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Chapter 19

Intermediaries in E-Commerce: Value Creation Roles

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INTRODUCTION

Very early in the evolution of e-commerce, predictions were made that a significant degree of disintermediation would occur, i.e., that middlemen would be eliminated from the value chain through the use of the Internet. The reasoning was as follows. The economic benefit of middlemen, or intermediaries, is that they reduce transaction costs for functions that are outside the firm (Coase, 1937). Therefore, as digital technology reduced transaction costs in the open market, the role of these middlemen would be threatened (Tapscott, 1996; Downes & Mui, 1998). However, intermediaries have proven to be remarkably robust, even as they have transformed their roles and functions. The success of e-commerce firms like Amazon, eBay, and Yahoo is a testament to the continued value of intermediation. Even in an economy reshaped by digital technology, intermediaries still add value, and find new ways of doing so.

This article examines the evolution and robustness of intermediation in e-commerce, by examining the fundamental economics of intermediation in terms of economies of specialization, scale, and scope. It considers ownership, transformation, and agency as different dimensions of intermediaries. It examines various intermediary roles, and how they are combined, driven by economies of scope and strategic attempts to capture value. It discusses how the various intermediary roles are changing in e-commerce, through the impact of digital technology. The specific case of financial intermediaries, at the forefront of digital technology usage, provides several examples (Singh, 2000). The conclusion is that intermediaries are important and varied enough that they will survive and thrive in the era of e-commerce. Disintermediation will not be a general outcome. Traditional intermediaries that perform manual tasks, or are part of slow or inefficient value chains are in danger, but the economic roles that intermediation plays are unchanged by e-commerce, and will be carried out in new ways.

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BACKGROUND

The term ‘intermediary’ covers many different types of functions, so an ideal classification is difficult. If an intermediary is literally a ‘middleman’, coming between a buyer and a seller in a specific transaction, then the term has a relatively narrow scope. An example of such an intermediary is a specialist on the floor of the New York Stock Exchange (NYSE). However, within the entire value chain for a product or service, from raw inputs to final consumption, many types of organizations or individuals can be viewed as intermediaries. Distributors and wholesalers are an obvious example, but retailers, too, are intermediaries between producers and consumers. Even a computer manufacturer like Dell is an intermediary in this broadest sense, because it collects hardware and software components from a variety of suppliers, and assembles them into computers that are ready to use. Similarly, UPS is an intermediary when it delivers the Dell computer to the household or firm that ordered it.

There is one crucial difference between Dell and UPS, which provides a first basis for classifying intermediaries (Besanko et al, 2008). When Dell obtains components and assembles them into a working computer, it takes ownership of those components. It also oversees the locational transformation: the buyer does not make a separate transaction for the delivery. What Dell sells is the computer delivered to the doorstep, including the delivery charge. UPS is also an intermediary, but it does not take ownership of the computer. Therefore we can divide intermediaries into those which take ownership, creating two separate market transactions, and those who do not, leaving just one market transaction. The specialist on the NYSE floor mostly plays the latter role, matching brokers representing buyers and sellers. Sometimes the specialist also buys or sells out of his or her inventory, thus taking ownership as well.

If the intermediary does not take ownership, there is another important possible dimension of difference. To continue with the NYSE example, brokers who bring buy or sell orders to a specialist are acting on behalf of those who have placed the orders. In other words, the brokers act as agents, either for the buyer or the seller. An agent in this sense is anyone who is assigned a task on behalf of another (Casadesus-Masanell & Spulber, 2007). This assignment may be through a specific contract, or through a general rule. A stockbroker follows general rules laid down by the employer, and by the Securities and Exchange Commission (SEC) for every order, without requiring a contract each time. NYSE specialists, however, do not typically act as agents of either the buyer or the seller, but play a neutral role. (There are exceptions: specialists play an agency role for brokers when they execute prior trading instructions for floor brokers.) Other examples of agent-brokers are real estate brokers. There are invariably two brokers in a real estate transaction, representing the interests of the buyer and the seller respectively – though legally they are both the seller’s agent, since the seller pays both commissions (Wiley & Zambano, 2008). Real estate brokers do not take ownership, but only facilitate market transactions. Ownership and agency are mostly mutually exclusive characteristics of intermediaries, but they may not be totally so. Car dealers, for example, are agents (franchisees) of the manufacturers, but take ownership of the cars they sell. In reality, a great variety of arrangements are possible.

