Analyzing Market Transformation in the Presence of Internet-Driven Disintermediation: The Case of Online Travel Reservation Providers

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Abstract

This paper proposes a framework for understanding the circumstances under which technological innovations for electronic commerce change industry structures. Initially these changes are to the detriment of traditional product and service providers. However, these players can fight against technological disintermediation. We examine three different scenarios from a long run perspective. The first involves situations in which no traditional or non-technological intermediaries exist. In these settings, upstart electronic intermediaries can interject themselves through innovation. The second is where a single traditional intermediary already is present. The third is a variant on the second, and involves situations where multiple traditional intermediaries form the industry structure. The perspective we propose identifies a recurring pattern of *intermediation* (**I**), *disintermediation* (**D**) and *reintermediation* (**R**) — what we call the *IDR cycle*. It enables us to explain and predict instances of technological reintermediation, where a once-disintermediated player is able to effectively compete again, by combining technological innovation with highly leveragable *co-specialized assets*. We build this perspective through the

analysis of mini-cases in electronic commerce. We also apply our analytical framework to the corporate travel management industry. The framework reveals that travel firms will not be disintermediated in the long run; instead, we expect them to reintermediate themselves into an even more important and value-added role for their customers as corporate travel management consultants.

1. INTRODUCTION

Electronic commerce is “the use of electronic means and technologies to conduct commerce, including within business, business-to-business and business-to-consumer interactions” (Whinston et al. 1997). By enabling new ways of doing business, electronic commerce has the potential to transform the structure of industries, improve organizational effectiveness and increase consumer welfare. Since the characteristics of the new electronic markets are fundamentally different from those of traditional, physical markets, new strategies and business logic are required for sustainable competitive advantage (Rayport and Sviokla 1994; Whinston et al. 1997).

1.1. Competing Views on Disintermediation

Disintermediation occurs when a middleman gets pushed out by other firms, or when the services it provides become irrelevant in a marketplace that offers other ways to get the same kind of transaction done. Malone, Yates and Benjamin (1987) argued that once electronic markets emerge, traditional intermediaries might be threatened due to an “electronic brokerage” or disintermediation effect. This effect might occur simultaneously with the competition among various market participants, who see considerable benefits in becoming "market makers" (Bakos 1991).

The competition among potential market makers can be also studied from the viewpoint of innovation value appropriability. *Value appropriability* refers here to the capability of a firm to capture profits consistent with the nature of the innovations it can achieve in its marketplace. When a technological innovation has a weak appropriability regime (Teece 1987) all industry players will attempt to imitate it. However, in order to appropriate the benefits of their innovation, these players need to develop or acquire *co-specialized assets* or resources (Teece 1987), that, in association with their technology, can not be so readily duplicated by the market at large. Not all the players are able to do this, of course, so disintermediation will occur. Another consequence is the emergence of alliances for market intermediation, as predicted by Malone, Yates and Benjamin (1987) and Bakos (1991).

These important theoretical contributions have not been supported by convincing empirical evidence yet. The evidence from studies that investigate the formation of electronic markets or hierarchies, and disintermediation especially, is still insufficient to conclude whether the electronic brokerage effect will be pervasive. These studies do not attempt to analyze how the market participants change their roles over time. Moreover, disintermediation might never occur, as new roles for intermediaries, such as aggregation, trust provision, facilitation and matching emerge (Bailey and Bakos 1997; Bakos 1998).

1.2. Establishing an Explanatory and a Predictive Mechanism

In the analysis that follows, we will draw extensively on theories of electronic markets (Malone, Yates and Benjamin 1987; Bakos 1991 and 1998), innovation (Teece 1987; Teece, Pisano and Shuen 1997), and investment in technology (Bakos and Brynjolfsson 1993). They inform our understanding of industry transformation in the present and in the future. Along the way, however, we found that they did not go far enough to sort out all the issues. So, we propose several characteristic *intermediation* (**I**), *disintermediation* (**D**) and *reintermediation* (**R**) scenarios, and a framework that we call the *IDR cycle* to explain why we see what we do. Our analysis begins with a consideration of a variety of situations in which intermediation, disintermediation and reintermediation have occurred in association with the emergence of electronic commerce. Once we have established a basis for analysis, we examine the travel industry in greater detail. Since no established theoretical base for reintermediation exists, and since we are also interested in the market structure evolution over time, a case study research approach is appropriate (Benbasat, Goldstein and Mead 1987; Eisenhardt 1989).

We hypothesize that traditional intermediaries such as travel agents – and even the powerful computerized reservation systems vendors, too – might be threatened at first. The threat usually comes from electronic intermediaries, who have the opportunity to capture a growing number of Internet-savvy customers. However, in the long run all the signs point towards reintermediation. By *reintermediation* we mean that process through which a competitor that has once been disintermediated, or pushed out of a profitable market niche as a middleman, is able to re-establish itself as an electronic commerce-able intermediary. To the extent that this kind of reintermediation occurs, we expect it to lead to slightly biased, personalized electronic markets, operated by just a handful of big players. Our analysis also offers insights about the appropriability of electronic commerce innovation benefits in electronic commerce and the business travel industry.

2. BACKGROUND LITERATURE

We next consider the referent literatures that can aid our effort to understand electronic disintermediation and reintermediation. We begin by reviewing the electronic markets hypothesis, and then consider the forces that lead to intermediation and disintermediation in the marketplace. We also consider the resource-based view of the firm and the role of co-specialized assets that support electronic reintermediation.

2.1. The Electronic Markets Hypothesis

As pointed out by a number of researchers, information technology (**IT**) can influence the coordination methods of economic activity. Some of the leading contributions are summarized in Table 2.1.

Authors	Theory/Model	Type of contribution	Findings
Malone, Yates and Benjamin (1987)	Transaction Cost Economics Proposed "Electronic Markets Hypothesis" (**EMH**), "Electronic Brokerage Effect" (**EBE**) and "Electronic Integration Effect" (**EIE**)	Theoretical	Information technology reduces transaction costs, thus promoting the market governance over hierarchical governance (EMH). Electronic markets will be characterized by the elimination of middlemen (EBE) while electronic hierarchies are characterized by tight coupling (EIE).
Bakos (1991)	EMH Economic models of search costs	Theoretical	Electronic markets increase the efficiency of inter-organizational transactions and create opportunities for market intermediation.
Clemons, Reddi and Row (1993)	Transaction costs Proposed "Move to the Middle" hypothesis	Theoretical	IT causes a move to fewer suppliers, contrary to the predictions of EMH, by decreasing the transaction risk, increasing incentives for suppliers and increasing costs and reducing benefits of search.
Bakos and Brynjolfsson (1993)	Technology investments Proposed incomplete contracting models for the optimal number of suppliers	Theoretical	IT promotes a move to fewer suppliers, contrary to the predictions of EMH, due to an increase need for innovation, responsiveness and information sharing.
Hess and Kemerer (1994)	EMH	Empirical (multi-firm, single-industry study)	EMH is not verified in the home mortgage industry
Bailey and Bakos (1997)	EBE/Disintermediation	Empirical (multi-firm, multi-industry study)	New roles for intermediaries in electronic markets emerge.

