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December 1998

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Recommended Citation

Palvia, Shailendra and Vemuri, Vijay, "The Impact of Electronic Commerce on Traditional Marketing Channels" (1998). *AMCIS 1998 Proceedings*. 150.
<http://aisel.aisnet.org/amcis1998/150>

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The Impact of Electronic Commerce on Traditional Marketing Channels

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Introduction

According to Forrester Research, projections of electronic commerce between companies will increase from \$8 billion in 1997 to \$327 billion in the year 2002 (Erwin, et al, 1997). IBM analysts predict that online purchase of products and services will reach \$176 billion by the year 2001 (Greenfield, 1998.) While the industrial revolution made a wide array of products available and affordable, the information revolution has propelled quality, service, price and speed of delivery. The World Wide Web has propelled a paradigm shift in how commerce will be conducted world wide in the future. The ease with which vast information on the Internet is accessible may fundamentally alter the channels of distribution of products and services. Many have predicted the elimination of middlemen in the distribution channels of the future. In this paper, we review the changing role of traditional marketing channels in moving the goods and services from the provider to the ultimate consumer in the context of electronic commerce.

This paper is organized as follows: discussion of the prevailing "disintermediation" hypothesis, articulation of the of the functions of traditional middlemen, Probing deeper into the "Disintermediation" hypothesis with the aid of five scenarios -- three concerning individual companies, one about the emergence of transaction processing companies, and finally the scenario of integration of logistics into core business functions. The paper ends with integrative conclusions and implications for researchers.

Discussion of "Disintermediation" Hypothesis

The process of elimination or reduction of layers of middlemen due to the increasing use of electronic commerce channels is termed *disintermediation*. Roche (1996) recognizes the possibility of major changes in distribution channels due to electronic commerce. However, he surmises that "[t]he age of electronic commerce might bring to an end the intermediate enterprise." (p. 436.) The concept of disintermediation gained considerable support in the popular media, trade journals, and industry magazines. Extensive evidence (that follows) supports the dwindling role of middlemen in bringing the buyers and sellers together and affecting the sale of goods and services. In this paper, we will analyze the role of, the functions provided by, and the efficacy of utilizing traditional middlemen. Then we will discuss how electronic commerce and digital networks are equipped to fulfill various functions provided by traditional middlemen more efficiently. With this understanding of efficiency gains, we are able to make predictions of how marketing channels will evolve in the age of electronic commerce. By analyzing various functions provided by traditional middlemen we will be able to make predictions about the characteristics of product, service, and industry that will lead to the greatest impact of electronic commerce on marketing channels. This "disintermediation" hypothesis can be stated as follows:

Electronic commerce leads to reduction or elimination of intermediate marketing channels (intermediaries).

Increasing use of internet for airline ticket sales, book sales, computer sales, auctions, and sale of securities by discount brokers are often cited as examples to highlight the phenomenon of bringing providers and consumers of products and services closer together in their ability to transact business directly.

- Travelocity, an online travel service provider, barely two years old, is experiencing weekly sales of \$3 million. Microsoft's Expedia is not far behind with \$2 million weekly sales (Wilson, 1977.) They are expected to grow from \$126 million in 1996 to \$1,579 million in year 2000 (Thompson 1997). The number of travel agents in the United States is predicted to dwindle from the current 32,000 to 15,000 in one year (Wilson, 1997).
- Charles Schwab, a discount brokerage firm, opened 80,000 online accounts within a short period of starting online brokerage. It is currently adding 12,000 to 15,000 new accounts a week. Within six months of initiating online brokerage, 30 percent of its trade is Web based (Tadger, 1997).
- Amazon.com grew to 300 employees and 2.5 million book titles (Hogan, 1998). Not yet profitable (Vizard, 1997), Amazon.com has posted impressive sales of \$121.7 million in the year 1997 (EAMR, 1998). Dell Computers' success on the Web is impressive -- its Web sales are reported to go over \$4 million a day.
- 1-800-Flowers generated 10% of its total revenues of \$32 million through electronic commerce. Onsale, a leading Web based auctioneer, had \$75 million in revenues in 1997, - about 800% increase in sales from 1996 (EAMR, 1998).