A third dimension of classification is that of transformation of the product or service. As illustrated by the UPS transportation example, transformation (of location) may take place without ownership. Outsourcing may also involve transformation without ownership. In a non-physical example, an advertising agency can change the image of a product with a successful advertising campaign, but does not buy or resell the product. Some intermediaries do not transform

a product or service. An intermediary that collects and disseminates information does not change the product, but creates value by improving the quality of the transactions that take place. Matching buyers with sellers, or informing buyers about the quality of products sold and mitigating problems of asymmetric information, are examples where information adds value to market transactions. Unsurprisingly, the Internet has become a fertile field for 'information intermediaries' (Bhargava & Choudhary, 2004).

An intermediary is a kind of specialist, so economies of specialization are a key explanation for intermediation. As with any other occupation, a broker, agent or middleman has fixed costs of getting started, and also learns by doing. It pays to specialize to become more efficient. Intermediation activities may also be a byproduct of broader specialization. For example, a lawyer masters a general set of knowledge and skills, which may be used for agency tasks that do not involve third parties explicitly, but which are also used in the context of intermediation (e.g., drawing up contracts for corporate transactions). Specialization is also supported by economies of scale (Chandler, 1990). A real estate broker who knows the neighborhood can use this knowledge to serve multiple prospective house buyers. The same knowledge acquired by a single buyer will provide benefits only to herself. This is related to, but distinct from fixed costs of getting started, just as static economies of scale are connected to cumulative economies of scale over time.

While economies of specialization and scale provide the fundamental economic reason for intermediation, economies of scope define the particular character of intermediary roles. A real estate broker uses specialized information to reduce search costs for buyers and sellers, but also to reduce the transaction costs of negotiating a price for the deal and of completing it successfully. Much of this specialized information involves coordinating the activities of other specialized intermediaries: the house inspector, the escrow

agency, and perhaps the mortgage lender or mortgage broker. The real estate broker specializes to the extent that she or he knows what tasks need to be performed for a successful transaction, but does not perform all those tasks herself. However, a broker that just found a house for a buyer, but could not draw up a standard sale agreement would be of much less value to the buyer. There are economies of scope in having both these tasks, and the coordination of other transactional steps, performed by a single intermediary.

The operation of economies of specialization, scale and scope is very similar in the case of financial service intermediaries. The value created by intermediaries in all these cases reflects the cost savings versus 'doing it yourself'. Some homeowners sell their homes without using an agent. In these cases, the value that would otherwise be captured by the broker is presumably greater than the additional cost borne by the homeowner. One way of looking at the future of intermediation in various contexts is through comparing the changing relative costs of specialization versus 'do-it-yourself'. The important point to note is that, while the costs of do-it-yourself change thanks to the Internet and information technology, so do the costs of specialized intermediation.

Economies of specialization, scale and scope are chiefly 'technological' determinants of intermediation. Intermediation may also be more efficient for incentive reasons. An intermediary who participates regularly and frequently in a market, whether as an agent or a neutral broker, has different incentives than a buyer or seller who is an infrequent participant. Thus even if such buyers or sellers have the same knowledge as an intermediary, they do not have the same ability to build and to convey reputation. The incentive to maintain a reputation can make an intermediary an effective market participant, by enabling transactions to take place that would otherwise fail because of asymmetries in information that lead to lack of trust. Intermediaries may also serve another incentive role. They can be provided with

Table 1. Eight intermediary roles

Transforming products	Being long-term players with reputations
Being physically closer to the final buyer	Economizing on search costs for consumers
Smoothing the market by carrying inventory	Matching buyers and sellers
Providing expert actions or information	Economizing on costs of completing and implementing the transaction

incentive contracts that make them behave in a way that might not be possible for the buyer or the seller. Thus, commissions for sales people can be structured in a way that makes them very aggressive. Agents may also be useful as negotiating intermediaries simply because their preferences are different.

