-

tions. The book and music retailers, for example, complemented on-line ordering with in-store pick-up and payment, helping to overcome concerns about the security of on-line payment. Most of the B2C cases also used physical outlets to accept product returns, a practice which further reduces buyer risk and builds trust. Of course, virtually all of the case study firms relied on their established brand names when building an e-commerce channel in order to quickly build trust. A sophisticated trust-building strategy was followed by the financial service provider, perhaps because the financial services industry is so dependent on strong trust. It began with an e-commerce strategy that built upon existing business and social relationships in the communities in which it maintained physical offices. The firm did this by helping local business clients to go on-line and sell their services in regionally organized portals. Although the portals were not very successful, they nonetheless were initiated by the bank in an effort to capitalize and strengthen existing bonds in communities based on trust.

Extending the Market

The fourth source of opportunity stems from the use of the Web channel to extend a firm's reach into new markets. This common benefit of electronic commerce was mentioned more often by B2C retailers than B2B firms, perhaps because B2B transactions focus on long-term customer relationships. Several types of market extension through electronic channels were evident, with each offering distinct advantages for existing physical channels. These can be grouped into the two basic categories of product market extensions and geographic market extensions. Product market extensions include the use of the Internet for what is often called inventory expansion in order to offer greater depth in existing product categories. By offering access to more products than can be carried physically, smaller stores can compete more effectively with larger superstores and "category-killer" Internet stores. The Web also helps firms extend the scope of products they are able to offer customers, particularly through relationships with firms selling complementary products.

In the second category, many firms use their Web channel to reach into new geographic markets, especially when markets in other locations are less competitive, have an undersupply of the goods in question, or have other market inefficiencies. This use of electronic commerce was observed with firms like the Dutch bicycle dealer that sells bicycles on-line to cross-border customers in Germany. An interesting outcome of geographic market extension is that it enables firms to serve former patrons who have moved away. This was evident for the firms in the study that offered linguistically or culturally specific products, such as book and music vendors with Dutch customers who had relocated abroad.

Examples Where Synergies Were Not Pursued

Although the firms in the study were selected because of their presumed use of a click-and-mortar approach, it soon became clear that several of them were

not pursuing some of the expected synergies. In some cases the firm's reasons for implementing e-commerce services explicitly excluded full integration with its physical outlets. For example, at least four of the firms (the two telephone operator consumer retail chains, the grocery store, and the mobile company business center) chose to offer only a limited selection of products or services on-line, relative to what was available in their physical outlets. This was done in order to allow faster implementation of on-line services and limit fulfillment costs.

A few firms eschewed full channel integration in order to reduce the cost of technology integration (e.g., tie-ins to legacy systems). The upscale bookstore chain, for example, used local stores to initiate deliveries for on-line purchases based upon customer addresses. However, in order to simplify organizational processes, returns were only accepted at the store that shipped the order. Items ordered from the on-line site of the telecom operator consumer retail chain could not be returned to local stores. Few firms had done the technology integration that would allow on-line lookup of local store inventory. In another example of a parallel rather than integrated approach, the bicycle dealer had developed a separate on-line brand that was cheaper than the bicycles sold in its shop. The interviewee felt that this step was justified because the firm's costs were lower for on-line purchases. It worked when customers were not within easy driving distance of the dealership and wanted bicycles shipped, but created a situation where nearby customers could not take advantage of the dealer's location for immediate pick-up of their on-line order.

Management Initiatives That Facilitated Cooperation Across Channels

The interviewees were asked how they avoided conflicts between their electronic commerce and traditional channels, and what steps they took to improve the likelihood that their firms would benefit from a click-and-mortar approach. A few managerial initiatives appeared several times across the cases, and these may offer important lessons for firms that wish to add an electronic commerce channel. Almost without exception, the interviewees reported that it was important to resist the temptation to bypass existing channels, and that channel conflicts would have been likely without explicit action by the firm. The following initiatives illustrate the actions taken by firms to increase the chance of successfully integrating virtual and physical channels. These initiatives appeared across both B2B and B2C firms.