Table 2.1. Summary of Relevant Electronic Markets Research

Based on transaction cost economics theory, Malone, Yates and Benjamin (1987) point out that IT reduces asset specificity and complexity of product description involved in a transaction. This led them to propose the *electronic markets hypothesis*, which states that more opportunities for market transactions than for transactions conducted in a business hierarchy will emerge in the presence of IT.

However, Hess and Kemerer (1994) found no empirical evidence of a shift towards electronic markets in the home mortgage industry in the 1980s and early 1990s. Their paper points out that none of the major electronic systems in the industry was a pure electronic market. A reason for this outcome is that other factors, such as the complexity and the frequency of transactions, the current market structure or the relative power of buyers and suppliers, may influence the formation of markets or hierarchies.

Moreover, decreasing coordination costs will not automatically increase a company's number of suppliers. Clemons, Reddi and Row (1993) argue that explicit electronic coordination with a limited number of suppliers generates transactional economies of scale. Similarly, Bakos and Brynjolfsson (1993) point out that non-contractible investments by suppliers, such as innovation, responsiveness and information sharing, can be expected only when a company keeps its number of suppliers low and develops long term relationships with them. This is not a surprising conclusion, since even Malone, Yates and Benjamin (1987) posited that the relationships between a buyer and its suppliers in electronic markets tend to make more use of shared databases and processes, and thus become more like electronic hierarchies.

2.2. Intermediation and Disintermediation in Electronic Markets

The change IT produces in the market structure affects market intermediaries as well. Malone, Yates and Benjamin (1987) argued that the IT-mediated market coordination is characterized by the *electronic brokerage effect*, which threatens intermediaries who previously helped out by matching buyers and suppliers. Since the search costs are lowered by the introduction of IT, these brokers are no longer needed. Depending on their market power, they can either be disintermediated or remain in the value-added chain. Along these lines, Hess and Kemerer (1994) also showed how the market power of financial intermediaries in the home mortgage industry enabled them to avoid disintermediation by opposing the introduction of electronic markets.

However, a new intermediation opportunity exists for those industry players capable of providing electronic markets or electronic hierarchies. Not only traditional intermediaries, but also the buyers, suppliers, financial service providers and IT vendors have incentives to become market makers (Malone, Yates and Benjamin 1987). Bakos (1991) hypothesized that complex, large scale, globally distributed intermediaries, formed by industry participants in collaboration with IT companies, will emerge in the "electronic marketplace." Either by capturing dominant market share in a single industry or by becoming electronic market makers across a number of industries, these large intermediaries will be capable of sustaining their competitive advantage by securing economies of scale and scope.

Bailey and Bakos (1997) also emphasize the need for intermediation in electronic markets. Based on an analysis of 13 business-to-business and business-to-consumer firms, they report that IT-mediated markets still need aggregators for one-stop shopping, trust providers, information exchange facilitators and information filtering brokers. The need for matching will be higher in consumer markets characterized by numerous products that are purchased infrequently. While it is true that an electronic communication effect (Malone, Yates and Benjamin 1987) reduces the cost of communication, the same effect also increases the quantity of information to be considered for each supplier. As a result, filtering intermediaries are needed to reduce the information overload (Bailey and Bakos 1997). Another perspective, the "move to the middle" hypothesis (Clemons, Reddi and Row 1993), suggests that industrial markets will be characterized by fewer suppliers and longer term relationships that will require less matching. Therefore, some of the factors hypothesized to affect the governance structure seem to affect the intermediation patterns as well.

2.3. Competitive Advantage in Electronic Markets

Bakos (1991) suggests that even though electronic markets promote price competition and decrease sellers' profits, taking part in an electronic market may become a competitive necessity. He also points out that a new type of competition for

electronic market intermediation is likely to appear. An important aspect of this competition is the appropriability of technological innovations for electronic commerce. A summary of several relevant research contributions regarding these issues is presented in Table 2.2.

Authors	Theory/Model	Type of contribution	Findings
Teece (1987)	Co-specialized resources	Theoretical	Firms can appropriate the benefits from technological innovation if they own the necessary co-specialized resources.
Bakos (1991)	EMH Economic models of search costs	Theoretical	The early mover competitive advantage of electronic market intermediaries depends on the level of capital investment, switching costs and network externalities.
Clemons and Row (1991)	Information technology and competitive advantage	Empirical (single-firm study)	IT investments can help firms gain competitive advantage by enabling technology leadership, leveraging critical resources, building the IT infrastructure and creating switching costs.
Teece (1992)	Innovation Cooperative agreements Complementary assets	Theoretical	Strategic alliances facilitate innovation in regimes of rapid technological change.
Mata, Fuerst and Barney (1995)	Resource-based view	Theoretical	IT is usually an imitable and substitutable resource that cannot sustain competitive advantage. Only unique IT management skills are a source of sustainable competitive advantage.
Chesbrough and Teece (1996)	Innovation Proposed framework for virtual alliances	Theoretical	The level of centralization for innovation should be decided by taking into account the type of innovation (autonomous or systemic).
Duliba, Kauffman and Lucas (1997)	Co-specialize resources Business value of IT Proposed production model for airline performance	Empirical (multi-firm, single-industry study)	Co-specialized assets enable the appropriation of benefits from computerized reservation system networks in the airline industry.
Teece, Pisano and Shuen (1997)	Resource-based view Proposed dynamic capabilities framework	Theoretical	Sustainability of competitive advantage in rapidly changing environments depends on firm's dynamic capabilities, i.e., on its ability to integrate, build and renew internal technological, managerial and organizational processes.

Table 2.2. Summary of Relevant IT and Competitive Advantage Research

As shown by Mata, Fuerst and Barney (1995), IT alone cannot be a source of sustained competitive advantage. However, technology can help leverage some of the critical resources of the firm, such as expertise, and therefore create sustainable competitive advantage (Clemons and Row 1991). Furthermore, Teece (1987) states that a major role in determining a firm's competitive position is played by *firm-specific assets*, which include technology, reputational and relational assets. In addition, a technological innovation requires *complementary assets*. Those firms controlling *co-specialized complementary assets* (i.e., assets that are mutually dependent on the technological innovation) are in a better position to appropriate the benefits of the technological innovation (Teece 1987). An important characteristic of these assets is that they are usually characterized by path dependencies, which make them hard to imitate. Such co-specialized assets can consist of specialized industry-specific expertise, transaction data, and even customers. For example, Duliba, Kauffman and Lucas (1997) show how strong airlines succeeded in capturing the benefits of computerized reservation systems (an imitable resource) by offering the systems to travel agencies (which thus became co-specialized resources).

