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Burt and Coleman Networks in Electronic Intermediation

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BURT AND COLEMAN NETWORKS IN ELECTRONIC INTERMEDIATION

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Abstract

Two predominant network forms, Burt and Coleman, are delineated to identify the underlying structure and dynamics of electronic intermediation models. Basic differentiating characteristics between the two network types, including nodes, structures, products, transactions, market maturity, and technology improvement, are identified. Two comparative cases are analyzed to illustrate the utility of the constructs. The analysis shows that while both Burt and Coleman networks are viable strategies for electronic intermediation, Burt rents are easier to obtain and difficult to maintain, whereas Coleman rents are more difficult to obtain, but easier to defend. Accordingly, we find a tendency for intermediaries in Burt networks to attempt to affect Coleman rents as a long-term strategy.

Keywords: Supply networks, electronic intermediation, rent creation

Introduction

According to a study from the Internet research site Webmerger.com, nearly 900 Internet companies have shut down or declared bankruptcy since January, 2000 (Figure 1). The large shakeout in the Internet sector has lead practitioners to rethink their e-business operations and question the network value provided by new business models. Many researchers are attempting to address this current concern of practitioners. Their studies can be divided into three streams. One stream tries to provide concrete evidence of the value created by e-business (Barua 2001). The second stream focuses on the business strategies that e-business firms can adopt (Zott et al. 2000). The last one embraces the most recent studies in this field that intend to determine the underlying reasons of their failure as well as revised models (Grieger 2003; Gulledge 2003). None of these perspectives, however, addresses the structural context that makes traditional firms more inclined to use e-business, especially e-intermediaries. We believe that context plays an important role in our understanding of firm needs and opportunities for e-intermediaries, as network context can create different requirements for integration, collaboration, and profitability.

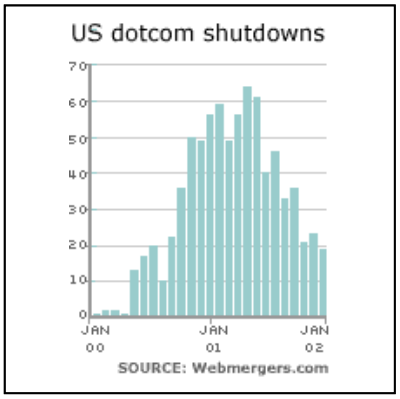

Figure 1

E-intermediary is a common name for many types of e-business, such as business-to-business, business-to-consumer, and consumer-to-consumer. We focus our current discussion on the interfirm networks, or so called B2B intermediaries. This study attempts to address the following three research questions: (1) What predominant network structures underlie business models of electronic intermediaries? (2) What are the defining characteristics of these structures and how do they differ? (3) What capabilities will electronic intermediaries need to be profitable in these networks?

The paper is structured as follows. The first section describes the theoretical foundations and the network structures. The next section introduces two case studies that illustrate the concepts. The cases are concluded with research results and analysis.

Theory

Network theory provides us with a novel perspective of how organizations choose their alliances (Gulati and Gargiulo 1999), how organizations obtain information and resources they need to build their competitive capabilities (McEvily and Zaheer 1999), and why organizations are reluctant to adapt when facing environmental changes (Gargiulo and Benassi 2000). The two overarching constructs of this analysis are *network structure and configuration* and *market maturity and IT improvement*. These two meta-constructs determine the *demand for*, and *capabilities of*, electronic intermediaries (Figure 2).

Network Structure and Network Configuration: Prior research on networks has identified different network types based on different perspectives. From the perspective of who is in the network, networks can be divided into vertical vs. horizontal networks (Ahuja 2000b; Baum et al. 2000; Dyer and Nobeoka 2000). From the perspective of rent generation and accrual, it can be divided into Burt type and Colemn type (Kogut 2000). From the perspective of structural embeddedness, it can be divided into centralized vs. decentralized, or dense vs. sparse networks (Gulati and Gargiulo 1999; Gulati et al. 2000). Since our current research interest is to identify the characteristics of different network structures and their effects on rent generation, we will divide network structures into two types: loosely coupled networks with many structural holes, and tightly coupled network with redundant ties. We identify the two kinds of rents associated with either loosely coupled or redundant ties, as Burt and Coleman rents, respectively, based upon the structural patterns recognized by prominent networking sociologists Ron Burt (1992) and James Coleman (1990). We argue that network configurations are best characterized by the partners (node characteristics), the products or services flowing through (product characteristics), and the nature of transactions between parties (transaction characteristics). These are further delineated in subsequent sections.

