Benefits, Challenges, and Product Characteristics to Evaluate when Considering Internet Sales

by

James Vander Vliet

B.S. Civil Engineering
Drexel University, 1993

Submitted to the Department of Civil and Environmental Engineering
in partial fulfillment of the requirements for the degree of

Master of Engineering in Logistics

at the

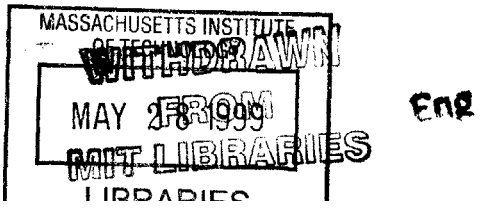
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

June 1999

Signature of Author.....
Department of Civil and Environmental Engineering
May 7, 1999

Certified by.....
Yosef Sheffi
Director of the Center for Transportation Studies

Accepted by.....
Andrew J. Whittle
Chairman, Departmental Committee on Graduate Studies



Benefits, Challenges, and Product Characteristics to Evaluate when Considering Internet Sales

by

James Vander Vliet

Submitted to the Department of Civil and Environmental Engineering on May 7, 1999
in partial fulfillment of the requirements for the degree of
Master of Engineering in Logistics

Abstract

The increasing popularity of the Internet as a way of doing business suggests that traditional businesses will undergo changes during the upcoming years. One of these changes will be manufacturers' increased ability to directly access consumers to sell products. With manufacturers directly accessing consumers, the role of finished goods intermediaries (distributors/retailers) may be rendered obsolete. However, the Internet also offers new opportunities for distributors and retailers. To take advantage of this, distributors and retailers are attempting to add value to the channel by experimenting with emerging business models. As manufacturers and retailers offer Internet selling, they experience challenges and benefits. In addition to these benefits and challenges, product considerations to evaluate when considering Internet selling are presented in this thesis. By illustrating these issues, this thesis presents a framework for manufacturers and retailers to consider an online offering, as well as a way to evaluate the threat of competitors who are selling over the Internet.

Thesis Advisor: Yosef Sheffi
Title: Director, Center for Transportation Studies

Acknowledgements

There are many people I wish to thank upon submitting this thesis.

- First and foremost I want to thank Yossi Sheffi, my thesis advisor. I truly appreciate his effort, patience, and guidance during the preparation of this thesis.
- I would also like to recognize my fellow members of the first MLog program: Ricardo Balzola, Juan Jose Cue, Christopher Holt, Po-Hsin Liu, Ryan McWorter, Anurag Mehra, Rachna Mohanka, Lalitendu Panda, Jason Slibeck, and John Wass. All of these folks have had an impact on me and/or this thesis over the past nine months.
- Finally I want to thank my "ever lovin'" wife Jennifer. Without her love, support, and sacrifice, I probably wouldn't even be here, never mind graduating.

Table of Contents

Tables

Figures

1.0 Introduction

The increasing popularity of the Internet as a way of doing business suggests that traditional businesses will undergo changes during the upcoming years. One of these changes will be manufacturers' increased ability to directly access consumers to sell products. This thesis suggests that this change to the consumer distribution channel will partially occur but will not be in the form of complete disintermediation. The degree to which this change does occur will be a function of the value added by the intermediary, the benefits and challenges associated with business-to-consumer Internet commerce, and the specific characteristics of the product offering. To consider this change, we will first evaluate the traditional distribution channel and two alternative channels.

1.1 Distribution Channels

The following we provide a description of a traditional distribution channel and two alternative channels. As shown in Figure 1, the distribution channel consists of product, information, and cash flow through adjacent members of the supply chain.

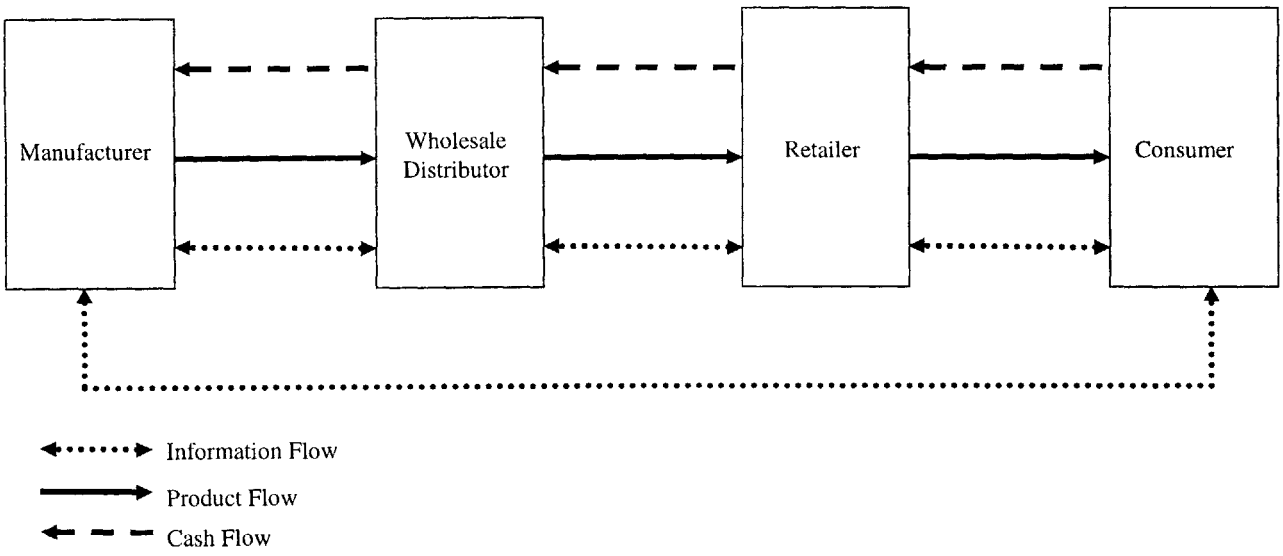
1.1.1 Traditional Distribution Channels

The following subsections present brief descriptions of product, information, and cash flow in a traditional distribution channel.

1.1.1.1 Product Flow

As shown in Figure 1, product flows from the manufacturer to a distribution center where shipments are broken down and reaggregated to fill orders to retailers. The retailer then stocks material for sale to the consumer. Each of these locations will typically hold cycle stock and safety stock inventory. It should be noted that there could be a return product flow. Return product flow may be damaged items, unwanted material, or recyclable material. The return flow of recyclable or reusable cardboard or pallets may travel from the retailer to the distribution center. Returned or damage goods may flow from the consumer to retailer and then directly to the manufacturer. These goods might also be restocked at the retailer for future sale.

Figure 1
Traditional Distribution Channel



Note:
Ownership of each individual location depends on the specific business model. For example, in the case of a company owned retail store, the manufacturer will own the entire chain.

1.1.1.2 Information Flow

As shown in Figure 1, information flows between all layers of the distribution channel and in both directions. Information that flows in the direction of the consumer consists of product advance shipping notices, pricing, promotions, invoicing, and other information (i.e., handling instruction, installation instructions, complimentary products, where to buy the item, etc). Information can bypass channel members. For example, manufacturers provide consumers with information through advertising.

Information also flows towards the manufacturer in the form of retailer forecasts and planned promotions, customer demands, order quantities, etc. This flow can also bypass channel members, as it does when a consumer mails a complaint letter directly to the manufacturer.

1.1.1.3 Cash Flow

As shown in Figure 1, the traditional channel also consists of cash flow. Typically cash flows in the reverse direction as product and payment is typically due from the receiver of the product, to the supplier of the product.

For the purpose of this thesis, this is referred to as the traditional distribution channel. For a detailed discussion of the benefits of using distributors and retailers, see Section 2.0.

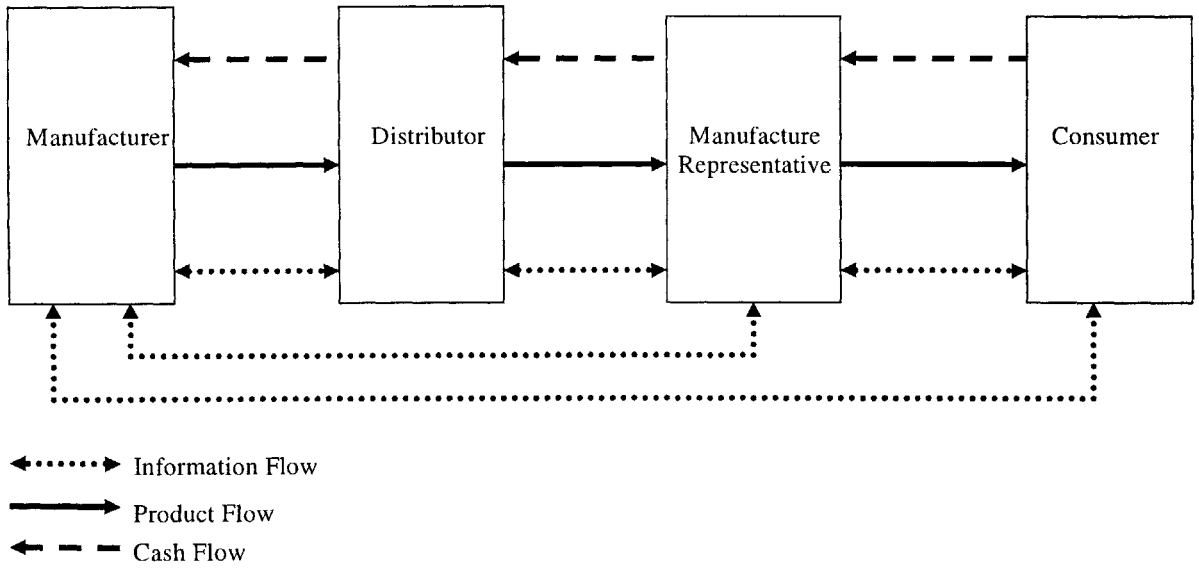
1.1.2 Alternatives to the Traditional Distribution Channel

Two examples of alternative distribution channels are presented in Figure 2 and Figure 3 and illustrate different degrees of disintermediation. The channels shown are the manufacturer direct models and the catalog retailer model. Popular examples are used to explain each model, including the benefits and challenges associated with each.

1.1.2.1 Manufacturer Direct Models

Two examples of manufacturer direct models are direct sales supported by a manufacturer's representative and direct sales supported by a call center. In the first example, consumers

Figure 2
Manufacturer Representative



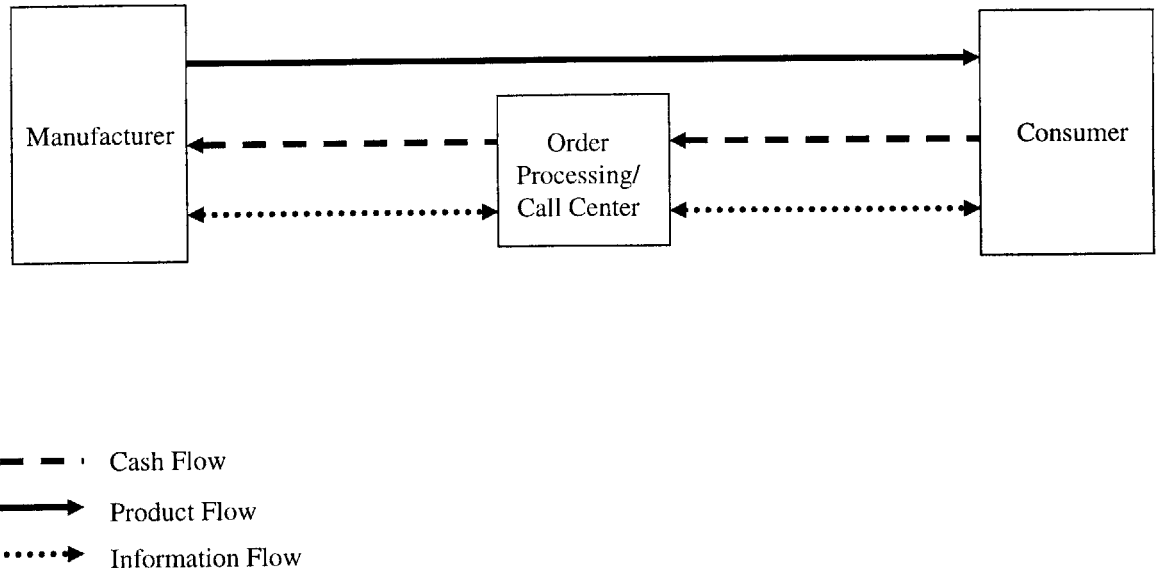
physically interact with the manufacturer's representative during the purchase (Figure 2) to gain information about the product and exchange cash for product. In the call center model, consumers contact the manufacturer by telephone or mail order to obtain information and make payment arrangements, with the product delivery scheduled for a later date (Figure 3). In both cases, the manufacturer sells its own products to the consumer. The following sections present the manufacturer's representative and call center direct sales models.

Two examples of the manufacturer's representative model are Tupperware (food storage containers) and Avon (cosmetics) (Figure 2). Tupperware sales are typically completed at a "Tupperware party," consisting of a company representative and consumers. The company representative obtains the product from Tupperware and offers it to consumers at a party. By distributing the product to its representatives as needed, Tupperware reduces its inventory.

Avon also distributes products to individual representatives. These representatives sell Avon products to consumers door-to-door or by individual appointment. The risk of the Tupperware and Avon business model is losing sales to traditional suppliers (i.e., Rubbermaid in the case of Tupperware and Clinique in the case of Avon) because the representatives are not readily accessible and therefore the products are not immediately available.

An example of an order processing or call center model is Dell Computers (Figure 3). This is the non-"brick and mortar" version of the company store. Because Dell distributes directly to consumers, it avoids excess inventory throughout the channel. However, it must attract consumers through other channels such as magazine articles, trade shows, and press releases and is therefore not likely to attract first time buyers.

Figure 3
Order Processing (Call) Center

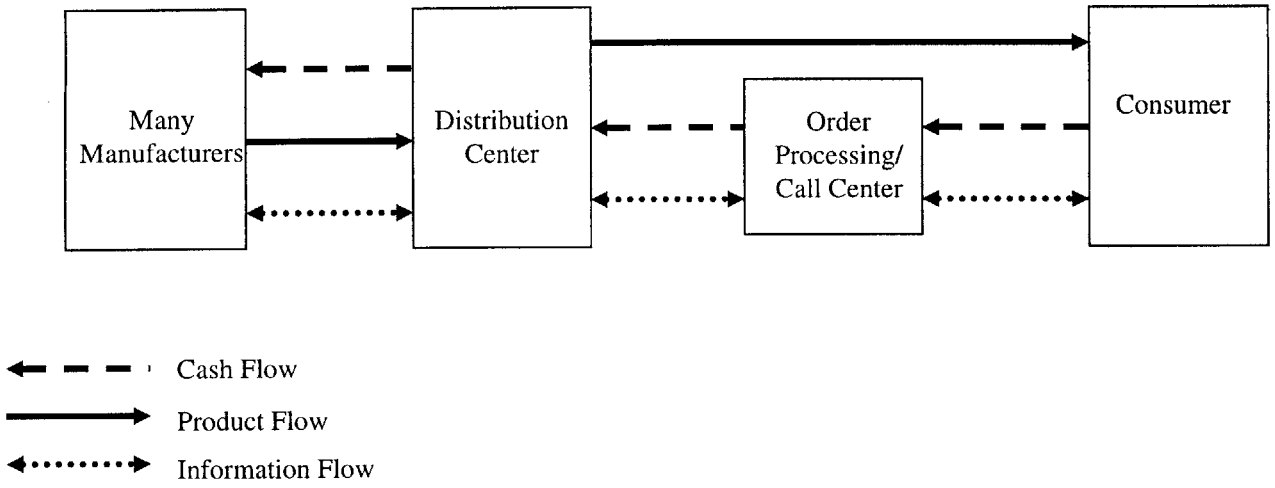


1.1.2.2 Catalog Retailer Model

Similar to the manufacturer direct model, catalog retailers also receive orders through an order processing or call center (Figure 4). The distinction is that catalog retailers offer products from many manufacturers. Examples of this are Fingerhut (general merchandiser), L.L. Bean (clothing), Performance Bicycles, and Crutchfield (electronic retailer). This business model

eliminates the retail location. By eliminating retail locations, costs associated with real estate and the accumulation of additional inventory are reduced. However, these businesses incur the costs associated with shipping products to individual consumers and are faced with the challenge of reaching consumers. In order to attract consumers, L.L. Bean distributes approximately 140 million catalogs a year. Through this catalog effort and retail, outlet, and international stores, L.L. Bean generated a total of $1.07 billion in sales in 1997. Of this annual revenue, $926 million was generated through catalog sales, resulting in approximately $6.60 in revenues per catalog.