Apart from securing ownership of the necessary co-specialized assets, Teece, Pisano and Shuen (1997) argue that firms need to renew their organizational skills, resources and functional competences in order to sustain their advantage. This idea

suggests that the present technological innovation is the basis for further innovations, thus becoming systemic (Chesbrough and Teece 1996) and requiring tighter coupling of processes. Since vertical integration might not always be possible, strategic alliances (Teece 1992) are the most appropriate governance structures for innovation for electronic markets. This conclusion is in accordance with the predictions of Malone, Yates and Benjamin (1987) and Bakos (1991).

3. FRAMEWORK

Industry analysts and academic researchers alike predict that one of the core benefits of electronic markets is to lower transaction costs for buyers and suppliers. This, in turn, they argue, is likely to lead to elimination of traditional intermediaries. By contrast, our framework shows the need to consider both short run and long run perspectives, and explains why these scenarios are likely to be very different. We stress that the interpretation that is often given in the literature about disintermediation focuses on the short run. Reintermediation, especially by firms with longstanding commitments to their marketplaces, is likely to occur in the long run.

3.1. Definitions

In this paper we focus on evolving industry relationships among buyers, suppliers and intermediaries. Irrespective of the industry context, we are able to identify three general patterns of interaction between traditional players, depending on the number of intermediaries that connect buyers and suppliers. We will refer to these patterns as the "traditional industry structure," and discuss three different scenarios that we have observed. *First*, in the *no traditional intermediary case*, buyers and suppliers are connected directly. *Second*, in the *single traditional intermediary case*, only one intermediary helps out by matching buyers and suppliers. *Third*, an extension of this is the *multiple traditional intermediaries case*, which assumes that two or more intermediaries are present. This distinction enables us to investigate several examples for each case, and conclude that the same explanation is appropriate for market structure evolution in all these three cases.

We identify three different types of intermediaries, as follows:

- ***Traditional intermediaries***. These are firms that provide matching services for buyers and suppliers in a traditional market. Technology can support the relationships these traditional intermediaries have with their suppliers (as in the case of travel agents, who use computerized reservations systems) or their customers (as in the case of automated telephone banking systems that enable clients to check their credit card or checking account balances).
- ***Electronic commerce-able intermediaries*** (hereafter abbreviated as ***EC-able intermediaries***). These firms conduct business using both traditional methods and online, interactive electronic commerce applications. With the ability to

participate in traditional and electronic commerce, these firms can afford to be opportunistic, biding their time if need be, to take advantage of profit-maximizing opportunities to innovate.

- ***Electronic commerce-only intermediaries*** (hereafter abbreviated as ***EC-only intermediaries***). Firms in this group are typically those that started their business in the electronic environment of the Internet. Today, they are usually reached by their customers almost exclusively via the Internet.

These three types of intermediaries are key elements in the framework that we propose. As we will shortly illustrate, the nature of the changes that occur to the industry structure are driven, in part, by which among the three kinds of intermediaries is present in the marketplace.

3.2. The Intermediation-Disintermediation-Reintermediation (IDR) Cycle

We propose that the temporal evolution of the industry structure in the presence of technological innovations for electronic commerce can be described in three phases: *intermediation* (**I**), *disintermediation* (**D**) and *reintermediation* (**R**). In the *first phase*, intermediation by EC-only intermediaries or other industry players is likely to occur. Such intermediaries fill a gap by providing products and services online. As they begin attracting customers, the market structure evolves to a *second phase*, characterized by disintermediation of the traditional middlemen, if they exist, or by voluntary disintermediation of the EC-only intermediaries. Voluntary disintermediation is possible if the EC-only intermediaries realize that letting other industry players intermediate while becoming technology providers for those players can generate more benefits than simply being a broker in the electronic market. And finally, in the *third phase* reintermediation of the market occurs as traditional intermediaries fight back or as other industry players become EC-able. We call this evolution an *intermediation-disintermediation-reintermediation cycle* — an *IDR cycle* for short — because the process described above can occur repeatedly as new technological innovations are emerging. We argue in the next sections that this IDR cycle characterizes each one of the scenarios presented in our framework.

3.2.1. The "No Traditional Intermediaries" Case

When *no traditional intermediaries* are involved in a transaction, EC-only intermediaries have a chance to capture benefits from those parts of transaction that can be automated. (See Figure 3.1.)

For example, in the case of information products, the whole transaction, including product search, purchase, payment and delivery, can be done electronically on the Internet. However, when the cost of the product is smaller than the transaction cost, the all-in cost becomes prohibitive. In this case, an EC-only intermediary, such as Digital's Millicent system[1] for

[1] For more details about Digital's micropayments system, see www.millicent.digital.com.

micropayments (which issues “scrip” and enables transaction makers to avoid going through a centralized switch for each transaction), can provide the infrastructure for a brokered electronic market. Millicent is intended to assure efficient payment procedures, while the brokers who issue the transaction scrip help to lower the product search costs by aggregation. Since the transaction costs must be kept very low if the system is to function efficiently, the profits of the IT provider will come from selling specialized access software to the market participants. Millicent started out as a unique intermediary, establishing an awareness for micropayments within the Internet marketplace. It then offered to provide technological solutions to potential brokers. Its evolution follows an IDR cycle.

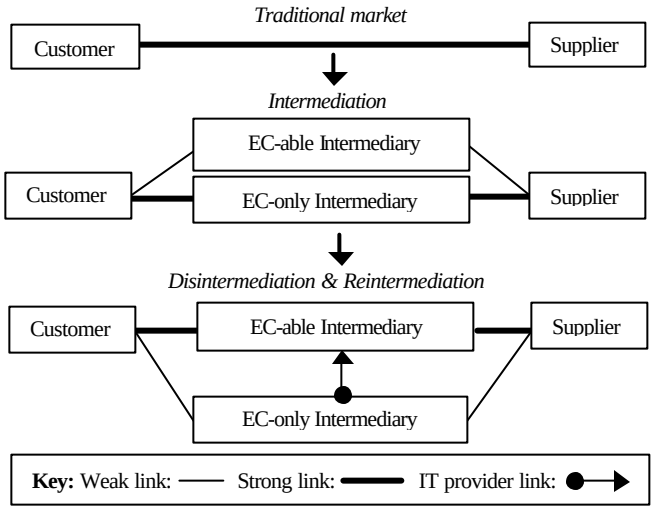

Figure 3.1. IDR cycle,
"No traditional intermediaries" case.

Another candidate for automation is the bill presentment process[2]. In the first phase, intermediaries such as Checkfree (the first true substitute service provider for payments by bank-processed paper checks and postal delivery of bills) and MSFDC (a competing joint venture of Microsoft and First Data Corporation) offer new Internet-based bill presentment capabilities. They are doing so directly to the customer through their web sites, creating awareness and demand for such services, and also establishing themselves as viable aggregator sites for the vendors. This corresponds to the intermediation phase shown in Figure 3.1.

[2] The process of electronic bill presentment is well described by the vendors who offer the services. See, for example, www.checkfree.com for a description of Checkfree Corporation’s "5 B Strategy,” and the role of electronic bill payments and presentment in this context. Information on the Microsoft and First Data Corporation joint venture for the electronic bill payment arena can be found at MSFDC’s web site, www.msfdc.com.