INTERMEDIARY VALUE CREATION ROLES

The creation of value in intermediation is chiefly driven by economies of scale and specialization, but how these economies manifest themselves will vary according to the roles the intermediary performs. The various roles will often be combined as a consequence of economies of scope. Combination may increase the value created, because of economies of scope, and also play a role in the capture of value. We discuss eight intermediary functions (Table 1), and analyze the impact of e-commerce on these different value-creating roles.

All manufacturers take raw materials or intermediate products and transform them, chemically or physically, including assembling and packaging. Wholesalers, distributors and retailers may perform some of those operations as well. Logistics firms transform location, and advertising and marketing transform image. E-commerce has its greatest impact on transformation for digital products. Information products (text, audio, and video) delivered digitally, over the Internet, no longer need to be assembled or packaged in the

same way as before. The transformation role is not eliminated, but is changed because of the different product form. Instead of newspaper pages being composed for physical printing, they must be composed for Web publishing. News can also easily be unbundled from individual newspapers and re-aggregated by intermediaries or by users themselves (Águila-Obra et al, 2007). Similarly, locational transformation is not achieved by a chain of physical movements, but by sending digital files over the Internet. Some kinds of intermediaries (conventional wholesalers, distributors, delivery services) are replaced by new intermediaries (ISPs, Internet portals, Web hosting services, and file-sharing services). Rather than disintermediation, there is a replacement of old by new intermediaries. Finally, information technology makes customized transformation easier, both through collecting information from potential buyers, and through enabling technologies within the firm. These opportunities are particularly large for digital products. Customization in financial management is an example of applying information technology: the Internet and Web make analytical tools more freely available, and reduce the cost of building tailored portfolios of assets.

Distributors, wholesalers and retailers traditionally fit the role of being closer to the consumer. Physical retailers have provided the most common interface for final buyers to make their selections and purchases, but long distance communications and logistics have long made mail and telephone shopping attractive alternatives, using catalogs and infomercials. E-commerce supplements and accelerates existing trends (Bakos, 1993). Web

pages are virtual storefronts, where potential customers can browse and buy. The distributor and retailer might be bypassed (e.g., Dell), or replaced by a different kind of intermediary (e.g., Amazon.com).

Intermediaries smooth market fluctuations by carrying inventory. Selling out of inventory allows an intermediary to make up temporary shortfalls in production. Examples include NASDAQ dealers and NYSE specialists (where the products are financial assets with digital records of ownership), as well as wholesalers and retailers. For physical products, producers can carry inventory, but the advantage of having an intermediary perform the role comes through economies of scale and scope in managing inventory. For financial assets, there is no producer to provide an alternative, so the role of financial intermediaries is quite important. E-commerce can reduce the need for inventories and market smoothing if it makes production-to-order easier. First, it improves communication across different entities, including the buyer's ability to convey wants quickly and efficiently to the seller, and the seller's ability to convey its derived wants (triggered by the buyer's request) to its own component suppliers. Second, communication within the organization and the production process are speeded up by the internal use of information technology. For digital products, since reproduction is cheap and quick, inventory can become irrelevant: copies for each user do not have to be stored.

An intermediary may provide expertise in the form of specific actions or information provided to potential buyers. Individual sellers also serve potential buyers, but an intermediary offers neutrality across sellers, and therefore credibility, as well as expertise. Product quality ratings based on expertise are well-suited for provision over the Internet. This role is closely related to economizing on search costs. The Web is less well suited for providing complex applications of expertise, such as medical or legal advice, though simpler forms of these are now available. In general, to

the extent that e-commerce involves dealing with unknown or new products and sellers, the role of being an information intermediary, in the sense of providing expert information, will increase in importance. The wider reach of electronic markets can spread the fixed costs of expertise over higher volumes, making expert intermediaries more important. Expertise may be the main source of value creation by financial intermediaries. Financial markets are complex, fast-moving, and critical for the real economy of physical goods. In principle, brokers, traders, and other financial specialists have provided the required expertise. In practice, the bundling of this role with other sources of value creation, and with gatekeeper roles that captured value more than creating it, diminished the relative importance of expertise. Now that basic information on financial assets and access to trading them are freely available on the Internet, the broker or other financial intermediary has to provide expertise unbundled from those other offerings. This has happened in retail finance. In transactions such as corporate mergers and acquisitions, IPOs, and other cases where the scale is large and risks are high, expertise remains bundled with other roles.