Market maturity and *IT improvement* describe the general maturation level of the market segment and the overall level of technology infusion in the industry. Research has shown that firms are hesitant to use e-intermediaries for fear of opportunistic behavior, despite the fact that monitoring mechanisms can effectively reduce such threats (Dyer and Nobeoka 2000). Mature markets are increasingly transparent and competitive. High market maturity may not reduce product variety, but it will increase product availability and reduce product scarcity. Therefore, it will reduce the firm's dependence on electronic intermediaries and increase the firm's tendency to build direct connections. Technology improvement will play the same moderating role, as it will either reduce the search cost of parties directly or reduce the entry barrier for other e-intermediaries to come into the market.

Figure 2 illustrates the research model used here.

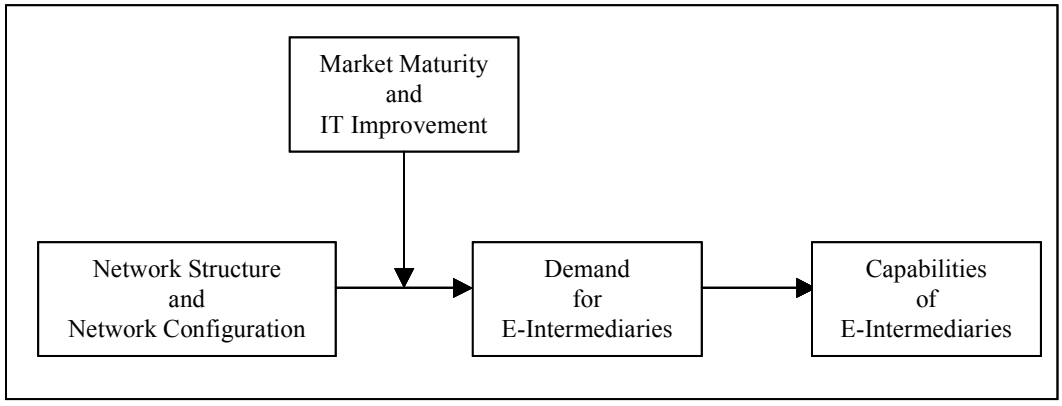

Figure 2. Research Model

Networks with Structural Holes: Antecedents of Burt Rents

Structural holes are gaps in information flows between network nodes. If e-intermediaries can identify the existance of structural holes in a network, they can design their business model to occupy the ego position, or to bridge the structural hole (Figure 3). The occupation of the ego position in a network rich in structural holes implies access to mutually disconnected partners and, consequently, the opportunity to aggregate many distinct information flows (Ahuja 2000a). E-intermediaries then can earn profit from their ego position, a so-called Burt rent.

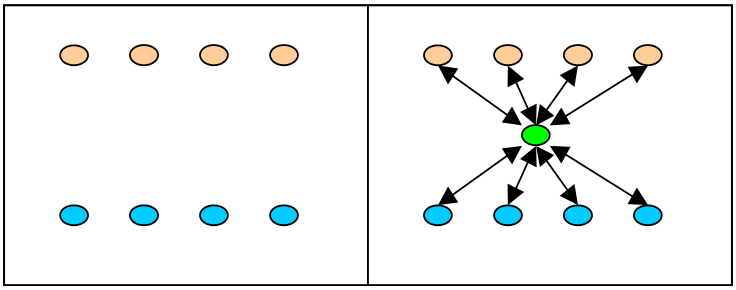

Figure 3. E-Intermediary to Bridge Structural Hole

Node characteristics: At least one side of the structural hole should be a highly fragmented industry. Fragmentation implies that it is not so easy to identify the proper supplier or customer, and search costs are high.

Product characteristics: In addition to a fragmented industry, high product variety, high product scarcity, and fluctuated product availability will also increase the need for e-intermediaries. In this instance, the problem is not only to find a supplier or customer, but the exact supplier or customer that has (or needs) certain products at the exact time. The intermediary helps transacting parties mediate the problems of temporal and spatial constraints, as well as the classic problems of opportunism, bounded rationality, and information asymmetry.

