
Cybermediaries in Electronic Marketplace: Toward Theory Building

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The increasing importance of electronic commerce makes it essential to develop a theory of virtual value chains. This article considers the intermediation process between producers and consumers within electronic markets. We argue that, contrary to existing wisdom, intermediaries will play a key role in electronic markets. Drawing on channel evolution literature and transaction cost economics, we present a set of propositions regarding the emergence of cybermediaries and the development of virtual channel systems. J BUSN RES 1998. 41.215–221. © 1998 Elsevier Science Inc.

The increasing popularity of the World Wide Web (WWW) and explosive growth of the Internet has generated significant interest in the development of electronic commerce. Electronic data interchange and other inter-organizational systems, which have existed for decades, use telecommunications technology to support business-to-business transactions. The Internet adds the capability of directly linking firms with individual consumers. As a result, the potential for transformation of individual value systems (Porter, 1985; Porter and Millar, 1985) is increased. Many firms, drawn by potential access to millions of consumers, have already invested heavily in establishing a marketing presence on the WWW (for examples see *Business Week*, 1994; Hoffman, Novak, and Chatterjee, 1995). Moreover, telecommunications and information technology firms have shown significant interest in the Internet as the basis for expansion into electronic commerce.

As a result, the Internet has the potential to evolve into an

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interconnected electronic marketplace bringing buyers and sellers together to facilitate commercial exchanges. Electronic markets may support many activities, ranging from the provision of product information to the execution of complete transactions. For information goods, such as software and graphic images, the Internet can also provide product distribution facilities. The development of electronic marketplaces is expected to redefine industry value systems by supporting a radical restructuring of the processes and organizations that connect manufacturers and consumers.

One common vision of the electronic marketplace is of an ideal electronic market in which consumers interact directly with producers. Software tools including intelligent agents and distributed databases, would enable consumers to efficiently search for and purchase a wide variety of goods directly from producers. Thus, it is argued by some that developing electronic marketplaces will threaten intermediaries as direct producer-consumer interactions become the dominant structure in electronic commerce (Benjamin and Wigand, 1995; Hoffman and Novak, 1996; Office of Technology Assessment, 1994).

However, further analysis demonstrates that a more likely outcome is the emergence of a class of commercial service providers which we term cybermediaries. Cybermediaries are organizations that operate in electronic markets to facilitate exchanges between producers and consumers by meeting the needs of both producers and consumers (Sarkar, Butler, and Steinfield, 1995; Butler, 1996). Cybermediaries also increase the efficiency of electronic markets, in a role similar to intermediaries, by aggregating transactions to create economies of scale and scope (Alderson, 1954; Coyle and Andraski, 1990; Sarkar, Butler, and Steinfield, 1995). According to this view, multiorganization structures will play an important role in emerging electronic markets.

How will electronic marketplaces be structured? To what extent will producers and consumers take advantage of the

new technology to form direct ties? What role, if any, will cybermediaries play in these new markets? This article examines the nature of intermediation in electronic markets and its implications for the structure of electronic commerce. First, we consider the view that intermediaries are fundamentally threatened by electronic marketplaces. Then we present our analysis and arguments for the emergence of cybermediaries, followed by propositions regarding the evolution of cybermediary organizations and the structure of electronic marketplaces. We conclude with a discussion of the implications of this work for future electronic commerce research.

Transaction Costs and the Threatened Intermediaries Hypothesis

Williamson's (1975, 1985) work on transaction costs provides a theoretical framework for analyzing the structure of commercial activity. Transaction cost models focus on a firm's choice between internalizing an activity and relying on external market agents. In these models, organizations choose from structures ranging from hierarchical relationships to open-market transactions (Anderson and Coughlan, 1987; Klein, 1989). Although traditional studies deal with the two extremes of markets and hierarchies, i.e., full reliance on market forces or total vertical integration, the model has been extended to include quasi-hierarchical and quasi-market structures (Gulati, 1995). However, the basic concept remains the same: firms choose structures that minimize transaction governance and execution costs.