Reputation, such as through brand names, substitutes for direct quality information. Firms have an incentive to provide high quality in order to build and to protect their reputations. What factors make intermediaries important providers of reputation? Size and scope clearly matter: Amazon's strategy in online retailing included building a worldwide consumer brand name and reputation as quickly as possible. It expanded rapidly its scale of operations, and the scope of what it sells. Being a long-term player is also important. Reputation is valuable for future operations, and only a firm that will be in business for a long time has an incentive to maintain reputation by maintaining quality. Reputational considerations can be important in overcoming asymmetric information problems. For example, retailers that have to keep selling to new customers are more

concerned about reputation loss from selling low-quality goods than individual sellers who are in the market only once. E-commerce involves more rapid information flows, and the swift aggregation of information. Buyers with bad experiences can post messages on web sites, and reputation can be affected quickly and severely. Good reputations may also be more easily and widely disseminated. The fixed costs of reputation-building can be spread over global rather than regional or national markets. Therefore, reputation is both more important and more vulnerable as a result of e-commerce. Intermediaries that specialize in building and maintaining reputation may therefore have a more significant role in e-commerce (Palmer et al, 2000).

Intermediaries economize on buyer search, because they have incentives to put information online where sellers might not. For example, intermediaries may post comparison price information online (e.g., travel web sites). Where sellers search, as in B2B transactions, intermediaries may reduce seller search costs as well. Intermediaries can also facilitate the search process and provide access to information, without actually certifying or evaluating the information, distinguishing this role from information transfer as part of expertise and reputation provision. Internet search engines play a fundamental role in economizing on search. The economy in searching the newspaper classifieds comes from creating a centralized location for information: many different sellers will list in the same place, allowing the buyer to scan columns on a page to gather information. Web sites provide a similar, but even greater economy. While search engines pull together information from diverse places, online listings provide a central location that reduces the demands on the underlying physical infrastructure. E-commerce greatly expands the role for intermediaries in economizing on search, as they can provide price and other comparisons and aggregate information for all kinds of goods and services. Intermediaries provide large quantities of information on the

Internet in a manageable form for users. Earlier, financial market information was channeled through a handful of firms, which charged high prices to corporate customers, mostly in the financial sector. Now, much of this information is available through new intermediaries to anyone with Internet access.

The role of matching buyers and sellers is closely related to economizing on search costs, since the goal of search by buyers and sellers is to achieve a desirable value-creating match. It is also a role where neutrality is valued. Exchanges and other formal market institutions clearly fulfill this function. Matching can involve simply matching buyers who want certain goods with sellers who have those goods to sell, but can extend to implementing mechanisms that match particular buyers with particular sellers, depending on their willingness to pay. The NYSE and the NASDAQ, for example, use different rules for matching at this level (Domowitz, 1993). Information technology allows the matching role of intermediaries to expand and be more sophisticated – markets for physical goods (e.g., C2C auctions such as those conducted by eBay, and electronic B2B exchanges) can be more like markets for financial assets, which have long been electronic in their internal workings, though not in the interfaces between individual investors and the various financial services specialists. The Internet has changed this interface as well, allowing retail investors to view exchange-level transaction data, and place orders directly without relying on a human broker.