Transaction characteristics: If a long-term and stable relationship is required, transaction participants will be inclined to transact directly to avoid repeated search efforts and enjoy higher discounts on prices, secured supply and demand, and the benefits of cooperation. For non-recurrent transactions, intermediaries are employed.

Process capabilities: The more comprehensive and the more accurate information source an e-informediary commands, the more useful it is to its users. The overall ease of use will influence the stickness of the users. No matter how complete and accurate the information base you have, if the users cannot find the information they need quickly and efficiently, it will be of little use to them.

Table 1 provides a summary for the network configuration that will favor the use of e-intermediaries in a network rich in structural holes.

Table 1. Network Configuration in Networks with Structural Holes

	Direct Ties	Use e-intermediaries
Network Configuration		
Node Characteristics	Easy to identify dominant players	Fragmented, without dominant players
Product Characteristics		
Product Variety	Low	High
Product Scarcity	Low	High
Product Availability	Stable	Fluctuated
Transaction Characteristics	Long-term, stable	Emergent, one-time transaction
Moderating Factors		
Market Maturity	High	Low
Technology Improvement Rate	High	Low

Networks of Redundant Ties: Antecedents of Coleman Rents

Research on networks has found that redundant ties will increase trust among network partners and improve the chance of cooperation and resource sharing, since the redundant ties serve as monitoring mechanisms to prevent undesirable knowledge

spillovers and "free rider" problems (Coleman 1990). In parallel, communication channels will be maximized in order to increase the efficiency of knowledge transfers among members (Ahuja 2000b; Dyer and Nobeoka 2000). Concurrently, the rapid development of information technology has greatly enhanced organizations' capability to reach a much richer audience. These have led to the tendency to get rid of the middleman by establishing direct links with network members, or so called *disinter-remediation.*

However, to achieve such a closely knit network is not without cost. Recent research suggests that there are costs of network maintenance associated with direct ties (Burt 1992). Network partners face the danger of over-embeddedness in their network that can prohibit them from reacting quickly to environmental changes (Gargiulo and Benassi 2000). In addition, with increased volume and customization levels, business is becoming increasingly complex for any single firm to handle on its own (El Sawy and Malhotra 1999). Substituting direct ties into indirect ties, thereby outsourcing the non-core business activities through an intermediary, is one of the mechanisms that is frequently employed (Figure 4). This trend awards new opportunities for e-intermediaries.

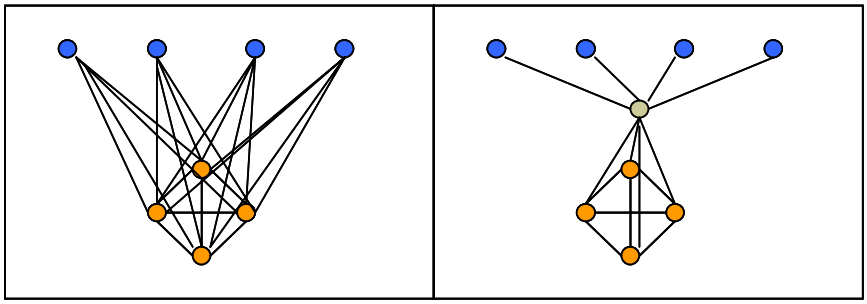

Figure 4. E-Intermediary in Network with Redundant Ties

Although this substitution strategy sounds rather attractive conceptually, it appears that its value in a given circumstance will be contingent on several factors (Ahuja 2000a).

Node characteristics: In this kind of network, the focal organization has a clear idea where, and from whom, they can obtain the products they need. But if the production process is complicated, requiring the cooperation of several parties, the focal organization needs to maintain relationships with multiple parties to coordinate their behavior, thereby incurring coordination costs across a vertical market.