Figure 4
Catalog Retailer



The preceding subsections present the traditional consumer distribution channel and two alternative channels. This provides the background to evaluate the benefits of intermediaries in the distribution channel, as well as the benefits and challenges associated with business-to-consumer Internet commerce.

The thesis suggests that the benefits and challenges of Internet commerce and product characteristics will govern the impact to existing distribution channels. By illustrating these issues, this thesis presents a framework for manufacturers and retailers to consider an online offering, as well as a way to evaluate the competitive threat of its competitors that have taken their business online. Section 2.0 presents the benefits of the intermediary in the traditional channel. Section 3.0 presents current changes in the economy and how they affect the way companies do business. In Section 4.0 we introduce two of the most common Internet business models. After explaining these models, in Section 5.0 we present the benefits and challenges of business-to-consumer Internet commerce. Section 6.0 presents an analysis of characteristics common to products that are successfully sold over the Internet. Finally, Section 7.0 offers conclusions and suggestions for further research.

2.0 Intermediary Benefits

Having presented traditional distribution channels and two examples of alternative channels, we can evaluate the benefits of the intermediary, and put into context the advantages of the different models. Intermediaries benefit the channel and add value by:

- increasing service levels and customer satisfaction;
- reducing both inventory and financial risk to the manufacturer;
- managing information;
- providing a local presence;
- reducing transportation, handling, and transaction costs; and
- leveraging core competencies.

These benefits are discussed below in the following subsections.

2.1 Increased Service Levels and Customer Satisfaction

Intermediaries increase customer service levels and customer satisfaction by providing instant gratification, risk reduction, a pleasant shopping atmosphere, secure transactions, product expertise, customer support, and product selection.

2.1.1 Instant Gratification

The service level to the customer is improved when the intermediary is nearby because the intermediary holds inventory close to the customer and reacts quickly to demand. This holds true both for distributors supplying retailers and for retailers supplying consumers. With this model, consumers can get the product anytime from a local store. Manufacturers and catalog retailers attempt to compete by using efficient parcel delivery services (Section 3.4). However, consumers will typically wait 1-3 days to get the product. Worse, with the direct sales model (Avon, Tupperware), the consumer can only get the product when the sales representative is available, and when this does occur, pressure is on for the consumer to "buy now" because the interface time is limited.

Intermediaries can also add value for consumers by providing immediate maintenance and repair. Because they are closer to the consumer, intermediaries can more quickly address these consumer needs. To support this offering, intermediaries stock spare parts for repairs, service, and maintenance. This service is particularly valuable for products that require immediate repair (i.e., television, automobile). Some catalog companies have recognized this opportunity. In addition to its catalog offering, Performance Bicycles operates retail stores to increase the level of customer service.

2.1.2 Risk Reduction

Retail stores offer consumers a place to touch/see a particular product before they purchase.

Consumers can walk into a retail establishment, kick a car's tire, try on a shirt, sample a flavor of ice cream, or test ride a bicycle, therefore mitigating the risk associated with buying a product "sight-unseen." If consumers receive merchandise that is unsatisfactory through a direct channel, they are faced with having to coordinate the return. Retailers can reduce risk to consumers by allowing for item return. Because the consumer knows that he/she has a convenient means to return a purchase, the risk of being unsatisfied is much lower. For example, if consumers purchase jeans from a nearby retail store, they might make the purchase without even trying on the jeans because they could easily be returned.

Although direct sales channels do support the convenient return of faulty or unsatisfactory materials, they do offer an increase in purchasing convenience. Those who prefer the convenience of shopping from home must accept this risk of dissatisfaction. The relative insignificance of this risk is apparent in the success of catalog retailers such as L.L. Bean that accounts $926 million of its $1.07 billion 1997 sales to its catalog. The direct sales manufacturer or catalog retailer could also reduce consumer risk by agreeing to pay return shipping fees. Also note, the notion of touch/see to reduce risk becomes less powerful when consumers are shopping for a gift or if they are completing a repeat purchase.

2.1.3 Pleasant Shopping Atmosphere

Retail stores can provide a pleasant shopping atmosphere to shop where salespeople can assist consumers with their purchasing decisions. Intermediaries can create a pleasant atmosphere by playing relaxing music and providing friendly personnel to assist consumers in the retail store. If the consumer's experience is positive, the probability of a sale will increase. Conversely, if the

experience is negative, the likelihood of a sale will decrease. Again, depending on the consumer's preferences, this benefit may be balanced by the convenience of not having to leave home.

2.1.4 Anonymous Transactions

Because a consumer can enter a store and complete a purchase with cash, there is no need to reveal private information. Currently, for a consumers to purchase through a catalog retailer, they must establish an account or reveal private information (i.e., address, credit card information). Until catalog retailers develop a method to complete these transactions such that the consumer remains anonymous, this remains a benefit of the intermediary in the channel.

2.1.5 Product Expertise

A consumer may require any of three types of information during a purchase or service request. Each of these types of information requires varying levels of product expertise.

- Frequently asked questions (FAQs) can be supported by a brochure, catalog, and fax (or online).
- Specific information required by an individual consumer; this can be handled by a customer service agent via telephone or fax (or email).

- Information that can not be delivered until after situation has been physically surveyed (i.e., automotive services and parts, medical support and prescriptions, etc).

While the first and second can be easily handled by the direct model, the third illustrates the importance of an intermediary. In this situation, intermediaries add value by providing expertise. For example, retailers provide information to the consumers to assist in making an informed purchase. This is especially valuable if the consumer has little to no knowledge of a product and is not interested in becoming an expert (Losito, 1997). For example, consumers may know that they are having trouble with their car, but may not know the exact problem. A car part retailer or repair shop (with spare parts) can physically assess the problem, suggest a solution, and perform the repair.

2.1.6 Product Selection

Intermediaries can add value for consumers by aggregating a large variety of goods into one store or area, or by providing an initial search for consumers. Mass merchandisers (Wal-mart, Kmart, etc) leverage "one stop shopping" and provide consumers with a place to buy everything from groceries to compact discs to clothing. On the other hand, specialty retailers (Home Depot, Neiman Marcus, etc) leverage a selection of related products and provide consumers the service of an initial search. If consumers know they need home improvement supplies they can visit Home Depot. If the consumer wants to purchase quality name brand clothing (as opposed to inexpensive clothing), they will shop at Neiman Marcus (as opposed to Bradlees) (Losito, 1997).

Although catalogs may not offer the number of products that are offered by the mass merchandiser, some of these benefits apply to the catalog retailer. If consumers select the catalog that targets their particular price range, quality level, etc., they can find the same level of selection that is offered by a specialty store.

2.1.7 Installation, Maintenance, Assembly

Intermediaries can add value for consumers by "bundling" a product and a service and providing a consumer a total solution. As mentioned in Section 2.1.1, intermediaries can add consumer value through maintenance and repair because they provide instant gratification through immediacy. Intermediaries can also add value by coupling a product with a service and long term maintenance plan.

2.2 Reduce Risk for Manufacturer

Intermediaries add value to manufacturers by reducing risk. Intermediaries reduce manufacturer's risk by assuming inventory risk and financial risk. The following subsections explain these benefits.

2.2.1 Inventory Risk Reduction

Intermediaries can reduce the manufacturer's inventory risk. By pushing efficiently produced goods through the channel, manufacturers often put the burden of sales on the next member of the chain. For example, Proctor & Gamble has pushed goods through the channel by offering sales incentives to those retailers who were willing to buy large volumes. In doing this, P&G reduced inventory carrying costs and losses due to inventory obsolescence. However, when distributors/retailers purchased more than they needed, they were forced to reduce their prices to eliminate excess stock. This risk reduction usually reflects which channel member has more power.

In some industries, the retailer does not provide the manufacturer with inventory risk reduction. Because of intense competition and a high rate of inventory obsolescence, personal computer (PC) retailers have negotiated "price protection". PCs are given a guaranteed sales price (i.e., if sold below that price, the retailer receives a credit) or the retailer is permitted to send the unsold PCs back to the manufacturer. It should be noted that the retailer does not receive price protection on inventory carrying costs, insurance fees associated with carrying those goods, or costs associated with maintaining the space required to carry the inventory.

Intermediaries also reduce manufacturer's inventory risk through postponement. Postponement occurs when intermediaries stock component parts of a product and assemble finished goods to meet actual demand. PC distributors such as Ingram Micro, Tech Data, and Pinacor are assembling PCs for IBM, Compaq, and HP using the following process:

- The manufacturer builds the basic computer "shell" (case, power supply, floppy disk, and circuitry).
- The shells are shipped to the distributor who holds parts inventory nearby or on site.
- Customer orders are placed at the retailer or the manufacturer and forwarded to the distributor.
- The distributor assembles the PC to the customer's specifications (sometimes including software installation).
- The PC is shipped to the customer (in the name of the manufacturer) (Hansell, 1998b).

Because components are interchangeable from finished product to finished product, inventory rates are lower and assembled PC quantities more closely match demand, thus reducing obsolescence rates and the need for price protections (Years, 1998). This idea is taken one step further through a process called co-location where distributors staff manufacturer's plants with their own employees. Through this process, distributor employees complete assembly and ship high-demand models to their end destination (Briones, 1999).

The catalog retailer (or its distributor) will provide the manufacturer with inventory risk reduction if it builds its own stock to satisfy demand. However, the benefit is reduced if the retailer pulls directly from the manufacturer to meet demand. In the case of the direct sales model, the manufacturer owns the entire channel, and therefore inventory risk reduction does not apply.

2.2.2 Financial Risk Reduction

Manufacturers enjoy financial risk reduction by dealing only with distributors and/or retailers. The manufacturer must manage its accounts receivable for a smaller number of customers. When manufacturers implement direct sales, it must track its accounts receivable for a myriad of consumers. Further, the manufacturer can deal with a customer that is subject to credit reporting standards (Dunn & Bradstreet, etc). On the other hand, when a manufacturer sells directly to a consumer, payment is nearly immediate. When a manufacturer sells to a distributor, accounts receivables are tied up for 30 to 45 days, depending on the terms of the agreement. This has a significant impact on the manufacturer's balance sheet.

2.3 Information Management

In order for a manufacturer to serve consumers without the service of intermediaries, many processes must be completed successfully. These processes, as presented in *New Rules for the New Economy* (Kelly, 1998), are listed below.

- Consumers must find the manufacturer they like.
- Consumers must order directly through the manufacturer.
- The manufacture must process all orders.
- The manufacturer must get all goods to consumers at the right place/time.
- Consumers must be able to easily shift manufacturers if stock is not available.
- The manufacturer must invoice all consumers.

- The manufacturer must track the multitude of tiny accounts.
- The manufacturer must be able to deal efficiently with exceptions and mistakes to maintain a high service level.

Before the proliferation of the Internet, an efficient network for relaying this information did not exist. In the absence of an efficient network, intermediaries managed information flow from consumers to manufacturers in the form of orders quantities, forecasting information, and customer preferences. Intermediaries also managed information flows from manufacturers to consumers in the form of marketing and promotion information, pre-purchase product expertise, and customer support. An example of an information intermediary is The Sabre Group. By aggregating airfare rates from airlines, The Sabre Group (Travelocity) offers consumers a place to compare all airline prices.

Although the alternative channels have methods of getting information from consumers to the manufacturer (i.e., contact between sales reps and consumers, order patterns) and manufacturer to consumers (i.e., catalogs, telemarketing) they are not as efficient. Because information between consumers and manufacturers is very fragmented, intermediaries add value by managing this information flow.

2.4 Reduced Costs

Intermediaries can reduce costs through economies of scale. For example, distributors aggregate products from many manufacturers. From these products, distributors then build product bundles

to fill customer (i.e., retailers) orders. This removes the manufacturer's burden to directly ship small quantities to many customers. The advantage of this is reduced transportation costs through economies of scale. This added value becomes even more significant when compared to the costs associated with direct shipments to consumers' homes.

Intermediaries also reduce manufacturer's costs through economies of scale of contracting, coordination, and transactions. When manufacturers deal with an intermediary to reduce the number of customers it serves, it reduces the number of contracts and accounts it must maintain, and ultimately its costs.

2.5 Local Presence

Another benefit of the intermediary (in particular, retailers) is that it supports a local presence in a region that the manufacturer is not familiar with. Through this local presence, intermediaries add value for manufacturers by providing information about what local consumers appreciate. The manufacturer can then vary its product mix to address these preferences. Manufacturers can also revise R&D plans to incorporate these consumer preferences (Losito, 1997). By effectively using this information, consumers are ultimately offered a more desirable product and manufacturers sell more. Through a local presence, retailers also provide a place where salespeople can influence consumer-buying habits with shelf space and product placement (Losito, 1997). While placing products at eye level in a supermarket may be a powerful tool for retailers, catalog retailers that feature goods on the cover of its catalog can also leverage this practice.

By offering a local presence intermediary also provides consumers with information regarding promotions and marketing efforts. When consumers see a "Clothing Clearance" banner hanging from a retailer's store front, if they are interested, they will enter the store. This is typically done at supermarkets with large colorful window signs advertising pricing specials. This type of promotion can be achieved with catalogs, direct mailers, and telemarketing. However, it is more expensive to target individual households than it is to target a neighborhood. A sign in a retail store that is viewed by 20,000 people per day will cost almost nothing. Calyx and Corolla (direct florist), however, spent approximately $0.40 per catalog in 1990, a total of $8,000 to reach 20,000 consumers (Wiley, 1995). Of course a window sign is not as rich in information and it is not effective at segmenting consumers. However, if the goal is to attract attention, the sign is more efficient.

2.6 Focus on Core Competence

Core competence can be defined as the activity that a company does extremely well and that sets the company apart from its competition. Although manufacturers can get closer to consumers through a direct model, as they do, many move farther away from their core competence. Because intermediary may be more skilled to deal directly with the customers, this may not always make sense (Chief Executive, 1998). As Theodore Levitt suggests in *Marketing Myopia*, many manufacturers are product-focused (Levitt, 1975). As a result, manufacturing companies tend to be staffed with technical personnel who are key to the core competence. The result is

that marketing and customer service suffers. Because the manufacturer is focused on what it does best, the intermediary will likely be better at customer service, warehousing, distributing, and retailing. This allows manufacturers to focus on their core competence, which is manufacturing.

When faced with competitive pressures and increasing customer requirements, Goodyear Tire & Rubber (GTR), for example, began to evaluate its business processes. GTR determined that manufacturing quality tires and delivering customer satisfaction should be the goals of the company. However, GTR identified many logistics activities that were expending resources and were not related to these goals. To address this, GTR outsourced all of its logistics operations to third party logistics providers. This allowed GTR to focus on manufacturing and delivering customer satisfaction while the third party logistics provider focused on getting the product from the manufacturer to the customer. This is an example of two companies working together to exploit their core competencies.

Consider Ingram Micro, who has established itself as a leading PC distributor. Ingram Micro is leveraging its reputation to partner with e-commerce Internet retailers to provide their fulfillment requirements. In a strategic partnership with Buy.com Inc. (www.buy.com), Buy.com will provide the web site and consumer attraction and Ingram will provide the fulfillment and customer satisfaction. Ingram Book Group (the original distributor behind Amazon.com) has been referred to as "a paragon of operating efficiency." Ingram stocks nearly 500,000 titles and ships virtually all orders the day they are received. Approximately 85% of shipments arrive at retailers loading docks within 24 hours and 95% within 48 hours (Barnes & Noble has recently acquired Ingram to leverage Ingram's core competence) (Bianco, 1997).

2.7 Summary

The benefits and added value that intermediaries have added to the traditional distribution channel have secured the intermediary's place in the value chain. However, a variety of economic, societal, & technological changes have raised questions regarding the actual value that intermediaries can add. The following section presents these changes.

