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Combining Physical and Virtual Channels: Opportunities, Imperatives and Challenges

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Abstract

Despite the attention focused on click and mortar strategies, little empirical work has directly addressed the sources of competitive advantage of this approach, nor the factors that distinguish between a successful and unsuccessful implementation. In this paper, we review theoretical work that establishes the basis for expecting synergy between e-commerce and physical presence in a market. We then describe a series of cases illustrating the types of synergies gained by click and mortar firms. Sources of competitive advantage arising from click and mortar e-commerce models are described, as well as management approaches that facilitate the formation of successful click and mortar strategies.

1. Introduction

After a slow start in Web-based retailing, many traditional brick and mortar retailers now have an electronic commerce channel in place. E-commerce researchers, using terms like “clicks and mortar,” and “cyber-enhanced retailing,” have considered the combination of physical and web channels to be a distinct business model (Otto and Chung, 2000, Steinfield et al., 2000; Timmer, 1998).

Despite the attention focused on click and mortar strategies, little empirical work has directly addressed the sources of competitive advantage of this approach, nor the factors that distinguish between successful and unsuccessful implementations. In this paper, we attempt to address this gap in the literature. First, we review theoretical work that establishes the basis for expecting synergies between e-commerce and physical presence in a market. We then describe a series of case studies that empirically explored the types of synergies gained by click and mortar firms. Based on our observations, we detail the sources of competitive advantage arising from click and mortar e-commerce approaches. We then describe management strategies that facilitated cooperation between the physical and virtual channels. We conclude with a brief discussion of challenges that firms face when attempting to deploy an e-commerce channel on top of an existing physical infrastructure, as well as some comments about the limitations of our study.

2. Review

The advantages of a combined physical and virtual channel strategy can be derived from early predictions about the “death of distance” caused by electronic commerce (Cairncross, 1997). According to this view, the Internet makes distance irrelevant, in that firms no longer need to establish a physical presence in any 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. Their cost structure and flexibility to adapt to the market would be superior to traditional "brick and mortar" establishments, who would be forced to change or be driven out of business.

The death of distance assertion relies on an economic logic, generally linked to a transaction cost theory perspective. Web-based businesses are perceived to hold 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 7X24 access, and no limitation on depth of information provided to potential customers (Steinfield, Mahler and Bauer, 1999; Steinfield and Whitten, 1999).

These economies can potentially enable Web-based retailers to easily undercut the prices of local retailers who formerly faced little competition. Despite some empirical evidence to the contrary (Bailey & Brynjolfsson, 1997; Palmer, 1997), there is a general expectation that prices will be lower on the Web (Smith, Bailey and Brynjolfsson, 2000). Hence, we arrive at the prediction that due to lower operating and transaction costs, the Web eliminates distance and the need for physical presence that formerly served as a barrier to entry in any given geographical market.

Recent conceptual and empirical work sharply criticizes the expectations that virtual firms will drive out physical ones and make distance irrelevant (Otto and Chung , 2000; Steinfield & Klein, 1999; Steinfield et al., 1999; Steinfield & Whitten, 1999; Steinfied et al., 2000). In these works, the authors emphasize the theoretical advantages of hybrid approaches to e-commerce. A robust framework for understanding click and mortar advantages can be derived from a combination of classic competitive advantage and interorganizational networks theories (Bakos & Treacy, 1986; Johnston and Vitale, 1988; Porter, 1985; Porter and Millar, 1985), transaction cost theory (Bakos, 1997, Malone, Yates and Benjamin, 1987), and research that takes into account the advantages of local physical presence (Steinfield and Klein, 1999; Steinfield et al., 1999; Steinfield and Whitten, 1999). Such a framework includes four categories: 1) lower costs 2) differentiation through value-added services, 3) improved trust, 4) geographic and product market extension (Steinfield et al, 2000). Each category is briefly described below.

Lower costs: When virtual and physical channels are harmonized effectively, a number of potential savings become possible, particularly involving labor, inventory and delivery costs. In essence, labor costs are switched to consumers for such activities as looking up product information, filling out forms, and relying on online technical assistance for after-sales service. Inventory savings arise from the potential reduction in local supplies of infrequently purchased goods, while still offering them on via the Internet. Delivery savings may result from using the physical outlet as the pick-up location for online purchases, or as the initiation point for local deliveries.