Product characteristics: Multiple products or activities need to be produced or carried out to ensure the normal operation of firms. Based on the strategic goal of a firm, these products or activities can be divided into two groups: one is of strategic importance that is central to the value creation of the business; the other is supportive or peripheral to the firm's competitive advantage. While it is essential for firms to retain direct control over products or activities that are central to the business value creation, outsourcing those peripheral ones usually can bring more efficiency to firms. However, when firms make a decision to outsource, it is necessary to consider the additional coordination overhead in maintaining the relationship. Ahuja (2000a) argues that direct ties provide both resource-sharing and knowledge-spillover benefits while indirect ties can only provide access to knowledge spillovers, as resource-sharing requires greater trust, better communication, and more strict monitoring mechanisms that cannot be provided by indirect ties. Therefore, e-intermediaries may not be a good choice if the cooperation involves resource sharing among participants.

Transaction characteristics: Coleman e-intermediaries prefer long-term stable transactions that would allow them to capitalize on the coordination mechanisms they have developed for the network, whose benefits may not be realized in the short run.

Market maturity and technology improvement: In this situation, the transparency brought by market maturity provides focal organizations a standard to measure the performance of e-intermediaries, where the technology improvement will increase their monitoring power.

Process capabilities: Since e-intermediaries do not possess any distinct information or resources, they have to make the network partners believe that their participation can bring benefits for all of them, or they have the ability to generate some kind of

Coleman rents for the network. Because e-intermediaries are brought in to reduce the coordination costs in a vertical space, those process capabilities associated with coordination will include communication of capacity, demand and supply information, accurate forecasting methods, standard setting, etc.

Table 2 summarizes the network configuration that will benefit the use of e-intermediaries in the network with redundant ties.

Table 2. Network Configuration in Networks with Redundant Ties

	Direct Ties	Use e-intermediaries
Network Configuration		
Node Characteristics	Single or few parties	Multiple parties involved
Product Characteristics		
Benefits Requirement	Resource sharing and knowledge spillovers	Only knowledge spillovers
Relation to Business Value	Central	Peripheral
Transaction Characteristics	Long-term, stable	Long-term, stable
Moderating Factors		
Market Maturity	Low	High
Technology Improvement Rate	Low	High

Research Method

The characteristics of these Burt and Coleman structures serve as the criterion for the objects of this analysis. Our two study companies, Omnexus and E-Gatematrix, were selected not only because they are operating in different network structures, but also because they were closely matched as to starting time and IT infrastructure. Both companies were founded in 2000 as supply chain intermediaries. Even though they aim at different groups of users to conduct different operations, both of them adopted Web-based information technology to facilitate information sharing among their users. Thus, the design provided natural controls for differences caused by time of entry and macro-technology levels.

The data for both case studies were gathered by the authors, employing the standard techniques of academic case study research, using primary data and informants from both organizations (Yin 1994). In addition, both cases have been validated and released by the management of the companies. Additional information on the cases can be obtained from the authors.

The two companies will be introduced separately. For each company, we will discuss its respective network structure, network configuration, and capabilities.

Omnexus: Burt Network

According to the Society of the Plastics Industry, the plastics industry is one of the largest manufacturing industries in the world, accounting for approximately $589 billion dollars in annual volume, directly employing more than 1.5 million people. Plastics are used in so many products and so many industries that the sector is essentially as vertical as it is horizontal. Plastics penetrate market boundaries, ranging from packaging and building/construction to transportation; consumer and institutional products; furniture and furnishings; electronic components; adhesives, inks, coatings and others.

During the first quarter of 2000, encouraged by the wide-spread phenomenon of B2B portal in a majority of industries, five large chemical companies, BASF, Bayer, Dow, Dupont, and Ticona/Celanese agreed to establish a joint task force to take a close look at their industry to decide whether the concept could provide supply chain advantages in the specific industry segments in which they participated. On April 5, 2000, the intense discussion among the liaisons led to the creation of Omnexus, a neutral company

to serve as a global eMarketplace for the plastics industry. The founders had identified the thermoplastic processing market, specifically tapping the global $50 billion injection and blow molding industry as its initial market.

Node characteristics: The plastics industry can be segmented into processing methods including injection molding, blow molding, thermoforming, transfer molding, reaction injection molding, compression molding, and extrusion. The injection and blow molding industry, especially the resin transactions, were selected as the initial target market because Omnexus' top management believed that this business was well suited for a migration to e-commerce because it was characterized by a concentrated group of suppliers and a fragmented group of buyers.

Omnexus segmented the injection and blow molding industry into four different customer types: molders, original equipment manufacturer (OEM), compounders, and distributors (Table 3).

