The Impact of Disintermediation in Retail Supply Chains

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Abstract

Disintermediation, a major effect of the Internet economy, is both a threat and an opportunity in retail supply chains. This presentation discusses analysis of the impact of disintermediation in retail supply chains according to various dimensions of disintermediation, such as: source of the disintermediation, perceived motivation of the disintermediator, extent of the disintermediation, involvement of the retailer in promoting disintermediation, benefits assigned to the retailer, presence of external reintermediation, etc. Impacts on trust, promotional arrangements, and after-sales support will be considered, as will the substitution of B2B with B2C relationships. Data from specific retail industries will be presented.

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Introduction

The Internet is having an impact on businesses in various industries in good and bad ways. Sometimes, it is not clear if specific impacts are good or bad, and sometimes it very much depends on the perspective taken. One such impact is disintermediation, or the elimination of members of supply chain. This article does not seek to rationalize disintermediation as either good or bad, but rather to characterize disintermediation in its' various manifestations.

Disintermediation is an important issue in supply chain management. Companies must consider disintermediation as part of the larger supply chain design question. In their quest to meet the needs of demanding customers, companies have restructured, reorganized, and reengineered to increase organizational effectiveness and better satisfy key customers. The goal may be to build the very best supply chain team possible, which sometimes requires that old channel members be eliminated or replaced by new players. Thus, disintermediation can be an important part of designing a world-class supply chain.

Further, the emergence of new technologies in an intensely competitive global marketplace has led many companies to explore opportunities to improve their relationship with downstream customers. These companies recognize that a key to long-term success is to have direct access to the consumers of their products. Sometimes the customer connection is derived through capturing greater mind share. For example, at one time the "Intel Inside" campaign helped Intel gain channel leverage in the computer industry. Once "Intel Inside" became not just a brand, but the brand of choice, the former channel captains--the finished goods assemblers like Compaq and Hewlett Packard—became simply producers of "the box that contained the processor." (Fine 1998) At other times, the new linkage to the customer is more tangible and comes from the elimination of the retailer. The producer of the product may use web technologies to go directly to the consumer. For example, Stephen King by-passed his traditional publisher by posting his book, "The Plant" directly to the web. Readers simply pay a dollar per chapter and download it when it is posted. Many companies in diverse industries from music to power tools to food packaged goods to medical equipment have begun serious exploration to see if similar disintermediation opportunities might exist in their channels. It is possible that parallel channels—the traditional manufacturer-retailer-consumer channel and the manufacturer-direct-to-customer channel—will emerge. But will *channel conflict* be inevitable? The bottom line is that disintermediation is an important factor in supply chain design.

Because disintermediation is a vital issue that must be evaluated, both from a proactive and a preemptive perspective, the following discussion leads to a taxonomy of key disintermediation characteristics. We begin with discussion of the history and meaning of this disintermediation, which is followed by a review of disintermediation literature. Subsequently, we present a taxonomy of disintermediation, including examples from current industry practice. The paper concludes by pointing to future research direction.

Defining "Disintermediation"

From its origins, the term "disintermediation" meant "the diversion of savings from accounts with low fixed interest rates to direct investment in high-yielding instruments." (Merriam-Webster 1967) This was clearly motivated by a realization on the part of investors that banks were receiving a lot more on savings funds than they were paying out. In this case, the bank was the go-between, or intermediary, in the transaction. The banks' savings account function was disintermediated.

The removal of intermediaries is an ancient concept, dating at least back to Spain's 15th century Queen Isabella and King Ferdinand trying to simplify the supply chain of spices from India by going directly to the source. The use of the term "disintermediation" in the more general sense–elimination of intermediaries of any type–appears to correspond with the emergence of the Internet economy. Electronic delivery of books, for example, was foreseen as possibly eliminating players in the publishing supply chain—even before the term "disintermediation" came into the general vernacular. (Baker 2000)

The earliest reference to this general disintermediation in a reputable publication was in the December 12, 1996 Wall Street Journal. (WSJ 1996) Prior to that time, numerous published articles on "disintermediation" assumed the financial diversion definition cited above. The general term "disintermediation" may have existed prior to 1996. However, a detailed literature search deems it unlikely to have been referenced prior to the origins of the Internet, and more particularly prior to the genesis of the World Wide Web in the early 1990's. (see http://www.w3.org/History.html)

In 1997, PC Magazine's Don Willmott called disintermediation "the buzzword from hell." The term has since eclipsed buzzword status, inundating the popular literature as well as research publications.

