Revolution or Evolution?
Understanding Internet Channel Conflict and Managing the
Traditional Firm e-transition

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Submitted to the System Design and Management Program in Partial Fulfillment of
Requirements for the Degree of Masters of Science in Engineering and Management

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1 Abstract

This thesis contains a generic framework created from an original analysis of 65 firm interviews, predominantly a sample of traditional firms dealing with Web Commerce conflict and issues. The framework highlights the problems and solutions experienced by the firms, specifically within three areas: resources, incentives and coordination. The specific problems and solutions are discussed, along with their relative frequencies in the sample population. Illustrative anecdotes and statements from the firms are also cited.

Additionally a Xerox Corporation case study was created through the use of primary interview techniques and artifact research. The developed framework and background material is then applied to the case study focusing on the implementation of Web commerce and Xerox's dealings with channel conflict. While Xerox proved to manage many of the common problems such as unaligned sales incentives, the firm experienced difficulties controlling and gathering product and pricing information with their massively complex internal processes. These coordination problems were amplified by the different information systems that were legacy and inflexible. Xerox also dealt with specific problems such as the loss of information arbitrage with pricing.

The Matrix of Change tool is applied to the case study, illustrating the difficulties inherent in the transition and to providing visual and intellectual insights into areas that require movement or focused management attention. Also considered were the effects of organizational entrenchment and the pitfalls associated with the Internet as a disruptive technology.

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4 Introduction

4.1 Motivation

In an age of Internet commerce and e-business, a growing number of established firms are dealing with the issue of channel conflict. In the past, dealing with channel conflict was difficult, but it was possible to manage the conflict through geography or other aspects of information control. The broadband, high-volume nature of the Internet makes this issue more difficult than ever. Unfortunately, the strategies and tools to best manage the conflict are not well understood in this time of increasing conflict. As with technologies, transition management poses a special challenge in the context of the traditional firm.

While some trends appear to be emerging in the market, the effects of broadband Internet connectivity on industry structure are not yet established or stable. Initial speculation suggested that firms such as Pets.com and Amazon.com would wipe out their brick and mortar competitors, but this hypothesis has been called into serious question, witness, for example, Wall Street’s re-evaluation of the Internet-only companies’ market value. Currently, the trend in company valuation is turning back to basics (revenues, profits and more traditionally sound business models) and questioning whether the Internet is truly the predicted revolution, or simply a visible evolution. If one is to judge by the experience of the firms in this study, the impact of the Internet is dependent on the firm’s current position within the competitive fabric. The classification of the desired change is dependent on the current state, the future desired state, and the speed at which this change occurs. Whether the firm can take advantage of the transition and implement a model that is competitive, will depend on their ability to traverse their particular business model S-curve chasm.

The e-business induced channel conflict is complicated by the global system requirements of a development, sales and distribution system. It is this new business process technology and infrastructure and its effects on the traditional firm that are
especially interesting. Whether the Internet is a revolution or an evolution, many questions become vital and interesting, including:

- What is the nature of the threats and opportunities associated with e-business?
- Is the Internet transition inherently different than other threats? If so, how?
- What processes and tools are required for success in this new environment?
- What lessons can be applied to the negotiation of transitions in general?

Attempts to answer these questions have been undertaken by academics, consulting firms and the firms themselves. While these questions will not be completely answered here, they provide a starting point for understanding the topic of Internet channels and the challenges they pose for traditional firms.

4.2 Thesis Goals

The goal of this thesis is to develop a framework that assists in understanding the impact of the e-business transition on the methods and motivations of channel marketing and distribution systems. Particular attention is given to the encountered problems and developed solutions. The goal is to uncover possible models for the resolution of channel conflict. Beyond framework creation, the second part of the analysis will focus on Xerox, their current issues and strategies and recommendations for future channel conflict management.

The thesis output will consist of:

- A Summary of channel conflict data extracted from traditional firm interviews.
- A Framework of problems and solutions experienced by traditional firms.
- An Investigative study of Xerox Corporation’s dealings with channel conflict.
- Recommendations for framing and coping with new channel introduction.
- Recommendations for further research and study.

4.3 Assumptions and Scope

The scope of this work is the resolution of channel conflict, especially that produced by the emergence of the e-business paradigm.
4.4 Work Process

The work process included the analysis of 65 interviews conducted by members of Professor Duncan Simester’s Spring 2000 Sloan Marketing Management Class. These interviews were done specifically to understand the issues and effective solutions encountered by firms dealing with traditional and Internet channel conflict. In addition to the Sloan Interviews, I conducted interviews with Xerox employees to gain understanding of specific issues dealt with during their transition to e-business. I interviewed 15 people including:

- line executives in charge of Web Commerce and Internet Strategy
- product personnel
- Web developers
- Creators of the initial xerox.com homepage
- Field personnel, including sales agents and dealers.

Information was also taken from interviews in the popular press with key personnel including the current COO and CEO.

5 Foundations

Previous academic work lays a foundation for the case study and analysis within this work. Important concepts from this work include the tendency of organizations to become efficient, resulting in entrenched knowledge that is tacit in nature. This entrenchment makes organizations susceptible to threats from competitive disruptions. The desire is to facilitate the management of efficient organization transitions through these disruptions by utilizing product development tools. In particular, this work will focus on the channel transition, which will also require conceptual understanding of channel conflict issues.

5.1 Dangers of Disruption from Organizational Efficiency

One of the basic premises of this analysis is that organizations and agents within them behave rationally and work to maintain efficient, productive organizations. This is a relatively accepted principle, “[People] in general, and within limits, wish to
behave economically, to make their activities and their organization "efficient" rather than wasteful."¹ To this end, people within a firm create an organization and processes within that organization that provide efficient carriage of required information. It is not the organization itself, but the people in it. Milgrom supports this idea by saying, "Economic organizations are judged only on the basis of how well they serve people's intended purposes. Finally, it is people who ultimately create and manage organizations, judge their performance, and redesign or reject them if this performance is found inadequate." (Milgrom, p21) The robust streamlining that takes place in an organization may cause it to become unable to deal with newly required information. It is as though the initial decision making process is substituted and the organization knows "what to do", but has forgotten "why it does". The organization simply knows the required process and behavior. Milgrom continues, "...people will seek to achieve efficiency in more than just the day-to-day conduct of their economic affairs. Efficiency also must exist at a systemic level, in the organization of people's activities and in the design, management, and governance of the institutions they create." This discipline is enforced by economic Darwinism, in which less efficient firms will be replaced by more efficient firms. If this efficiency comes at the expense of flexibility, it eventually becomes the firm's weakness.