Table 3. Segmentation of Resin Buyers

Customer	Characteristics
Molder	• Purchase the majority of resins used • Specification-driven – manufacture parts in conjunction with OEM specifications. • Independent – common products. Bid for contract work. Negotiate own prices
OEM	• Long-term contracts with suppliers • In-house molding • Mold about 10% of resins they purchase
Compounders	• Produce highly customized/complex resin compounds • Typically sell compounded resins to molders or OEMs
Distributors	• Serve small to medium sized customers. • One-stop shop

(Source: Omnexus)

Of the four customer types identified, the molders purchase the majority of the resins used in the injection and molding business. According to the Freedonia report, there were approximately 8,000 molders in the United States, Canada, and Mexico. Table 4 provides some basic information about these molders. The group of large and medium-sized molders, roughly 3,000 in number, are the Omnexus target customers and account for over 80 percent of molding activity in North America. But all of the resin buyers are welcome to participate in the marketplace if they feel it will provide them the service and advantages they want or need.

Table 4. North American Injection and Blow Molding Industry

Size	# of Firms	Annual Revenues	Market Share
Large	200	> US$30 million	>5 0%
Medium	2700	$6 million	30%
Small	5000+	< $1 million	< 20%

Product characteristics: Even though resin is not scare product, it is highly differentiated and usually involves large transaction volumes. This situation is caused by the widespread use of plastics across all industries and the varying performance requirements. Therefore, its product variety is high, but a certain chemical company may not be able to provide enough volume of products that conforms to the specific requirements of a customer, which means that there is fluctuation on product availability.

Transaction characteristics: Because of the product characteristics, the purchase of resin involves high data requirements, and buyers have to check with the chemical manufacturers to make sure that they can provide the specific product. The resin transaction contains certain factors of one-time transaction since the requirement may be different even though the demand can be continuous.

Market maturity and IT improvement: Chemical production is one of the traditional industries. However, because of the widespread use of plastics, there are many small to middle sized suppliers besides the main players in this industry. In addition, due to the highly differentiated products, the market transparency is not very high. With the advent of e-commerce solutions and Internet-enabled technology, many companies launched their own online services which were aimed at the chemical industry. The competition in the thermoplastic resin industry is multifaceted and can be broken down into several general categories: suppliers, distributors, marketplaces, procurement specialists, solution sellers, and direct sales forces (Table 5).

Process capabilities: Omnexus has spent much effort to build a searchable product database powered by MCBase. Web MCBase is a material database running on an Internet/intranet with thousands of grades from more than 50 resin producers. With powerful search/query features, Web MCBase allowed the engineer or designer to search the thousands of materials and sort through hundreds of properties to locate the optimal material for an application. They did not limit their capabilities on building information base and search/query ability. They attempted to facilitate the whole time- and labor-intensive purchasing process by offering single-point access to multiple suppliers to increase buyer capabilities for multisourcing while decreasing related search and administrative costs. They also allow buyers to submit Request For Quotes (RFQs) to various suppliers, to place orders online, and to settle their bills online.

Table 5. E-Intermediary Competition

Type	Characteristics	Examples
Supplier/Distributor Online	• Catalog oriented • Purchasing, customer service & tracking • Integrated to supplier operations	• Dow – MyAccount@Dow • BASF – Plastics Portal • Bayer – BayerONE
Marketplaces	• Neutral (Independent or consortia) • Single-connection procurement • Broad range of product	• Commerx, GetPlastics, PlasticsGrid. 20ton.com, CheMatch
Solution Sellers	• E-commerce solutions • EBPP, logistics & document handling	• Commerx • Envera
Procurement Specialists	• Analyze spend • Negotiate best pricing • Qualify suppliers	• FreeMarkets, • ICG Commerce
Direct Selling - Offline	• Established • Strong relationships • Personal	• All resin suppliers using Omnexus' services • Direct sales-force

Source: Omnexus

Until this point, we can say that Omnexus still used the traditional business model of eMarketplace, taking advantage of its ego position to create a kind of Burt rent in the thermoplastic resin network. But it has done so in a very thorough way, by offering multiple value-added points in the whole purchasing process.