Improved trust: Hybrid firms have enhanced opportunities to build trust due to their physical presence in the markets they serve. Consumers' perceived risks may be lower since there is an accessible location to which goods can be returned or complaints can be registered. Additionally, businesses in a community can be embedded in a variety of social networks which can enhance trust (Steinfield et al., 1999; Steinfield and Whitten, 1999). According to Granovetter (1985), such embeddedness facilitates trust, permitting exchanges without expensive contracts or legal fees. DiMaggio and Louch (1998) show that, particularly for risky transactions, consumers are likely to rely on social ties as a governance mechanism. Such ties are more likely to exist between geographically proximate buyers and sellers, suggesting that there may indeed be a preference for doing business with firms that are already physically present in the local market.

Value added services: Physical and virtual channel synergies can be exploited in various ways to help differentiate products and add value in various ways without necessarily increasing costs. 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 can include pre-purchase conveniences such as assessment services, advance orders or reservations; giving customers virtual access to their account information; or offering complementary new services (e.g. based on organizing and synthesizing data on purchase histories) that not only make it easier for customers to manage their own activities, but that also bring in revenue. There are also many ways to actively use each channel to promote traffic in the other, including advertising as well as the provision of incentives (e.g. coupons) to use the opposite channel. Finally, various forms of after sales service (e.g. installation and repair, accessories, instructions and tutorials for effective use, etc.) and loyalty programs also can differentiate one provider from another while increasing lock-in.

Geographic and product market extension: A particular set of value-adding strategies emphasizes the use of the virtual channel to help extend the reach of a firm beyond their traditional physical outlets. Virtual channels can also extend the product scope and product depth of physical channels.

In order to further explore this framework, a number of case studies were conducted. The next section introduces the project approach.

3. Methods

We rely on a series of case studies conducted in the spring and summer of 2000 in the Netherlands to provide the data for this report. Cases were selected to insure variability across industry/product type and firm size. The specific criteria for case selection included:

- **Retail or other physical presence**: Selected firms had a physical presence in the Netherlands, either in the form of retail outlets, agents, or field representatives.
- **E-Commerce**: Selected firms had initiated an e-commerce activity that appeared to make use of both physical and virtual assets.
- **Product/Industry**: Selected firms included those selling physical goods (perishable and non-perishable, large durables and small items), information goods, and information services. We also targeted goods and services currently experiencing a greater amount of Web-based sales, such as financial and travel services, books, music and electronics equipment.
- **Size**: Where possible, we selected both large, multiple location firms as well as small and medium-sized enterprises in each product/industry area for interviewing. Often both firms were large, but one had a secondary position in the market.

In all, a total of nineteen firms were interviewed between March and July of 2000. For each firm, one or more managers most responsible for e-commerce were interviewed. Interviews covered the actual e-commerce strategy and the outcomes they experienced, the internal organizational issues the company faced in introducing e-commerce, and the specific forms of cooperation between physical and e-commerce channels employed by the firm. At least two researchers attended each interview, and a transcript of the interviews was produced. All transcripts were then reviewed to extract any references made regarding three specific themes: 1) the ways that firms used their physical and virtual channels to support each other 2) the benefits that interviewees claim resulted, and 3) the management strategies used to avoid channel conflict.

4. Findings

Table 1 summarizes the results from the case studies, noting the type of firm, the primary ways in which virtual and physical channels cooperated, and the type of benefits that resulted. We elaborate on the table in this section by describing sources of synergy found in the cases. We use the four part framework developed above to organize the presentation of synergies.