3.0 Economic, Societal, & Technological Changes

Now we will take a look at some of the economic, societal, and technological changes that have challenged the way people view and conduct business. The changes that are presented have a direct impact on traditional distribution channels and business-to-consumer Internet commerce. These changes are related to:

- Supply chain integration;
- The Internet and information technology;
- Demand for higher levels of customer service;
- An increased focus on consumers;
- Parcel deliverers and third party logistics providers;
- Increased usage of credit cards;
- Consumer lifestyles; and
- Changing competitive landscape.

The following subsections provide discussions of these changes and their impacts.

3.1 Supply Chain Integration

As a result of the competitive environment and increased customer demands, companies are forced to reduce costs, eliminate redundancies, and increase efficiencies within their supply chains. One way companies are achieving this is by increasing communications between members of the supply chain. By sharing forecasts and demand data, companies can "pull", as opposed to "push" products through the chain. The result is quicker response to customer needs and reduced transactions and inventories.

A good example of this is the ECR (efficient consumer response) system that was pioneered by Wal-Mart and Proctor & Gamble. By increasing electronic communication, Proctor & Gamble can "see" the flow of goods from Wal-mart's distribution centers to their retail stores. Proctor & Gamble then replenishes the volumes at the distribution center. By reacting to this data and replenishing what was actually delivered to the retail outlet, P&G and Wal-Mart were both able to significantly reduce inventory levels and costs.

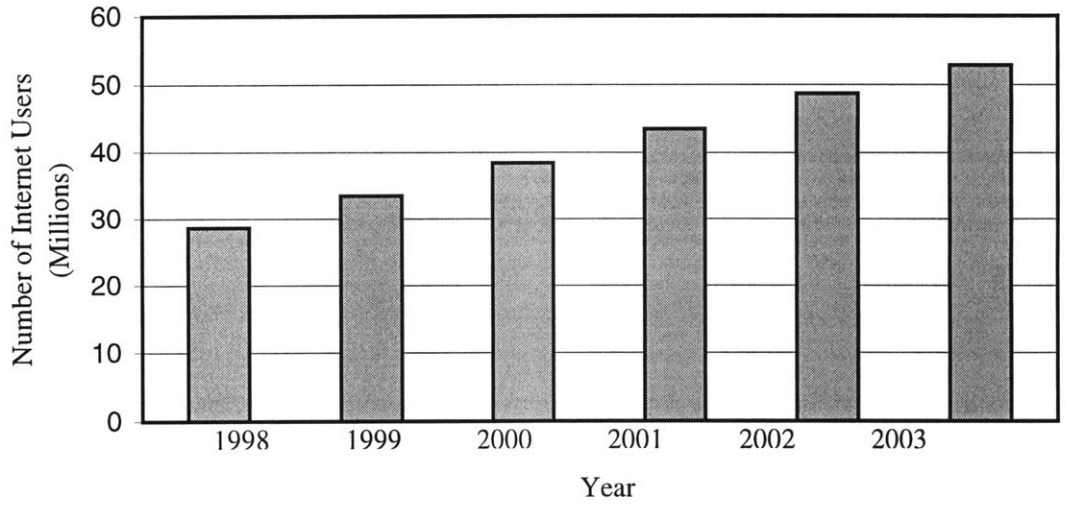
Another way companies are increasing efficiencies in their supply chains is by disintermediating unnecessary links. Dell Computers realized that it could eliminate the cost of distributors and retailers by marketing and selling PCs directly to consumers. By implementing this model, Dell has eliminated finished goods inventory and the occurrence of obsolescence. Dell is further increasing the efficiency of its supply chain by conducting a large part of its business on the Internet and reducing transaction costs.

Both of these examples represent the implementation of supply chain integration and document how the use of information technology and e-commerce can substantially increase efficiencies.

3.2 The Internet and Information Technology

The number of U.S. Internet users is growing rapidly. In 1998, 28.6 million U.S. citizens were using the Internet. This number is expected to reach 52.8 million by the year 2003 (Figure 5). This, and e-commerce that was enabled as a result, suggests that manufacturers could get closer to their customers and ultimately disintermediate some members of the supply chain. Although this shift has not occurred for many manufacturers, the Internet has enabled and generated many other changes.

Figure 5
Projection of the Number of U.S. Internet Users
Source: Merrill Lynch, 1999



With an abundance of information available on the Internet and as consumers become technically savvy, consumers can better access this information and are more aware of their choices and alternatives. For example, by simply searching a variety of web sites, consumers can determine the best deal/price for the service or product. Internet intelligent agents (i.e., www.acses.com) are available that will, at the click of the mouse, search, gather, and report all prices for a given product. With consumers able to access this information, competition among providers becomes fierce and consumers can demand more. This trend is forcing corporations to be much more efficient and to offer a higher level of service. This has also led to highly efficient market (Section 5.1.1) and information oriented niche markets that did not previously exist (Chief Executive, 1998).

The Internet has also redefined a company's ability to manage information. The ease with which information can be transferred, shared, evaluated and used is changing how companies do business. As discussed in Section 2.3, one of the main functions of the intermediary was that of an information manager. With the Internet, this service is much less an advantage to the intermediary because now there are software packages that can handle these tasks. What becomes more critical is what the intermediary (as opposed to the manufacturer) can do with the information to add value.

Because the Internet reduces the overall transaction costs in the value chain, there is room (and funds) for value added services from intermediaries (Kelly, 1998). It is in places like this that intermediaries are finding roles for themselves. Amazon.com adds value to the products it sells by offering consumers a convenient channel and an enjoyable experience. However, there is a

price for this experience and it is charged in the form of a delivery fee. Because Amazon.com's costs are typically lower than a retail store this fee is absorbed.

3.3 Demand for Higher Levels of Customer Satisfaction

After the industrial revolution, American manufacturers produced products that did not vary based on customer requirements, but rather were produced efficiently and "mass marketed" to consumers. However, in the late 1970's and the early 1980's Japanese competitors began to introduce higher quality products at lower costs and US consumers realized they had choices (Hammer & Champy, 1993). This was the beginning of the era of increased consumer demand and expectations.

Unlike the business model where manufacturing firms drove efficient mass production to lower unit costs, companies now focus on addressing consumer needs. In fact, companies are not questioning how they can make their processes more efficient, but why they conduct their processes at all and whether they add value to the customer (Hammer & Champy, 1993). This shift in focus from efficient mass production to customer service requires that all members of the value chain work together to achieve a common goal: customer satisfaction.

In an attempt to achieve a seamless operation many companies have turned to ERP systems to develop internal efficiencies. These systems, however, do not necessarily address the extended corporation because of internal focus, expensive implementations, and/or insufficient

standardization of systems across companies and systems (Benchmarking Partners, 1998). The Internet allows companies to connect the extended corporation, and better meet customer requirements.

3.4 Parcel Deliverers and 3rd Party Logistics Providers

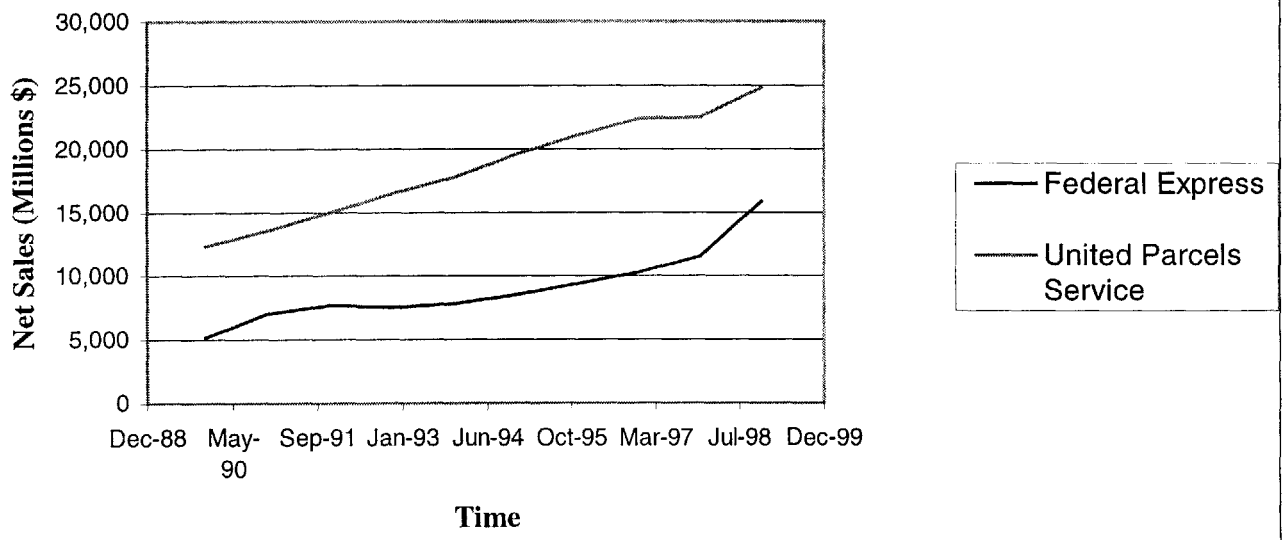
Parcel deliverers and 3rd party logistics providers are key enablers to streamlining the value chain. Traditionally, the goal of the transportation manager was to reduce transportation unit costs through economies of scale. With the increased focus on customer service and efficiency of transportation systems (due to deregulation), parcel delivery and third party logistics providers are becoming more common. These providers are well equipped to address customer needs because of flexible schedules and shipping sizes.

Although companies like Federal Express (FedEx), United Parcel Service (UPS), Schneider National, and J.B. Hunt have been around for several years, recent developments in information technology (i.e., web based shipment tracking, online pickup scheduling, etc.) have increased the capabilities and growth of this industry. Figure 6 illustrates the growth of Fed Ex and UPS over the past ten years.

Rather than merely a parcel delivery company, a Fed Ex representative classifies the company as an "information-intense network of express transportation, logistics services and solutions." Fed Ex handles 59 million pounds of airfreight a month, has 624 airplanes, 42,500 vehicles, 145,000

employees, and sends 58 million electronic transmissions every day. Fed Ex also offers 48-hour delivery globally and just-in-time delivery for manufacturers (Dodge, 1990). Without an

Figure 6
Growth of Parcels Delivery Service
Source: FactSet



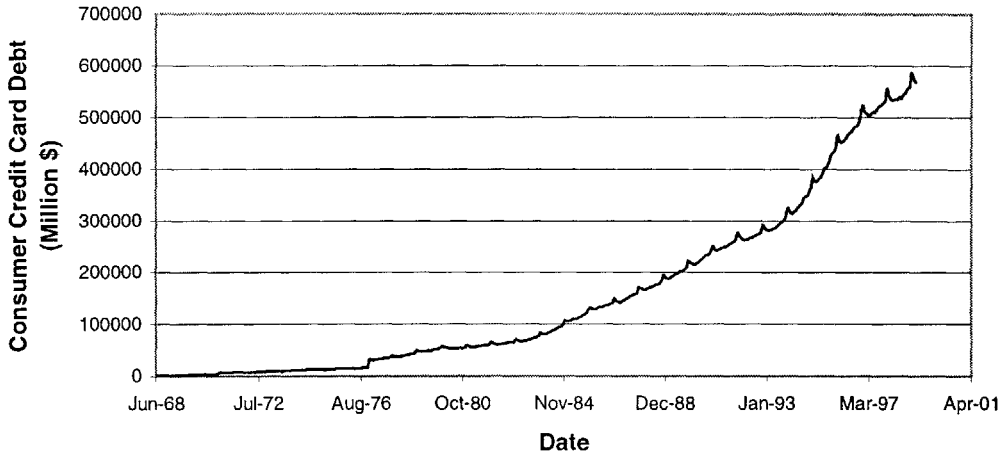
efficient parcel delivery/3PL industry, there would be no threat to the traditional "brick and mortar" retail establishment because the traditional trucking industry would not support it.

An example of this is Calyx and Corolla (www.calyxandcorolla.com), a mail order/online florist. Calyx & Corolla supplies consumers with flowers shipped directly from growers. The key to this company is its relationships with growers and FedEx. The strategic and competitive advantage of Calyx & Corolla is its ability to ship flowers directly from any of its team of growers to anywhere in the US, using FedEx as its exclusive deliverer. Because flowers spend less time in the distribution channel, they last on average five to ten days longer. This type of customer service would not be possible without a reliable parcel delivery service.

3.5 Increased Usage of Credit Cards

The increased consumer acceptance of credit cards is a key enabler of will enable business-to-consumer Internet commerce. This is illustrated by the growth in credit card use over the last ten years. Last year's credit card volume exceeded $800 billion, more than 3 times the level of 1988. $554 billion of that was revolving credit, an increase of 200% from 1988 (Daly, 1998). In fact, in 15 years, consumer debt has increased from $650 billion to $1.25 trillion (this quantity includes all forms of debt, excluding home mortgages) (Spurlock, 1998). Figure 7 presents the total outstanding consumer credit and illustrates the growth of the credit card industry over the past 30 years. Because Internet purchases are inherently credit card purchases, this is an important enabler of business-to-consumer e-commerce.

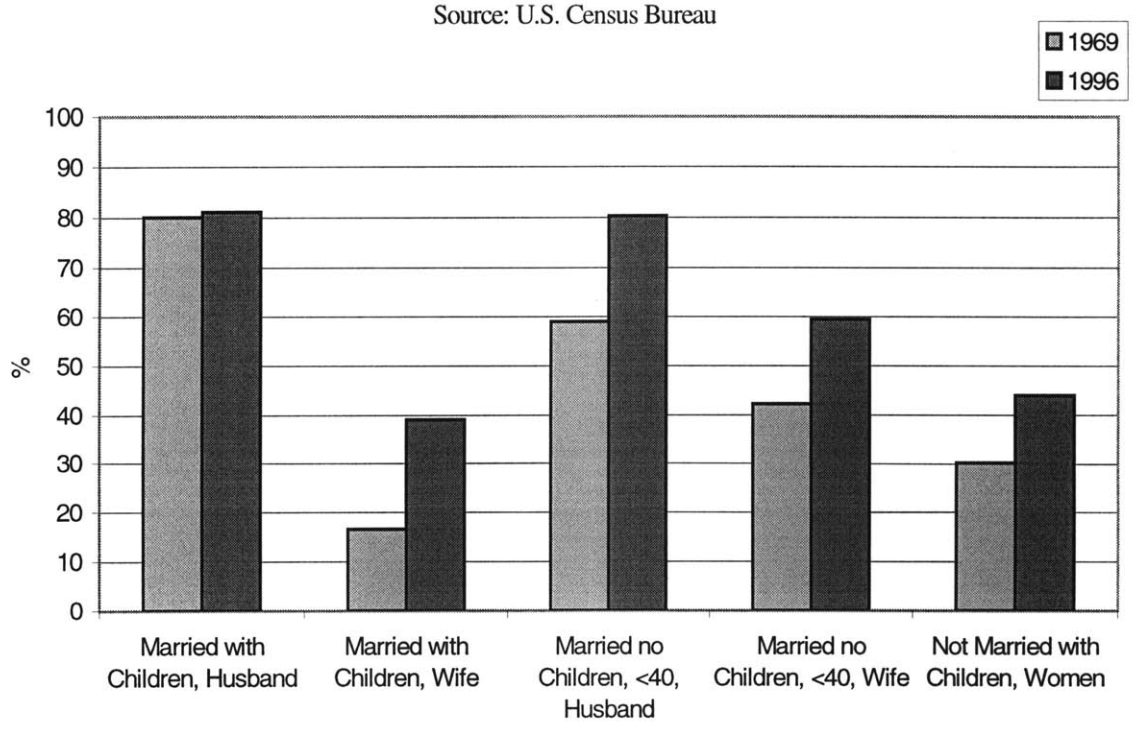
Figure 7
Credit Card Industry Growth
Source: Federal Reserve Board, 1998



3.6 Consumer Lifestyles

Another significant change in the U.S. society is the increasing number of two-income families and families with a working mother. With both parents, or a single parent, working in many families these days, consumers are not willing to drive from store to store in search of the lowest price. Rather they are trying to spend more time with their families. Figure 8 illustrates the increase in full-time working household owners over the part 25-30 years.