Above evidence leads many to believe that electronic commerce will dominate the future by providing a direct link between the manufacturers and consumers and *eliminate* or reduce the layers of middlemen, thus supporting the "disintermediation" hypothesis.

Traditional Functions of Middlemen

Electronic commerce has impacted the number of layers between the provider and ultimate consumer of products and services. The middlemen provide crucial functions between the provider and ultimate consumer of products and services. Some of these functions are

1. **Communication and Exchange Costs:** Middlemen reduce the number of communications and exchanges needed in the delivery of goods and services. In general, exchange between m manufacturers and n retailers, without the aid of wholesalers, requires $m * n$ exchanges, while a single wholesaler will reduce the number of exchanges to $m + n$.
2. **Assortment of Products:** By eliminating the need to visit many shops for comparisons, retailers reduce shopping time and enable consumers to purchase goods and services closely matching their preferences for attributes, quality, and price.
3. **Warehousing and Distribution:** The middlemen enable decentralization of the complex network and warehousing decision problem into smaller and manageable problems.
4. **Financing and Risk Sharing:** The provision of goods and services involves many uncertainties, including demand uncertainties. Inclusion of middlemen partially relieves the manufacturer of many uncertainties. As a part of the marketing chain, the middlemen, at least partially, shield the manufacturers from the risk of manufacturing, marketing, and distribution functions. For example, the risk of less than expected product demand is generally absorbed by the wholesalers, retailers, and manufacturers.

Disintermediation Hypothesis: Five Scenarios

Is electronic commerce really eliminating or reducing the middlemen? Electronic commerce may really be transforming traditional marketing channels into new configurations to exploit the new information superhighway.

- Amazon.com is selling books on the Web without utilizing traditional retailing facilities. Yet, Amazon.com is really an online retailer of books fulfilling an important function of the middlemen in transferring books from publishers to the readers.
- Online travel agents, Travelocity and Expedia, also provide centralized access to fares, schedules, and reservations much like a traditional travel agents, but exploit the unique features of electronic commerce. To discuss how electronic commerce is transforming marketing distribution channels, we present the following five scenarios.

1. Cisco Systems: Cisco provides networking solutions to build unified infrastructure for large enterprises, service providers, and small/medium sized businesses. Cisco Systems is the world's largest electronic commerce site with \$10 million in sales every business day. Between September 1996 and September 1997, the percentage of orders received through electronic commerce went up from 4 percent to 36 percent. The annual online sales during the fiscal year 1997 were \$2.734 billion (Cisco Fact Sheet, 1998). Cisco Systems' adaptation of business systems and practices to the emergence of electronic commerce is an interesting case study to gauge evolution of electronic commerce. Cisco Systems has the network technologies and transaction processing capabilities to implement innovative strategies to exploit electronic commerce opportunities effectively.

Cisco Systems is providing direct access to its manufacturing systems, so the channel partners can track inventories, engineering changes, shipment status, and other information in near-real time (Moad, 1998). Cisco embraced the Global Networked Business model to implement innovative tools, systems, and innovative approaches to share information with diverse company stakeholders: suppliers, distributors, customers, and employees. Global Networked Business model will improve information sharing with the company's stakeholders in a networked environment. By using Cisco Connection Online (COO), Internetworking Product Center (IPC), Partner-Initiated Customer Access (PICA), and direct link to manufacturing resource planning system (Cisco, 1998), Cisco opened the corporate information infrastructure to its key constituents. Cisco estimates a cost saving of \$360 million a year, while improving customer/partner satisfaction (Cisco Fact Sheet, 1998). Cisco leveraged growth of electronic commerce by optimizing information flows between its channel partners rather than replacing the channel partners. *This example does not support the disintermediation hypothesis.*

2. WOMEX: The case of World Merchandise Exchange (WOMEX) is an example that counters the disintermediation hypothesis.. Womex connects international buyers and sellers by providing online product catalogs and cutting down on the communication costs between buyers and sellers. The company currently has 26,000 product listings and expects to increase the listing to 100,000. For an annual fee of \$4,000, the company lists photographs of sellers' products and offer sheets in its Web catalog (Wildemuth, 1997). The company also maintains an integrated e-mail system to help buyers and sellers communicate with each other, saving clients high cost of international faxes. WOMEX currently has 4,200 registered buyers. *The emergence of electronic commerce created a new form of intermediaries in the distribution chain, called information intermediaries (WOMEX is an example).*