4.1 Lowering Costs

In a number of instances the case firms used the combination of channels to lower costs, or were planning services that would do so. In this category, the primary focus is on offering a current product or service using both channels in a way that is less expensive than via either channel alone. Four different areas of cost reduction were evident:

- **Inventory**. Several firms had either reduced or planned to reduce the amount of inventory holdings in local physical outlets, while using their e-commerce channel to continue to offer the full set of goods and services to customers. This was particularly the case for firms that maintained retail outlets in expensive, high traffic areas, such as the book and music retailers. Savings can arise from less duplication in inventory holdings across outlets, reduced depth of inventory in each outlet, and having smaller physical stores. Reductions in the amount of low volume items carried also allowed increased space for high volume or new items.
- **Labor**. A major cost savings noted by several firms resulted from greater labor efficiencies. Using the Web as a complementary channel offloads much of the work of the in-store staff to customers. Customers manage their own searches for product information, and input their own orders. Such self-service not only lowers costs, but can also increase customer satisfaction. This may enable physical outlets to reduce the size of local staffs, or, as more commonly reported by case firms, allow them to engage in sales and marketing efforts, and other non-routine tasks.
- **Distribution/delivery**. Physical stores can serve as the pickup and delivery point for many goods ordered online. This can have some cost saving

advantages, since many firms have struggled with finding ways to make home delivery affordable. If customers pick up the goods themselves, which many seem to want to do, then additional distribution/delivery costs to the firm are spared altogether. If items ordered online do need to be shipped to stores, cost savings still accrue from the ability to aggregate multiple orders and perhaps combine such shipments with regular stock replenishment shipments. Finally, in some special circumstances, originating home delivery from a local point of presence can enhance the cost-effectiveness of distribution.

Type of Company	Forms of Physical/Virtual Cooperation	Resulting Benefit From Hybrid E-commerce
Network equipment manufacturer (large) physical goods: B2B	• offload field representatives by moving routine tasks to Web • customer online account management, online access to purchase history • share customer data across channels	• higher margin sales activities; enhance customer value • more convenience; lower labor costs; cost reduction of administrative tasks • offers more convenience
Telecom operator consumer retail chain (large) physical goods: B2C	• offload in-store staff by moving routine tasks/ standard offerings online • have experience serving distant customers • but, parallel distribution; no in-store pick-up for online client	• engage more in higher margin sales activities; increases client satisfaction • quicker implementation; offers more customer convenience • faster implementation; lower technology integration costs; but store retaliation
Telecom business/consumer retail chain (large) physical goods: B2C, some B2B	• allow in-store pickup and payment • store locator on home page • limited inventory online	• increases trust; offers more value added services; lowers logistic costs • enhance trust; value added services; greater in-store foot traffic • but raises technology integration and organizational difficulties; legal limitations
Mobile telecom operator business center chain (large) physical goods: B2B	• offload in-store staff by offering routine tasks online • specialization across channels by focusing on advice offline and offering product information and ordering capabilities online	• engage more in higher margin sales activities; increase client satisfaction • lower operation costs of the offline channels, such as store and call-center employees, offer value added services
Telecom operator business center chain (large) physical goods: B2B	• extensive product info. and usage tutorials online, purchase offline • highly selective inventory online • direct customers to affiliate online and offline affiliated dealers	• reduction of printing and in-store labor costs; no delivery charges • organizational and technological inability of the firm; legal limitations • no retaliation of dealers; offers more convenience; increase trust
Office products (large) physical goods: B2B	• serve new small and medium sized enterprises by the Web • experience serving distant customers	• lower cost to serve market and enter new market; lower labor costs • shorter implementation phase, lower set-up costs, less customer complaints