In the mid-portion of the S-curve, this efficiency is an asset, but if the competitive environment changes, as is suggested in an article by Nadler, the new skills required might change. In the case of the "new internet economy," Nadler suggests: "Eight core competencies in which organizations will have to become proficient in light of these challenges are: 1. increased organizational clock speed, 2. design structural divergence, 3. organizational modularity, 4. Hybrid distribution channels, 5.

asymmetrical research and development, 6. conflict management processes, 7. organizational coherence, and 8. team management.” (Nadler) It is difficult to imagine an organization near the top of an S-curve developing these proficiencies within their already efficient organization. The organizational antibodies will likely discourage and disallow any changes that threaten the heretofore successful model as inefficient. Indeed it might be expected that behavior which was optimal in one environment is maladaptive in another.

Further considering the efficient organization, Henderson and Kim provide a hypothesis regarding the dangers of entrenched knowledge within organizations resulting in deadly organizational inertia and stiffness. “Established organizations may invest heavily in the new innovation, interpreting it as an incremental extension of the existing technology or underestimating its impact on their embedded architectural knowledge. But new entrants to the industry may exploit its potential much more effectively, since they are not handicapped by a legacy of embedded and partially irrelevant architectural knowledge.” (Henderson, Kim, p.18) While Henderson’s article is focused on product development and architecture, I suggest that a parallel can be drawn to new business models and new channel development.

These required transitions in the channel structure are governed by the same rules as transitions in strategy and development. Christensen outlines the successful negotiation of a disruption, “The dominant difference between successful ventures and failed ones, generally, is not the astuteness of their original strategy. Guessing the right strategy at the outset isn’t nearly as important to success as conserving enough resources (or having the relationships with trusting backers or investors) so that new business initiatives get a second or third stab at getting it right. Those that run out of resources or credibility before they can iterate toward a viable strategy are the ones that fail.” (Christensen, p. 159) The enterprise must plan to stay for the long haul and understand that it is unlikely to be able to predict the dominant design of the business model and channel near the beginning of the S-curve.
Innovations in technology which create disruptions to businesses are relatively common in product based firms as studied and cited by Utterback and Christensen. Both investigators clearly outline the dangers of not being able to "leap the chasm" from one technological S-curve to another. Lack of this ability to change can even lead to the demise of the firm. The Matrix of Change (MOC) tool will be applied to the Xerox case study to assist in creating a strategy to negotiation this "leap" to include e-technologies. Utterback has argued that the Internet is simply another technological innovation like the computer, or the phone, and the global market that it creates is similar to the global market that existed during a phase of history when ice was exported from Massachusetts to locales such as India and Europe. (Utterback, 2000) In this way, he implies that the Internet is evolutionary and provides a return to when we once were. I will expand and clarify this implication of evolutionary classification through the use of the MOC.

5.2 Channel Design and the Matrix of Change

The "House of Quality" or Quality Function Deployment (QFD) used to create the MOC, as outlined by Brynjolfsson, et. al is a specific example that will be shown to be useful. An illustrative example of the use of the MOC is outlined by Mark Lee in the case of the discount brokerage, Charles Schwab (Lee). Another example, Xerox Corporation, was created for the purposes of this paper. I also use the MOC to evaluate whether the change is revolutionary or evolutionary and allow insight into transition plans. If is understood that the difference between evolution and revolution is the rate of change. An evolution is a continuous rate of change, whereas, a revolution is a sudden drastic change. The MOC allows an easy determination because it is a comparison of the current state and the next desired state. If useful insight is obtained, it can be used to gain be taken as evidence that at least some traditional product development tools can be re-purposed and used effectively as an aid to understanding channel design. Further implying that design of these channels can be enhanced through the use of the same types of tools used in product development, including those of architectural design.
Underlying the use of the MOC are basic principles in creating and analyzing channel structure. These used in conjunction with the MOC can provide powerful insight to transitional management and planning, including the principles of channel conflict.

There are three basic lenses to consider when analyzing channel conflict: (Simester)

- **Resource Issues:** Which resources are available to support these tasks? Should the tasks be resourced externally, internally, other?
- **Coordination Issues:** How complex is the chain and channel? Are there specific barriers to coordination?
- **Incentive Issues:** Is compensation tied to the desired behavior? Are individual incentives aligned to promote the desired results?

### 6 Firm Interviews

In looking for lessons and understanding the problems and solutions encountered in dealing with Internet commerce as a conflicting channel, I analyzed the Sloan Interviews. The goal of the analysis was to understand what problems firms encountered and what solutions were employed to deal with these problems. To avoid skewing results, specific problems and solutions were not initially listed and searched for, rather, as the interviews were explored, problems and solutions were noted and tabulated. While the sample of 65 interviews that were analyzed may not be considered statistically valid, they are useful for gaining an overview and understanding of the issues involved. An examination of the qualitative data from these companies allows understanding of the experienced environment surrounding these particular difficulties.

#### 6.1 Firm Difficulties

Utilizing the above process, I grouped the problems into fifteen generic problem categories. The problem categories, listed in order of frequency, are cited and explained below. A histogram follows:
• Sales Incentives Unaligned: Individual incentives make the new channel a direct threat to the compensation system of the current channel. This can be illustrated by a simple anecdote from the West Group interview. As the sales representative gave collateral to his customers, he attached a sticker with his contact information directly over the West Group Web address, explaining, "I wouldn't recommend using the Internet and I'll tell you why. First of all, if you call me, I'll make sure nothing goes wrong with your order. Second, you know I need the commission to put food on the table." (Sloan Interviews)

• Shift of Power and Resources: Building the new channel requires resources to be shifted to a different part of the company than the currently maintained power base. Allstate Insurance Senior Vice President, Bruce Marlow, stated: "Allstate agents have created a tremendous brand image over the last 50 years and would likely have looked askance if we bypassed them and went directly to customers." (Sloan Interviews)

• Change in Economies of Scope/Scale/Cost Structure: The new channel offers opportunities that are disruptive to the current model. Gradually, companies begin to understand this change, as Mr. Miyamoto of Nomura Securities, a traditional Japanese brokerage firm, reflects, "We should have used online channels to satisfy potential consumer demand, such as low prices with readily accessible information." (Sloan Interviews) In this case, Nomura Securities initially had difficulty comprehending the changes in the cost structure that created a conflict.