One way an IT aggregator can emerge is by forging an alliance between a former market player (in this case, First Data Corporation) and an IT provider (like Microsoft). This enables the traditional market player to acquire the co-specialized assets necessary for the implementation of the technological innovation. Another way, illustrated by Checkfree's approach, is to use specialized assets for traditional aggregation for building the necessary technical capability. However, sustainable intermediation cannot be achieved by an EC-only intermediary such as Checkfree; unfortunately, bill presentment is not a stand-alone process. Instead, bill presentment is only one of a variety of financial transactions that customers may prefer to conduct with other market players: the banks. The banks, in turn, have a strong incentive to strengthen their relationships with their customers by integrating bill presentment information with financial transaction information for every customer. All these are reasons for EC-only intermediaries to accept voluntary disintermediation, as long as they can become IT providers for the banks. As a result, in the second phase (Figure 3.1), banks reintermediate the market and become the principal EC-enabled intermediaries for bill presentment services, and the major source of revenue for the IT providers. We expect that centralized, IT-provider bill presentment capabilities will still be maintained for those customers whose banks do not offer such services locally. Again, the major characteristics of the IDR cycle can be clearly identified in the case of bill presentment, too.

3.2.2. The "Single Traditional Intermediary" Case

When a *single traditional intermediary* provides aggregation of physical products and matching of customer and suppliers, it might be less costly to provide the same intermediation services electronically. (See Figure 3.2.)

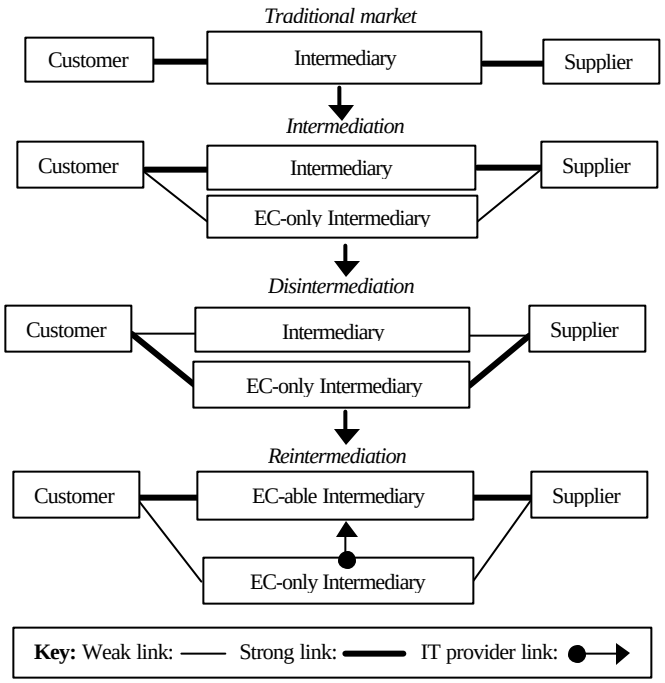

Figure 3.2. IDR cycle,
"Single traditional intermediary" case.

Therefore, in the first phase, EC-only intermediaries will weaken the connections between the traditional intermediary and market participants. However, EC-only intermediaries cannot sustain their first mover advantage if they do not acquire other co-specialized assets apart from technology. It is very likely that a powerful traditional intermediary will be able to imitate the technological innovation of an EC-only intermediary. This will strengthen its links with customers and suppliers even more, while limiting the market share the EC-only intermediary can obtain. Another possible outcome can be the transformation of the EC-only intermediary from a competitor to an IT-provider for the traditional intermediaries, which will enable it to retain the benefits of its technological innovation.

An example of this IDR cycle can be found in the real estate industry. Traditionally, real estate agents mediated the relationship between home buyers and sellers. However, the emergence of electronic commerce applications made intermediation for new providers of online real estate listings possible. Abele Owners' Network[3] is an example of such EC-only intermediary that enabled direct links between homeowners and potential buyers starting May 1996. Disintermediated at first, the traditional real estate agencies were able to quickly fight back. For example, Coldwell Banker[4], a traditional real estate firm that have been affiliated with Sears, realized that providing online listings was not only a strategic necessity given the current evolution of the industry, but also a useful tool for leveraging its industry expertise. Therefore, in February 1997, it started the reintermediation phase by launching an improved web site featuring basic services that any EC-only intermediary such as Abele Owners' Network offers: property listing and searching, financing information, ability to compare mortgage rates, neighborhood information, and email updates. Apart from its extensive database that contains listings not only for the United States, but also for Canada and other international locations, Coldwell Banker also provides services tailored to specific customer needs (such as a personalized intelligent search agent and support from local real estate offices). This focus on customized services and advice is likely to enable Coldwell Banker to successfully combine its industry expertise with the new technologies for electronic commerce. As a result, this traditional intermediary is likely to become even more powerful than it was before the IDR cycle took place.

3.2.3. The "Multiple Traditional Intermediaries" Case

When *multiple traditional intermediaries* are involved in the transaction, a more complicated IDR cycle may occur, because each one of the intermediaries can be disintermediated by the existing or new players who take advantage of the technological innovations for electronic commerce. (See Figure 3.3.)

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[3] A complete description of the online services offered by Abele Owners' Network can be found at www.owners.com.
[4] For more details, see the company's web site at www.coldwellbanker.com

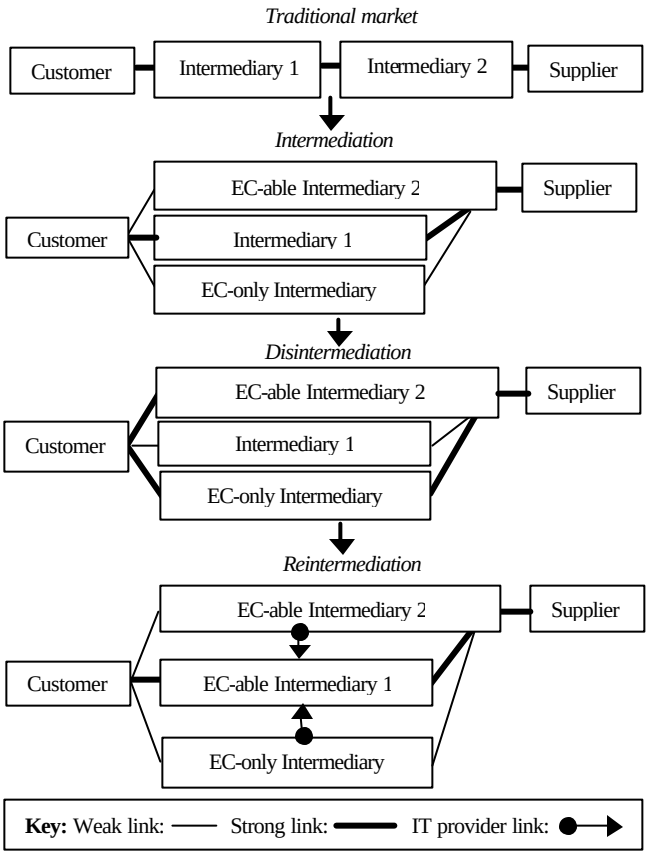

Figure 3.3. IDR cycle,
"Multiple traditional intermediaries" case.