Omnexus was not satisfied with this business model. They attempted to change the existing relationships between buyers and suppliers. This can be detected from their focus on the middle to large-size molders who account for 80 percent of molding activity in North American, rather than the small molders whose number accounts for nearly 70 percent of the total. Moreover, Omnexus

wanted to be the main, if not the exclusive, channel. In fact, they have reached consensus with each supplier to take over charges of all of the paperwork, processing, and customer service that many studies conclude take up 50 percent of a salesperson's day. Omnexus tries to make itself an indispensable part of the whole network by creating value for every network participant. Table 6 lists the benefits Omnexus attempts to achieve by their business model.

Table 6. Benefits Achieved by Participating Omnexus

Supply-Side Benefits	Buy-Side Benefits
• Full integration with the Omnexus marketplace • Increased transaction speed • Deeper penetration into the injection/blow molding market • Key cost reduction in customer acquisition and retention • Alternative purchasing experience for new and old customers • Automation of the demand chain • Real-time inventory and price updating	• Streamline purchasing process • Use a physical properties-based search tool to enable retrieval of chemical compound profiles • Submit Request for Quotes (RFQs) to various suppliers • Outsource order facilitation and management • Use electronic bill presentment and payment tools

Here, we observe some Coleman type features implemented by Omnexus over time. Its stable relationship with suppliers creates a challenge for Omnexus to produce more value for both sides to ensure their participation, as it learned more about the sources of inefficiencies in their buyer-seller interaction.

E-Gatematrix: Coleman Network

The core ideas behind E-Gatematrix had been cultivating for nearly three years within Gate Gourmet, prior to incorporation in March 2000. During this time, AirCo, a big airline company and one of Gate Gourmet's largest customers, had also examined the quality and costs of their above-the-wing operations. In 1999, both partners had contracted SupplyTech, a supply chain management applications vendor, to conduct a strategic assessment to confirm their suspicions. The study had concluded that process redundancies, antiquated procedures, and internal inefficiencies of its current supply chain were deteriorating quality and increasing costs of above-the-wing services.

This had verified Gate Gourmet's perception that management of these services was a strong candidate for outsourcing by AirCo and other airlines. The business plan of Gate Gourmet stated that, "The worldwide perspective sees airlines recognizing that they should focus more on their core competencies and many of Gate Gourmet's customers are now engaged in optimization and efficiency programs aimed at lowering cost and increasing value." AirCo's managing director of in-flight services also expressed AirCo's focus on value-creating solutions and partnerships, "We wanted to improve productivity and reduce costs and improve customer service (by focusing the attention of various supply chain stakeholders on value chain reengineering) which led to discussions about how we can leverage technology and build a new business model." The consensus between these two companies brought the birth of E-Gatematrix in March 2000. AirCo agreed to outsource all its above-the-wing services to E-Gatematrix for a five-year period.

Node characteristics: AirCo flies about two and a half thousand flight legs every day from many different airports around the country. Brand and service management had become increasingly important since industry deregulation in 1978. Required services included meals, beverages, duty-free items (for international flights), audio and video entertainment, as well as cabin cleaning, equipment loading, and supplies provisioning. Just being aware of the fact that there are about 40,000 stock keeping units (SKUs) on a long-haul 747 flight, indicates the incredible complexity of this supply chain. Figure 5 shows the features of above-the-wing services supply chain. Participants of the above-the-wing service supply chain could be grouped into four distinct categories: manufacturers/suppliers/distributors, caterers, cabin cleaners, and airlines.

Product characteristics: The core business of airlines is to provide on-time transportation for people from one point in the world to another. Above-the-wing services are just auxiliary to the core business, but they represent the reputation of the airlines since they are the things that passengers can notice. Therefore, even though it is a bureaucratically cumbersome business activity that pulls resources away from the airline's core processes, no airline can ignore its importance.