Prior empirical research has validated the transaction cost models in the context of traditional marketing channels (see Rangan, Menezes, and Maier, 1992). Transaction cost theory also serves as the basis, either implicitly or explicitly, for much of the research on the structure of electronic marketplaces. In this literature it has been noted that intermediaries add significant costs to the value chain, which are then reflected in higher final prices to consumers. For example, to motivate their discussion of electronic markets, Benjamin and Wigand (1995) describe how the retail price in the high quality shirt market would be reduced by almost 62% if wholesalers and retailers were eliminated. Similarly, an Office of Technology Assessment (1994) report states that the widespread availability of data communications networks and technologies will facilitate direct exchange between producers and consumers, thereby reducing the costs of commercial activity. Electronic networks, it is argued, support the coordination of exchanges and reduce the transaction costs that producers and consumers would normally incur (Malone, Yates, and Benjamin, 1987). By this reasoning, manufacturing firms and consumers have both the means and the incentive to use telecommunications to bypass intermediaries in traditional value systems (Benjamin and Wigand, 1995). This implies that emerging electronic marketplaces pose a direct threat to traditional intermediaries.

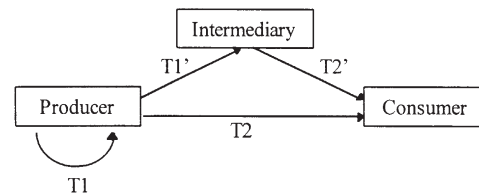


Figure 1. Transaction cost model of direct vs. intermediated channels.

Transaction Costs Revisited: The Case for Cybermediaries

However, reconsideration of the transaction cost model reveals that the threatened intermediaries hypothesis relies on several key assumptions (Sarkar et al., 1995). Specifically, by focusing on the connection between producers and consumers, prior work overlooks the impact of new communication technologies on the other relationships within the electronic marketplace. When a full system transaction cost analysis of channel services is considered, very different structures emerge.

Transaction cost models characterize the problem facing firms in terms of two types of costs: production and governance costs. Production costs are defined as the cost of completing the desired activity. Governance costs are the costs incurred by a firm as a result of its efforts to coordinate and control the entity performing the activity. Firms choose the transaction structure which minimizes the sum of these costs. Transaction cost analyses of industrial structures consider both the production cost of channel services (T_2 vs. T_2') and the governance costs associated with coordinating and controlling the organization or unit which provides those services (T_1 vs. T_1') (Sharma and Dominguez, 1992) (Fig. 1). Because of economies of scope and scale, channel functions often can be provided at a lower cost by specialized intermediaries ($T_2' < T_2$) (Williamson, 1981; Anderson and Coughlan, 1987). As a result, coordination costs play a key role in firms' choice of channel structure. Because external production costs are typically lower, firms will prefer to internalize channel activities and deal directly with consumers only if the costs of coordinating intermediaries (T_1') is substantially higher than the cost associated with governing an internal unit (T_1). Furthermore, if the development of a widespread data communications infrastructure reduces coordination costs between producers and consumers (T_2) it is also likely that the costs of coordinating producer-intermediary (T_1') and intermediary-consumer interactions will be reduced as well (T_2') (Sarkar et al., 1995). Rather than threatening intermediaries, it is likely that the development of an extensive public telecommunications infrastructure will provide new opportunities for external firms to provide channel services. This argument leads to the following general alternative to the threatened intermediary hypothesis: it is likely that intermediary organizations will play an important role in developing electronic marketplaces.

Nature of Cybermediaries

As noted in Sarkar et al. (1995), conceptualizing electronic commerce only in terms of coordination can be deceiving. In any commercial exchange, both producers and consumers have a variety of needs that must be met (Butler, 1996). Traditional intermediaries provide a range of services, including product information, customization, quality assurance, lot size adjustments, one-stop shopping convenience through maintaining assortment, proximal and temporal availability, after-sales service, and logistics (Rangan et al., 1992). Understanding commercial structures and the nature of cybermediaries in emerging electronic markets requires that the composite nature of channel services be recognized.

Although the *need* for the channel functions described above remains strong, the *form* of organizations providing the services may change. For example, a ubiquitous data infrastructure is likely to lead to “unbundling” of channel functions. Just as lower coordination costs are likely induce producers to seek the services of cybermediaries, it is also likely that cheaper coordination will lead to the existence of focused firms, which ultimately provide a virtual bundle of channel services. Lower external transaction costs should result in greater horizontal de-integration of channel functions with increased specialization. Thus we propose that:

P1: In an electronic market, the number of organizations involved in a complete producer-consumer exchange will be greater than in a comparable exchange in a traditional market.