• Complex Processes – Control: Control is difficult to maintain with new processes that require management of both the new and the traditional channel. Such concurrent systems may be more complex than either isolated channel. BBO, a Venezuelan based financial services firm, experienced difficulty in maintaining a balanced distribution of new accounts because of the increased complexity of their new processes, which were previously done through personal customer relationship management. (Sloan Interviews)
• Integration Difficulty: Overall firm integration into the new channel is difficult. This may be a result of such factors as skill mix, priority pressures, or geographical location. Sanj Kharbanda, the marketing director of WordsWorth, a bookseller that utilizes a combined back end to manage their physical store, catalog and Web infrastructure, discusses the challenge. "[The conflicts between the Internet and physical store] is the most challenging piece for us... we do it by using the same people in both and trying to leverage our existing infrastructure." (Sloan Interviews)

• Loss of geographic/ information control: The traditional channel offered arbitrage opportunities through opaque information transfers and high search costs. The Internet decreases the search costs and initially offers universal information, including 24x7 availability. For example, Compaq’s Web presence impinges on its retailers’ ability to differentiate based upon location, hours of operation, price, and convenience. Web sites are global in reach and open for business around the clock. (Sloan Interviews)

• Complex Processes – Gather: Information is more difficult to gather because of the increased complexity of the process. This difficulty may be due to complexity or incentives that make stakeholders reluctant to provide information. For example, Barnes and Noble College Bookstores withholds from Textbooks.com, an Internet arm of Barnes and Noble, valuable information such as student and textbook information contained in its proprietary databases. (Sloan Interviews)

• Different Information Systems: The information currently required for streamlining the process is currently in separate areas maintained by and on different information systems including legacy systems. Firms maintaining legacy mainframes and new personal computer infrastructure commonly experience this difficulty.

• Change in Dispersion of Suppliers / Outlets: A new and different supplier or outlet model requires more (or different) resources to support and manage.

• Complex Processes – Predict: The sales cycles of the new channel are unpredictable during the transition and are likely to continue to evolve. Following
their move to the Internet, 12" Dance Records, a specialty record store targeting entertainment musical professionals, has difficulties resulting in excess inventory, they are unable to predict demand of their new and diverse buyer base. (Sloan Interviews) Compaq dealers also report having difficulty predicting demand with the new more complex, and less well understood Web channel. (Sloan Interviews)

- Different Culture/ Jargon: Areas being conjoined, or needing to work together, currently function in different modes. Consider Boston.com and the Boston Globe, two factions of the same company. Boston.com was specifically created in contrast to the Boston Globe organization, small and agile. Culture and language differences cause difficulty when presenting a unified face to advertising customers. Sales personnel for the paper talk about lines and millimeters, while Boston.com personnel talk about selling page views. (Sloan Interviews)

- Increased range of Inputs: The new model requires inputs from areas that were not previously required. 12" Dance Records began selling on the Internet and so far are unable to process the more numerous needs. Prior to the Internet sales, staff members had relationships with, and were trained to provide service to a focused and homogeneous customer base. Local sales have dropped due to a lack of attention, and the firm still has problems understanding and serving the new large and more diverse segments. (Sloan Interviews)

- Increase in the number of Decision Makers: The transitioning organization, including those that have created separate Internet entities, now requires buy in from more decision makers than before. At Xerox, the strategy of selling a wide range of products and services over the Web requires a large number of decision-makers to agree on the many common aspects involved in the creation of the Web site and sales processes. (Sloan Interviews)

- Threats of current outlets: Threats are delivered to manufacturers, such as Levi's, that are beginning to direct e-channels directly to customers. "Levi's existing distribution channels retaliated against its expansion into direct online sales and its online entry ban for distributors...retailers resorted to minimal display
space/promotion for Levi's products in their stores and maintained less than optimal inventory." (Sloan Interviews)

- Expanded distance between Decision-makers and Information: The distance between decision-makers is no longer person-to-person, but through the Web or across geographies. This increase is notable in the transition of Zacks Investment Research, a high margin aggregator and reseller of Wall Street brokerage firm research, which began to provide on-line information. When the high margin institutional clients started to order the retail Internet products, the salespeople did not know these clients had previously purchased more expensive Zacks' products. These point-of-sale decision-makers were no longer privy to the institutional client records as they had been when only the high margin sales representatives were used. (Sloan Interviews)

The frequency of these issues is displayed below:
Figure 1: Histogram of difficulties experienced in firms.
The following diagram uses the channel lenses to aggregate the identified problems into three major categories. This figure is constructed to illustrate that the problems are not from orthogonal sets, but are interactive and overlapping.

**Coordination**

- Increased Range of Inputs
- Different Information Systems
- Increased number of Decision Makers
- Expanded distance between Decision Makers and Information
- Different Culture/Jargon
- Complex Processes - Predict

**Resource**

- Integration Difficulty
- Shift of Power and Resources
- Complex Process - Gather

**Incentive**

- Loss of Geographic Arbitrage/Information Control
- Complex Process - Control
- Complex Process - Gather
- Unaligned Sales Incentives
- Change in Economy of Scope/Scale/Cost Structure
- Change in Dispersion of Suppliers/Outlets

Figure 2: Lens framework illuminating firm difficulties.
6.2 *Firm Solutions*

Given the difficulties experienced by the firms, the proposed and selected solutions are reviewed for insights into potential solutions for a particular firm or class of firms. The solutions from the sample interviews are outlined via examples in the order of highest frequency. A histogram follows:

- **E-Channel Enhances Bricks & Mortar:** A firm leverages the Internet channel to enhance the offerings of the brick and mortar counterpart. These enhancements include: offering store inventory search capabilities, the capability to return purchased merchandise to physical locations, maps to local stores, targeted sales incentives (e.g. printable coupons to be used in the café, as found on the Border's site, or discount coupons for Payless Shoes).

- **Creation of Internal Internet Entity:** Firms create a specific internal entity in charge of the e-commerce channel.