- **Create a consensus that an electronic commerce channel is needed.** Many of the firms worked hard to build a consensus on the need for an e-commerce channel. Often this involved explicit meetings with managers of physical outlets. This was particularly true in the bank case, where branch managers expressed strong objections at first. However, once it became clear to them that the competition was moving ahead, and that e-commerce could help local branches by off-loading routine transactions that were unprof-

itable when performed in branches, they became active supporters. In addition to preventing resistance from physical channels, consensus-building activities solicited innovative click-and-mortar service ideas and created a sense of commitment to the overall success of the e-commerce channel.

- **Focus on the existing customer base and geographical communities served.** The literature on e-commerce tends to focus on the ability to access new and distant customers (see [24]), but interviewees often stressed that it was critical for them to use e-commerce as a tool to enrich existing customer relationships. The outcomes they sought initially were improved customer retention and profitability, but measures of their success in these areas were not readily available. The advantages mentioned by one or more managers included: (1) easy access was provided to an e-commerce audience that could be reached via existing company marketing channels to increase awareness of the new services, (2) existing customers were a potentially more tolerant user group on which to pretest new services, and (3) existing customers knew where to go for assistance if they experienced difficulties with Web-delivered services.

- **Attend to indirect benefits from electronic commerce.** Several interviewees noted the positive impact of value-added services offered via the Internet on customer use of existing physical outlets, the firm's public image, and customer loyalty. For example, the bank developed regional business portals on which its own services received a relatively low profile. The portals were not financial successes but enhanced the bank's image in the local community. A bookstore admitted that its Web site did not result in dramatic new sales but was a service its loyal customers desired. In the music store case, the focus on in-store CD burning was meant more to increase traffic than for profitability in its own right.

- **Design organizational reward schemes that promote channel cooperation.** In nearly every case study, channel cooperation resulted from explicit efforts to ensure that reward schemes did not penalize existing outlets for the success of e-commerce. In the bank case, a direct allocation scheme was developed, so that any revenues generated by an on-line transaction were credited to the local bank where the Web customer had an account. In other retail cases, the option to pick up and pay for on-line purchases at physical stores enabled credit for the sale to go to the physical outlet. If employee compensation schemes are tied to sales and revenue at local outlets, the e-commerce channel must be developed to add to, not take away from, local sales. Not all firms heeded this advice. The telecommunications operator consumer outlet did not credit Web sales to individual retail outlets. As a result, interviewees felt that salespeople in retail outlets were not very supportive of the central Web channel.

- **Actively cross-promote between channels.** Cross-channel promotions are a common way in which the firms attempted to grow sales in each channel. In the banking case, employees in the branches actively promoted on-line banking, encouraging and instructing clients to use it. In the music store, visitors to retail shops could pick up a free CD-ROM providing free Internet access with a partner Internet service provider that featured the music store's Web site. In the other direction, nearly every firm used simple promotions like store locators to promote their physical channels. Even simple advertisements and announcements of in-store events were used to help drive traffic into physical outlets. More sophisticated Web-to-physical promotions were used in a few cases. For example, in the bank, whenever on-line customers expressed an interest in advice-sensitive services like mortgages or business banking services, they were offered an appointment with a financial service specialist in their local branch. There were also several instances where case firms offered on-line discounts or coupons that could be redeemed in physical outlets.
- **Use each channel's strengths by specializing services across channels.** Occasionally interviewees observed that physical and virtual outlets have different strengths and weaknesses, and said they had used a dual-channel approach to allocate services to the most appropriate channel. A clear example of a specialization by channel approach is the banking case, which created incentives—through lower transaction fees and better interest rates—for clients to make routine banking transactions on-line or via telephone, but directed clients into their home branch for advice-sensitive services. In another case, the automobile dealer and automobile importer both recognized that the role of the on-line channel was to provide information and access to complementary service information (e.g., loans, insurance) to support car purchases. However, a physical location was essential to take delivery, provide maintenance services, and allow test drives. This dictated the way they used each channel, such as their use of the Web to give detailed product information, help locate used cars, allow customers to schedule appointments, and direct on-line customers to dealer locations. A channel-specialization approach may sometimes create problems, however, as in the case of the bicycle dealer that wanted to focus the Web only on distant and discount sales, while leaving its physical location for local and premium-priced goods. This created some confusion among customers, and even some lost business in the servicing of bicycles purchased on-line.
- **Look for opportunities to create new dual-channel products and services.** The most common example of a dual-channel approach, mentioned by several case firms, was the use of the on-line channel to create and order custom-made products that are produced and picked up at local physical outlets. The bicycle parts importer, the