These new intermediaries will either try to maintain their position or transform themselves not only into IT providers, but also into information and physical products aggregators. At first, intermediation is more likely to be detrimental to those traditional intermediaries that are situated close to the customers (such as Intermediary 1 in Figure 3.3.). However, as these traditional middlemen fight back and reintermediate, the EC-only players are likely to expand and threaten the other intermediaries (such as Intermediary 2 in Figure 3.3.) as well.

For example, the bill payment process traditionally involves the customer's and supplier's banks, as well as an electronic data and funds transfer network. Traditional members of this network emerge as EC-only intermediaries in the first phase. They do this either alone, as in the case of Checkfree, or in partnership with an IT-provider, as we saw in the joint venture between First Data Corporation and Microsoft. However, banks deliver the most observable value to the customers, since they integrate all their customer's financial transactions. The customers will have more incentive to access the online financial services of their bank, than to go to a web-site specialized only in one type of service. Therefore, in the second phase, the EC-only intermediaries will become primarily IT-providers for banks and data aggregators for all the market participants. Since the majority of the bills one customer receives are likely to be local, it may be more efficient for the data aggregating

intermediaries to organize into a network of competing intermediaries, rather than to try to capture the whole national market. The latter situation is similar to what happened with automated teller networks in the United States during the 1980s.

Another illustration of the IDR cycle in the *multiple traditional intermediaries case* involves online bookstores. The Internet start-up Amazon.Com enjoyed its short-lived first mover advantage as an online bookseller only until a traditional player, Barnes and Noble, decided to develop its own web site and imitate all the functionality of Amazon.Com's site. Due to the large existing market share of traditional consumers and its specialized assets (physical store outlets), Barnes and Noble is able to appropriate the benefits of this technological innovation in a manner that Amazon.Com cannot match. Moreover, Barnes and Noble is able to leverage its resources and imitate quickly all the other technological innovation that any EC-only competitor might introduce, such as the creation of an affiliate network.

Because Amazon.Com cannot compete as a bookseller based solely on the merits of its technological innovations, it plans to develop co-specialized assets such as warehouses, which will enable it to compete against the wholesalers (Bianco 1997). Moreover, Amazon.Com has already started to expand its business and offer not only books, but also CD's for online purchase. These decisions are likely to start other IDR cycles involving wholesalers and music stores as traditional intermediaries, and possibly lead to value-added alliances for electronic commerce that Amazon.Com is uniquely positioned to create.

3.3. Framework Analysis: Conditions for Reintermediation

We have seen in the previous sections that market structures are likely to evolve as technological innovations for electronic commerce are implemented. Irrespective of these traditional structures, this evolution follows a sequence of intermediation, disintermediation and reintermediation phases, the *IDR cycle*. Since the causes for intermediation and disintermediation have received a lot of attention in previous research, we focus in our analysis only on the conditions for reintermediation.

We hypothesize that reintermediation can be explained by:

- weak appropriability of technological innovations for electronic commerce;
- ownership of co-specialized assets for both market intermediation and technological innovations for electronic commerce; and,
- economies of scale.

First, reintermediation is likely to occur when the technological innovations for electronic commerce can be imitated by other firms. An innovation's weak appropriability can be further amplified by the independence of electronic commerce applications on the customers' installed software and hardware base. As long as the electronic commerce applications reside on

the intermediary's web site, the switching costs are almost zero, since the same browser software can be used to access a variety of web sites. Therefore, relying only on technology cannot be a source of sustained competitive advantage for firms doing business on the Internet. This is usually the case for first movers (such as Amazon.Com or Microsoft Expedia), who implemented the technological innovation but had limited industry expertise.

Second, if traditional intermediaries already exist in the value chain, they have significant co-specialized assets already: their expertise, customer base and well-developed relationships with the suppliers. It is very likely that EC-only intermediaries will find it hard, if not impossible, to acquire the necessary co-specialized assets. For example, as long as the actual level of profits to be obtained from electronic commerce is uncertain, the suppliers will probably maintain the traditional intermediaries as their preferred distribution channel. Another reason that might prevent a supplier from developing a strong relationship with an EC-only intermediary is the supplier's desire to handle the electronic orders from customers by itself, and not through an intermediary. Moreover, many of the co-specialized assets that traditional intermediaries own were built over long periods of time and have path dependencies (Teece, Pisano and Shuen 1997). Thus, it is very unlikely that an EC-only intermediary will be able to develop them quickly.

However, traditional intermediaries cannot afford to rely too much on their pre-existing assets and not adopt the technological innovations for electronic commerce. If they want to stay in the game, they need to start the reintermediation process as quickly as possible, in order to prevent EC-only intermediaries from acquiring or building their own co-specialized assets.

Even if a traditional intermediary has all the necessary co-specialized assets for market intermediation, it might lack those related to the development of electronic commerce applications. In this context, investing in technologies for electronic commerce becomes a strategic necessity, as predicted by a number of researchers. In order to be prepared for reintermediation, a firm can either develop the requisite technologies by itself or acquire them from existing IT providers. In both cases, the idea is to rapidly put into proximity to one another the co-specialized assets necessary to appropriate the benefits of participating in an electronic market.

Third, EC-only intermediaries are unlikely to succeed in the marketplace if they are unable to achieve economies of scale. On the other hand, some traditional intermediaries have probably already achieved economies of scale in the traditional market, and can use this advantage to leverage their reintermediation attempt.

Our framework also suggests that one of the ways EC-only intermediaries can maintain their first mover competitive advantage is to become technology providers for the traditional intermediaries, if they exist, or for suppliers and customers if

the traditional market structure does not contain intermediaries. As a result, these EC-only intermediaries may welcome reintermediation, but only if they are in a position to benefit from it themselves and not be disintermediated entirely by other players. In such situations, broad agreement in the marketplace about whether a technology provider's solutions have reached critical mass or become a *de facto* standard is critical.

4. FRAMEWORK APPLICATION: THE CORPORATE TRAVEL INDUSTRY

Is the IDR cycle that we propose explanatory of observed changes in industry structure in association with the emergence of electronic commerce on the Internet? Do the conditions that we hypothesize for reintermediation provide explanatory power for some of these changes? Can they adequately interpret developments in a specific industry? We investigate these questions in the context of an in-depth analysis of the managed corporate travel industry. This industry provides a useful starting point for analyzing the variant forms that disintermediation takes on, as well as the kinds of responses that are emerging in a marketplace characterized by innovation and business reinvigoration. We think this kind of analysis can provide useful insights about the hypothesized changes in the market structure created by electronic commerce technologies.