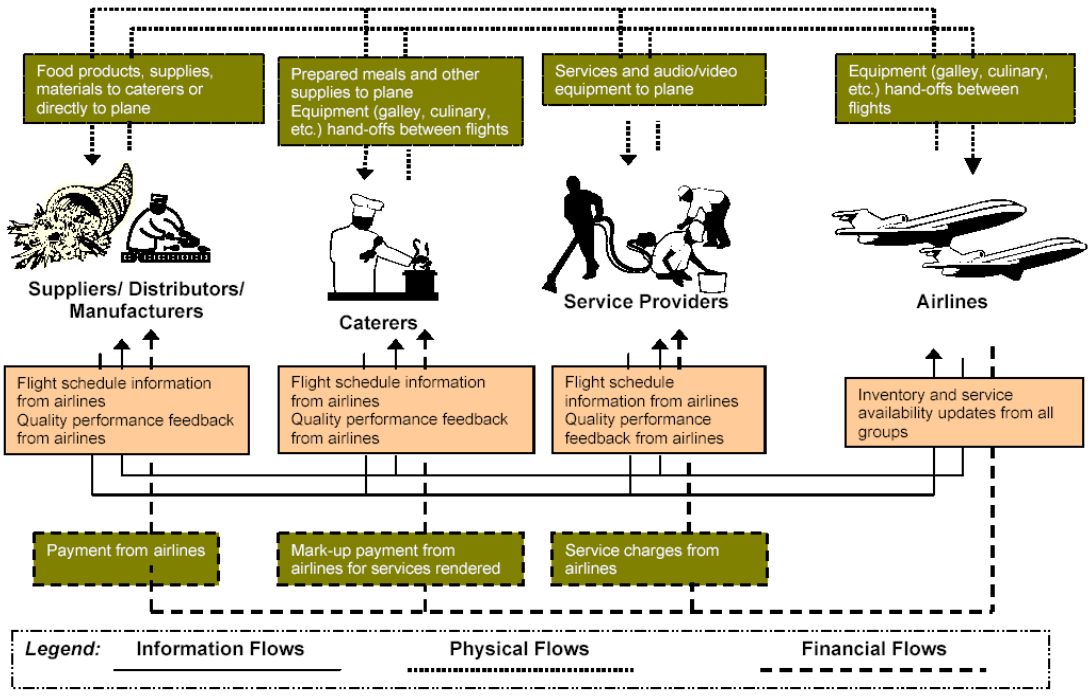

Figure 5. Three-Dimensional Features of Above-the-Wing Services Supply Chain

From Figure 5, we notice that there is only simple information sharing among the supply chain participants: all the service providers depend on the flight schedule from the airline company to arrange their purchase and production, and the performance feedback to measure the quality of their services; airlines use the information from the providers to update their inventory and service availability. There are no other resources shared between service providers and the airlines.

Transaction characteristics: It can be seen from the cooperation method that both E-Gatematrix and AirCo prefer to build a long-term relationship. AirCo agreed to outsource all its above-the-wing services to E-Gatematrix for a five-year period.

Market maturity and IT improvement: Individual markets for the bundle of services that E-Gatematrix can provide already exist—catering, cleaning, suppliers of food items, etc. And there are many industry standards and regulatory requirements (e.g., FDA, USDA, Customs, FAA, HAACP, and ATA) for the above-the-wing services. All these mean that the above-the- wing service industry is quite mature.

In this special case, E-Gatematrix will also inherent the hundreds of supply chain participants that used to provide all above-the-wing services to AirCo. Together with the past experience AirCo acquired from their interaction with those service providers, this can serve as another layer of monitoring mechanisms and increase the mutual trust between these two parties.

Process capabilities: E-Gatematrix realized that the problems with the traditional supply chain were mainly caused by poor supply chain visibility and demand information sharing. Each airline provided demand signals for above-the-wing services by sending out flight schedules by fax, e-mail, post, and EDI to supply chain partners 15 days to 3 months in advance of flight departure. Airlines hesitated to share their passenger load forecasts because of the inherent risks involved, in addition to limited interest in improving something that was seen as peripheral. Thus, the erratically published flight schedules only provided a rudimentary demand signal in the form of a maximum carrying capacity of each scheduled flight. These parochial practices led to production and service planning by supply chain participants to be based on their own perception about load levels. The poor cooperation between supply chain participants caused huge waste, since most of the products airlines use are perishables.

Realizing the root of problems in the supply chain, E-Gatematrix devoted significant effort to set up a service scheduling system to provide information visibility to supply chain members and enable process coordination. It was composed of three distinct functions:

- ***Flight service schedule*** was an application that posted daily updates on flight schedules including menus, provisions, and activity codes assigned to each flight. E-Gatematrix planned on integrating its applications with the systems of participating airlines so that schedule information could be disseminated as soon as it became available.