bookstore retail chain, and the music store all developed new services following this customer-controlled product configuration approach.

- **Harmonize and ensure a minimum degree of interoperability between channels.** Firms often treat e-commerce as a parallel channel, even requiring customers to return goods ordered on-line via courier and not to physical outlets. In many of the cases, on the other hand, managers sought to achieve a more seamless integration across channels, so that at various stages in a transaction, either the physical or the virtual channel could be used without any duplication of effort. This usually meant that orders could begin on-line, with fulfillment coming from the physical outlet, and goods purchased on-line goods could be returned or brought in for service at any physical outlet. Systems needed to be developed to pass information from one channel to the other, which was not always as easy as it sounded. The health food shop and many of the bicycle dealers working with the parts importer, for example, had no computers connected to the Internet. On-line orders had to be faxed to shops and dealerships. Several interviewees noted, however, that cross-channel interoperability (e.g., on-line viewing of in-store inventory) requires costly integration of old and new information systems, and does not come easily. Thus they were not able to operate across channels as seamlessly as they wanted.
- **Form alliances to close gaps in either channel.** Several interviewees said that it was difficult for traditional physical outlets to "go it alone" in e-commerce because physical shops were too small with too limited an inventory, did not have widespread brand recognition, and lacked the IT skills to maintain high-quality Web sites. In these cases, alliances were formed to fill in the gaps. The on-line health food intermediary, for instance, had alliances with a number of physical health food grocery markets for local pick-up and delivery, and the bicycle parts importer was linked with physical dealers that provided assembly, delivery, and service of on-line customer-configured bicycles. These alliances made sense because the Web intermediary was generating additional business on behalf of the physical outlets, which did not possess the technical expertise to develop and promote an e-commerce channel on their own.

Discussion, Limitations, and Conclusions

The preceding discussion introduced a theoretically derived framework of click-and-mortar benefits focusing on four types of synergies: cost savings, improved differentiation, enhanced trust, and market extensions. The case study research suggests four main conclusions. First, the framework is robust

enough to capture the types of practices observed in the case studies. Second, the gains from a click-and-mortar approach are not automatic, and require active managerial intervention to prevent channel conflicts and achieve synergies. Third, there are at least three basic click-and-mortar arrangements: B2B firms with their own physical retail outlets, B2B producers or wholesalers teaming up with a network of external physical dealers or retail outlets, and B2C firms with their own physical channels. Finally, the cases highlighted some limitations in the study, including situations that made it difficult to pursue a full channel-integration strategy, and the fact that most firms had inadequate measures of actual performance. The paper concludes with a few issues for future research.

Viability of the Framework

Collectively, the case studies illustrate the many potential benefits of click-and-mortar approaches to electronic commerce, particularly when firms tightly integrate the two channels and exploit the sources of synergy between them. The four categories of benefits resulting from stronger cooperation across channels—costs, differentiation, trust, and market extension—are a workable framework for organizing these opportunities. The synergy-related applications and services described by the interviewees easily fit into the four categories from the framework in Figure 2.