- **Delay Implementation of e-business Strategy/Channel:** Some firms separate themselves from the Internet channel. The strategy reinforces their existing, physical "bricks and mortar" infrastructure and other organizational attributes that competitors would find it difficult to compete with through e-business. John DeJesus, president of Foodmaster Supermarkets, for example, said that his company wants to play the "wait and see" game and have the online companies "make the mistakes first, and then... [we'll] get into it." (Sloan Interviews)

- **Revisit Incentives:** Many firms were required to revisit their financial incentives. In many cases, firms resorted to paying sales representatives for all sales that were placed through the Internet channel from their territory. Firms such as W.W. Grainger, adopted just such a dual compensation strategy. “The company awarded sales reps identical commissions both for Internet and branch sales, assigning new on-line customers to the nearest branch.” (Sloan Interviews)
• Product Differentiation / Segmentation: Firms such as Goodyear Tire and Volkswagen offer products over the Internet that are not otherwise available through their traditional channels.

• Sites Referring / Supporting Partner: Firms, predominantly in business to business segments, create sites that support and advise partners or agents regarding their products and availability.

• Non-competition Legislation / Requirement: Within the auto industry, for example, legislation requires that auto manufacturers do not compete directly with dealers in certain states. (Sloan Interviews) Additionally, Home Depot refuses to carry merchandise that is available for purchase on manufacturers’ Web sites. Other companies, such as TaylorMade, a designer and manufacturer of high quality, premium golf clubs and accessories, specifically forbid their retailers from selling TaylorMade products over the Web. TaylorMade purchases must be completed with personal contact, either on the phone, in person, or by sending e-mail.

• Move Profit to Other Items / Change Business Model: Some firms such as Delta airlines are attempting to change their business model to deal with Internet competition. An unnamed Vice President of Delta said that they were “Seeking new industries that would require their current resources.” (Sloan Interviews)

• Enter Price War – Matching/Price Protection: Firms such as Compaq and The COOP offer price matching to maintain volume at competition prices. Price matching allows firms to monitor and match price via customers.

• Join with Others / Consortia: Many commercial airlines partner in a selling consortium to compete with such sites as Expedia.com. (Sloan Interviews) This behavior is evident with players outside of traditional firms creating “frictionless marketplaces” and other supply aggregation sites as “e-market” spaces.

• Loyalty Programs: Customers are rewarded for maintaining a relationship with the firm, effectively increasing their switching cost. These loyalty programs expand beyond the well-known programs at airlines into programs at bookstores like the
MIT-Harvard COOP and Amazon.com's customer relationship management, which recommends purchases based on previous buying behavior.

- **Extra Efforts to Maintain Information Asymmetries:** In a specific attempt to increase the students' search costs to obtain books from other sources, some campus bookstores no longer provide a hardcopy list of required course books. In the past students would have been able to get a copy of the course list, they would now need to visit the shelf for each course, copy down the required information and then go to the Web. (Sloan Interview) This inefficiency for the customers will likely be overcome (eventually) by other means; possibly an e-agent that searches syllabi and creates a textbook list.

- **Creation of an External Entity:** Firms such as Barnes & Noble created separate entities for the implementation of their Internet channel with the desire that the separate entity could move quickly and compete by virtue of having no sales tax requirement.
Percent of Companies Stating Solution Employed

- E-Channel Enhances B&M: 58%
- Creation of Internal Internet Entity: 46%
- Reinforce advantages of b&m: 45%
- Revisit Incentives: 43%
- Product Differentiation / Segmentation: 42%
- Sites referring/ supporting partner: 35%
- Non-competition Legislation / requirement: 25%
- Move profit to other items / change business model: 23%
- Enter Price War - Matching/Price protection: 22%
- Join with others / consortia: 15%
- Loyalty Programs: 11%
- Extra Efforts to maintain information assymetries: 8%
- Creation of External Entity: 6%

Figure 3: Histogram of firm solutions.
7 Case Study: Xerox

This section concentrates on Xerox Corporation and their difficulties, specifically with regard to channel conflict, transitioning to new Web Commerce practices. The MOC tool is used to illustrate the difficulties inherent in their transition, and offer visual and intellectual insights into past and future opportunities for managing and implementing new Web practices. The following timeline can be used as reference with this case study:

Figure 4: Xerox Case study major point timeline.

7.1 General Corporate Background

Xerox Corporation began in 1906 as The Haloid Company, a maker of photographic paper, in Rochester, New York. Chester Carlson registered a patent in 1947 that the Haloid Company subsequently licensed for the development and sale of the copying machine. In 1958, following modest success with its Xerox copiers, Haloid changed its name to Xerox Inc. In 1969, the company moved its headquarters to Stamford, Connecticut, maintaining a large portion of research, development and manufacturing in Rochester. In 1971, Xerox opened Palo Alto Research Center in California, stretching the company nationwide. As a Fortune 500 Company, Xerox employed 94,600 worldwide at the end of 1999, including 53,250 in the United States with a
1999 Net Income at $1.4 Billion, revenues of $19.2 Billion and document processing earnings per share of $1.96.²

Recently, Xerox has moved its corporate vision from being the “Copier Company” to being the “Document Company”. The goal is for people to think of Xerox for more than just copiers and focus its product lines accordingly. The Fall, 2000 home page declares:

“Who are we? Xerox is a global company dedicated to providing solutions that simplify your work and make you more productive. Whether you're a small business or a global enterprise, Xerox offers products and services that can help your company improve its business processes, lower costs, increase clock speed and share crucial knowledge. These products and services make it easy for you to turn paper information into digital information, and vice-versa; to view, organize and share information in the form of digital documents; to send documents on networks throughout the office or around the world; and to print, publish, and copy them onto paper.

As the Document Company, Xerox was one of the first to recognize the value of documents in the creation, capture and transfer of knowledge in the workplace, the first to understand that documents comprise the most pervasive vehicle that people use to share knowledge with each other. Our growing portfolio of global, industry-based document solutions combines services, software and hardware into partnerships that bring high value to our customers’ mission-critical business processes.”³

In 2000, downsizing, asset sales, and even rumors of bankruptcy, have haunted the halls of Xerox Corporation and have been widely reported in the popular press. A firm that is still known as the copier giant, Xerox is famous for its inability to leverage new disruptive technologies and business models. Edward Robinson of Business2.0 illustrates a typical criticism of Xerox by the popular press and academics alike, “Few companies have had as many opportunities to exploit disruptive technologies as Xerox. Yet the company—by staying laser-locked on its core business of cranking out

copiers and failing to adequately reorganize its business units—fumbled its chances to transform those innovations into deep new revenue streams” (Robinson).