The composite nature of channel services and the potential for unbundling presented by the developing information infrastructure also have implications for the types of cybermediaries that are likely to exist. Williamson (1981) has argued that manufacturers are more likely to diversify into the production of other products where their expertise lie, than to integrate forward and handle a wider variety of goods as an intermediary. This is also supported by a resource-based view of the firm, which states that firms have limited managerial and other resources that are invested only where they can appropriate the highest rent. Since a producer firm is likely to have developed competencies in *producing*, it is more likely to pursue diversification in its core area of competence rather than move into *distribution*, which requires a very different skill set.

In electronic marketplaces, the need for special skill sets is even more pronounced. For example, Hoffman and Novak (1996) have argued that the WWW has certain unique characteristics that distinguish it from conventional media and markets. They refer to the issues of telepresence, experiential behavior, and the perceived challenges of the interaction process as unique characteristics that define the WWW. The telecommunications technologies and commerce-related software systems that serve as the basis for electronic markets are also rapidly developing technologies that require specialized

expertise to develop, maintain, and operate. Thus, in electronic marketplaces unique features of environment, the nature of the underlying technology, and other traditional economies of scope and scale combine to make it unlikely that the average production firm will be able to perform channel functions as efficiently as specialized cybermediaries. Services that rely on new technologies or specialized skills, such as transaction security, product presentation, and on-line store management, are more likely to be acquired from external cybermediaries. In contrast, functions such as paper-based billing and telephone order-processing, which do not require use of complex, changing technology or electronic marketplace specific skills, are less likely to be performed by new cybermediaries.

P2a: Channel functions that rely on electronic market specific skill sets or technologies will be more likely to be provided by cybermediaries.

P2b: Channel functions that do not require electronic market specific skill sets or technologies will be more likely to be performed by producers.

Another important feature of any marketplace is the ability to attract a large number of potential consumers. In physical marketplaces, secondary services such as food and entertainment are often provided with the goal of drawing consumers to a particular location. Similarly, in electronic markets it is necessary to develop an audience of individuals who are interested in a firm's goods or services. Many types of user services, such as general search facilities or specialized content that attracts audiences, can be developed on the Internet. However, specialized resources and knowledge are needed to develop the consumer base in electronic markets. As a result, audience creation and maintenance is one area in which cybermediaries are likely to play an important role.

P3: In electronic markets, channel functions related to attracting a community of potential consumers will more likely be performed by cybermediaries.

The current state of Internet-based electronic commerce provides general support for these propositions regarding the nature of cybermediaries. Researchers have noted the proliferation of commercial exchange facilitators on the Internet (see Hoffman et al., 1995), providing an indication that cybermediary services are an efficient mechanism for supporting electronic exchanges. Examples of Internet-based exchange facilitators include gateways, directories, search services, on-line malls, electronic publishers, and virtual resellers (Sarkar et al., 1995). The emergence of on-line content and search service providers, which develop audiences to generate advertising revenue, provides another example of the role of specialized cybermediaries. Though still in the early stages of development, Internet-based electronic markets provide anecdotal evidence regarding the nature of emerging cybermediaries.

Structure of Electronic Marketplaces

Researchers have noted that study of channel structures is a fundamental research task (Anderson, 1985; Klein, Frazier, and Roth, 1990; Stern and Reve, 1980). The following sections consider the implications of the cybermediary argument for the structure and evolution of electronic markets. We also discuss how organization and cultural factors, such as power and consumer perceptions, are likely to encourage or hinder the development of complex structures within electronic marketplaces.

Channel length is defined as the number of organizations through which products move as they go from producers to end consumers (Stern, El-Ansary, and Coughlan, 1996). Channel length, which is often equated with the number of intermediaries involved in the exchange, is seen as an important characteristic of market structures (Sharma and Dominguez, 1992). The relationship between the number of intermediaries and the length of a channel is an important issue to both business strategists (Anderson and Coughlan, 1987) and public policy analysts (Sharma and Dominguez, 1992).