3. Michelin North America, Inc.: Michelin is a multinational tire manufacturer with 1996 sales of over \$13.9 billion. Michelin, contrary to prognostication of future of electronic commerce, is forging a closer relationship with its tire dealers. In 1997 it designed an extranet, Bib Net, for the use of its 1,700 independent dealers (Wrenden, 1998). The Bib Net helps the dealers to check inventory, order tires, and perform claims processing. Future plans include expanding the capability of Bib Net to allow dealers to combine orders placed on different days and process delivery/receipt information. *Michelin North America, Inc. is an example of effective coordination of functions of middlemen made possible through improvements in network technologies.* Michelin surveyed its dealers' needs in the design and implementation of the Bib Net.

4. Transaction Processing Vendors: This case demonstrates that growth in electronic commerce may produce new intermediaries performing functions uniquely suited to electronic commerce. Transaction processing vendors such as CyberCash, Inc., ICVerify, Inc., Internet Billing Co., and LitleNet L.L.C. link commerce sites to credit card companies and lending banks are experiencing a doubling of transaction volume every quarter (Kerstetter, 1998.) These middlemen of electronic commerce handle credit card transactions for Web sites, communicate with lending banks, and approve the credit card for the merchant site in real time. In addition, they provide value added services such as fraud detection. *The growth of online transaction processing vendors contradicts the disintermediation hypothesis.*

5. Integration of Logistics in Supply and Distribution Channels: Freight companies will have expanded role in the electronic commerce. Their function goes beyond shipping goods from warehouses to consumers. Delegation, or out-sourcing of supply chain and distribution logistics to the freight companies, is an emerging trend. UPS is increasingly involved in supply chain and distribution logistic management. Its DockMerge service coordinates delivery of goods to the consumers. It synchronizes the delivery of system units, keyboards, and monitors from different suppliers for delivery to the consumers (Wilder, 1997). Customer packages tracking systems of UPS and FedEx add value to the transportation service and improve customer satisfaction. UPS is going beyond the traditional functions of freight companies and becoming involved in inventory management, facility planning, warehousing, and order processing (Payne, 1998). Globalization of commerce will add additional functions to the freight companies. Complexities of custom regulations, and collection from international customers will open up opportunities for freight companies to become closely aligned with their customers. *The integration of logistics into core business functions illustrates the evolution of the role of middlemen.*

Conclusions

The disintermediation hypothesis will not obliterate the need for middlemen. Newer institutions will emerge to fill the unique need for middlemen in electronic commerce. Purely information intermediaries (WOMEX), and transaction processing vendors (CyberCash) will evolve to fill the unique demands of electronic commerce. Some hurdles such as privacy, security, and scalability still remain for the electronic commerce to fully realize its projected potential.

Implications for Researchers

Above discussion of the emergence of e-commerce across diverse industries suggests that the researchers can investigate the following hypotheses:

1. The number of layers of intermediaries will reduce across all industries. This reduction will take place first in the industries in which middlemen facilitate communication and exchange between buyers and sellers. In the industries where the middlemen provide other important functions, reduction of layers may occur, but not as rapidly.
2. The reduction of layers of intermediaries will take place more rapidly in the service industry than in the manufacturing sector. Due to low levels of capital investments, the service industry relies less heavily on middlemen for financing and risk sharing support.
3. Reputed brand name products and services will have greater advantage in direct sales and diminish the role of middlemen. A similar effect will take place for the products and services whose attributes can be easily communicated to the consumers.
4. Newer forms of intermediaries will emerge to fill the demands of electronic commerce. Their role will be limited. Further, ease of entry and low investments needed to for entry, these new intermediaries will numerous and face a competitive market.
5. Logistics and distribution will become an important part of the core functions of a business. The role of freight companies will be expanded from transporters of goods and services to an integrated component of business operations.

References

References are available from the authors on request.