Table 1: *Case Study Summary*

Type of Company	Forms of Physical/Virtual Cooperation	Resulting Benefit From Hybrid E-commerce
Grocery chain (large) physical, perishable goods: B2C	• use shop as local inventory; specialized pickup and delivery unit combined with a dedicated distribution center • inventory selection • limited market reach of home delivery services	• lower fulfillment costs; make home delivery affordable; greater service control; 24/7 hour home delivery; greater customer channel choice • lower fulfillment costs; lower cost of warehousing • customer disappointment; avoid high fulfillment costs
Organic groceries Web portal (SME) physical, perishable goods: B2C	• build alliances with one local store in a city; alliance based on strong cohesion and understanding within niche market • targeting under-served consumers in countryside • transmit online orders to local affiliated stores for fulfillment	• enhances trust of consumers; stores join alliance quite easy and fast without the need for extensive contracts • solve market area inefficiencies • avoid extensive investments in dedicated regional distribution centers
Organic groceries store (SME) physical, perishable goods: B2C	• alliance with Web firm; online sales credited to offline organization • minimal online order size • experience with home delivery	• access to IT skills; generating additional business; new intermediaries risks • lower costs of fulfillment • easier implementation
Automobile import organization and dealer (large) physical goods: B2B, some B2C	• remind buyers by email when their vehicles required servicing • in-dept product info online, schedule appointment with sales agent at local showroom • attribute online customers to specific physical local dealer	• strengthen customer loyalty; more convenience • additional promotion and lower costs of printing brochures; lower labor costs for offline dealers; avoid delivery problems • ensure cooperation of dealers; enhance trust; improve convenience
Single location automobile dealer (SME) physical goods: B2B, B2C	• use Web to improve liquidity of trade-ins and used cars • client interacts with customer in-store representatives by Web-cam • establish contact with incoming customers for after-sales services	• turn formerly unprofitable critical service into profitable ones • increase trust; greater convenience; order generation • enlarge market reach; order generation; customer loyalty; more convenience
Bicycle wholesaler (SME) physical goods: B2B	• online feature for real-time build-to-order bicycles • transmit requested custom bicycle to a local physical dealer for construction and sale	• added value services; learn customer preferences; improved demand planning; enrich relationships with existing customers; build brand • avoid dealer retaliation; low-cost fulfillment; outsource labor costs for assembly and after-sales services costs; greater trust; reduce buyer risks
Single location bicycle retailer (SME) physical goods: B2C	• make customer aware of the specific merits of each market channel • new brand development for lower priced products on the Web • selling to cross-border customers based on geographical market proximity	• customer confusion; less trust • differentiation; higher cost customer acquisition; higher coordination costs • solve market area inefficiencies; expand market reach

Table 1: *Case Study Summary continued*

Type of Company	Forms of Physical/Virtual Cooperation	Resulting Benefit From Hybrid E-commerce
Music retailer chain (large) information goods: B2C	• offer items online to reduce need to carry low volume goods; vacant store space used to offer complementary products • real-time download and burned to order • target non-local but former patrons who moved and/or were lost	• lower financial risk on in-store inventory; value added services • lower cost inventory; more convenience • enhance market reach; more convenience; greater added value
Financial services/banking provider (large) information services: B2B, B2C	• apply pricing incentives to encourage efficient channel use • set up regional portals in markets with physical offices;Internet access and hosting arranged by local branches • centralize follow-up on Web customer inquiries to smooth transaction hand-off between online and offline channels • credit online transactions to offline branches	• lower labor costs; reduce cost of maintaining physical outlets • enhancing the bank's position in the local community; trust-building; strengthen customer loyalty; revenue-generating value added services • improved order generation and follow-up; decrease labor costs; more convenience • more shareholder value; branches work cooperatively with online channels
Book retailer chain (large) information goods: B2C	• unstocked items on web, inventory extension with in-store kiosk • pickup management and payment in the store • meetings with offline store managers to create consensus	• low cost inventory extension • facilitate trust, no delivery charges • avoid retaliation by stores
Upscale book retail chain (large) information goods: B2C, B2B	• stores are used as local inventory and delivery point • in-store specials and events on the Web; in-store advertising • return products only to the store which shipped the order	• low cost fulfillment strategy; lower delivery charges; greater overhead • low cost cross promotion; drive foot traffic to the stores • consumer confusion; lower overhead; avoid organizational problems
Multiple location book retailer (SME) information goods: B2C, B2B	• form same-channel alliance with non-competiting bookstores and merge Web database • in-store specials/ events on the Web • target non-local but former patrons who moved and/or were lost	• sharing IT investments; consumer convenience; inventory expansion with complementary products • drive foot traffic to the stores; order generation; offer added value • more convenience; greater market reach; lower labor costs
Travel planning and agency chain (large) information services: B2C, B2B	• limited product info online, get brochure offline in the stores • creation new additional online brand • meetings with offline managers to build consensus	• unnecessary costs of customer time; inconvenient • brand confusion • prevent channel conflicts; slow introduction; active promotion by personnel