However, in electronic markets the straightforward relationship between the length of the physical channel and the number of intermediaries may not apply. As Rayport and Sviokla (1995) have argued, electronic marketplaces consist of both physical and information, or virtual, channels. It is also claimed that whereas the physical value chain is composed of a linear sequence of activities, the virtual value chain is nonlinear. Furthermore, the unbundling of channel functions resulting from lower coordination costs is likely to contribute to the separation of physical distribution from other cybermediary functions. This can simplify and shorten physical distribution (e.g., Federal Express as the distribution system) while producing complex and longer networks of informational intermediaries (e.g., some firms may locate products, other provide evaluations of related products, others provide training, others provide settlement services, etc.). In contrast to the traditional notion that shorter channels imply a greater degree of vertical integration by producers (Bucklin, 1970; Anderson and Coughlan, 1987), electronic marketplaces may support shorter physical channels and less overall vertical integration. This implies that:

- P4: In electronic markets, due to the unbundling of channel functions, the length of the physical channel will be lower than for comparable exchanges in traditional markets.
- P5a: As a result of the network structure of virtual channels, consumers in electronic marketplaces will interact with a greater number of intermediary firms than similar consumers in traditional markets.
- P5b: As a result of the network structure of virtual value chains, the number of information channels from the producer to the consumer will be greater in an

electronic market than in comparable traditional markets.

Unlike the linear flows that characterize traditional channels (Stern, El-Ansary, and Coughlan, 1996), electronic markets are likely to be characterized by a shorter linear physical channel supplemented by nonlinear processes provided by a network of cybermediary organizations.

Evolution of Electronic Market Structures

Up to this point, our analysis has implicitly relied on static models. Whereas this type of analysis may adequately capture the general impact of electronic markets, it provides little insight into how the structure of these markets is likely to develop. Mallen (1975) notes that early in the development of new markets, firms are more likely to utilize intermediaries rather than performing channel functions internally. The small entrepreneurial producers who typically develop new markets often find it advantageous to outsource channel functions to specialized intermediaries that possess the specialized skills needed to quickly achieve economies of scale and scope. This is consistent with our earlier prediction (P1) that a large number of cybermediaries will emerge in the early stages of the electronic market.

However, research has shown that it is common for longer traditional channels to be reduced as the market develops (for a review, see Sharma and Dominguez, 1992). The evolutionary model suggests that as markets develop, competition intensifies, and producers who control channel functions gain competitive advantages (Guiltinan, 1974). From a transaction cost perspective, increasing volume enables some producers to achieve economies of scale in-house and as a result the difference between internal and external channel service production costs is reduced (T2 and T2' in Figure 1). Furthermore, because the cost of coordinating with a large number of traditional intermediaries is high, using many traditional intermediaries can hinder a firm's ability to maneuver. (Sharma and Dominguez, 1992). Therefore, as markets develop and mature, firms will tend to shorten and simplify their traditional channels by internalizing intermediary functions.

Similar changes in the cost of internally providing channel services (T2 in Figure 1) are also likely to occur in electronic markets. However, in electronic markets the trend toward simpler channel structures and fewer intermediaries will be inhibited (Figure 2). In traditional markets, a decrease in the cost of providing a channel service internally (T2) results in more firms performing that service in-house as the total cost of in-house production (T1+T2) falls below the cost of using an intermediary (T1'+T2'). However, in electronic markets the cost of coordinating a cybermediary (T1') is lower and the difference between internal and external coordination costs (T1 vs. T1') is not as large. As a result, a greater reduction

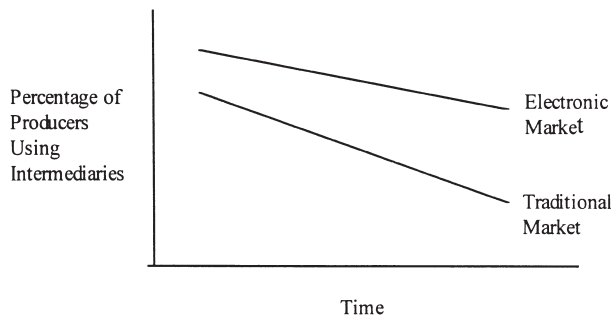


Figure 2. Impact of market development on electronic market structure.

in the cost of performing the channel service internally is required to shift organizations from the use of external intermediaries. Consequently, although it is likely that some firms will choose to internalize cybermediary functions, in electronic markets the trend towards simplified market structures will be reduced.