Figure 8
Percentages of Householders Working Full-time, Year Round
Source: U.S. Census Bureau



3.7 Changing Competitive Landscape

Prahalad (1998) identified several discontinuities that continue to change the competitive landscape. These discontinuities are globalization, deregulation and privatization, convergence, blurred industry boundaries, standards, eco-sensitivity, and disintermediation. The Internet and e-commerce are either directly impacted by these discontinuities, or act as catalysts to advance these discontinuities. Each of these concepts is discussed below.

Globalization. Through efficient and shared networks, manufacturers and retailers can reach consumers that they could not reach before. This connectivity through the Internet, when coupled with efficient transportation and logistics systems has removed the barriers of time and location for manufacturers and retailers.

Deregulation and Privatization. Deregulation was critical to the development of an efficient transportation (trucking, rail, air) systems. As discussed in Section 3.4, Internet commerce would not be sustainable without efficient and reliable transportation and logistics systems. The Internet also offers private, profit-seeking organizations a more efficient way of doing business.

Convergence. The Internet offers companies opportunities to explore converging business models. Software providers can move to the Internet and become information intermediaries. Microsoft has moved many offerings to the Internet (e.g. MSN Microsoft Hotmail & Carpoint).

Indeterminate Industry Boundaries. With converging processes, products, and services, the industry boundaries become very unclear (Prahalad, 1998). With many virtual retailers that are successful at attracting consumers to their web site, providing information, and performing transactions, it is hard to determine who they compete with. When Amazon.com began selling

books over the Internet in July 1995, it is unlikely that CVS or Walgreen's considered it a threat. However, with its established community of users and recent investment in 40% of drugstores.com (www.drugstores.com), it is clear that Amazon.com is now a threat to many, not just bookstores.

Standards. Without Internet Protocol (IP), the connectivity of the Internet would not be what it is today. Without this connectivity the advantages of doing business of the Internet are lost.

Eco-sensitivity. As more companies focus on environmental and ecological issues, the same companies identify the Internet as a way to reduce paper waste by reducing the number of physical transactions.

Disintermediation. The Internet is an enabler of disintermediation because it allows manufacturers to replace the non-value adding members of the chain with electronic transactions.

3.8 Summary

As a result of the economic, technologic, and societal changes that have occurred during recent years, many companies are revisiting the way they do business. Other companies are identifying new and better ways to do business and are entering the market as efficient low cost competitors. The following section presents these new business models and assesses the relevant benefits and challenges.

4.0 Internet Sales and Distribution Channels

Intermediaries must add value to the chain to remain in existence. It has been suggested that the Internet will create more opportunities for traditional intermediaries and that it will foster the evolution of a series of new intermediaries called infomediaries or cybermediaries (Sarkar & Steinfield, 1995). The key for infomediaries will be to identify where they can use information to compliment the overall chain. Four business models that have developed that leverage information are the Internet direct sales model, virtual retailer, auction, and online mall.

4.1 Internet Direct Sales

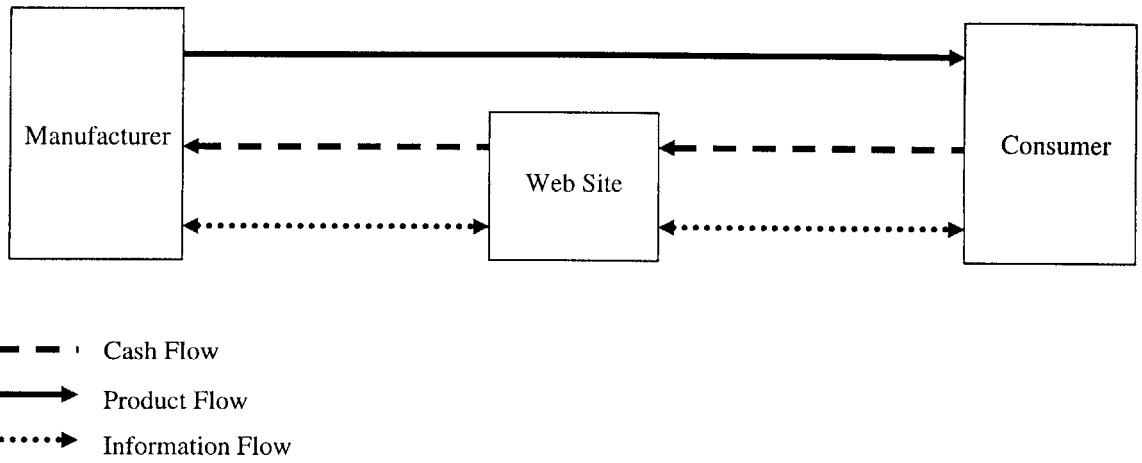
The Internet direct sales model is similar to the direct sales model discussed in Section 1.1.2.1 because it does not include any intermediaries and products are transferred directly from the manufacturer to the consumer (Figure 9). The difference between the two models is the manufacturer/consumer interface. In the Internet direct model, the web page replaces the sales rep or the catalog. This change makes the front-end interface more efficient. The Internet direct sales model offers the following advantages:

- A web site can reach (nearly) everyone at the same time, as opposed to one sales representative per house.

- The web site eliminates the costs associated with order takers and monthly catalog mailings.
- A web site presents dynamic information, including product availability, and can be changed immediately (catalogs are static until reissue).

With respect to delivery, the Internet direct model is similar to catalog direct sales. For Internet purchases, with the possible exception of software or other downloadable products, the Internet direct model also includes a waiting period necessary for products to ship from the manufacturer to the consumer. This is quite different from the sales representative direct model, where the consumer receives products immediately.

Figure 9
Internet Direct Model



Note:
Some Internet direct manufacturers may use a distribution center for fulfillment to some locations.

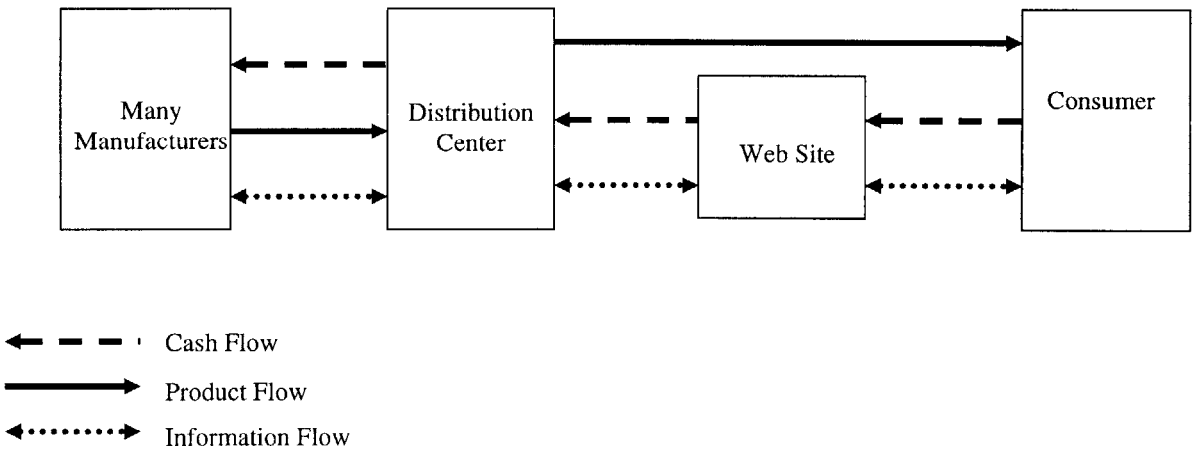
An example of the Internet direct model is Dell Computers. Dell offers a web site designed to process orders for custom-configured personal computers (www.Dell.com). Once the order is received, the computer is manufactured and shipped directly to the consumer, within 1-2 weeks.

Delivery times can vary depending on the availability of components. Dell also offers a catalog and accepts orders using a toll free number. Another example of an Internet direct sales model is Calyx & Corolla, a direct florist. Calyx & Corolla offers an Internet ordering channel (www.calyxandcorolla.com) in addition to a catalog sales option.

4.2 Virtual Retailers

The virtual retailer presents a "virtual storefront" (web site) on the Internet. The web site is where consumers shop, place orders, and complete payment and delivery arrangements. This model typically consists of a manufacturer, a distributor, and the virtual retailer (Figure 10), but fulfillment arrangements can vary from model to model.

Figure 10
Virtual Retailer



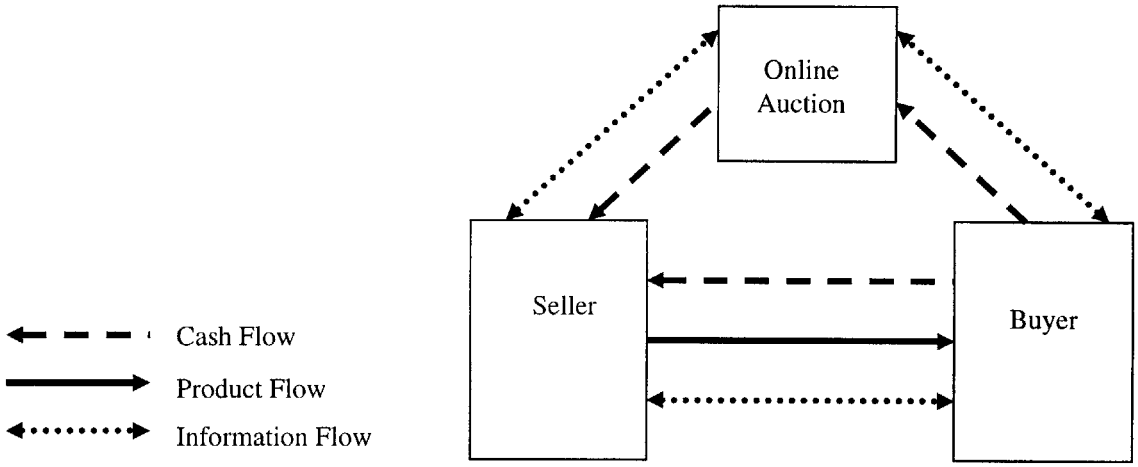
For example, the virtual retailer may aggregate products and complete picking, packing and shipping from its own distribution center, or the virtual retailer may arrange for distributors or

manufacturers to ship directly. In either case, the goal is to rapidly respond to customer requirements and reduced inventories and transaction and coordination costs. Aside from the lack of a physical storefront, the virtual retailer model is similar to the traditional distribution channel. In fact, Amazon.com relies heavily on efficient, traditional book distributors.

4.3 Auctions

Auctions bring buyers and sellers together to facilitate the sale and purchase of an item (Figure 11). A traditional auction requires a defined time and place and well-organized administration. An online auction is opened up and there is little maintenance involved. Buyers and sellers initially exchange information through the auction, the site completes the transaction, and the operating effort is significantly reduced with respect to a traditional auction. Once the transaction has been made, buyer and seller can directly share information and complete the exchange of goods for cash, or payment arrangements can be made through the site. eBay (www.ebay.com) is the premiere example of an online auction. Many smaller retailers, distributors, and manufacturers use eBay to hold what is called a "dutch auction" where they offer a number of products, set a minimum price, and accept the best offers. These companies will also use this as a vehicle for advertising and providing links to their own site (Tedeschi, 1999c). These auctions create a venue for people and companies who previously could not reach the global marketplace.

Figure 11
Online Auction



4.4 Malls

The term virtual mall or Internet mall is often used to refer to any site that has more than two commercial sites linked to it. Typically these malls will have some classification to characterize the nature of the stores. Internet malls, like traditional physical malls, provide infrastructure for manufacturers and retailers in return for a fee (Sarkar & Steinfield, 1995). However, these malls do not actually support transactions. An example of an online mall is www.malls.com that actually provides a directory of online malls. @mart (www.activeworlds.com) is a 3-D virtual shopping experience designed to simulate an actual mall. In this mall are some of the most well known commerce web sites on the Internet (i.e., Amazon.com, Beyond.com, CDNow).

4.5 Summary

The new Internet enabled business models have various similarities and differences with respect to the traditional distribution channel. There are also various benefits and challenges associated with the Internet enabled models. These benefits and challenges are presented in the following sections.

5.0 Challenges and Benefits of the Internet Models

The following sections present the benefits and challenges of the Internet direct sales model and the virtual retailer. These two business models were chosen because they best illustrate the benefits and challenges of Internet commerce with respect to the traditional and alternative channels.

5.1 Challenges

Conducting business-to-consumer Internet commerce includes many challenges. These challenges are listed below.

- Manufacturers and retailers that conduct business on the Internet operate in very ***efficient markets***.
- Although many companies have developed the skills to attract consumers to their web sites, building ***efficient distribution and logistics systems*** is a challenge.
- For many companies, advertising costs and the ***costs to acquire consumers*** are very high.
- Because Internet commerce is a relatively new method of shopping, the percentage of ***consumers willing to purchase*** over the Internet is low.

- Companies in well-developed distribution channels are struggling with the ***channel conflict*** created while attempting to implement a new channel.

The following subsections present the details of these challenges.

5.1.1 Efficient Markets

Consumers can find nearly any product information that they desire on the Internet. Consumers can use search engines (www.yahoo.com, www.snap.com, etc) and intelligent agents (www.acses.com) to locate and use this information. Intelligent agents collect and evaluate prices and information to help the consumer make a purchase decision. This endless supply of information allows consumers to easily compare product information and price, creating extremely efficient markets. Without service differentiation (quality, shopping experience), markets evolve to commodity markets where consumers only consider price. However, this neglects a company's ability to provide a differentiated offering through communities and extended services.

Markets are made more price competitive by companies such as NetMarket (www.netmarket.com) and Onsale, Inc. (www.onsale.com). NetMarket is membership based virtual retailer that offers products, a full service travel agency, and a car buying service. NetMarket sells nearly all of its products at cost and generates its revenues through a membership fee (Goldman Sachs, 1997). Onsale sells PCs and accessories to the public for the same wholesale price that it pays for them and generate margins based on advertising, service

fees, and nominal handling fee. Onsale believes that this is a logical extension of the efficiency that the Internet offers. The goal of these businesses is to build the web site brand based entirely on price. The philosophy is that although customer service, selection, and user experience are important, those things can be experienced elsewhere. Ultimately the consumer will choose the lowest price (Gurley, 1999).

5.1.2 Efficient Distribution and Logistics Systems

According to Jeff Bezos, Amazon.com's CEO, "logistics of distribution are the iceberg below the waterline of online bookselling" (Bianco, 1997). Because the evolution of information flow is occurring faster than that of physical flow, virtual retailers are challenged with designing a logistics system that can support their web site. A recent survey suggests that 50% of retailers not offering their products online lack the required distribution and logistics system (Ernst & Young, 1999). Many manufacturers and retailers are accustomed to truckload shipments delivered to few locations. The Internet distribution channel demands small shipments (parcels) to many locations (consumers). In many cases distribution is handled by organizations like United Parcel Service (UPS), Federal Express, and the United States Postal Service. UPS, FedEx, and USPS remain dedicated to this residential market although these routes are less profitable than business deliveries.

A common occurrence is what has been referred to as the "Wizard of Oz Syndrome." Behind the "flashy" web site are large warehouses with dozens of employees performing manual tasks required to fulfill the orders. The challenge for many companies is to connect warehouse management systems to order processing systems, as they are in the premier direct sales

organizations (such as Lands End, etc). When warehouse management and order processing systems are integrated, Internet sellers can track inventory against customer orders and provide real time product availability. Without this connection, online retailers can commit to orders when inventory is not available. The retailer risks disappointing the consumer and losing not only the current sale, but also future sales. Because this is a new experience to many consumers, it could be that a bad experience might be their last.

In the Internet sales model (retail or direct) repeat business is critical. Amazon.com gets two thirds of it sales from repeat customers (Sellers, 1999) and New England Circuit Sales (www.necx.com), a computer parts wholesaler, gets about 70% of its sales from repeat customers (Guglielmo, 1999). The educational toy division of the Holt Company (now www.toysmart.com) claims that more than half of its customers are repeat buyers (Chain Store Age, 1998b). Without the repeat buyer, online services must continue to invest in advertising and marketing to obtain new customers. Buy.com (virtual retailer) provides consumers with information regarding likely shipping times by coding all of its products based on availability. Products are either coded as "usually ships same day", "usually ships in 1 –2 weeks", or "special order."