Table 1: *Case Study Summary continued*

- **Marketing/promotion**. For many of the firms, a combined channel strategy offers a number of opportunities for synergy in product marketing and promotion. The Web presence can be used as a mechanism for promoting goods and services, and for highlighting specials and events in the physical site. Additionally, company literature and displays in the physical site, as well as existing advertising can promote the Web channel. Some marketing literature that formerly was printed and mailed, such as product catalogues, can now be offered electronically at substantial savings. Incoming customer contact over the Web can also be less expensive than through traditional call centers or in person visits.

It is important to note that these efficiency and cost reduction opportunities can have broader impacts on companies that apply them. Reducing the costs 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. Additionally, formerly unprofitable services may now be capable of adding to profits rather than functioning as a necessary cost of doing business.

4.2 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 to differentiate the firm. Moreover, some value added services are revenue-generating in their own right, contributing directly to profitability. Differentiation synergies in our cases can be broadly grouped into whether they focus on the prepurchase/information phase, the purchase phase, or the post-purchase phase of transactions.

- **Prepurchase/information phase**. Included here are examples where customers rely on the physical store to inspect products, which may then be ordered electronically. The ordering process may occur in the physical outlet, or at the customers home via the Internet. In our cases, this strategy was mentioned by a telecommunications operator business center. Firms can also use the electronic channel to complement in-store sales by offering in-depth product information online.
- **Purchase phase**. Included here are examples where online services support the actual offline purchase. For example, when online ordering is offered in addition to traditional in-store sales, customers gain from added convenience and flexibility, even when pickup occurs in the store. In our cases several firms notified consumers when goods were ready to be picked up, saving on unnecessary trips. An increasingly common approach mentioned by interviewees was the use of online channels to permit “build-to-order” services. This value-added customization service was used, for example, by our bicycle parts provider, who then transmitted the requested custom bicycle to a local physical dealer for construction and sale.
- **Post-purchase phase**. Further opportunities to exploit online/offline synergies also occurred after initial sales have been made. The car dealer, for example, planned to use their Web site as well as email to remind buyers when their vehicles required servicing and to schedule such service visits.

4.3 Enhancing Trust

A subset of differentiation opportunities relates specifically to the use of the physical channel as a means of engendering greater trust in the Web channel. Case study firms exploited this important leverage opportunity in a variety of ways. The book and music retailers, for example, complemented online ordering with in-store pickup and payment, helping to overcome concerns about the security of online payment. Many cases also used physical outlets to accept product returns, which further reduces buyer risk and builds trust. Of course, virtually all case study firms relied on their established brand name when they built an e-commerce channel in order to quickly build trust. Perhaps the most sophisticated trust-building strategy was followed by the financial service provider, perhaps because the financial services industry is so dependent on strong trust. They began with an e-commerce strategy that built upon their existing business and social relationships in the communities in which they maintained physical offices. They did this by helping local business clients go online and sell their services in regionally organized portals. Although the portals were not very successful they nonetheless were initiated by the bank in a effort to capitalize and strengthen existing bonds in communities based on trust.

4.4 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. We observed several types of market extension through electronic channels, with each offering distinct advantages for existing physical channels. We group these into two basic categories: 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 so-called "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 particular goods in question, or have other market inefficiencies. We saw this with firms such as the Dutch bicycle dealer that sells bicycles online 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 particularly evident for firms in our study that offer products with a language or cultural specificity, such as among book and music vendors whose Dutch customers have relocated abroad.

5. Discussion: Management Imperatives

Benefits from establishing an e-commerce channel are by no means automatic, and capitalizing on the sources of opportunity outlined above required specific management strategies. In general, those firms that managed to avoid channel conflicts did so by resisting the temptation to bypass existing channels. The following guidelines illustrate the ways our cases ensured that synergies would emerge.