Intermediaries also economize on transaction costs through expertise in completing transactions, or economies of scale. Intermediaries may draw up contracts and help in negotiating terms, because they have specialized knowledge. Individual payments and payment clearing are also managed by intermediaries. Automating such transactions and replacing paper flows with flows of electronic information illustrates how information technology economizes on transaction costs. The cost of moving pieces of paper from one location to

another is higher, and the integration of transaction information into business databases, now digital themselves, is also higher with paper transactions. Financial markets have moved toward eliminating paper wherever possible, making transactions wholly electronic. In some cases, new intermediaries have arisen to facilitate completion of transactions agreed over the Internet. Thus, PayPal did not replace existing financial intermediaries, but used their infrastructure while providing a new mechanism for individual transfers of money initiated online.

The eight roles above are typically combined: it is rare for a particular intermediary to provide only one function. There are two sources of efficiency from combining roles in one intermediary. The first is economies of scope in providing various kinds of informational services (price, availability, product characteristics, evaluation, buyer needs). Evaluation of products may involve economies in the use of information technology to integrate a range of information. The economies may also be achieved on the buyer's side, by reducing search costs. Dealing with a single intermediary may economize on transaction costs of all kinds. Another example of economies of scope arises where reputation is transferred across related activities: being good at providing product information and purchase opportunities in B2C markets might allow an intermediary to credibly provide the service of matching buyers and sellers in C2C auctions. The second reason for combining intermediary roles is incentive provision. An intermediary that carries out a range of functions can be provided incentives more effectively than if the different roles are split among several people or organizations.

Combining tasks may also be important for value capture, rather than value creation. Combining different roles gives the intermediary more sources of value. This does not, itself, justify combination, but if the intermediary's strategic position is thereby improved, it may be beneficial to expand the firm's scope. The essence of value

capture is in the ability to limit competition. Providing a range of services may make it more difficult for a competitor to enter the market, and allow greater value capture. This can be especially important in e-commerce, where conventional entry barriers may be harder to maintain.

FUTURE RESEARCH DIRECTIONS

Since the technologies underlying e-commerce are still evolving, there is considerable scope for evolution of intermediary roles. Empirical research on particular sectors, such as financial services, real estate and health can help to identify the nature of the evolution of intermediaries. In particular, the provision of content in digital form (e.g., news, entertainment and educational material) will continue to increase, and online intermediaries will expand their presence, with implications for industrial structure and job markets. Analyzing these structural shifts in the economy will also be an important research area. Online intermediaries are also at the heart of social networking, by providing platforms for communities to be created or operate in cyberspace. The analysis provided in this article points toward an analytical framework for understanding how social networking providers can create value for members of their networks, through matching, lowering transaction costs, economizing on search costs, and building reputations. Research on these new business models for e-commerce intermediaries will also be important in the future.

CONCLUSION

This article has used economic analysis to examine the ways in which intermediaries create value, and how those value creation roles are evolving in e-commerce settings. The interplay of economies of scale, scope and specialization underpins various intermediary roles and their

combination in different markets to create value for market participants. The technologies of the Internet and World Wide Web change the relative importance of different intermediary functions, the ways in which they are combined, and the manner in which they are carried out, but there is no case for predicting uniform disintermediation. In fact, in some markets, new intermediaries have arisen on top of older ones, extending the value chain rather than shrinking it. In other cases, digital intermediaries replace traditional ones. This article provides a framework for understanding and predicting such structural changes in markets as e-commerce options expand.

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KEY TERMS AND DEFINITIONS

Agent: anyone who is assigned a task on behalf of another

B2B: Business-to-business; used to refer to inter-firm transactions

B2C: Business-to-consumer; used to refer to sales to individuals in households

C2C: Consumer-to-consumer; used to refer to transactions between individuals

Disintermediation: Elimination of intermediaries or middlemen by internalizing their functions on either side of the transaction or value chain

Economies of Scale: A situation in which average or unit costs of production for a good or service are lower for higher volumes or levels of production

Economies of Scope: A situation in which average costs of production of for different goods or services are lower when the goods or services are produced together rather than separately

Intermediary: Any individual or organization that provides a value creating function somewhere along the value chain, excluding initial production of raw materials and final consumption

Value Chain: The sequence of activities that directly transform raw materials into final goods and services for consumption, as well as activities that indirectly support these transformations

Value Creation: The process of increasing the consumption or use value of tangible and intangible goods, through physical, chemical, locational and other transformations