Toby Lenk of eToys has said that "the original notion of Internet retailing was that you never need to touch the product, you outsource everything, and you run an empire with hardly any people. That's totally wrong. The virtual company simply doesn't work" (Sellers, 1999). This is because these companies realize that distribution is a key part of customer service. "We want to own the whole customer relationship, and part of that is distribution," says Amazon spokesman Bill Curry (Dodge, 1999). A step that Amazon.com took to achieve this goal was

building a total of ~600,000 SF of warehouse space to carry about 300,000 titles. This is quite different from the "sell all, carry few" approach that Amazon.com employed when it only stocked approximately 2,000 best-selling titles.

Many organizations that began as catalog businesses tend to have efficient distribution and logistics systems. Some examples are Lands' End (clothing retailer), Performance Bicycles, Eddie Bauer (clothing manufacturer), and Fingerhut (general merchandise retailer). These organizations already have established distribution and back office systems to support their business.

Fingerhut is recognized for its fulfillment and database management systems. Fingerhut handles 47 million telephone calls a year and 20 million packages a year (Fingerhut has the capacity to handle 60 million packages a year); its distribution centers are integrated to its order entry system; and it can send out most orders the day they are placed. Fingerhut also currently manages a database of over 31 million consumer names (Bear Stearns, 1999).

To exploit its order processing, warehousing, pick and packing, shipping, customer service and product return expertise, Fingerhut recently acquired three catalog companies and operates 12 web sites including www.fingerhut.com, www.andysgarage.com, www.figis.com, www.thehut.com www.pcflowers.com, www.mountainzone.com, www.skiresorts.com, www.freeshop.com, www.roxy.com, www.pcscentral.com, www.satellite.com, & www.handtech.com (Bear Stearns). To further leverage its abilities, Fingerhut developed Fingerhut Business Services (FBS), an outsourcing resource for companies starting up in e-commerce. Currently, FBS provides services to Intuit (a personal finance, tax preparation, and

small business software provider) and Levi's (clothing manufacturer), among others. Federated Department Stores (a conglomerate of department stores including Bloomingdale's, Macy's, and Stern's) recently acquired Fingerhut to enhance its Internet commerce offering.

5.1.3 Costs to Acquire Consumers

Shifting the traditional sales and distribution channel to the Internet gives the direct seller and virtual retailer a more efficient method of customer interaction, however attracting consumers is a difficult and costly task. Amazon estimates a consumer acquisition fee of ~29 dollars (Sellers, 1999). According to the Boston Consulting Group E-commerce Group, a typical virtual retailer spends a 65% of its revenues on marketing and advertising (Sellers, 1999).

Online retailers are using many different techniques to reach consumers. eToys established partnerships with other net occupants to steer customers to the eToys homepage. This was done by offering other sites, such as AOL (www.AOL.com), USA Today (www.usatoday.com), and Ameritech (www.Ameritech.com), a 25% share of revenues generated from this partnership (Seller, 1999). Traditional retailers like Gap, now routinely include the address of their Web site in broadcast and print campaigns.

5.1.4 Consumer Willingness to Make an Internet Purchase

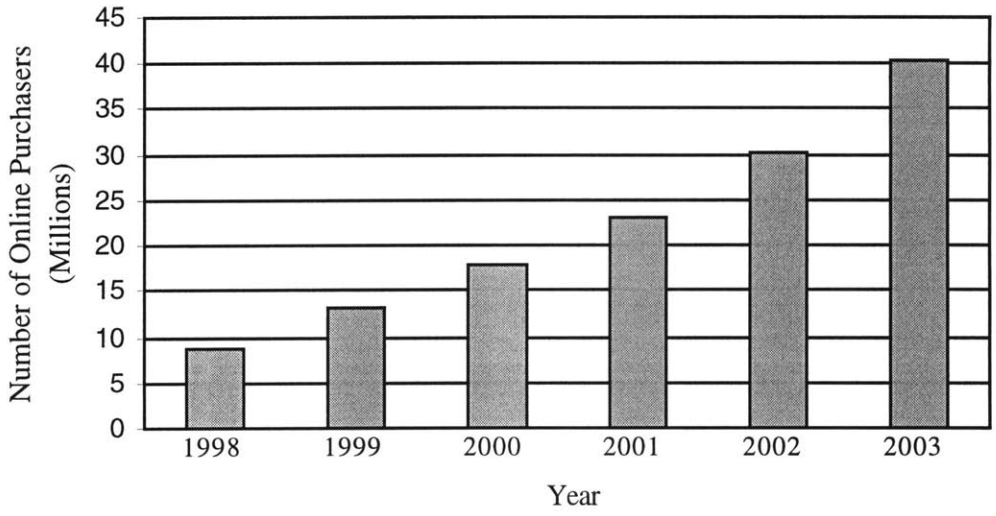
In 1998, e-commerce accounted for approximately $10 billion. Although this is only 1% of total US retail sales (Sellers, 1999), five years ago the percentage was zero. Approximately 43% of US consumers have a PC in their home (this does not account for those that use a PC/the Internet at work). Of that 43%, 52% are online and only 38% have actually bought over the Internet (Ernst & Young, 1999).

It is estimated that one-half to two-thirds of those who shop online abandon their purchase before they finish (Tedeschi, 1999a). 911Gifts.com (www.911gifts.com) estimates that 45% of their consumers abandon their purchase during the transaction. Although many of these consumers may not have had any intention of buying over the Internet, many other consumers leave when they learn of the shipping fees, are asked for personal information, or are asked for credit card information (Tedeschi, 1999a).

One reason that Internet purchasing is not growing as fast as it could is the expense to purchase a computer and get online. However, with the number of "free PC" offers that are available, it is not likely that this will continue to be an obstacle. Gobi (www.gobi.com) offers a free PC for customers who are willing to pay a monthly fee for Internet access. In return for a free PC (with an upgrade every three years), customers are obligated to agree to a three year contract (Crothers, 1999). Other companies, such as Free-PC (www.free-pc.com) offer a free PCs in exchange for personal information (i.e., income, magazines you read, your interest) and space on your

computer screen for continuous advertising. Other innovations such as Web TV or the Internet screen phone (Ernst & Young, 1999) also lead to the predicted growth of business-to-consumer e-commerce. Projections for U.S. online purchasers are presented in Figure 12.

Figure 12
Projection of Number of U.S. Online Purchasers



It is commonly accepted that another reason why consumers are not buying over the Internet is security. According to a recent survey, 97% of consumers that are online are not buying over the Internet because of credit card security (Ernst & Young, 1999). Many companies that have online shopping offerings provide security information on their web site. For example, upon issuing an order at www.Amazon.com, the site offers a link that reads "why this is safe." Upon following the link, the consumer is presented with an explanation of the safety guarantee, the encryption process, and alternate ordering methods. Other sites, such as www.Shopping.com present a dialog box after the transaction is initiated with encryption information and security protocol. A slightly different issue with respect to security is the possibility of being "scammed"

on the Internet. Many believe that it is more likely and easier for a small business to open and close a virtual business (web site) without much effort or expense, before delivering goods or services that were ordered.

Because companies use web sites to gather information about consumers, privacy is a big issue for this sales platform. Companies typically use three methods to get information about consumers. The first is to ask consumers to offer personal information through a registration process. The second is to look at the users' email or IP address, which yields limited information. The third is the controversial use of "cookies" to identify consumers. Cookies are data files that are written to the consumers' hard drive. These files collect information about the user including how much time they spend at a site and what pages they visit. Based on this information, the web site presentation can be dynamically altered, essentially creating a customized site for that consumer (Roth, 1998). Although some consumers feel this is beneficial, many view it as a threat to their privacy.

53% of consumers who are online, but are not purchasing online, mention "needing to see the product before purchasing" as the reason for not buying. The issue here, as discussed in Section 2.1.2, is risk. Consumers understand there is a risk they will not be satisfied with the product if they do not first see or touch it. This risk increases with the value of the product. Online retailers and direct marketers are challenged with making consumers comfortable with return policies (i.e., free shipping for returns, etc). For example, as Kmart begins to offer more services and products online, analysts believe this will be a major challenge (Hanover, 1999).

5.1.5 Channel Conflict

There are several reasons why manufacturers identified and continue to use a variety of channels to distribute their products. However, these channels and relationships present difficulty to many manufacturers when considering a direct channel. According to a recent E&Y e-commerce survey, 67% of retailers and manufacturer attribute investments in physical stores as being a major concern when considering a direct channel.

With direct distribution, there is a threat that existing channel members will lose market share. Faced with this threat, channel members threaten to drop some of the manufacturer's business. This is a concern primarily for manufacturers using a traditional channels that are considering a direct sales model. This problem is most prevalent in the PC industry.

In response to Dell Computer's direct sales model, other PC manufacturers (Compaq, IBM, etc.) are looking for ways to implement direct sales without aggravating their channel partners. When Compaq introduced its direct sales model in 1996, it was relatively ineffective. To avoid aggravating its channel partners, Compaq was forced to keep its prices high. Therefore, Compaq did not enjoy the benefits of an online offering: increased sales due to lower prices. In 1998 Compaq made another attempt at the direct channel and offered dealers six to seven % of the purchase price if they sent consumers to the direct sales unit (Hansell, 1998a).

The most recent attempt that Compaq made to compete with the Dell direct, configure-to-order model, is a pilot program that was developed with Best Buy (www.bestbuy.com). The program consists of Compaq kiosks where consumers can order custom configured PCs and have the

order send directly to them. This offering allows consumers to benefit from the value added by customer support at the retail location (i.e., product expertise), as well as custom-configure their PCs.

Not only are PC manufacturer's competitors selling their products directly over the web, so are virtual retailers. Because they have reduced the costs associated with inventory and eliminated the costs associated with real estate, virtual retailers offer these products at lower prices. Compaq was forced to cancel contracts with shopping.com because it would sell Compaq PCs for less than Compaq and its store-based dealers (Ramstad, 1999). While "brick and mortar" retailers invest the time in the sale (personal customer service), online retailers make the sale. Although this may not hurt Compaq's volume (it may even expand it), it does erode prices and further angers the channel (Tedeschi, 1999b).

Many manufacturers set up web sites to enhance consumer relationships, offer consumers a place to learn about the products, and refer the consumer to the local retail stores. This allows the corporation to use the Internet without introducing channel conflict. While this may work for some manufacturers, others realize that without an online option, consumers will turn to other brands. These manufacturers have developed programs that are designed to promote retailers, create an online presence for the manufacturer, and allow the manufacturer to sell direct.

- Nike vows that consumers will pay full price and shipping for online purchases. If this is unacceptable to the online consumer, the site offers the consumer the option to search for the nearest retail location.

- Compaq assures retailers that its web site provides a part of the sales effort to "brick and mortar" stores because there are many consumers that will search for information online, but will not make an online purchase (Tedeschi, 1999b).
- Estee Lauder (cosmetics manufacturer) felt that it needed an online offering to appeal to more consumers and decided to begin selling its Clinique line over the Internet (www.clinique.com). Estee Lauder was sure to include the link "your nearest Clinique counter" in an attempt to ease retailers' fears. This link provides the consumer with the nearest retail outlet that sells Clinique products. The site also recommends that consumers visit a retail counter to test certain products before purchasing them (Machlis, 1998).
- Pioneer Electronics USA, Inc.'s existing channels were relatively "maxed out" and Pioneer was looking to grow revenues. It opened a web site to sell directly to consumers (www.pioneerelectronics.com) and avoided conflict with its valuable dealers by only offering products that are not valuable to or sold by its channel partners.

Channel conflict is less a problem for retailers who consider an Internet offering. Most retailers believe that a web site would cannibalize "brick and mortar" sales by shifting customers, grow the market by attracting new customers, or result in a combination of the two.

- In 1998 Sunglass Hut reduced its number of retail stores from 2250 to about 2000 (Hanover, 1998). The goal was to increase its Internet presence and shift a portion of its "brick and mortar" business to the Internet. Sunglass Hut also

hoped to grow its business by offering additional services and increasing the convenience of purchasing sunglasses.

- In an attempt to reduce the high cost of a "brick and mortar" operation, Egghead Software made a conscious decision to close down its retail stores and focus on an Internet business (www.egghead.com). The move was a reaction to losses experienced due to growing competition, mostly computer superstores (CompUSA, etc) (Guglielmo, 1999), and is the first example of a complete shift from traditional retailing to a virtual retailing model (Ditlea, 1998).
- When Fingerhut experienced stagnating sales in the mid-1990s, it looked for ways to cut costs and boost sales. It decided that Internet sales could accomplish both. Fingerhut is hoping that by the early 2000's, the Internet will account for half of its business. President William Lansing says, "Let the Internet cannibalize our catalogs 100% for all I care" (Chain Store Age, 1998a).

5.2 Benefits

There are also benefits to conducting business over the Internet for both virtual retailers and manufacturers selling directly. These benefits are either exclusive to the Internet or enhanced by the Internet. The following presents brief descriptions of these benefits.

- Internet sales and distribution channels require that ***products spend less time in the channel***.

- Manufacturers and virtual retailers are able to ***reduce costs*** when they use the Internet to do business.
- Internet commerce companies can leverage a ***branded web site*** to increase sales.
- Internet commerce companies have few limitations with respect to ***time, distance, and space***.
- Internet commerce companies can provide ***continuous, dynamic, and personalized information*** to online consumers.
- Internet commerce offers a many aspects of ***convenience*** to consumers.
- Internet commerce companies can leverage interactive consumer ***communities*** to improve their offering and customer satisfaction.

The following subsections present detailed descriptions of these benefits.

5.2.1 Products Spend less Time in the Channel

Because of the reduced number of channel members, transactions, and inventory holding points, the time for products to travel from the manufacturer to the consumer is much shorter with the direct model. Because products spends much less time in the channel, manufacturers can react much more quickly to actual customer demand. This benefit is much more prevalent in the direct model than in the virtual retailer model because there are more channel members in the virtual retailer model. This benefit is possible through the direct sales and catalog models, however the Internet enhances the process due to the efficiency with which information is managed.

5.2.2 Reduced Costs

There are four primary costs that are reflected in the price of a good; production, overhead, coordination and profit. While production and overhead costs can be reduced through a variety of reengineering programs and policy changes, they are not the focus of this thesis. Instead we focus on coordination costs. These costs might consist of obtaining, processing, and transmitting information, and then acting on that information. In the past, because of the benefits discussed in Section 2.0, intermediaries were used to provide this coordination. However, these intermediaries charge high prices for their service. For example a retailer will pay approximately 2-3 percentage points above the cost of the book from the publisher when it receives that book from Ingram (Bianco, 1997).

With the increased usage of the Internet, part of that coordination cost could be reduced or eliminated. Dell found that labor costs generated to process paper work and correct mistakes associated with customer phone call cost about $25, while an Internet transaction costs nearly zero.

Other costs that can be reduced by eliminating intermediaries are additional inventory carrying costs and product obsolescence costs. By reducing the coordination, inventory carrying, and obsolescence costs, manufacturers could deliver the same good at a lower price, thus increasing sales, revenues, and profits.

5.2.3 Branding

An important skill for an online seller is to be able to brand its service and its site. Although brand is important to traditional business models (i.e., Proctor & Gamble, Colgate-Palmolive, etc), branding a web site through customer service and product offering creates an opportunity for new businesses. Amazon.com and CDNow have been very successful with this in their respective markets. Many companies feel that having a branded web site is one of its most important strengths. Mark Breier, president and CEO of Beyond.com (former Vice President of Marketing at Amazon.com) hopes to be as successful at building the Beyond.com brand as he was in building the Amazon.com brand (Guglielmo, 1999). Toby Lenk at eToys believes that because he was the first real online player in the toys category, he has become the "de facto brand leader" and has gained a major competitive advantage (Seller, 1999). Egghead.com believes that if it is going to survive the shift from "brick and mortar" to Internet, it will be in large part due to its existing "brand" name (Ditlea, 1998).

Dell Computers also proves the power of branding by expanding its operations in electronics and computer accessories at Gigabuys.com (www.gigabuys.com). This expansion is quite different from the made-to-order model that made Dell famous. In this business Dell will simply be a virtual retailer and will rely on wholesalers such as Ingram Micro Inc. and Merisel Inc. to fill orders. Some feel that this is strategic effort to leverage the "brand" name that Dell has established on the Internet (Ramstad, 1999).