- **Create consensus that an e-commerce channel is needed.** Many of our case firms worked hard to build consensus that an e-commerce channel was needed. Often this involved explicit meetings with managers of physical outlets, who at first expressed concerns. In addition to helping avoid resistance from physical channels, these consensus-building activities also helped solicit innovative click and mortar service ideas and create a sense of commitment to the overall success of the e-commerce channel.
- **Focus first on the existing customer base and geographical communities served.** Case firms used e-commerce first as a tool to enrich existing customer relationships, improving customer retention and profitability. Several crucial advantages to focusing on existing customers include: 1) easy access to their e-commerce audience who can be reached via existing channels to increase awareness, 2) a potentially more tolerant initial user group on which to pretest new services, and 3) customers know where to go for assistance if they experience difficulties with Web-delivered services.
- **Attend to indirect benefits from e-commerce.** Many value-added services offered via the Internet can result in increasing customers' use of existing physical outlets, as well as strengthening their bonds with a company. As an example, we noted that the bank developed regional business portals, on which their own services received a relatively low profile. Even though these portals were not financial successes, they potentially enhanced the bank's image among customers in the local community.
- **Design organizational reward schemes that promote channel cooperation.** In our case studies, 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 online transaction were credited to the local bank in which the Web customer had an account. In other retail cases, the option to pick up and pay for online purchases at physical stores enabled credit for the sale to go to the physical outlet. If compensation schemes are tied to sales and revenue at local outlets, then the e-commerce channel must be developed to add to, not take away from local sales.
- **Actively cross promoting between channels.** Cross-channel promotions are a common way in which the firms attempted to grow sales. In the banking case, employees in the branches actively promoted online banking, encouraging and instructing clients to use it. In the other direction, there were

many instances of online discounts and/or coupons which could be redeemed in physical outlets. Even simple advertisements and announcements of in-store events help to drive traffic into physical outlets.

- **Use each channel's strengths by specializing services across channels.** Physical and virtual outlets have different strengths and weaknesses, and a hybrid e-commerce approach enables firms to allocate services to the most appropriate channel. A clear example from our case studies of a specialization by channel approach was found in the banking case, which created incentives – through lower transaction fees and better interest rates – for clients to make routine banking transactions online or via telephone, but directed clients into their home branch for advice-sensitive services.
- **Look for opportunities to create new dual channel products and services.** A powerful example mentioned by several case firms was the use of the online channel to create and order custom-made products that are produced and picked-up at local physical outlets.
- **Harmonize and ensure a minimum degree of interoperability between channels.** Often firms treat e-commerce as a parallel channel, even to the extent of requiring customers to return goods ordered online via courier and not to physical outlets. Many of our cases, on the other hand, sought to achieve a more seamless integration across channels, so that at any point in a transaction, either the physical or the virtual channel could be used without any need for duplication of effort. Cross channel interoperability, such as online viewing of in-store inventory, requires greater integration of information systems across the physical and virtual channels than is typically found when firms develop their e-commerce applications.
- **Form alliances to fill in gaps in either the physical or virtual channel.** Today it is difficult for a traditional business to “go it alone” in e-commerce, especially if it does not possess widespread brand recognition, an inventory that has requisite depth to compete with digital pureplays, or a large information technology skill base to maintain a high quality Web site. More often than not, we saw cross-channel alliances initiated by Web-based intermediaries seeking a physical presence for local pick-up and delivery, including the online health-food intermediary that had alliances with physical health food grocery markets. 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.

6. Conclusions

Our research suggests that there are indeed tangible benefits to click and mortar approaches to e-commerce, particularly when firms more tightly integrate the two channels and exploit the sources of synergy between them. The four categories of synergy – costs, differentiation, trust, and market extension – represent one workable framework to help organize these opportunities. Our discussion of management issues further suggests that benefits are not automatic, and depend heavily on the extent to which managers act to defuse potential channel conflicts.

Of course, there are many other challenges faced by firms that seek to introduce a click and mortar strategy. Several that emerged from our cases that deserve mention include the technical challenges to integrating Web-based electronic commerce with legacy IT infrastructures, managing unrealistic expectations of customers, and the lack of scalability in locally-based distribution systems. In the first challenge, it was often noted that successful synergy required large IT investment to accomplish such services as making local inventories visible to Web customers. In the second challenge, interviewees often noted that it was difficult for them to meet customer expectations for channel integration. In the third challenge, it became clear to several firms that the logistics of home delivery and the inadequacy of local inventories and warehouse space made local distribution rather unscalable.