- P6: The number of producers using cybermediaries to perform a particular channel service in an electronic market will decline at a slower rate than the number of producers in a comparable traditional market.

Power and Socio-Cultural Influences

Prior studies of channel management have considered how both producers and distributors use their power base to achieve their objectives (Frazer and Rody, 1991; Beier and Stern, 1969; Gaski, 1984). Conflict and cooperation are central themes in this line of research (Anderson and Narus, 1990). Firms obviously cannot always completely control the behavior of other firms to effect desired outcomes, and bargaining and negotiating often play an important role in determining channel structures (Gomes-Casseres, 1990). Thus, it is likely that the evolution of electronic market structures will be affected by the distribution of power in the existing channel systems. The presence of a dominant producer in an existing market may encourage other producers to move into electronic markets as an alternate channel for reaching customers. This in turn would create a producer-side demand for cybermediary services. On the other hand, powerful intermediaries in existing markets may hinder the development of electronic markets. If the new structure conflicts with the interests of powerful players in existing markets, firms may be unable to develop electronic markets. The power of intermediaries, often stemming from their relationships with customers, may force producers to abandon efforts by bypass traditional intermediaries in fear of retaliation.

One example of this is the experience of Air France on the French Minitel system. Minitel, which is available throughout France in most businesses and 40% of households (Streeter et al., 1993), is used by Air France to permit on-line seat

reservations. They considered distributing ticket printers, allowing large corporate customers to completely bypass travel agencies and avoid the commissions associated with airline ticketing. However, fear of retaliation from travel agents led Air France to reject this plan, especially because the number of people actually using Minitel to reserve seats paled in comparison to the number who use travel agencies. Instead, a system was developed in which reservations could be made electronically, but traditional intermediaries continued to provide the actual ticketing service (Steinfeld, Caby, and Vialle, 1992). Until the electronic means of reaching customers offers better access than traditional means, producer firms will be reluctant to attempt complete bypass of the traditional intermediary. Consideration of power distribution in channel structures leads to the following propositions.

- P7: In product markets characterized by an imbalance of power in favor of particular producers, competing producers will be motivated to offer their products within electronic markets. As a result, cybermediaries will be more common in these product-markets.
- P8: In product markets characterized by an imbalance of power in favor of one or more traditional intermediaries, producers will be reluctant to offer their products through channels in electronic markets until the electronic market channels offer greater access to customers than traditional channels. As a result, cybermediaries will be less common in these markets.

The intermediary's ability to personalize efforts and add customer services, such as liberal return and credit policies, can act as powerful deterrents to forward integration by producers (Heide and John, 1988). However, whereas cybermediaries are capable of providing specialized services for consumers, it is unclear whether they can provide the social atmosphere and support that consumers expect from many traditional intermediaries. Research on channel evolution has also shown that cultural values significantly affect the adoption of new distributive institutions and practices (Sharma and Dominguez, 1992). Sociologists and anthropologists have long recognized that economic activity is embedded in a social structure, and that existing social relations influence patterns of economic exchange (Granovetter, 1985). Finally, culturally bound shopping behavior is known to affect retail institutions and channel structure (Shimagushi and Lazer, 1979). Therefore we propose:

- P9: In product markets where social interaction is crucial for supporting consumer purchasing behavior, cybermediaries will be less common.

Conclusions

This article addresses the nature of intermediation in electronic marketplaces. We have argued against the idea that intermediaries are likely to disappear. In fact, it is our contention that

within electronic markets, cybermediary firms are likely to be more common and diverse than intermediaries in traditional markets. The transaction cost analysis presented above suggests that increased outsourcing of channel functions is likely to result in a prominent role for cybermediaries in the electronic environment. Electronic markets will require a more complex set of producer-consumer mediating needs, which in many cases will be best provided by cybermediary firms.

Our analyses highlight a number of areas for future conceptual and empirical work. One avenue for future work involves the formalization of the transaction cost models underlying this and previous electronic commerce research. Other research should operationalize and empirically test these propositions and models in specific electronic marketplaces with both cross-sectional and longitudinal data. Studies of the evolution of electronic marketplaces provide a valuable opportunity for developing our understanding of commercial structures and processes. The changes brought about by the developing information infrastructure will enable researchers to challenge and improve the models underlying our understanding of organizations, consumers, and commercial activities.

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