Randy Whitestone summarizes the history of Xerox from a press perspective: “Considered a snazzy high-growth technology company in the 1950s and 1960s, Xerox began losing its way around 1974 to the ravages of inflation, technology shifts in the copier business and the rise of Japanese competition. A focus on total quality management and a culture of innovation under IBM emigrant executive; David T. Kearns (1982-1990) was followed by a sharper focus on its core copier business under his successor as chief executive officer, Paul Allaire. That helped goose Xerox's market share, from 18 percent in 1992 to 27 percent in 1997, which allowed Xerox to catch archrival Canon Corp.” (Whitestone)

Speculation abounds as to whether Xerox will be successful with anything other than copiers and copies. Xerox is being defined in the press as the quintessential example of large companies’ inability to be nimble through disruptions. “A lot of companies have tried to impose a disruptive technology on an old business model,’ says Gary Getz, a consultant with Integral. ‘That’s a big mistake.’ Just ask Xerox.” (Robinson)

In addition to adding sales and distribution channels, Xerox still attempts to commercialize disruptive technology. It is determined to successfully enter new markets and create its new identity, as evidenced by the “Who are we?” For the purposes of this study, I will concentrate on their use of the Internet as a sales and distribution channel.

7.2 Channel Conflict: Sans Internet
Xerox is no stranger to channel conflict, with its experiences in global sales and multi-channel management. Throughout its history, Xerox has made multiple forays into new distribution channels. (Henderson, John) In one such foray in 1980, Xerox opened 88 stores across the country. Simply named, The Xerox Store, the outlets
sold primarily Xerox products such as computers, fax machines and personal copiers. Because Xerox couldn't bear the idea of selling a competitor's products and did not draw enough traffic themselves, the stores folded within four years. "We were still thinking like a monopoly because we were so inwardly focused," said Kevin Shea, senior vice president and general manager of the North American office channels group in 1998. (Fraone)

Xerox again took a stab selling through stores, this time through an indirect channels division for their low-end small office and home office products. The company officially formed the indirect channels division, (simply named, Channels), in April 1997 and through committed investment has continued to grow this channel. "Channels" was careful to avoid competition between its indirect channel and the inside sales force through product differentiation. "Channels" was chartered to sell 8-32 pages/minute products through distributors and value added resellers (VARS) and leave the more expensive higher-range products for the direct sales force. "It's a very good approach in the beginning, but assuming Xerox wants to grow, eventually there'll be some overlap, which can get sensitive," cautions Bob O'Malley, CEO of $4.1-billion Pinacor Inc., Tempe, AZ, the third largest technical products distributor in the United States. (Fraone) Price erosion and competition in the overall market has proven to be a much larger sensitivity than internal channel conflict. Experiences such as these (store and "Channels") have given Xerox a historical understanding of many of the issues involved in channel conflict, but could it leverage this experience in the case of Internet commerce?

7.3 The Beginnings of E-Commerce, Snapshots from 1996

Xerox is no stranger to the opportunities of the information exchange networks, as the inventor of the laser printer, the graphical user interface (GUI), and Ethernet; internal technologists have been using file folders and desktops since the early 80's. In 1996, Xerox internal articles praised company Web sites for enhancing information sharing and increasing engineering productivity; "...we are both cutting costs and increasing productivity by linking engineers to a Unit Manufacturing Costs database
from the Website. These knowledge bases and communities are making us more productive, more informed and more competitive..." (Casselman).

In addition to the technologists’ increase in information access, sharing and productivity, in 1996, Xerox also began to recognize opportunities for sales productivity from the company home page. “Speedy action taken by the Xerox Webmaster to a request last June...led to the purchase...worth $25,000 by a grocery company in San Antonio, Texas.” (Casselman) Proponents of a Web presence considered this sale a major victory; “…it provides encouraging evidence that having a presence on the Internet can be profitable if coupled with the right service system.” (Casselman) That year, Xerox’s Webmaster received over 35,000 messages from over 120 countries.

In an effort to create and manage its net presence, Xerox created an Office of the Net (OTN) staffed with personnel from Xerox PARC and given a mission to: “promote, maintain, measure and monitor the Xerox Document Domain to ensure a holistic, global and Customer-First presence exists on the Internet.” That year, the overall Xerox Document Domain received over 2 million hits per month. The OTN enlisted the common Xerox practice of benchmarking to seek out and implement best practices, “The current list of companies which are tracked includes notables such as: Kodak, Microsoft, IBM, Intel, Lotus, Digital Equipment Corporation, and EDS.” (Casselman) Lessons were learned from each, especially Intel, “Intel has clearly made its Web presence a major corporate concern, winning plenty of great reviews – not just for its overall Web site design- but also for particular Web areas such as their Investor Relations pages.” (Casselman) Following Intel’s lead, Xerox’s Investor Relations site ranked eleventh on the Top Investor Relations Site ranking board, received 17,000 hits per month and is said to have saved $100,000 annually by answering queries electronically. (Casselman) In addition to maintaining the home page and responding to customer queries, the OTN created domain guidelines and standards. This document was taken as evidence by Mark Resch, head of the OTN,
that Xerox was "clearly beyond the theory stage when it comes to managing its presence on the Internet." (Casselman)

7.4 Direct Internet Commerce, 1998

Following the creation and management of the Xerox's home page, the group in PARC began the next obvious step, selling and advertising product on the Web. The first product advertised and sold on the Web was a product in search of a channel, Xerox's products in scanning and optical character recognition. These software products were well suited to the customer population currently possessing Internet Access and added a needed channel to the product's sales.

The next area of natural progression, perceived by the Internet Group, was to be copier and printer supplies. In this area, the Xerox Supplies group itself was not interested for two main reasons. (1) they believed that their customers were not Web enabled and (2) they felt that their recently introduced 1-800 ordering was very successful and there was no need to change. In addition, there were two main groups in supplies, one selling toner supplies, the other selling paper and other printable substrates. These two factions did not agree on the value of Web implementation and were dotted line reports to the executive desiring to implement. The implementation of supplies sales on the Web is directly attributable to the efforts and support of a few key executives. The customer support group was initially unresponsive, but with continued operational emphasis and encouragement this improved. While sales were limited, Web Commerce at Xerox was begun.