In addition to these challenges, we anticipate that future technological developments will influence the evolution of click and mortar retailing. Perhaps most critical here are emerging location-aware wireless services. E-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 wireless scanners in physical stores, further add an electronic convenience to physical shopping and blur the boundaries between traditional and electronic commerce.

Finally, it is important to note that our case study findings can only be considered temporary. Quantitative empirical work is needed to help 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. Moreover, multivariate analyses using larger and more representative samples are needed to explore differences in approaches and outcomes based upon a range of firm, product and geographical characteristics.

References

Bailey, J. and Brynjolfsson, E. (1997). In search of 'friction-free markets:' An exploratory analysis of prices for books, CDs, and software sold on the Internet. Presented to the Twenty-Fifth Annual Telecommunications Policy Research Conference, Washington D.C., October.

Bakos, J. Y. (1997).Reducing buyer search costs: Implications for electronic marketplaces. *Management Science, 43* (12), December, 1676-1692.

Bakos, J. Y. and Treacy, M. (1986). Information technology and corporate strategy: A research perspective. *MIS Quarterly*, June, 107-119.

Cairncross, F. (1997) *The Death of Distance*. Boston, Massachusetts: Harvard Business School Press.

DiMaggio, P. & Louch, H. (1998). Socially embedded consumer transactions: For what kinds of purchases do people most often use networks. *American Sociological Review, 63* (October), 619-637.

Granovetter, M. (1985). Economic action and social structure: The problem of embeddedness. *American Journal of Sociology, 91* (3), 481-510.

Johnston, H. R., & Vitale, M. R. (1988). Creating competitive advantage with inter-organizational information systems. *MIS Quarterly*, June, 153-165.

Malone, T., Yates, J., and Benjamin, R. (1987). Electronic markets and electronic hierarchies: Effects of information technology on market structure and corporate strategies. *Communications of the ACM*, *30* (6), 484-497.

Otto, J. and Chung, Q. (2000). A framework for cyber-enhanced retailing: Integrating e-commerce retailing with brick and mortar retailing. Electronic Markets, *10* (4), 185-191.

Palmer, J. (1997). Electronic commerce in retailing: Difference across retail formats. *The Information Society*, *13*, 75--91.

Porter, M. E. (1980). *Competitive Advantage*. New York: Free Press.

Porter, M. E., & Millar, V. E. (1985). How information gives you competitive advantage. *Harvard Business Review*, July-August: 149-160.

Smith, M., Bailey, J. and Brynjolfsson, E. (2000). Understanding digital markets: Review and assessment. In Brynjolfsson, E. and Kahin, B. (eds.), *Understanding the Digital Economy*, Cambridge, MA: MIT Press.

Steinfield, C., DeWit, D., Adelaar, T., Bruin, A., Fielt, E., Smit, A., Hoofslout, M., and Bouwman, H. (2000). Leveraging physical and virtual presence in electronic commerce: The role of hybrid approaches in the new economy. Paper presented to the International Telecommunications Society, Buenos Aires, July 2-5.

Steinfield C. and Klein, S. (1999). Local versus global issues in electronic commerce. *Electronic Markets*, *9* (1/2), 45-50 (http://www.electronicmarkets.org/netacademy/publications.nsf/all_pk/1336).

Steinfield, C., Mahler, A., & Bauer, J. (1999). Electronic commerce and the local merchant: Opportunities for synergy between physical and web presence. *Electronic Markets*, *9* (1/2), 51-57.

Steinfield, C. and Whitten, P. (1999). Community level socio-economic impacts of electronic commerce. *Journal of Computer Mediated Communication*, vol. 5 (2), (http://www.ascusc.org/jcmc/vol5/issue2).

Timmer, P. (1998). Business models for electronic markets. *Electronic Markets*, *8* (2), 3-8. (http://www.electronicmarkets.org/netacademy/publications.nsf/all_pk/949).

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