The encyclopedia site http://www.whatis.com defines disintermediation as "giving the user or the consumer direct access to information that otherwise would require a mediator, such as a salesperson, a librarian, or a lawyer." This is consistent with other definitions that have been published. (Schwartz 2000) Note that this implies that the supply chains of both *goods* and *services* may be subject to disintermediation.

This definition of disintermediation implies a constraint of dubious necessity: that disintermediation involves the consumer–implying the end consumer. There seems to be no plausible reason for ignoring the possibility that disintermediation might involve supply chain members but not end consumers. For example, a small retailer may start purchasing products direct from the factory, bypassing wholesalers and other distributors.

Another weakness of that definition of disintermediation is that it focuses exclusively on direct access to *information*. Disintermediation in physical goods supply chains does involve direct access to information, but equally involves direct access to the physical goods themselves.

For this reason, throughout this article we suppose the following, more general conceptualization.

Definition: (Disintermediation) "Giving entities at one stage in the supply chain (e.g. consumers) more direct access to entities at another stage of the supply chain (e.g. manufacturers) by eliminating the need for intermediate entities (e.g. retailers) in that access."

Disintermediation may be part of a more broad issue of "channel design strategy." Indeed, channel design strategy includes determining which distribution channels are profitable and worth pursuing. (Harrington 1997) Channel strategy may also include other issues such as promotion, pricing, inventory levels, etc.

Disintermediation may also be considered an instance of supply-chain "role shifting." Again, the concept of role shifting can be much more broad, including shifting responsibilities for logistical arrangements, etc. Disintermediation, on the other hand, more specifically refers to *eliminating* the need for entire stages of a supply chain (which is a shift to a non-essential role).

Disintermediation in the Literature

This new disintermediation is referenced frequently in the popular press. Authors treat it as though it is a basic reality of the New Economy. (e.g. Plantes 2000; Rodgers 2000; Teixeira 2000) There exists a widespread feeling that disintermediation is a primary impact of the emergence of the Internet.

Interestingly, the supply-chain term "disintermediation" is rarely used in research and academic literature. This may be attributed to this being a relatively new use of the term, coupled with the lengthy time from idea to research to publication. Nevertheless, the *concept* has been discussed in academic literature, but under different names. For example, Blackwell refers to "functional shiftability" within supply chains. (1997, p. 126) His description of the concept includes the potential for disintermediation. However, he frames functional shiftability as being a more general "win-win" shifting of specific roles of supply chain members. For example, he expounds on shifts of functions from retailers to consumers, allowing lower prices of products. The (adversarial) elimination of supply chain members is not directly discussed.

A broad survey of published supply chain strategy research reveals a focus on forging partnerships in order to gain strategic advantage. (e.g. (Gentry 1996; Maloni and Benton ; Simchi-Levi)) The prospects for strategically eliminating supply chain partners has not yet made the mainstream of research. It is clear that, as has frequently happened in the past, the academic publications greatly lag behind the popular press in discussing changing business environments.