4.1. Reinventing the Travel Industry: Background and Technological Innovations

Travel and entertainment are known to be the third largest controllable expenses in a large business organization. At present about 89% of U.S. companies rely on one or more travel firms to manage these expenses (American Express 1997). The services provided by travel management firms include obtaining lower fares, enforcing travel policies that save money, providing statistics and reconciliation reports for control improvement, and offering travel management consulting to ensure that the right kind of travel mix (relative to industry norms) is being observed. Because of low satisfaction levels with basic travel agency services and escalating travel costs, 72% of U.S. companies have switched travel agencies in the last two to three years (American Express 1997). As a result, both travel agencies and their customers have a vested interest in finding new ways of improving the quality of service and overall satisfaction levels.

One of the technological innovations hypothesized to decrease costs for both customers and travel agents and to improve the travel management process is online booking via the Internet. Forrester Research predicts that in the year 2001, online corporate travel ticketing will represent 15% of the total sales, generating nearly $5.3 billion in segment revenue (Hardie, Bluestein, McKnight and Davis 1997).

There are several reasons to believe that such a substantial increase in the volume of online bookings is possible. Many companies see automated booking tools as a way of cutting their travel and expense management costs due to reduced commissions, strictly enforcing company travel policy, and obtaining real-time, accurate reporting and timely reimbursements.

Companies also hope that online booking will reduce the time required to make travel arrangements and increase business travelers' satisfaction. Full automation of bookings can considerably decrease the reservation processing time and cost for travel agencies, too. Moreover, it can free up agents from routine business travel reservation processing and enable them to concentrate on value-added travel and expense management.

As leaders in the industry recognize, this new technological innovation will enable (and most probably, require) corporate travel agencies to reinvent themselves. Travis Tanner, president and CEO of Carlson Wagonlit Travel, the second largest US travel agency, comments:

> *"Our client companies no longer want, or need, a travel agency. They want a travel partner — a company that can help them create business solutions leading to shareholder value." (Travel Industry Association Marketing Outlook Forum, 1997)*

If Tanner is correct, the real challenge lies in making sense of the current landscape of the corporate travel industry with an eye on the future: how the various trends associated with technological innovation in electronic commerce will bring new, but predictable industry transformation.

4.2. The New Online Business Travel Product Marketplace

The market structure in the *multiple traditional intermediaries case* from the previous section can be used to describe the traditional corporate travel industry structure. The various key industry players can be mapped to the roles identified in our framework: companies having travel management needs (Customers); airline, hotel and car rental companies (Suppliers); travel agencies (Intermediary 1); and computerized reservation systems (Intermediary 2). As the reader will shortly see, traditional and new intermediaries and even suppliers are trying to obtain sustainable competitive advantage by acting as the providers of technical solutions for personalized electronic markets for customers.

At present the structure of corporate travel industry is already evolving due to the introduction of online travel management applications. A previous shock, the 1978 airline industry deregulation, changed the roles of the travel agents from ticket distributors and advice providers to managers of travel purchases (Clemons and Row 1991). The emergence of electronic commerce will transform them once again, from travel managers to travel consultants. This "next generation" transformation is likely to follow the IDR cycle that we described in the prior section. Thus the traditional travel agents, including some of the biggest names in the business, may find themselves disintermediated by new players. However, they are in a defensible position, in our view. They have the means to fight back and reintermediate themselves. At the same time, they can consolidate their position as providers of value-added services for corporate clients.

The primary recent technological innovation in the managed corporate travel is the use of Internet-based tools for automatically searching the airlines' computerized reservation systems (**CRSs**) databases without the intervention of a human travel agent, and then booking the ticket electronically. According to industry participants and observers who have conducted preliminary in-house studies, this innovation can decrease dramatically the "end-to-end" transaction costs.[5] Currently, the predicted savings from online booking and electronic ticketing are between $15 and $20 per ticket (Berger 1998). Therefore, these considerable savings for managed corporate account travel transactions offer a strong incentive for the emergence of *EC-only travel agents*, as well as for implementation of automated booking systems by traditional travel agents themselves. The corporate customers also indicate a strong desire for online travel and expense management tools. On average, 27% of the 1,200 companies included in the American Express survey indicated that they would like to use online services. This trend is even more pronounced for companies with high (over $5 million) spending volumes (American Express 1997).

Although all of the top five corporate travel agencies have developed or purchased online travel management systems (Table 4.1), their use is not yet widespread among corporate customers. It is interesting to point out that at present, about 75% of all online revenues come from bookings done on only six online sites: AXI (American Express Internet), Expedia, ITN (the Internet Travel Network), PreviewTravel, Travelocity and TravelWeb (Travel Weekly 1998). Among these, just one, AXI, is owned by a traditional travel firm, American Express Travel Related Services. Clearly, significant opportunities for joint ventures, partnerships and acquisitions must still exist.

Travel Firm Name	Online Products (Source)	Business Travel (% of total volume)	1997 Airline Sales
American Express	AXI (Microsoft)	N/A	$7.9 billion
Carlson Wagonlit Travel	SoloAct (Sabre BTS, others)	70%	$3.2 billion
BTI Americas	Portico (proprietary, Sabre BTS)	75%	$2.1 billion
Rosenbluth Travel	E-Res (proprietary, Sabre BTS)	95%	$2.1 billion
Maritz Travel	Multi-CRS booking system (proprietary, Sabre BTS)	95%	$1.3 billion

Table 4.1. Top 5 United States travel agencies and their online travel products (Sources: Travel Weekly 1996 and 1997, Business Travel News 1997)

[5] Personal communications with Darcy Howley, Finance Manager of Business Development and Marketing (Americas), and Robin Schlein, VP of Marketing (Americas) of Carlson Wagonlit Travel, March 1998. Their comments pointed out the importance of a "FAST" approach, however; to reap the operational benefits, end-to-end processing must be achieved so that transactions are processed in a "fully automated and straight through" manner. Any non-electronic handoffs within the process may lead to costs higher than manual costs.

4.3. Framework Application: Temporal Analysis of Industry Evolution in Managed Corporate Travel

Electronic travel services innovations are likely to change the industry structure and lead to the emergence of a few big players who will control the majority of online bookings. The timeline presented in Tables 4.2 and 4.3 illustrates this point. We selected for this analysis five representative industry players who are active in the electronic commerce arena: two EC-only intermediaries and technology providers (ITN and Microsoft), a CRS (SABRE), and the top two largest U.S. travel agencies (American Express Travel Related Services and Carlson Wagonlit Travel).

The first EC-only player in the corporate travel industry was ITN, the Internet Travel Network. ITN began to offer an online, automated booking system in July 1995. ITN intended from the beginning to be the leader in the online products market. Even if the major travel agencies were already experimenting with different versions of desktop products or travel services based on electronic mail, these products still required the intervention of a travel agent to search for flights and make the reservation. Only ITN's innovation enabled travelers to connect directly to a CRS and search and book flights in real time. Since its first intermediation action in 1995, ITN pursued a strategy of continuous innovation, by improving and expanding its products. Apart from growing its corporate customer base, ITN also established connections to all the major CRSs, and formed alliances with SystemOne/Amadeus and most recently, with Galileo International, for development of interactive travel products. These partnerships can be viewed as attempts to acquire co-specialized resources in the form of a supplier relationship. Indeed, if ITN is able to offer seamless integration with various CRSs, it will gain competitive advantage over other players who provide connections to only one CRS. ITN also positioned itself from the beginning as a technology provider, offering private-label reservation systems to travel agencies and corporate travel departments.