Following the supplies experience, the Internet Group migrated to products. Within Xerox, there are several semi-autonomous groups that develop and support their own products. It proved very difficult to achieve cohesion from the many decision-makers in these groups. It was perceived that if sales on the Web were to be effective, a consistent product spectrum should be available, and offerings should not be haphazardly offered depending on the attitude of particular product managers. These factors influenced the Internet Group to begin with low end small office/home
office equipment which had a tight decision making team. The business unit was, however, not interested and is reported as having said, “Listen, we sell our products by the busload, not onesies!” This might have been the end of the conversation, but a few senior executives believed that the Internet Channel was an important part of the future. These executives continued to champion the channel as a steady and controlled move which resulted in Web enabled transactions.

In the spring of 1998 Xerox began the Internet sales effort on products by launching major account sites. Ted Richman, head of Internet Marketing, managed this for the United States Customer Operations Division. Beginning with two major customers, secure Web sites were set up through which these customers could purchase Xerox products and supplies. By the summer of 1998, eight major accounts were launched. It was also during this summer that the general public was able to buy Xerox products, supplies and services on the net. In an attempt to avoid conflict, these products were restricted to lower-end machines, but would not include machines that were currently sold through the Channels group.4

It was also in 1998 that Xerox President Rick Thoman presented the keynote address at Comdex and was quoted from a press conference, “the company is cutting costs, moving aggressively into the retail marketplace and is gearing up an Internet sales channel. We are building the competency to do it, and we do take some orders over the Web.” The initial goal was to be able to order supplies over the Web. “We're certainly not Cisco 'Systems Inc.' or Dell 'Computer Corp.', but we would hope that 50 percent of supplies are ordered over the Web by mid-2000,” he said. "You have to build it, and they will come.” (Whitestone)

7.5 Difficulties and Solutions Experienced

7.5.1 Acceptance of Channel Conflict

“A channel consultant once told us a couple fundamental truths about resellers: 1) If there is no channel conflict, you are missing customers and 2) Dealers bitch.”

(Excerpt from an internal e-mail discussing channel strategy)

As cited in the previous study, Xerox is not alone in its experience of having difficulties introducing a new Internet sales channel. The introduction of the new Internet channel was understood to have potential conflicts with existing channels. In a corporate wide broadcast in 1999, Chairman Paul Allaire spoke about the channel conflict, specifically Internet sales and retail stores, as an inherent risk which was management’s duty to manage. “I think it is inevitable that we will have some competition. In fact, two years ago when we put the channels organization together, we said that we are going to change our philosophy in the company from one which we really insure that there wasn’t any conflict to one where we recognize that there would be and our job was to manage that conflict. Now our customers...really do have different buying preference and we have to be where the customer is when the customer wants to buy. That is going to obviously cause the potential for some conflicts between the two channels. But I think we know how to manage those and we know how to use particularly the e-commerce as an adjunct to all of the other channels – the direct sales force, the dealers and the retail stores and do that effectively. And that’s really our job as management.”

In addition, Xerox competitive intelligence observes their competitors benefiting from channel conflict. In 1999, Canon adopted an open distribution system while launching its own direct sales force. Originally, Xerox thought channel conflict would undermine channel support for Canon. It is now being suggested that the open competition squeezes out weaker dealers, forcing greater efficiency in Canon's

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5 1999 XEN Broadcast Script, Xerox historical data
channels. Open competition reduces Canon’s street prices but gives Canon the power to maintain its wholesale prices. This supports the observation that Canon products are leading the industry price war, while their gross margins remain steady. (Internal Competitive Intelligence)

7.5.2 Pricing Issues

While it is accepted that channel conflict is a necessary asset for success, the management of that conflict is vital. Pricing presents a conflict difficulty that is a constant management struggle and presented multiple problems dealing with the initial posting of products and prices on the Internet. The Workgroup Fax Product group initially posted the products at what they considered a competitive price, 5% above the sales manager’s floor price. The price was posted under the assumption that the channel was self-service, cheaper to support and the customer required a competitive price. Unfortunately, the low price posted on the Internet was printed as “list price” in Buyer’s Lab, the competitive evaluation publication, and resulted in unhappy dealers. The posted price was subsequently changed to the actual list price and in the next quarter, the channel had one transaction for one machine. Again, they tried modifying the pricing and placed the posted price at 20% above the average agent achieved price. The dealers still complained and the volume was still low. This created an issue for the product team that was required to post the product and pricing by creating anger and difficulty for the large volume channel while compensating with Web volumes that are less than 1% of the traditional channels. If Web volume had been significant, the effect would have been to move volume from the high margin channel to the low, reducing aggregate product margin. Instead, the products were removed from the Internet for a time.

Understanding the reactions and issues around these pricing incidents is important to understanding the overall corporate reaction. A specific story tells of a disgruntled sales agent calling a high level executive in the sales organization and blaming the executive for creating a family rift. Apparently the sales representative had sold his uncle a product at the real list price, which is rarely done in direct sales. Following
the closing of the deal, the uncle found the much lower price posted on the Internet and realized what a "great deal" his nephew had given him. While this story is a bit extreme, it illustrates the traditional atmosphere that sales agents navigate and offers understanding into the issues and anger that could occur when prices become transparent.

These achieved prices are more readily available than ever, specifically, available from government agencies that are required to post purchase prices for their contracts. They now do so on the Web. This was the beginning of the parent company having "secret" information published on the Web. As mentioned in the earlier framework, this difficulty is not unique to the Xerox channels, but is part of a larger issue of price transparency and the ability to price discriminate.

Eventually, a senior executive is reported to have mandated the selling of products over the Web, which forced these specific products back onto the Web. At this point, the products were posted at list price. When the customer decided to buy, they were given a promotional discount on the next screen. Additionally, the organization began to publish direct mail advertisements to bring people to the Web to order and the Website posted a listing of dealers while the 1-800 Tele-Web sales leads went to the dealers. This alleviated some of the anger regarding Web pricing.

In addition to the incentive issues already involved in pricing, the entrenched inflexible mainframe structure did not make implementation and coordination of the solutions easy. Prices on the Internet could not be input from the mainframe to the Web directly; so pricing changes needed to be manually entered into both the legacy infrastructure and the Web infrastructure.

7.5.3 Compensation Issues

A pure Internet channel company should, ceteris paribus, always be able to offer lower cost to customers. The distribution of these savings is one of the central issues surrounding Internet channel conflict, "Who is entitled to the new rents created
by the efficiencies of the new channel or processes?” Xerox temporarily addressed some of this issue quickly by compensating multiple stakeholders for the same sale. "To avoid conflict, our account managers receive compensation for products that are sold through other channels," Dolan says. "We want our sales force to really manage their accounts." (Kaydo, July 1999) The goal of “over-compensating” was to reduce the resistance to the new channel, thereby increasing its usage and overall benefit.