Discussions of disintermediation in academic literature are rare, and attempts to categorize and differentiate among various forms of disintermediation are even rarer. The concept of disintermediation is surely not homogeneous. Various types of disintermediation are sure to have distinct merits and dangers. A number of authors in the popular press have argued that disintermediation is neither a panacea nor an inevitable occurrence. Michael Hammer (2000) argues that dramatic potential for widespread disintermediation is a myth because supply chain member add value beyond simply delivering the product. He cites air conditioners and automobiles as value-adding retailers. Adams argues that in in some cases, the value function of intermediaries is not easily replaced. (Adams 1999) Heller cites disintermediation as the antithesis of virtual corporations. (Heller 2000)

Others have argued that entities at risk of being disintermediated can take action to secure their position in the supply chain. For example, auto dealers are countering the risk of disintermediation by establishing their own websites—a form of self-disintermediation. (Wilson 2000) Stanfill (1999/2000) claims that the Internet is not a true threat to intermediaries such as real estate brokers. He argues that "brokerages can significantly increase their value-added proposition and even further justify their commissions by improving overall service to customers."

And still others argue that disintermediation is not even a panacea for the survivors. The Gartner Group research company predicts that more than half of all companies now building or maintaining direct-to-customer Web sites will abandon them over the next three years. (King 1999)

The research need, to which we address in this paper, is to have a basis for comparing different types of disintermediation, which would allow us to analyze what works and what does not. In other words, a general taxonomy is needed if we are to appropriately analyze the antecedents and consequences of disintermediation. Unfortunately, there appears to be almost nothing along that line in published literature.

One exception is an article by Berghel (2000). He distinguished between "symbiotic disintermediation" and "predatory disintermediation." He claims that symbiotic disintermediation attempts to complement existing commercial activities, such as by allowing a supplier to reach previously untapped markets. Predatory disintermediation attempts to add value and establish closer links with the customers. He describes predatory disintermediation as being a hostile in the sense that it attempts to destroy another value-added industry. It is hard to say whether such a discrimination is characterizing *intent* or *outcome*. Defining outcome on these terms would be subject to individual perspective, since what may be considered symbiotic to one firm may be predatory to another. Nevertheless, Berghel has provided value simply by helping us think about different manifestations of disintermediation.

Taxonomy of Retail Disintermediation

We focus on retail disintermediation in the present study, since it is most commonly spoken of in current literature. Future research will look at disintermediation in other significant non-retail settings.

This taxonomy was developed through our survey of current examples of disintermediation. It is not intended to include every conceivable dimension of disintermediation. Rather, the intent is to focus on major classifications that are expected to have an impact on outcomes of consequence. We consider seven dimensions, which are: (1) extent of the disintermediation, (2) source of the disintermediation, (3) perceived motivation of the disintermediator, (4) involvement of the retailer in promoting disintermediation, (5) benefits assigned to the retailer, (6) presence of reintermediation, and (7) limiting factors.

(1) Extent of the Disintermediation

Disintermediation is the elimination of stages of the supply chain. The first relative dimension is how much of the supply chain is eliminated. One way to characterize this is by considering the "value added" of steps which are eliminated by the process–a surrogate of which is the percent of the final cost of the produce to the consumer which was previously captured by the eliminated supply chain stages.

An interesting observation about such a measure is that if the step is eliminated, one wonders if the value added was indeed commensurate with the avoided cost. Further, the value that was added by the eliminated steps may be replaced by other value-adding players at a cost–perhaps more in line with the actual value added.

For example, Compaq Computer Corp. offers to sell consumers direct to end consumers, which previously were available through wholesale-retail channels. Hypothetically, the wholesalers may have added ten percent to the overall product price, and the retailers may have added another 20 percent. By selling direct, we might say that the extent of disintermediation is 30 percent–the portion of sales price that was eliminated. However, part of the disintermediated process was distribution, which is now accomplished by previously external entities such as United Parcel Service and Federal Express. Those third-party logistics companies add value–in the form of "place" utility–but at a cost which inflicts a 15 percent increase in the overall price to consumers. So, the 30 percent disintermediation might be considered to include a 15 percent reintermediation.

An alternate way to measure the extent of disintermediation is to simply count the number of entities eliminated by the disintermediation. If the wholesaler and the retailer were eliminated, then we might call that a "two-level" disintermediation. This hinges on our definition of an "entity," since one company may own or control various stages of the supply chain. For example, Bass footware produces shoes, distributes them through a series of warehouses, and sells them through the footwear division of department and specialty stores. By taking orders from consumers over the Internet (http://www.basstore.net) and drop-shipping directly from the factory, at least two supply chain players—wholesalers and retailers—are eliminated.