5.2.4 Time, Distance, and Space

The time, distance, and space benefits of the Internet allow a manufacturer or virtual retailer to reach any consumer, anywhere, at any time, with a relatively limitless product offering. This was relatively infeasible, if not impossible, before the Internet.

Time – Using a web site as an order processing center, retailers allow consumers to place orders 24 hours a day, 7 days a week. This is an important feature. A recent Catalog Age survey suggests that only 17% of catalog retailers offer 24-hour order reception (Dowling, 1998). Jim Zimmerman of Cottura, a Los Angeles based ceramics retailer, says "We're not big enough to staff phones around the clock with our own people who know the products" (Dowling, 1998). These businesses are losing after-hour impulse sales. A functional web site can take these orders. Outdoor goods retailer REI (www.rei.com) says that it generates 35% of its online orders between the hours of 10pm and 7am when its store and mail order operations are closed (Ernst & Young, 1998).

Distance – Another advantage of the Internet is that it allows a manufacturer or a retailer to reach any customer, anywhere. This becomes especially important when the retailer is small or deals with relatively low volume, rare products (e.g., model trains or other specialty items). Specialty retailer Beater Wear (www.beater.com) is an outdoor clothing manufacturer. As a small, young company (one full time employee as of January 1998) it is impressive that the company's Internet sales are doubling on an annual basis and international orders make up about 8% of those sales (Business America, 1998). This idea is even more powerful when these smaller merchants consider the platform of an auction. Ebay (www.ebay.com) has been compared to a

virtual flea market complete with small merchants selling a variety of rare goods that consumers have a difficult time finding anywhere else (Tedeschi, 1999c).

Space – Large retailers also see the web as way to expand their services and offerings in the face of physical constraints. Kmart (www.kmart.com) uses the Internet to expand its offering to consumers without having to first use test markets or expand its physical presence. The web site will be used to offer everything from money orders to household goods and eventually concert tickets (Hanover, 1999). Similarly, because Amazon.com has no space constraints, it can offer any product that fits its business model (information rich products that are easy to ship).

5.2.5 Continuous, Dynamic, & Personalized Information

With an online platform, companies can change information regarding product quality, price, and availability on a real time basis at any time of day. A traditional catalog retailer must wait until the next release of the catalog to revise information. This might not be until the following month, quarter, or year. Web sites can also be changed dynamically based on the specific user. For example, web sites can be modified to address a consumer's profile. Cookies are often used to gather information to create this profile. After the information is gathered, web site presentations, including products, prices, and site layout can be modified for that consumer.

Online catalogs also make it possible for retailers and manufacturers to offer customers a variety of services and information that was not previously offered or easily accessible. In addition to logistics services that can be offered online, such as checking existing inventory, reviewing order and tracking status and purchase history, and providing price comparisons, (Guglielmo, 1999),

web sites can also provide consumers with value added services through information. These include making recommendations for gifts and providing real time price quotes for custom configured products (Section 6.2.7). Compaq can even offer custom solutions for its consumers problems. *ActiveAnswers* returns a solution after users submit their problem or issue.

When the Internet is used as an order-processing tool, information is more easily managed and evaluated, thus increasing the reliability of forecasts. The grocery industry is benefiting from online ordering by gaining better visibility of lost sales due to stockouts. Because consumers online must "order" (select) a product before they know if it is in stock, grocery retailers can quantify the number of lost sales of a particular item.

5.2.6 Convenience

As discussed in Section 3.6, many consumers are too busy to spend time shopping. Because of this, shopping from home is quite attractive. Peapod (www.peapod.com) leverages this convenience and markets its service to working women with children. A trip to the grocery store for $115 worth of groceries might take over an hour. With Peapod it takes about 15-20 minutes (Chain Store Age Executive, 1997). Auctions On-Line (an online auction house) thought that if they could consolidate many of the auction houses around the world to a web site, art consumers could avoid flipping through hundreds of catalogs and flying around the world to attend auctions (Plotkin, 1998).

To provide an additional level of convenience and customer service, many retailers and manufacturers offer the consumer a variety of options. Computer hardware and software retailer,

CDW (www.cdw.com), offers both an online ordering process and a telephone call center. Jim Shanks VP of Information Technology at CDW says "we want to take the orders (whichever) way customers feel comfortable" (Guglielmo, 1999). Macy's (www.Macys.com) will except returns within 60 days either through the mail or any of its stores (Hanover, 1999).

Finally, convenience may be a function of the type of product being offered. As of early March 1999, several drugstore sites have opened on the Internet. Drugstore.com is one of many online drugstores that are counting on two aspects of the prescription industry. The first is that there is sensitive information transferred during a drug transaction, including the medication the consumer is taking. The second is that there is a large fraction of the prescription industry that is repeat and maintenance prescriptions. Online drugstores are providing services that include online ordering and e-mail refill reminders to differentiate themselves (Eisenberg, 1999).

5.2.7 Communities

Developing communities is a significant development of e-commerce. Online communities transcend time and space and give consumers buying power and strength in numbers. Communities also give consumers a feeling of ownership. Venkatraman & Henderson of Boston University (Venkatraman & Henderson, 1998) suggest that there are three characteristics of an effective community.

- There is a distinctive focus;
- Members can post content, resulting in a feeling of ownership; and
- Member generated content is valued by other community members.

Distinctive Focus. The Harley Davidson community (Harley Owners Group or HOG) allows Harley Davidson motorcycle owners to share stories and pictures and serves to provide a link among core consumers who enhance Harley Davidson brand equity (Venkatraman & Henderson, 1998). There are several web site locations for this community which are segmented into chapters that are based on regions of the country.

Ownership. Amazon.com is a good example of a community on the Internet. Giving the consumers the ability to post content (book reviews, etc) has given its users a feeling of ownership. An excellent example of the Amazon.com community is in the John Updike story. For 44 days a new Amazon.com consumer would have his/her writing selected as the next piece of a John Updike short story. The selected writer would receive a $1000 for his entry and John Updike would ultimately provide the ending. Amazon attracted thousands of visitors per day during this period and consumers were given the chance to collaborate with a world-renowned writer (Davis & Meyer, 1998). This is a good example of how users are encouraged to post content for the use of others.

Valued Content. An example of a community generating valuable content is the Intel Pentium chip flaw that occurred in the early nineties. As users began identifying problems with the chip, they began posting information on the web regarding the flaw. When a critical mass was reached among the Intel community, Intel was forced to act on the problem and recalled the chip for replacement. This is a situation where member contributed content was appreciated. Without this community and the sharing of knowledge, users would not have had the leverage to make Intel react to the problem.

There are two points to be made regarding the formulation of Internet communities.

- The development of a community prior to the Internet was possible, but, not to the same extent because of location, schedule and financial considerations.
- The Internet provides an efficient means of allowing the company at the center of the community to be active and to monitor the material generated within that community.

Extended Community. To use the Harley Davidson example again, a Harley Davidson community existed before the Internet. There were organized get-togethers that brought these owners together. However, this type of get-together was infrequent and was subject to limits including location, schedule and financial flexibility. With the Internet, the community is always convening and members can come together any time and from anywhere. Harley owners in all parts of the world can share stories and photos regardless of time of day or financial status.

Companies that take part in their communities. Companies can actively take part in the customer community to monitor information flows. This is important because the company can tailor its offering based on what it learns from the community. As Intel became more aware of its microprocessor flaw and the number of its customers that were impacted, it decided to remedy the problem.

5.3 Summary

The benefits and challenges that are presented in the previous sections are important for retailers and manufacturers to consider before offering their products online. However, it is not enough for these Internet sellers to consider only the benefits and challenges. Potential Internet sellers must also consider the product characteristics. The following section presents important characteristics to evaluate before shifting to online selling.

6.0 Determining if Products are Appropriate for Internet Sales

Having considered the impacts to distribution channels as a result of the proliferation of the Internet, we researched several case studies to identify what is currently happening and what is successful. The intent was to determine characteristics of businesses/products that are compatible with direct sales or virtual retailing.

6.1 Previous Studies

Several previous studies identified which products are viable candidates for online sales. This subsection presents the results of these studies.

As Internet stocks become more popular investment opportunities, investors seek to understand how these companies will sustain a successful business. To do this many reports have been written to identify which products will survive on the Internet. In a report prepared by Goldman Sachs (1997), it was hypothesized that goods for Internet sales could be ranked from best to worst. Rankings were generated by assigning a point value to products for factors such as:

- information intensity of the product;

- targeted consumer (i.e., PC user);
- percentage of distribution cost to gross profit;
- frequency of changing price and selection;
- acceptance of delayed gratification;
- importance of convenience.

The analysis and point assignments were based on analysts' opinions and current trends. After the analysis, points were totaled and the rankings assigned. The results identified computer hardware, PC software, books, music, and electronics as the top five products for Internet sales.

Ernst & Young also provides a retail Internet report (Ernst & Young, 1998) that is based on a survey of retailers, manufacturers, and consumers. The survey illustrates the relative willingness of consumers to buy over the Internet, retailers' fears of a direct marketing/distribution model, and manufacturers' willingness to attempt a direct market. The report also indicates the variety of issues that each of these entities evaluates when considering e-commerce. Relevant details of the report are referenced where appropriate throughout this thesis.

Deborah Cross (1998), a Guest Columnist for www.software.ibm.com, suggests in her article "Are You a Candidate for Disintermediation?" that there are general characteristics of products that are natural candidates for Internet sales and that these businesses are disintermediation-prone. She argues that:

- If a product can be delivered in digital format (i.e., software, music, etc), there is a possibility that eventually it will simply be downloaded from the Internet (Cross, 1998). Beyond.com

believes that in the future consumers will obtain software by downloading it from the Internet. Forrester Research estimates that by 2001 one-third of all software will be distributed with electronic technologies (Guglielmo, 1999). BMG, Universal Music Group, and other major record labels are researching ways to deliver digital music over the Internet to compete with the proliferation with the MP3 music format (Anderson, 1999).

- If a product is lower-priced, frequently purchased and does not require expert knowledge, it is a good candidate for Internet sales and therefore disintermediation.
- If a product is catered towards computer-literate consumers who have little apprehension about transacting on-line, it is also a good candidate for Internet sales and therefore disintermediation. Dell takes advantage of this by targeting high-end PC users.

6.2 Product Characteristics to Evaluate when Considering Internet Sales

In this section we will identify several product characteristics that should be evaluated when considering a product for Internet sales. These characteristics are:

- Industry clockspeed;
- Stage in the product lifecycle;
- Level of point of sale or after sale customer service is required;
- Importance of instant gratification;
- Current availability of product;

- Relevant regulatory issues;
- Customization;
- Community;
- Fun to buy;
- Value added through information;
- Ratio of shipping to purchase price.

The following subsections present definitions and discussions of these characteristics.

6.2.1 Industry Clockspeed

Industry clockspeed measures the rate of change of the industry's evolution (Fine, 1998). In particular, we refer to the rate of change of the industry's products, processes, and organizations. Two examples are the microprocessor industry (fast clockspeed) and the aircraft industry (slow clockspeed). Products in the microprocessor industry consistently evolve and their predecessors become obsolete every two to four years. On the other hand, the aircraft industry seems to have a clockspeed that is approximately tenfold that of the microprocessor industry. Intel microprocessors have an approximate market life of two to four years while a Boeing 747 remains a profit center after 30 years after its introduction (Fine, 1998).

The longer a product spends in the distribution channel, the greater the risk of inventory obsolescence. In an industry with fast clockspeeds, this risk is magnified. Because lifecycles in the PC industry are driven (in part) by the evolution of microprocessors, we will define the PC industry as a fast clockspeed industry and use it to illustrate this point.

Many major computer manufacturers ship finished PCs to distributors and/or retailers. Because these PCs spend up to four months in the distribution channel, superior technology is often developed before they are sold (an assembled PC loses approximately 6% of its value in 10 days (Hansell, 1998a)). When the superior technology hits the market, retailers either sell the old PCs at a reduced price or send them back to the manufacturer (Section 2.2.1). Because manufacturers/assemblers must keep up with current technology, they consistently deem their own unsold products obsolete. Dell computers developed the answer to this problem by shipping computers directly to consumers. Because Dell assembles computers (nearly) to demand, they avoid excess or obsolete inventory.

This concern also exists for many other types of products that follow this type of changing environment. Some examples are toys, clothing, and infotainment products (software, movies, etc). All of these products are being offered through e-commerce channels. It should be noted that the direct sales model is especially effective for these types of products because it reduces the time products spend in the channel (Section 5.2.1). An extreme example would be software or movies where clockspeeds are even shorter than that of PCs and are immediately downloadable from the Internet. However, because these downloadable products are relatively inexpensive, inventory obsolescence is not a great concern.

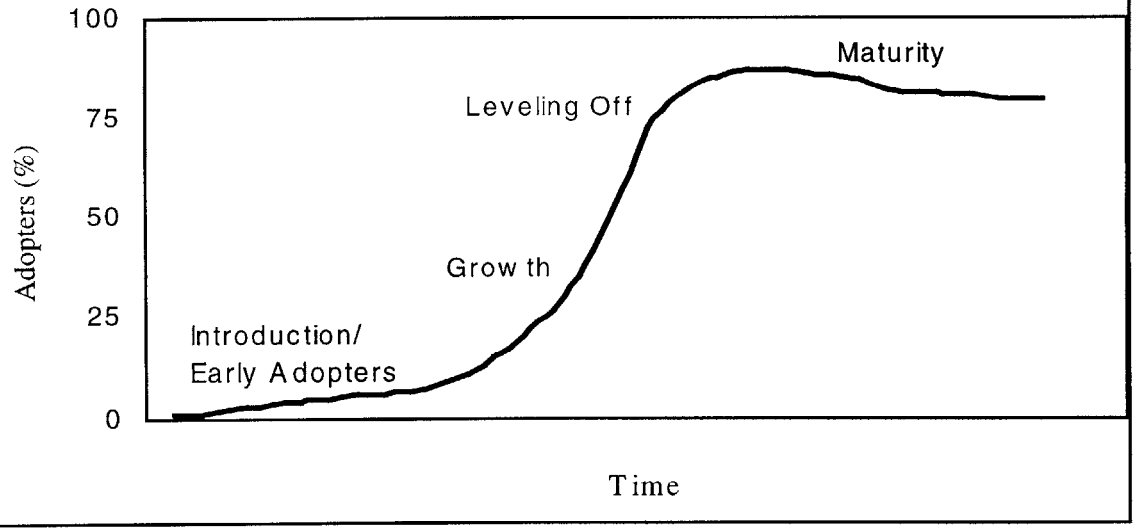
In summary, it may be concluded that industries with slower clockspeeds may be much more tolerant to inventory levels because the ensuing technological advances do not drive such high levels of inventory obsolescence. However, industries with quicker clockspeeds should be looking to understand how to eliminate some of this obsolescence. Dell seems to have found a

way to do this. Other PC manufacturers are searching for ways to "collaborate" among channel partners to share forecasts and schedules to reduce inventory risk.

6.2.2 Product Lifecycle

The product lifecycle is the series of stages that a product evolves through. There are four stages of the product lifecycle (Corey, 1978). These stages are introductory, rapid growth, leveling off, and market maturity (Figure 13). This concept is related to the clockspeed issue, with some subtle differences. Clockspeed depends on the innovation of the product, where product lifecycle is more dependent on the market (consistent product innovation can increase the product lifecycle). The following identifies how product lifecycles should be evaluated with respect to Internet commerce.

Figure 13
Typical Product Lifecycle Curve



We believe that the effectiveness of the Internet distribution channel will be a function of the lifecycle stage of the product. During the introduction and growth stages of the product lifecycle, as consumers are becoming aware of and making initial purchases of a product, it is likely that consumers will require personal attention. During this stage it is also true that manufacturers can differentiate their products, thus leading to higher margins, and would appreciate the value added by the retailer. However, as the product begins to enter the leveling off and market maturity stages, this value added will become less and less important (Years, 1998).

During the leveling off and market maturity stages, most purchases represent replacements and the product begins to become "commoditized" across the industry and profit margins begin to shrink. When shopping for these "commoditized" products, consumers will be interested in the emotional satisfaction of purchase and the price. These factors suggest that an information rich web site with a strong community would be the preferred and most efficient channel.