As mentioned previously, Christensen points out the difficulty in the prediction of the dominant design in the evolution cycle, this is expected with this “over-compensating”. The compensation scheme Xerox used, cited above, is economically inefficient and should not be expected to persist. It remains in the current state as a required incentive to support the new paradigm and is understood as such. Being a sales representative for many years, Anne Mulcahy, current Chief Operations Officer, understands the tribulations of incentives. She says, “Doing the right thing is not often the ultimate motivator.” (Cohen)

Xerox, which has a large direct sales force could, over time switch to have a greater portion of their sales handled by call center augmented Web presence. This, in fact, is happening, “more and more customers are coming to the Web to learn about products before they go to a retail store,” (Cohen) which, according to Mulcahy, led Xerox to give their salespeople commissions for any leads that turned into sales. They might even be expected to change the nature of their product offerings over time so that a greater fraction was compatible with the lower cost channel. In this scenario more and more of the company’s products would require less and less specialized understanding (or facilities or tools) to install. We might expect a growing dichotomy where some products required almost consultants to sell and install and service and a second tier of products becoming more user-friendly and more commodity like. This, in fact, is happening in Xerox’s business where more and more sophisticated products are being delivered “channel ready.”
7.5.4 Coordination Issues

Coordinating the infrastructure has been a continuing issue for Xerox. The complexity of the entrenched infrastructure makes new processes difficult to enable, coordinate and control as exhibited in the pricing situation above.

An additional example of this issue occurred around enabling the site for Web commerce. To enable Web transactions, the control of the web site moved from the OTN to within the control of the sales group, the United States Customer Operations (USCO) group. By this time, maintenance of the server had been outsourced to MCI, but USCO contracted with IBM to create a commerce Website using IBM’s Storefront software. IBM, in turn, contracted with another supplier to do the customization of their Storefront software. Difficulty occurred when IBM went to physically load the web site software onto the server located in MCI’s server farm. MCI refused to allow IBM, as a competitor, to enter their buildings. Eventually, a solution was negotiated where the server was enabled for remote update. This resulted in a minor security risk, but enabled the loading of the site.

7.5.5 Applying the Framework

The framework diagram below aggregates the Xerox problem set within the previously developed framework illuminating problem areas and enabling an understanding of the Xerox position and their difficulties:
The framework illuminates that the problems are primarily coordination and incentive issues, not lack of resources. As previously mentioned, unaligned sales incentive based problems were temporarily avoided through "dual-compensation". This
understanding would guide efficient management to concentrate on coordination and skill mix activities, rather than to increase incentives, or pour more resources into projects which may make solutions even more convoluted and difficult.

7.6 Matrix of Change: A Tool for Managing the Transition

While the lens framework is useful to analyze problems, additional guidance to select a desired strategy and guide management through the transition would be invaluable for firms crossing these discontinuity chasms. While this example is used historically, it is suggested as a predictive planning tool for future projects. The Matrix of Change (MOC) is an example of a systems engineering tool, Quality Functional Deployment (QFD), turned to the uses of organizational planning and understanding. In this instance, the MOC is used to give understanding and insight to the interaction of the current practices and desired practices. This insight can provide guidance to management on focusing the transition plan. In this particular case, the contrast and difficulties of transitioning from the old practices to the new practices become readily apparent. The horizontal existing practices:

- Sales agent as care taker: The sales agent is the main interface to the customer. The responsibilities include initial contact, product selling, price negotiating, order taking, answering billing questions and being the main conduit of information between the customer and the company.
- Sales agent assigned to customer: Sales agents are assigned to customers based on customer size, geography or industry.
- Opaque negotiated price: While the list price is publicly available, the “street price” is not widely available. Each achieved price is negotiated individually and is opaque to other customers.
- Product Differentiation to Support Channels: Products are differentiated to support dealers, value-added resellers and direct sales agents.
- Manual Ordering and Billing: Ordering is done manually through the work of sales agents and field support people who eventually enter the information to an inflexible mainframe database.
• Entrenched Inflexible Infrastructure: Processing information infrastructure was created in the early days of company scale up with then new technologies. It is now an outdated infrastructure that is difficult to integrate with the new PC/Web technology.

• Call Center Manages Service and Support: The 1-800 Call Center manages service and support when customers call the company. If a customer calls a 1-800 it is generally to utilize the service and support hotline, otherwise, a customer will contact their sales representative.

And the practices that the firm is targeting will be the vertical targeted practices:

• Internet Customer Support: Internet customer support allows the customer to visit the Web to find technical solutions for product problems and to order supplies, two functions previously done by the Call Center.

• Automatic Ordering and Billing: The desire is for ordering and billing to be quick, efficient and relatively automatic. This is in conflict with the current infrastructure where people provide the flexibility around the inflexible, but semi-generic legacy infrastructure.

• Flexible Automated Infrastructure: This is in concert with the automated ordering and billing but includes such things as pricing and product information. The goal would be to have infrastructure that can support a dynamic Web page and build to order manufacturing.

• Products and Price on Internet: The goal is to have products and prices on the Internet without causing negative disruption within the channel. These would be provided for the ease and convenience of customers ordering on the Internet, or doing an initial query for information. This also allows the customer to select and engage Xerox and not the traditional process where Xerox chooses the rules of engagement.

• E-Information to support dealers and agents: Dynamic information should also be available to communicate with dealers, resellers and agents. This information is used to enhance the value of all the channels.
• Cheaper for low-maintenance Customers: Competitive pricing would be available to low-maintenance customers utilizing the Web, self-service, and other low cost services.

• E-Agents to Support Purchase Decisions: With the move to Web enabled purchasing, the goal is to use automated e-agents to query the customer and suggest appropriate products for them. This is an attempt to make the product choices more understandable and make the buying process more efficient.