(2) Source of the Disintermediation

This second dimension of disintermediation identifies the instigator of the disintermediation. Disintermediation may originate from a manufacturer, such as Celcius (http://www.celcius.com), a manufacturer of jackets and other outdoor items, selling directly to end consumers. It may originate from the consumer. So-called "reverse auction" sites that allow consumers to specify an item they wish to purchase, allowing producers and others to bid on the item. Disintermediation may be instigated by the author or creator of a work, such as Steven King selling his books directly to the public or musician Peter Breinholt selling his music directly to consumers. (http://www.peterbreinholt.com/). On the flip side, the online book retailer Barns & Noble touts the service to "Publish Your Book," encouraging authors to bypass traditional publishers in favor of online publishing. Also, disintermediation may originate from third party aggregators or "buyer's clubs" that link consumers with producers for lower prices.

(3) Perceived Motivation of the Disintermediator

This dimension considers the motivation of the disintermediator who was identified in the prior dimension. It also captures the objective of the disintermediation. Various motivations can be involved in a specific case of disintermediation. Nevertheless, some motivations will tend to dominate. The following are some motivations we suspect will carry weight in many situations:

- **cost reducing** - disintermediation to eliminate (or replace) cost-incurring steps of the supply chain. For example, Dell Computer has been successfully competed in an industry with frequent margin squeezes by eliminating the traditional retail model and instead selling directly to consumers.
- **competitive response –** disintermediation because of the actions of a competitor. For example, the rapid growth of Amazon.com as an on-line bookseller appears to be the major motivation for the Barns & Noble bookstore chain starting to sell books on-line. For Barns & Noble, this was a responsive, albeit somewhat cannibalistic, act.
- **value improving –** disintermediation to provide greater value to consumers, even at the same cost. Another way to consider the success of the Dell on-line model is to see that perhaps their prices are not much better than many brick and mortar retailers, but that Dell offers custom configurations of more state-of-the-art models (experiencing less obsolete or dated inventory).
- **relationship capturing –** disintermediation to form relationships where alliances were not previously possible. For example, Oakley fashion sunglasses can be purchased at retail locations, but can also be purchased on-line directly from Oakley. (http://www.Oakley.com) Oakley usually has no idea who consumers are in retail sales (assuming that there are no product registration cards or that they are not returned). However, the on-line sales directly from the company allow Oakley to gather customer data that may potentially be the best target market they could have (i.e. former purchasers).

This, of course, is not a mutually exclusive list–cases of disintermediation will generally involve a variety of motivations of various weights. The dimension focuses on "perceived" motivation, since in most cases it is opinions that can only be observed through secondary data such as management surveys.

(4) Involvement of the Retailer in Promoting Disintermediation

This paper focuses on retail disintermediation largely because retailers are perhaps the most frequently displaced element of supply chains. Assuming the retailer is displaced, the issue of this dimension is the whether the retailer is ignored, informed, or involved in the disintermediation by the disintermediation. It may also capture whether the actions of the disintermediator are considered friendly or hostile (or neutral) by the retailer.

A retailer-friendly disintermediation appears to be Barns & Noble's shift to online sales. The http://www.bn.com website includes a link for "Find a Store," and the checkout counter of the physical stores includes a display encouraging customers to visit the online store. Clearly, there is an incentive for the physical retailer to help promote the disintermediation.

An example of a potentially hostile disintermediation would be for tool manufacturers to attempt direct sales to consumers, bypassing mega-retailer Home Depot. A letter from Home Depot to various suppliers reportedly stated (Brooker 1999): "It is important for you to be aware of Home Depot's current position on its' [sic] vendors competing with the company via e-commerce direct to consumer distribution. We think it is short-sighted for vendors to ignore the added value that our retail stores contribute to the sales of their products.... We recognize that a vendor has the right to sell through whatever distribution channels it desires. However, we too have the right to be selective in regard to the vendors we select and we trust that you can understand that a company may be hesitant to do business with its competitors." Clearly, there exists a great disincentive for the retailer (Home Depot) to promote disintermediation.