The PC industry is a perfect example of this phenomenon and represents more than one stage of product lifecycle. One segment of PC users consists of repeat buyers who would likely not require much purchase support. This represents Dell's target market and suggests why Dell has been so successful with its direct sales/Internet model. The other segment has yet to complete their first PC purchase, and would likely require personal support. Compaq, IBM, etc. serve this market and rely on the traditional channel to do so.

Gateway (www.gateway.com) is attempting to reap the benefits of both of these markets. Gateway, with its "Call, Click, or Come in" campaign, continues to fulfill orders through the direct channel (800 number and Internet), it also has "brick and mortar" locations to offer buying support to those customers who require it. Customers enter the store, customize and order their machine via an Internet terminal at a retail location, and then receive the machine at the desired shipping address. This way, Gateway gets the interaction benefit of the physical store, while maintaining the "made to order" model that allows them to keep inventory levels low. It is not hard to imagine an auto dealership that is simply a showroom. A place where consumers can look, drive etc., but then when it comes time to buy, orders are filled on a made to order basis. In fact this is how 80% of automobiles are purchased in Germany.

The Internet also offers a great opportunity to manufacturers and retailers that are selling products that have reached the end of their lifecycle and are bordering on becoming obsolete. Chances are there is still a market of price sensitive consumers for these items. The challenge is finding them. The manufacturer or retailer can use the Internet to reach a relatively spread out (geographically) but small market while not upsetting the channel by selling low margin products directly. An example of this is Lands' End clothing company (www.landsend.com). Lands' End is leveraging its experience in delivering goods to sell overstock and surplus inventory over the Internet. This initiative is allowing Lands' End to close down 19 outlet stores (Machlis & Jaikumar, 1999). The decision was made because the retail outlets were only marginally profitable. When Egghead made its shift from brick and mortar stores to an Internet based business, it found its most impressive expansion to be its Surplus Auction site (www.surplusauction.com). At this site, Egghead sells odds and ends and closeout items. In just nine months after startup, total registered bidders shot up from 29,000 to 168,000 (Ditlea, 1998).

Egghead also offers a site that focuses on selling liquidation, refurbished and discontinued goods (www.surplusdirect.com).

In summary, products that are reaching the end of their lifecycle and whose sales consist mainly of replacements should be good candidates for Internet sales. As products approach this stage, up-front customer and decision support becomes less important, margins begin to shrink, and the Internet offers an appealing sales channel.

6.2.3 Point of Sale & After Sale Customer Service

Another important issue surrounding the direct sale/virtual retailer issue is that of customer service. There are several industries where retailers provide point of sale and after sale customer service including installation, assembly, or maintenance. Examples of these are the bicycling, car stereo, and automotive parts industry.

In order for a consumer to purchase a bicycle or part online or with a catalog (i.e., Performance Bicycles, Nashbar, etc.), the consumer must be able to have the part installed or assembled. This may be a critical barrier to ordering this way. Though it may be true that the consumer can buy the good online and have it assembled at a local store, assembly is typically free when the product is purchased from that store. Further, many "brick and mortar" establishments offer the extended service of periodic maintenance. For example, upon purchase a retailer may offer free maintenance after two months, a service that an online retailer would likely not be equipped to provide. Similarly, if a car stereo is received in the mail, the consumer must determine how to have it installed. Again, while this can be accomplished by visiting the local car stereo retail

store, there will be a fee associated with this installation, as opposed a "free installation" that is typically offered when a stereo is purchased from a retailer.

Finally, the auto parts retailers offer purchase information and installation support. A consumer may visit an auto part retail store with an old or damaged part to determine the problem and what to purchase. By consulting real time with an expert, consumers can be relatively sure that they received good advice (assuming they can trust the salesperson/mechanic). This real time, expert, physical service is not likely to be offered through an Internet channel.

In summary, this analysis suggests there are several products that require expert opinion and physical service that would not be addressed through an Internet channel. If retailers can continue to distinguish themselves from online providers with a physical service, they will maintain their position in the distribution chain.

6.2.4 Instant Gratification

The notion that consumers will want a physical product immediately presents an obstacle for Internet sales. The following are some specific examples of instant gratification purchases.

- A music fan hears a new favorite song on the radio and decides to purchase the CD.
- A husband or wife has a disagreement with his/her partner and decides to purchase flowers on the way home from work.

- A fitness-buff's walkman batteries go dead during a bike ride or jog and stops in the nearest store to replenish the batteries.
- A commuter has car trouble and needs to have the vehicle fixed immediately.
- A patient is diagnosed with a virus or sickness and is immediately prescribed medicine so he/she visits the pharmacy on the way home to start the treatment.

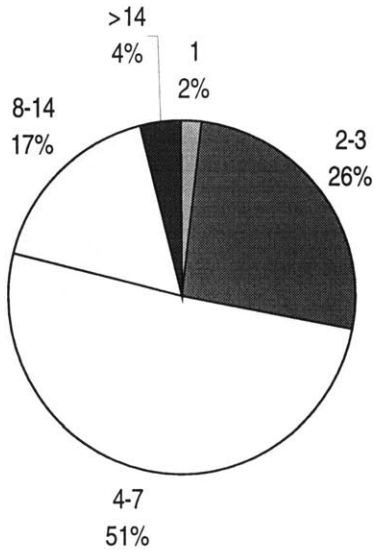
Although through efficient distribution systems (i.e., overnight parcels services, etc), these products can be delivered the "next day," in many cases that may not be quick enough. These are the cases where the Internet cannot compete with the traditional channel. There are, however, many purchases that are planned and can absorb the delivery times. A couple of examples of this are gifts, weekly groceries, and maintenance prescriptions.

When a product is given as a gift, there is time for the consumer to make the purchase and allow for delivery time. This is likely why products that are frequently given as gifts (i.e., clothing, toys, flowers) sell well on the Internet and why Internet sales increase so dramatically during the holiday season. Weekly (or replenishment) groceries are also likely Internet candidates because consumers can enter a constant weekly order and receive goods without replacing the order. Finally, online drugstores are counting on maintenance prescriptions as being the staple business, understanding they will not compete with instant gratification purchases.

It has also been noted that consumers who are willing to wait for products to travel through the mail are also willing to wait a little longer to reduce shipping fees. A survey of online shoppers indicated that more than half of the online buyers will choose to wait four to seven days to receive orders and only 2% will pay extra for overnight delivery (Isidore, 1999). Figure 14

presents the percentages for shipping times requested during the 1998 holiday season and further illustrates this point. This suggests that consumers who can afford to and are willing to wait make the majority of purchases.

Figure 14
Requested Shipping Arrangement
(Days)



Currently software, journals, and music are the only products that can be downloaded from the Internet making instant gratification possible.

- Beyond.com (online software retailer) has built its strategy around the assumption that by 2001, one-third of all software will be downloaded over the Internet.
- John Wiley & Sons (magazine and book publisher) offers approximately 150 (expected to be approximately 400 before the end of 1999) journals for downloading from the Internet (www.interscience.wiley.com). The strategy

leverages an industry (science, technical, medical journals) where information changes daily and offers dynamic information in that environment (Leibs, 1998). Wiley currently has 8,000 registered users (professionals in the fields of science, technology, and medicine) and is planning on selling college textbooks.

- Music sites www.mp3.com offers downloadable music from all genres.

In summary, when considering the likelihood of a product's main distribution channel becoming the Internet, one must evaluate the frequency that the product is purchased for instant gratification. This is not to say that if instant gratification is an issue, there will be no online market, but it will give perspective as to the magnitude of the potential shift.

6.2.5 Current Availability of Product

The current structure of the particular industry will be an indicator as to whether or not the Internet sales will thrive. For example, if the industry has a well-established channel, making the shift to the Internet may be difficult (Section 5.1.5), particularly for players who are well entrenched in their channel. On the other hand, products that sell in low volume, are highly specialized, and are hard to access are good candidates for Internet sales.

For example, a rare electronic train parts dealer that is small and cannot support a franchise type of organization, most likely does not reach all its potential consumers. This applies to collector types of businesses and hobbies. These retailers probably do not have the volume to get shelf space at a traditional retail channel. Nearly half of California's wine makers produce less than 5000 cases of wine annually. This volume makes it hard for the producers to get the attention of

distributors, although they may have some of the best wines (Farmer, 1996). Setting up a web site offers an excellent opportunity for these merchants to reach a greater number of potential consumers.

In summary, many traditional business processes are so entrenched that manufacturers who try to break out are stymied with resistance from their long-time channel partners. The players that will truly be able to take advantage of the Internet are those that are not heavily involved in a well-established channel and those that are in industries that are highly fragmented.

6.2.6 Regulatory Issues

Some goods are at an inherent disadvantage because of the nature of the product. For example, many home improvement products such as paints and cleaning chemicals are hazardous and are subject to shipping regulations that make it infeasible to ship directly to consumers. Another example is direct sales of alcohol. Distributors are questioning the legal aspects of this sale and are referring to these retailers as "Internet Bootleggers." The issues are underage consumers who buy alcohol online and retailers avoiding state sales tax by choosing the Internet platform. Currently 20 states ban the direct sale of alcohol. Other states allow only in-state direct sales and trading with particular states. For example, California maintains an agreement with 11 other states that allows the direct sale of wine within only those 12 states (Woody, 1999).

6.2.7 Customization

In today's market, not only do consumers demand high quality and low prices, they also demand customized products that can be delivered in a short amount of time (Years, 1998). Many consumers are no longer satisfied with a mass produced product that is "one size fits all." To facilitate a customized offering, manufacturers must present all possible product configurations. The Internet and its infinite capacity for information provides the platform for manufacturers to present this offering. The success of the Dell Computers model proves this point.

Consumers contact Dell Computer (www.dell.com) and have access to all possible components and configurations. Once consumers determine what they want, they order the custom configured PC for home delivery. The Internet is an ideal place to support this business for the following reasons.

- The Internet provides a platform where a manufacturer can present all of its products for consumers to view.
- The Internet allows consumers to arrange custom configurations and receive real time price quotes
- Because the consumer will expect to wait for the custom configured product, instant gratification is not an issue.
- Shipping fees can be partially absorbed by the customization fee.

The PC market is an ideal place to offer customization because it allows consumers to transform an otherwise commoditized product into a custom-configured product. Although the PC market is one where customization is the most prevalent, there are other industries that are using the Internet to offer customized products. Some examples are vitamins, clothing, footwear, and music and they are described below.

- Acumin, a vitamin manufacturer, opened a web site (www.acumins.com) where consumers can custom design their own blend of vitamins.
- On Levi's web site (www.levi.com) the consumer is offered an option to "create jeans" or custom fit them. Although initial measurements must be completed at a retail store, future orders can be placed online.
- Reebok is currently working with the Massachusetts Institute of Technology to develop a prototype instrument that measures feet to facilitate a custom fit. This apparatus will be installed in retail stores and consumers will have their foot scanned for measurements. The order and the consumer's measurements will then be transmitted to Reebok where the shoe will be custom made. If this type of instrument could be produced efficiently, consumers could have this in their homes.
- During the Valentine's Day season, CDNow (www.cdnow.com) offered an option to have a CD custom made for your Valentine. This service was limited to specific love songs and is not always offered. N2K, an online music marketer and retailer (www.musicblvd.com), is also exploring software that will allow consumers to design there own disks and download them to CD.

- McGraw-Hill Ryerson (www.mcgrawhill.com) developed the Primis system to deliver textbooks. Professors can choose the material that they want their students to have without forcing them to pay irrelevant material. This appeals to students who have complained about using only a fraction of a very expensive book.

The challenge associated with this opportunity is that the manufacturers must have the manufacturing flexibility and logistics systems to support this up front offer.

In summary, customization seems a natural fit for the Internet. The dynamic information offering coupled with the real time evaluation of prices represents a unique experience that was not possible before the Internet. If the manufacturer can provide the back office and physical requirements required to support the customization offer, it should be a growth area on the Internet.

6.2.8 Community

A critical skill is being able to develop a community that will support the product that the site offers. Amazon.com has been extremely successful at this through its book reviews and other programs. There are however, other examples.

N2K, an online music marketer, has developed a successful community by targeting and servicing a niche market. N2K realized that the classical music genre was not serviced well through the traditional retail channel. In response, N2K developed Classical Insites

(www.classicalinsites.com). The site offers online RealAudio broadcasts, links to other classical music sites, chat rooms, artist biographies, and discographies. This community has been so successful that members flew to New York to have dinner together (Hall, 1998). By servicing such a niche market, N2K generates a fair amount of revenues through sales and advertising ($3.6M in 3Q 1997). Advertising space comes at a premium because advertisers value the concentration of like consumers.

The other option is to develop the community and then decide what product to sell. iVillage (www.iVillage.com), the most demographically targeted online community on the web, targets the interests and needs of women between the ages of 25 and 49. Once these consumers are gathered, they represent an attractive and easily targeted demographic. iVillage chose iBaby, Inc (www.iBaby.com) to generate e-commerce revenues. iBaby offers over 14,000 baby gifts and products from 500 manufactures. iVillage also generates revenues through sponsors and advertising and developing alliances with web sites that are also targeted to this demographic. These alliances represent channels that bring women together through family, health, work, money, food, relationships, shopping, travel, pets, and astrology.

It has been seen that web sites that simply put up an online catalog and hope that consumers will find value are typically disappointed with the results. The real power in business-to-consumer Internet commerce is in building communities. Communities allow for an activity (electronic socializing) as well as a function (purchasing products) and make buying products fun. Virtual retailers and online manufacturer that can build communities around their web sites will be successful.

6.2.9 Fun to Buy, Social Activity

An issue that many e-commerce "nay-sayers" refer to is the notion of shopping being fun. This refers to a mother and daughter or two friends spending the day at the mall. Although this past-time is likely to continue, there are many products that are not purchased during these outings. Therefore, it is important to make the distinction between products that are the focus of shopping as a social activity ("fun") and products that are simply *not* fun to buy.

For example, spending the day shopping might be viewed as a social activity. In fact, the goal of these trips to the mall may not even be to make a purchase, but rather just to "get out". A trip to mall to look for a dress might also be a "fun" way for a couple of friends to spend a few hours together. On the other hand, many products simply are not fun to shop for. For the busy, two-income household with children, grocery shopping would be avoided if there was a reasonable alternative. This is why companies like Peapod (www.peapod.com) focus their marketing efforts on this type of consumer. Pictures on the Peapod web site show women with children in arm greeting the Peapod delivery person at the door.

Another type product that might not be fun to buy would be the product that goes through a rush during a particular time of the year such as toys during the holiday season. Michael Moritz of Sequoia Capital (the venture capital group that invested more than $15 million into eToys) said, "The premise of eToys is that you never have to go to Toys 'R' Us again...That's one of the most compelling investment premises I've ever heard'. eToys experienced increased success during

the holiday season. Media Metrics, a company that tracks Internet traffic, estimates that eToys had 3.4 million visitors during the holiday season (Seller, 1999).

In summary, this does not suggest that these products will be purchased solely through Internet sales. There will always be consumers who need retail stores for these purchases, regardless of how unpleasant. However, it does suggest that this is a real potential for retailers to attract consumers to make initial purchases to become comfortable with the Internet shopping.

6.2.10 Value Added by Information Intermediary

Online sellers must understand what value they can add to their consumer by selling products over the Internet. As discussed previously, because many online retailers and direct sellers are dealing with "commoditized" products, it is important to "wrap" that product with a service. There is an argument that any product can have this type service wrapped around the product. While this may be true to some extent, we believe that there are specific information intensive products that lend themselves to this type of added value.

The level of information and services provided at a web site will have an impact on its success. For many consumers, product information is key because they do not know much about the product (i.e., cars, computer equipment, outdoor equipment, prescriptions/drugs, etc.). In these situations, the Internet offers an excellent way for Internet sellers to provide extensive, readily updateable information on a product, offer a unique service, and sell themselves as an expert (e.g., www.AutoByTel.com, www.outpost.com, www.drugstore.com & www.rei.com).