- ***Passenger load forecast*** was a daily update of passenger reservations per flight combined with a forecast of anticipated passenger loads.

- ***Service demand forecast*** was perhaps the first of its kind in the industry. It gave a concentrated view of service assignments based on forecasted passenger loads and scheduled departures. Essentially, it forecasted the quantities of a given service to be boarded on a particular flight.

E-Gatematrix also deployed Internet technologies for instant access from any Web-enabled computer to synchronize the whole supply chain. Now, all the supply chain members can arrange their production and service planning based on the same demand forecast. This has greatly enhanced efficiency. Table 7 lists the perceived benefits of the transformed supply chain.

Table7. Benefits of Transformed Supply Chain

	Airlines	Caterers/ Service Providers	Suppliers/ Distributors
Service Scheduling	• Service quality feedback • Less wastage • Improved visibility • Reduced costs • Lower inventories	• Better production planning and labor resource allocation • Improved visibility • Reduced costs • Lower inventories	• Less returns of supplies • Improved visibility • Lower inventories
Equipment Balancing & Inventory Management	• Working capital efficiency • Lower inventories • Reduced consumption • Right stuff at the right time	• Lower inventories • Reduced consumption • Right stuff at the right time • Reduced labor charges	• Lower inventories • Reduced consumption • Right stuff at the right time
Menu Ordering	• Accurate production counts • Efficient billing	• Accurate production counts • Efficient billing	• Accurate production counts • Efficient billing
Galley Load Planning	• More effective utilization • Less damages due to poor design • Lower consumption	• Reduced labor expenses	
Single Invoice and Invoice Reconciliation	• Less cumbersome administration of services • Better performance monitoring	• Timely payments	• Timely payments

Discussion and Conclusion

The two case studies described above provide qualitative support to our conceptualization that network structure and configurations will impose different requirements for e-intermediaries. A network perspective provides guidelines both for e-intermediaries to analyze the requirements of different networks as well as for companies to exam whether e-intermediaries can be proper candidates as a new mechanism to build and manage their network.

Alhough there is no clear evidence to show that Burt networks are not stable (Kogut 2000), the two cases show that Burt rent itself is not enough to create customer stickiness and is difficult to defend in the long term. The relative ease with which a basically

horizontal market, as represented by Omnexus, can be implemented, demonstrates the inherent vulnerability of this type of market. This is not to say that Burt networks are ineffective, but rather that the general maturity and IT capabilities of this product group make these commodity markets transparent and highly competitive, both for participants, as well as intermediaries contending for transactional profits. On the other hand, a Colemn network, as evidenced by E-Gatematrix, has a higher probability of bringing value to the participants, as it is based upon eliminating operational inefficiencies in a vertical supply chain. This network value can serve as the adhesive to keep members in the network by itself. In contrast, the low barriers to entry and exit make Burt rents difficult to maintain. Because it has realized this, Omnexus devoted much of its effort to create more value for its participants rather than restricting itself to simple market making and matching. In fact, it attempted to generate certain Colemn rents in what is a basically Burt network.

It should be noted here that relationships usually have a finite life, beginning and terminating for a variety of reasons. To ensure their own survival, e-intermediaries have to work very hard to build and maintain the relationships with their suppliers and customers. Many have failed because their business models did not encourage this effort. In a Burt network, relationships start out as short term and will remain so unless there are additional value adds in a transactional relationship (as noted in the Omnexus example). Omnexus's success lies in its capability to build trust in its fragmented buyers to bring them back again and again. In the Colemn network, relationships are already long term, but the intermediary must continue to foster those relationships while at the same time improving network efficiency.

This is consistent with the results of prior research. El Sawy and Malhotra (1999) argue that customers are becoming more and more demanding with the development of IT. They will ask for "free, perfect, and now" whenever it is possible. E-intermediaries have to respond to this demand by serving as not only a middleman and search mechanism, but also the value generator for the whole network. This is a demanding task for e-intermediaries. It essentially requires them to redefine accepted business practices and standards in what may be a politically resistant and path dependant culture. Moreover, this typically takes much more time and resources than soliciting subscriptions to horizontal, market-making databases. Yet, the rewards may be a position that is entrenched, difficult to imitate, and essential for the realization of a comparative advantage of this new business form.

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