Need for Management Intervention

In addition to demonstrating the general utility of the framework, the cases identified a range of management initiatives that were used to defuse channel conflicts and facilitate physical and virtual integration. There were three fundamental types of interventions. First, the firms sought to align the goals of their e-commerce and physical channels. They built a consensus that an e-commerce channel was necessary, focused on a common target market (existing customers), and were willing to accept indirect contributions from the e-commerce channel as a positive outcome. Second, a number of firms implemented explicit mechanisms to achieve integration. They instituted a reward system that encouraged cooperation across channels and the effective use of each channel. These firms also designed marketing, business processes and technical systems to achieve better interoperability across channels. Third, in those cases where firms did not possess the resources to engage in an integrated click-and-mortar approach, they relied upon partners to enhance their capabilities.

Types of Click-and-Mortar Arrangements

The three types of business structures (i.e., firms selling business products to business clients, producer or wholesale firms promoting the sale of consumer goods through an external dealer or retail network, and business to consumer retailers) illustrate a common set of click-and-mortar arrangements. Although there were some small variations in the manner in which each type of busi-

ness found synergies, the more significant result is the relative similarity of the ways all three types of firms exploited click-and-mortar synergies. This suggests that the click-and-mortar approach is a unique e-commerce business model with its own underlying dynamics. The key difference appears to be whether firms managing the e-commerce channel are selling through their own retail/dealer channels or an external set of partners. In the latter case, the fundamental issue to be solved is the allocation of sales and revenue stemming from orders initiated via e-commerce.

Limitations and Challenges

Finally, the firms faced many challenges in their introduction of a click-and-mortar strategy that resulted in lower than desired channel integration. Several interviewees noted that the technical challenges involved in fully integrating Web-based electronic commerce with legacy IT infrastructures deterred them from pursuing a full click-and-mortar strategy. Also, as noted above, a few firms explicitly chose to have a more limited e-commerce channel with limited interoperability in order to more quickly implement their online services.

A few problems with the interpretation of the cases must be mentioned. First, many of the reported click-and-mortar applications could readily be linked to more than one benefit. Several firms, for instance, anticipated multiple benefits from their use of an e-commerce channel to save on inventory costs. The music retailer, the bank, and the telecommunications operator retail shop hoped that by using the Internet to offer their full range of products, the savings on inventory holding costs would enable them to build new, smaller shops in areas not yet served. Thus this type of physical and virtual cooperation can lead to both cost savings and extension into new geographical markets.

The second problem was that most of the firms had not yet implemented measurement approaches that provided hard evidence of any gains. The lack of concrete data on gains from channel integration highlights a fundamental issue in the evolution of electronic commerce. Managers need to justify expenditures on e-commerce, but many of the anticipated benefits do not show up in traditional sales measures. Better ways to capture the contribution of the Internet to such outcomes as in-store sales, customer retention, and costs of operations are clearly needed. The reports on possible gains by the interviewees were essentially impressionistic.

These conclusions must be tempered by the nature of the case study sample. The findings can only suggest hypotheses about the value of click-and-mortar applications and managerial initiatives, and did not explicitly test what works or does not work. Quantitative empirical work is needed to assess the extent to which synergy approaches really do offer competitive advantages. Longitudinal research is needed to address the sustainability of this advantage if it does indeed exist. Multivariate analyses based upon representative samples are needed to explore differences in approaches and outcomes based upon a range of firm, product, and geographical characteristics. Exploring the insights from the set of case studies described here is only the first step in this process.

Finally, future technological developments will certainly influence the

evolution of click-and-mortar retailing. Perhaps most critical here are the emerging location-aware wireless services. Electronic commerce offerings may be tailored more carefully to the specific local context of the customer, for example. In addition, new services, such as those involving the use of wireless scanners in physical stores, add a further electronic convenience to physical shopping and blur the boundaries between traditional and electronic commerce.

NOTE

1. The total number of firms, however, was 19, because one click-and-mortar case encompassed two separate firms. One was a health food grocery store, and the other was an Internet-based health food portal with which it had formed an alliance, thereby outsourcing its e-commerce channel.

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