- Beyond.com, an Internet software retailer, offers a software recommendation guide that is based on the consumer's answers to a brief questionnaire. This is helpful to consumers because there are an infinite number of software labels and names available. The site also offers side by side software reviews and comparisons (if it sounds a lot like Amazon.com, that is because Beyond.com's president and CEO is also the former Vice President of Amazon.com). With this guide and comparison, consumers can narrow down the list to what is relevant to them.
- Virtual Vineyards (www.virtualvin.com) offers a superior collection of foods and wines from superb producers for purchase. While the goal is to sell products, Virtual Vineyards believes that its success can be credited to the extensive information available at its site. The site provides educational material about what makes a wine desirable, background information on wine, and rankings with respect to intensity, sweetness, body, acidity, complexity, etc. By offering all this information, the site becomes an information service as well as a place to physically by the product.
- Soma Drugs (www.soma.com) offers over 15,000 prescriptions and health related products. The site also provides a "healthinfofinder" that allows the user to browse health related news, information about specific drugs, and a database to check for potential side effects. This site also has a method to email a real pharmacist for 24 hour advice (Tedeschi, 1999d).
- Acumin (www.acumins.com), a virtual retailer set up to offer custom vitamin orders, provides consumers with an online survey to gather information regarding the consumers' diet/health/medical background. Based on the results of this

survey, the site offers a custom made vitamin "recipe." The consumer is then given the opportunity to adjust the order.

- The Holt Company (now www.toysmart.com) recommends appropriate toys based on consumer profiles, maintains a gift registry of over 10,000 children, and emails family members with reminders and gift selections when it comes around to shopping time (Chain Store Age, 1998b).

In summary, there are many types of products that are information-intensive and can be surrounded with a variety of services to enhance the online experience. While it may be proven that this type of service can be wrapped around nearly any product, it seems that those most appropriate are the ones that inherently contain a lot of information (books, music) and/or are not very well understood by the target market (toys, wines, pharmaceuticals).

6.2.11 Ratio of Shipping Fees to Purchase Price

After visiting a variety of web sites and researching the various shipping rates for three-day delivery, one obvious and general trend was discovered. As the product value increases, the ratio of shipping fees to purchase price decreases, making Internet sales more feasible. Of course, it should be noted that relative shipping fees can be subsidized by purchasing in volume. For example, for a $35 order from Eddie Bauer, shipping would be approximately $11, or 31% of the purchase price. However, for three sweaters and a $105 order, the shipping fee percentage would drop to approximately 14%. The results of this web site survey are presented in Table 1 and Figure 15. In Figure 15 presents the data collected during the web site survey. The solid

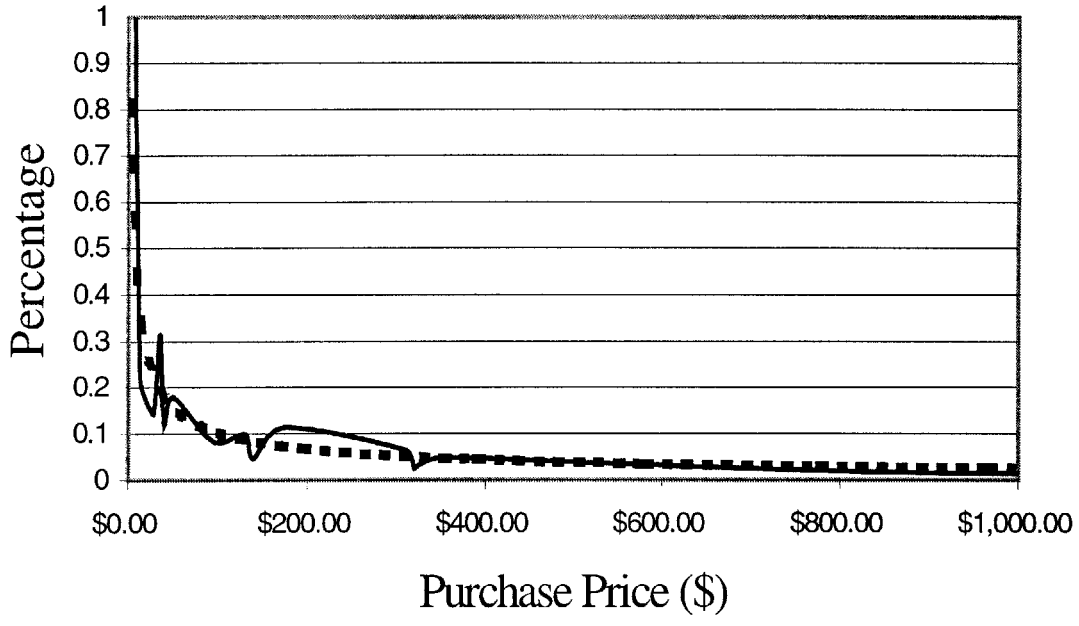
line represents the plot of the actual data. The dashed line represents the moving average of the actual data.

Table 1

Ratios of Shipping Fees to Purchase Price

Web Site	Product	Purchase Price	Shipping Fees	Ratio
onsale.com	Golf clubs	$990.00	$15.00	0.015
compusa.com	Deskjet printer	$309.95	$19.95	0.064
macys.com	Women's suit	$350.00	$16.95	0.048
shopping.com	Television set	$175.00	$20.00	0.114
shopping.com	Writable CD drive	$320.00	$8.00	0.025
cdnow.com	One CD	$13.00	$3.00	0.231
cdnow.com	Two CDs	$28.00	$4.00	0.143
911gifts.com	Scarf	$140.00	$6.50	0.046
fossil.com	Watch	$95.00	$8.00	0.084
rei.com	Tent	$130.00	$12.95	0.100
acumins.com	Vitamins	$40.00	$5.00	0.125
calyxandcorolla.com	Flowers	$50.00	$8.95	0.179
dell.com	Laptop	$2,899	$35.00	0.012
dell.com	Desktop	$2,050	$95.00	0.046
1800batteries.com	AAA batteries	$3.50	$6.50	1.857
eddiebauer.com	Sweater	$35	$10.95	0.313

Figure 15
Ratio of Shipping Fees to Purchase Price



Most sites offer various shipping rates for overnight, two to three day, and standard ground delivery. Brook Brothers, a clothing retailer, (www.brooksbrothers.com) charges no delivery fee for standard delivery; 911gifts.com charges a flat fee of $6.50 for all three day shipping; Staples offers free delivery after $50; and furniturepoint.com includes shipping in the purchase price.

The primary observation of this survey is that more expensive products can more easily subsidize the shipping costs. Shipping fees tend to be a function of the web site policy rather than product size or purchase volume.

6.3 Summary

The product characteristics discussed will have an impact on the success of the online offering and should be considered. The following section presents a brief conclusion based on the issues presented in the previous section of this thesis.

7.0 Conclusion

This final section presents the contributions of the thesis and recommendations for future research.

7.1 Contributions

The Internet presents a new alternative for manufacturers and retailers to market and sell their products. Because of the advantages that can be achieved and complimentary product characteristics, this channel will succeed for many products and industries. However, because of the challenges and contradictory product characteristics, the Internet channel will not completely replace existing channels. The purpose of this thesis was to illustrate these benefits and challenges and to determine and present the significant product characteristics. Having done this, we have accomplished the following.

- Provided potential Internet direct sellers and virtual retailers with a framework to evaluate the possible success of their Internet offering.
- Provided existing manufacturers and retailers with a framework to evaluate their vulnerability to competitors that have taken their business online.

This thesis presents the benefits and challenges of shifting business from a traditional channel to an Internet channel. This provides potential Internet sellers with a framework to evaluate which

benefits and challenges would have the most impact on their business. For example, if potential Internet sellers understand the stage of their product's lifecycle and their target market, they can position their product for online sale. For example, if the Internet seller identifies that its customers demand convenience, it can better determine if an online offering will succeed. On the other hand, if the potential Internet seller might understand that its real strength is in its existing channels. The examples presented in this thesis also present potential Internet sellers with suggestions to increase the attractiveness of their online offering.

This thesis can also be used by existing retailers and manufacturers as a way to evaluate the risk of competition and loss of market share to a competitor that has moved online. As mentioned previously, Internet sales are inherently well suited for consumers that are technologically savvy. Brick and mortar retailers that understand this can focus some their efforts to serve consumers who are not yet technologically savvy. Existing retailers can also use this thesis to identify potential services (i.e., assembly, installation, etc) that are not currently offered by Internet retailers.

7.2 Future Research

One area for future research might be in the development of an Internet strategy that does not create channel conflict. Some possibilities are presented in Section 5.1.5. There are also other suggestions being explored by other companies in industry, however, many have not been tried or been proven successful. Another potential area for future study would be the development of coexisting channels. Manufacturers that can develop coexisting channel strategies to support all

products and consumers will enjoy a competitive advantage. Some consideration might be if the industry big enough to support an Internet and traditional distribution channel. Another consideration might be if an Internet channel actually threatens the traditional channel or attract new consumers. This will probably be critical for many industries, at least in the short run, because of channel conflict and because many consumers are not yet online.

References

Andersen, L., 1999. *Music Giants Fight a Corporate War Online.* **The Industry Standard**, April 19, 1999

Bear Stearns, 1999. *Federated Department Stores-Equity Research, Bricks and Mortar: Meet E-Commerce.* **Bear Stearns**, March 18, 1999

Benchmarking Partners, 1999. *The Executive Team's Value Network Strategy for Trading Partner Collaboration (Draft),* **Benchmarking Partners**, February 3, 1999

Bianco, A., 1997. *Virtual Bookstores Start to Get Real.* **Business Week**, October 27, 1997

Briones, M., 1999. *What technology wrought: Distribution channel in flux.* **Marketing News**, February 1, 1999

Business America, 1998. *Small Outdoors-wear manufacturer turns to the Internet for direct sales.* **Business America**, January 1998

Chain Store Age, 1998a. *Fingerhut's looking to trade stamps for clicks.* **Chain Store Age**, November 1998

Chain Store Age, 1998b. *The Holt Company—adding value online.* **Chain Store Age**, October 1998

Chain Store Age Executive, 1997. *A women's place is on the Net.* **Chain Store Age Executive**, June 1997

Chief Executive, 1998. *CEO Brief: Corporation 2010 Supplement.* **Chief Executive**, October 1998

Corey, E.R., 1978. *Marketing Strategy-An Overview.* **Harvard Business School**, 9-579-054, 1978

Cross, D., 1998. *Are You a Candidate for Disintermediation.* Guest Columnist for **www.software.ibm.com**

Crothers, B., 1999. *Gobi aims for 1 million "free" PCs.* **CNET News.com**, March 31, 1999

Daly, J., 1998. *Ten Years of Covering Cards (A Decade of Covering the Card Industry Supplement).* **Credit Card Management**, May 1998

Davis, S. & Meyer, C., 1998. *BLUR-The Speed of Change in the Connected Economy.* **Ernst & Young Center for Business Innovation**, ADDISON-WESLEY, Reading, Ma, © 1998

Ditlea, S., 1998. *Egghead Scrambles to Virtual Retailing.* **Technology Review**, November/December 1998

Dodge, J., 1999. *Forget About Disintermediation: Meet the New Super Middlemen.* **The Wall Street Journal Interactive Edition**, February 9, 1999

Dowling, M., 1998. *Benchmark '98*, **Catalog Age**, April 15, 1998

Eisenberg, D., 1999. *Amazon R (drug symbol): Drugstores Go Online.* **TIME**, March 8, 1999

Ernst & Young, 1999. *Second Annual Ernst & Young Internet Shopping Study*, **Ernst & Young LLP**, 1999

Farmer, C., 1996. *Nothing but Net.* **Success**, April 1996

Federal Reserve Board, 1998. *Annual Statistical Digest.* **Federal Reserve Books and General Publications**, 1998.

Fine, C., 1998. *Clockspeed-Winning Industry Control in the Age of Temporary Advantage.* **Sloan School of Management**, Perseus Books, Reading, Ma, © 1998

Gillmor, D., 1998. *Michael Dell's per diem.* **Mc Technology Marketing Intelligence**, December, 1998

Goldman Sachs, 1997. *Cyber Retailing.* **Goldman Sachs**, September 2, 1997

Guglielmo, C., 1999. *Online Retailing: Computer gear is a natural.* **Upside**, January 1999

Gurley, W.J., 1999. *Buy.com may fail, but if it succeeds, retailing may never be the same.* **Fortune**, January 11, 1999

Hall, E., 1998. *Music retailer finds commerce in communities.* **Infoworld**, February 2, 1998

Hammer, M. & Champy, J., 1993. *Reengineering the Corporation-A Manifesto for Business Revolution.* **Harper Business**, © 1993

Hanover, D., 1999. *New and Improved.* **Chain Store Age**, January 1999

Hanover, D., 1998. *Sunglass Hut's eyes are focused on the Internet.* **Chain Store Age**, September 1998

Hansell, S., 1998a. *Compaq Plans to Sell Directly to Consumers.* **E-Commerce Report, The New York Times On the Web**, November 11, 1998

Hansell, S., 1998b. *On the Internet clock, middlemen are turning into manufacturers.* **New York Times**, July 26, 1998

Isidore, C., 1999. *E-shoppers choose cheaper shipping over speedy delivery.* **Journal of Commerce**, January 12, 1999

Johnson, J.L., 1997. *Costco: Big and Bold.* **Discount Merchandiser**, December 1997

Kelly, K., 1998. *New Rules for the New Economy.* **Viking, Co.** © 1998

Leibs, S., 1998. *Wiley Wisdom.* **Informationweek**, March 2, 1998

Levitt, T., 1975. *Marketing Myopia.* **Harvard Business Review**, Sept-Oct 1975

Losito, V., 1997. *Disintermediating the Supply Chain of Consumer Durable Goods,* **Massachusetts Institute of Technology**, June 1997

Machlis, S. & Vijayan, J., 1999. *Retailer chooses Web to sell surplus.* **Computerworld**, January 18, 1999

Machlis, S., 1998. *Estee Lauder tackles web, channel conflict.* **Computerworld**, July 6, 1998

Merrill Lynch, 1999. *E-commerce: Virtually Here.* **Merill Lynch Special Report**, April 1999

Plotkin, H., 1998. *Art Net.* **Forbes**, April 6, 1998

Prahald, C.K., 1998. *Managing Discontinuities: The Emerging Challenge.* **Research-Technology Management**, May/June 1998

Ramstad, E., 1999. *Expanding Its Reach, Dell Computer Builds a Superstore on the Internet.* **The Wall Street Journal**, March 4, 1999

Roth, M.S., 1998. *Customization and Privacy.* **Marketing Management**, Winter 1998

Sarkar, M.B., Steinfield, C., & Butler, B., 1995. *Intermediaries and Cybermediaries: A Continuing Role for Mediating Players in the Electronic Marketplace.* **Journal of Computer-Mediated Communication**, December 1995

Seller, P., 1999. *Inside the First e-Christmas*, **Fortune**, February 1, 1999

Selz, D. & Klein, K., 1998. *Emerging Electronic Intermediaries – the Case of the Automotive Industry*, **Competence Centre for Electronic Markets at the University of St. Gallen**

Spulock, T.L., 1998. *A view to the past, a vision to the future*, **Credit World**, Jul/Aug 1998

Tedeschi, B., 1999a. *Internet Retailers Work to Turn Shoppers Into Buyers*. E-Commerce Report, The New York Times On the Web, March 8, 1999

Tedeschi, B., 1999b. *Internet Sellers Work to Allay Fears of Retail Outlets*. E-Commerce Report, The New York Times On the Web, March 2, 1999

Tedeschi, B., 1999c. *Entrepreneurs Set Up Shop on Auction Sites*. E-Commerce Report, The New York Times On the Web, March 15, 1999

Tedeschi, B., 1999d. *Want to Be an Online Drugstore? Take a Number*. E-Commerce Report, The New York Times On the Web, February 2, 1999

U.S. Census Bureau. *Changes in Median Household Income: 1969 to 1996*. **United States Census Bureau**.

Venkatraman, N., & Henderson, J.C., 1998. *Real Strategies for Virtual Organizing, Competing in the Knowledge Economy*, **Boston University, School of Management**, April 1998

Woddy, T., 1999. *Online Wine Sales Turn to Grapes of Wrath*, **The Industry Standard**, April 19, 1999

Wylie, D., 1995. *Calyx & Corolla*, **Harvard Business School**, Case 9-592-035

Years, S., 1998. *The Impact of Direct Internet Sales of Personal Computers on Traditional Retail Channels*, **Vanderbilt University**, 1998