As ITN expanded its corporate customer base, it found itself unable to provide all the services required by clients. As a result, ITN's clients needed to rely on these traditional travel agencies for everything except online booking. ITN's strategy was to send the reservations for ticketing to customer's preferred travel agency, charging this agency for its electronic brokerage services. Therefore, along with driving more of their customer traffic through its web site, ITN was also costing traditional travel agency electronic brokerage fees. Given their market power, the traditional travel agencies could not have been completely disintermediated, but they certainly felt that an EC-only intermediary such as ITN could weaken their relationships with their customers. It was therefore very clear for the competing agencies that they would be disadvantaged if they did not invest in online travel technologies.

Date	ITN	Microsoft	SABRE	American Express Travel Related Services	Carlson Wagonlit Travel
1st quarter 1995				• Launched ExpressNet, an interactive travel service, on America Online	
2nd quarter 1995	• Started to offer online airline booking capabilities through the Apollo CRS.		• Announced intention to develop online booking products		• Introduced desktop product that enables corporate customers to send booking requests electronically to the agency
3rd quarter 1995			• Deployed Travelocity online travel reservation system in partnership with WorldView Systems		• Offered hotel directory in electronic format to corporate clients • Established a marketing and advertising Internet site
4th quarter 1995					
1st quarter 1996	• Deployed a private label reservation system for American Express	• Partnered with the Worldspan CRS for developing a front-end online booking application		• Unveiled a prototype Email-based booking system • Began allowing customers to book airline reservations through its web site developed in collaboration with ITN	
2nd quarter 1996	• Obtained $4.2 MM in private funding • Added online car and hotel reservations through the Apollo CRS • Deployed booking system for Charles Schwab's in-house travel agency			•	• Began marketing ActOne, a new suite of Windows-based, integrated travel management applications • Opened a North American business travel site on the Internet, but announced that it will not offer Internet bookings
3rd quarter 1996	• Deployed private-label reservation system for Stanford University • Launched Internet Travel Manager, a full-service, customized Internet travel booking and management product for corporate clients		• Formed partnership with leading airlines, hotel and car rental companies for developing a new corporate travel management software suite, SABRE Business Travel Solutions (BTS)	• Announced alliance with Microsoft for providing online travel services	• Ken Swanton, executive vice president of its leisure and associates (franchise) division, left to become chief executive officer of ITN
4th quarter 1996	• Offered access to all four major CRSs • Formed alliance with System One/Amadeus for offering interactive booking capabilities • Deployed a reservation system for Global Discount Travel Services, LLC • Started pilot program for online reservations with Texas Instruments	• Started offering online travel bookings on its Expedia site through the Worldspan CRS • Developed booking site for Northwest Airlines		• Announced smart card pilot test for electronic ticketing	

Table 4.2. Evolution of traditional and online travel services in 1995 and 1996
(Source: Business Travel News 1995-1998, Travel Weekly 1995-1998)

Date	ITN	Microsoft	SABRE	American Express Travel Related Services	Carlson Wagonlit Travel
1st quarter1997	• Released a corporate policy-compliant low-fare search module for Internet Travel Manager • Started deployment of booking system for the corporate travel office of VeriFone Inc.	• Reached $1 million in travel reservations for a seven-day period. • Deployed online booking system for Northwest airlines		• Announced that it will handle the reservations made on Travel Channel Online	
2nd quarter 1997	• Launched Outtahere, a travel content and reservations site available for private-label distribution, in partnership with Worldview Systems Corp. • Deployed a travel booking service for CNN Interactive • Signed WorldBank , an American Express customer, for online booking services	• Unveiled the AXI corporate travel reservations system, jointly developed with American Express		• Started beta-testing of AXI (American Express Interactive, previously known as Rome) online reservation system, developed in partnership with Microsoft	
3rd quarter 1997	• Started sharing products with Pegasus Systems, the leading provider of global hotel distribution technology solutions • Received $6.5 MM private funding • Announced roll out of Texas Instruments corporate booking system.		• Deployed an end-to-end booking system for Charles Schwab, who decided to phase out the ITN system • Announced a strategic alliance with Maritz Travel Co., America's fifth largest travel management firm, to provide SABRE BTS to Maritz' corporate clients.		• Partnered with MasterCard to pilot-test a corporate smart card with ticketless travel feature • Teamed up with Captura Software to develop upgraded version of the expense management software included in the ActOne suite
4th quarter 1997	• Announced 3 M registered users and 50% revenue increase	• Announced agreement to use Pegasus Systems' hotel reservations processing services			
1st quarter 1998	• Entered strategic alliance with Galileo Int'l, one of the leading providers of electronic global distribution services for the travel industry, for developing corporate travel solutions • Deployed booking system for United Airlines • Added Chevron Corporation on its corporate client list	• Launched Expedia Travel Network, a one-stop travel shopping mall offering vacation packages, cruises, resorts and travel merchandise from many leading suppliers. • Launched the Expedia Associates Program, which links the travel booking engine of Expedia.com into participating members' web sites through a co-branding agreement	• Signed BTI Americas and Carlson Wagonlit Travel, two of the largest U.S. travel agencies for its online travel management tools • Deployed travel booking systems for Computer Associates, USAA and Phillips Petroleum • Implemented Internet connection to the SABRE CRS for small and remote-access travel agencies • Introduced the Travel Planner module for Lotus Notes, the automated booking tool that runs on its SABRE BTS corporate travel management system.	• Announced that AXI was rolled out for 70 corporate clients, and that about 200 clients are expected to use the AXI system in 1998	• Added SABRE BTS to its online services

Table 4.3 Evolution of traditional and online travel services in 1997 and 1998
(Source: Business Travel News 1995-1998, Travel Weekly 1995-1998)

The timeline depicted in Tables 4.2 and 4.3 for the five selected firms enables us to identify two reintermediation strategies: alliancing and portfolio partnering. By *alliancing reintermediation strategy*, we mean the decision to develop all the necessary electronic commerce applications jointly with only one technology provider. For example, American Express Travel Related Services adopted such an alliancing strategy. At the beginning of 1996 it acquired a private-label reservation system from ITN. This partnership did not last long though. As American Express realized, sustainable competitive advantage could not be achieve by using a product that ITN was basically offering to any travel agency. So later, American Express secured an exclusivity agreement for a short-term partnership with Microsoft in the third quarter of 1996, and started developing its own travel and expense management system. This agreement enabled American Express to acquire the most needed technology assets and combine them with its own industry expertise assets for assuring the success of its online product, AXI.