(5) Benefits Assigned to the Retailer

The fact that a retailer is bypassed through disintermediation does not imply that the retailer is given no consideration in the process. In fact, the disintermediator may provide benefits to the displaced retailer for either benevolent or self-serving reasons. In the case of a partial disintermediation, the retailer may be publicized by the disintermediator, as with the Barns & Noble example just described. Another example is Radio Shack's online store, which includes a service to help customers locate a physical store near their home.

Further, the disintermediator may refer customers to the displaced retailer for similar or other product, as with the Barns & Noble case. Complex products that require installation or other support might be best handled by physical retailers. (Hammer 2000) In that case, it can be to the disintermediator's advantage to refer those purchases to the traditional retailer, and focus on low-support products for online sales.

In extreme cases, the disintermediator may actually compensate the displaced retailer for lost business. This, for example, is a consideration of major insurance companies like Metropolitan Life, who would desire to retain good will of sales agents who lose commissions to online insurance services. The insurance company still has an advantage of lower costs through direct sales, but retains the option of interpersonal sales through agents.

(6) Presence of Reintermediation

Just as "disintermediation" eliminates the need for specific elements of a supply chain, "reintermediation" adds new element(s) to the supply chain. In some cases, a new element of a supply chain simply replaces a single displaced element, such as Amazon.com replacing retailers. In other cases, reintermediating entity replaces multiple supply chain elements.

The question of this dimension is whether the disintermediated supply chain was subsequently reintermediated and who is doing the reintermediating. Was the reintermediator an entity that was originally part of the supply chain ("internally reintermediated")? An example is discount stockbroker Charles Schwab, who set up an online subsidiary to compete with the regular business. Or, was the reintermediation accomplished by an entity that is new to the supply chain ("externally reintermediated")? A common example of the latter is "aggregators," which are organizations that gather product information from a number of suppliers and provide consumers with feature and price comparisons. (e.g. http://www.addall.com, http://www.bestbookdeal.com, http://www.pricescan.com, etc.)

(7) Limiting Factors

Finally, we consider those factors which limit the extent to which disintermediation is practical or possible. For example, copyright law may limit disintermediation. Services such as the Naptster peer-to-peer music-sharing network have had a great impact in removing record labels from the music supply chain. Nevertheless, it is clear that in the flagrant violation of copyrights is motivating efforts to reduce or control that disintermediation.

There may be other cases of disintermediation that are governed by legislation other then copyright law. An example of regulation is the distribution of prescription drugs. The potential for drug manufacturers to disintermediate drug retailers is likely to be limited by the strict regulations about the distribution of drugs. Related supply chains may be resistant to disintermediation, not by regulation, but by the safety needs that are met by current supply chain members. For example, there might be cost advantages to disintermediation physicians in the delivery of basic medical advice. Attempts have been made to develop "knowledge bases" of medical knowledge. (e.g. http://www.webmb.com) However, the complexity and variety of medical conditions may lead to safety concerns that may in turn prevent online medical advice from ever being an adequate substitute for physicians.

Outcomes and Research Implications

This taxonomy can be used in future research to analyze the impact various types of disintermediation have on company behaviors and outcomes. We can address important questions about desirable or undesirable consequences of disintermediation. Some issues worth considering include:

- Trust – What types of disintermediation are trust-building, and which are trust-destroying?
- Promotional arrangements – Who will take the lead in promoting disintermediation and restructured supply chains?
- After-sales support – Will re-configured supply chains offer improved or worsened after-sales support than the supply chains that were displaced?
- Substitution of B2B with B2C – Disintermediation may require that business-to-business relationships be replaced with business-to-consumer relationships. What will be required for companies to make the shift?
- and others.

Our taxonomy is a foundation for future research in this area. By better understanding the nature of disintermediation, researchers and managers can better understand its' best or appropriate role in the new economy.

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