By contrast, Carlson Wagonlit Travel adopted a slightly different strategy of *portfolio partnering* in the winter of 1998. By *portfolio partnering reintermediation strategy*, we mean the decision to work with a number of technology providers, who are each responsible for developing one component of the electronic commerce product. This strategy makes it possible for Carlson Wagonlit Travel to continue the in-house development of its ActOne suite of travel and expense management applications with help from several technology providers. On the one hand, this strategy also enables Carlson Wagonlit Travel to gain access to more varied technologies. On the other hand, keeping the number of providers low encourages responsiveness and innovation.

The actions of two other players, Microsoft and SABRE, are also relevant for our analysis. By competing head on with ITN, the first mover, these players have created a favorable environment for reintermediation. Microsoft and SABRE both had significant systems development experience, and it was not very difficult for them to build systems that imitated ITN's travel management products. Microsoft acted opportunistically, waiting to determine that significant benefits could be obtained in the online arena, and then started offering its services directly to customers (through its web travel agency, Expedia), intermediaries (American Express) and suppliers (Northwest Airlines).

SABRE, an experienced travel industry provider, entered the interactive travel services market with a suite of products called SABRE Business Travel Solutions (SABRE BTS) targeted to both travel agencies and clients. One of SABRE's advantages, which seem to be paying off at present, was its significant experience with the major computerized reservation system used by U.S. travel agencies. SABRE and Microsoft are similar in that these two players have quickly overcome their late-entrant disadvantage. In fact, both have begun to attract some of ITN's former clients. SABRE's success is quite

remarkable: it now provides the online booking and expense management technology for four out of the five largest U.S. travel agencies (Rosen 1998).

As we can see from the timeline in Tables 4.2 and 4.3, ITN was always the innovator that triggered the *IDR cycle* of intermediation, disintermediation and reintermediation. However, ITN never had enough power or industry experience to cause complete disintermediation of the traditional travel agencies analyzed here. Moreover, these traditional intermediaries seem to be able to reintermediate successfully once they form alliances with powerful technology providers.

4.4. Discussion and Interpretation

Our framework identifies three major reasons why the first mover cannot sustain its competitive advantage, and why the traditional intermediaries are very likely to establish themselves as EC-able intermediaries. In the following we will show that the general explanations provided in this framework also hold in the case of corporate travel industry.

First, the innovation of the first online mover can be imitated easily by either technology providers (such as Microsoft, the developer of Expedia) or CRSs (such as SABRE, the developer of Travelocity and easySABRE). The appropriability regime of the innovation is weak because the EC-only travel agents provide only basic services, such as search, reservation, and sometimes even rely on traditional travel agencies to actually complete bookings and deliver paper tickets.

Second, EC-only agencies do not possess the co-specialized assets that will enable them to integrate travel data from online and traditional bookings, or to negotiate effectively with suppliers. Moreover, relying on another party for actual reservation and ticketing results in an incompletely automated business process that guarantees that there will be shortcomings in the perceived value for the customer that signs on to such a service. This may expose online travel agencies to a competitive disadvantage in comparison to traditional travel agencies. The latter, in addition to their travel reporting and management expertise, can also develop or acquire technological assets for online booking and potentially offer fully integrated services to their customers. Currently, all of the top five travel agencies offer various forms of online travel and expense management tools, so no significant competitive advantage can be gained from being an online vendor. (See Table 4.1 above.)

Third, EC-only travel agencies are unlikely to lure a sufficient number of clients to use only online services and, therefore, may be unable to achieve sufficient economies of scale. Only big, traditional players (e.g., Rosenbluth Travel, Carlson Wagonlit Travel and American Express Travel Related Services) have the power to test their innovations on a large enough scale to hope to achieve critical mass in the marketplace.[6] For example, the total number of corporate clients that book

[6] This is similar to what we see in other rapidly developing arenas for electronic commerce. These include electronic brokerage services, electronic bill payment and presentment services, Internet initial public offerings of stock and electronic auctions on the Internet.

through ITN is much lower than the numbers American Express, the largest U.S. travel agency, reports: 70 clients already use American Express' online services, and almost 200 are predicted to book online by the end of 1998 (Welt and Meyer 1998; Jones 1998). Moreover, nothing prevents some of an EC-only intermediary's clients to switch to other online travel services providers. For example, Charles Schwab began phasing out the ITN travel management system in favor of Sabre BTS, only after one year of use.

5. CONCLUSIONS

Technological innovations for electronic markets are becoming a very important element in the competitive environment of various industries. Our framework emphasizes the need to analyze the long-run impact of such innovations on the evolution of industry structure and on firm-level competitive strategy. We proposed the *intermediation-disintermediation-reintermediation cycle* (**IDR cycle**) as a general, industry-independent explanatory and predictive mechanism that can be used to understand why and how changes in industry structure occur in the presence of innovations for electronic commerce. This enabled us to argue that traditional non-technological middlemen will be able to reintermediate in the long run, and even strengthen their position in the market as *electronic commerce-able intermediaries*.

We also pointed out that reintermediation is explained by characteristics of the technological innovation, such as appropriability, and characteristics of the intermediary itself. Most importantly, the types of assets that the intermediary already has in a traditional market, and its ability to reconfigure them in the electronic commerce-enabled marketplace will determine how well the reintermediation will succeed.

Our framework also identifies the crucial role for agreements between traditional intermediaries and IT-providers that lead to reintermediation. These agreements are usually non-exclusive on both sides, thus creating the potential for a very complex industry structure. In accordance with the "move to the middle" hypothesis of Clemons, Reddi and Row (1993), these non-exclusivity agreements are an outcome of a rapidly changing technological environment in which none of the players can depend on only one IT-provider without bearing undue technological risk. Another explanation for such agreements, based on a perspective offered by Bakos and Brynjolfsson (1993), is that non-contractible investments made by IT-providers in innovation and information sharing are very important for firms that want to succeed in the managed corporate travel business.

Finally, our application of the IDR cycle framework to the managed corporate travel industry was helpful in allowing us to explain and interpret its observed evolution and to make useful predictions about how reintermediation of the traditional travel agencies will occur. Our framework, in contrast to the work in the existing literature, distinguishes between short and long run scenarios. As a result, we predicted that *electronic commerce-only travel agencies* soon will become the IT-providers

of choice for traditional travel agencies. This will enable such firms as ITN and Travelocity to maximize the appropriability of business value for their online booking innovations, by placing them in proximity to the co-specialized assets of the traditional travel agencies.

Further research is needed in order to extend the framework proposed in this paper. Given the exploratory nature of our present attempt to build theory, a single industry evaluative case study seemed appropriate to start. Particularly useful insights can be obtained from studying whether systemic innovations can be described using our intermediation-disintermediation-reintermediation cycle. Another very fruitful avenue of research is to conduct an empirical test across multiple industries using a conceptual model of the intermediation-disintermediation-reintermediation cycle. Such a test is likely to provide more evidence about the recurring patterns of market evolution and competitive behavior in various industries. Another equally valuable off-shoot of the current work is to develop an analytical model describing the market entry of the disintermediating firm and the response of the disintermediated firms.

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