The MOC allows the interactions of these processes to be analyzed and displayed. (Brynjolfsonnn) The management “value add” from this tool is in allowing management to experiment with different targeted practices and have a visual display of the conflicts and reinforcement. In this particular case, examining the “roof” of the existing practices displays only one conflict and the remainder are predominantly reinforcing practices. Specifically, only the product differentiation to support multiple channels, a relatively recent practice at Xerox, is a conflict. This is expected given the extended period of time through which these practices have evolved. It would be unlikely that a conflicting practice would still exist. The “roof” of the target practices is also predominantly reinforcing. The difficulties are apparent in the transition portion of the matrix, which is displayed as the “house” portion. This matrix could have predicted the difficulties associated with pricing on the Internet, as depicted by the many minuses in the transition column.
This visual display allows some analysis of the transition process. Considering the structure of the matrix will allow a determination to be made whether the change is evolutionary or revolutionary. Additional understanding comes from the sum of the signs in the "walled" portion of the matrix. I suggest that a positive sum represents an evolutionary change, whereas, a negative sum represents a revolution. The magnitude of the sum suggests the change severity. The diagram below comprehends this transition of the firm from the current state to the desired state:
Figure 7: Revolution vs. evolution from the matrix of change.

The negative sum of the Xerox matrix suggests that the firm is engaged in a revolutionary change and should manage accordingly. If the goal were to avoid revolutionary change, Xerox could consider an alternative selection of targeted practices to shift the transition to one more evolutionary nature. The firm also has the option of creating a separate entity outside the confines of the current entity’s conflicting practices.

The structure of the matrix suggests that while the transition will be difficult, there are logical paths that should be followed for the most effective transition. To achieve this path, the firm should begin by implementing the flexible automated infrastructure. While this would be a major investment and technical challenge, it would also provide the positives of the flexible automated infrastructure that is supportive of the remaining existing practices. This flexible infrastructure will then be available to help with the channel conflict coordination problems surrounding pricing and product differentiation.

The next reinforcing process for early transition is the high value-add “Knowledge Consultant” sales agent, which supports the old processes and the new. Indeed all
of the major players in the high end of the office products industry (Xerox, Canon, HP, Ricoh) now list “solutions” as their principal sales focus. This is a clear attempt to avoid channel conflict by moving sales of a greater portion of their products away from the “commodity” status that makes the Web so inviting. This also increases the emphasis on the use of the Web to provide “flexible infrastructure”. In a notable example, HP recently tried to acquire Pricewaterhouse Coopers’. A caution with the “Knowledge Consultant” transition is that it may further embed the organization by supporting current traditional practices and make the overall organizational conversion even more difficult.

The next transition would be the e-information channel to support dealers and agents. With the transition of these three processes, there is now support in the targeted practices “roof” encouraging the acceptance of other new supportive targeted practices. These new practices begin to leverage Internet technology’s ability to facilitate improvements in productivity, which can result in better “product” (including service and support), lower costs, or both. In addition, the creation of the flexible infrastructure encourages the development of tools, which would allow increasingly sophisticated transactions to create value on the Web.

It should be noted that this analysis addresses ways to successfully implement change, not whether or not the change is desirable. Decisions about implementation of the strategies must ultimately rest on the strategic (including resource or core competency) fit with the firm and on an assessment of economic profit or another suitable financial metric.

8 Conclusion

8.1 Thesis Summary

The firm interviews provided data to gain valuable understanding of channel conflict issues by analyzing the difficulties arising from: coordination difficulties, incentive misalignment, and resource allocation. The solutions implemented by the
investigated firms give some insight into possible causation and provide useful
guidance for other firms facing similar issues. The three lens framework was applied
to an original Xerox case study, which provided insight into Xerox's illustrative history
with pricing, compensation and coordination.

Using Xerox's history, the developed framework and the MOC, it is determined that
the matrix provides a useful understanding of the revolution which the firm has
begun. The MOC analysis offers suggestions for the design and implementation of
the new channel and organizational practices, which would help alleviate the
difficulties encountered in their transition. The visual display and analysis also
provide a map to navigate the organizational change most effectively.

8.2 Conclusions on Channel Introduction and Internet technologies

"While the Net is a powerful vehicle for business transformation, it does not give
anyone a free pass on basic business management—setting a solid strategy and
implementing it well." –Lou Gerster, IBM Transition Champion (Editor, Technology
Review)

There is nothing inherent in the Internet technologies that make success assured. It
is subject to the same rules of strategy implementation as other new tools. When
creating any strategy, in addition to considering the competition, it is important to
consider the strengths and weaknesses of the firm. This allows the creation of
strategies that exploit strengths and shore up weaknesses. The Matrix of Change is
one tool useful for considering possible alternatives in facilitating a firm transition,
including the creation of a new channel. When considering new target processes, a
firm should consider the total value chain. The opportunities and leverage of Web
Commerce or e-business are often wasted when considered solely a customer
interface that makes low cost sales. In order to be a fully leveraged effective channel
the interface requires full value chain support. Full value chain support can be
achieved through design and implementation of the targeted processes and transition
plan. Transition management strategy is difficult for any firm, but especially for those
entrenched in processes conflicting with new target processes. Care should be taken to understand the interactions of practices and alternative transition paths and target practices.

In the case of any firm surviving and transitioning their firm or channel, these rules of long term firm survival apply. The answer is a precarious balance as suggested by Utterback “…all evidence points to the need to innovate both with breakthrough products and processes and with regular incremental improvements. Any firm that plans to win the race to commercial success by being either a steady plodding tortoise or a swift-footed hare will find itself outpaced by firms that have developed the virtues of both.” (Utterback, p.135) In the same manner of product development improvements, the organization must follow the same rules when adopting the tools of e-commerce. The analysis of adoption is a balance between the competitive landscape and the firms competencies and resources. There is a not a one-size-fits-all answer.

The Internet is both a flexible and disruptive technology that affects basic business models. Revolutions aren’t defined by new technologies; they are created by high rates of change. When a monarchy is overthrown and a democracy is installed, for instance, it is still a revolution although the “technology” of democracy is well known. The difficulties currently encountered by many traditional firms are comparable to the difficulties encountered by technology firms when disruptive technologies appear in the competitive landscape. It is evolutionary for those firms with current practices that facilitate a supportive transition and revolutionary for those whose value chain is substantially altered and for whom new competencies must be developed. The flexibility of Internet technologies allows process and productivity improvements for many firms in nearly every industry, which makes these high rates of change prolific, and in that sense, revolutions.
Managing this revolution is a difficult task which can be facilitated by the application of engineering principles and tools allowing management to utilize a systematic process that is thorough and objective. Management of the channel issues with holistic understanding, including the technical issues and the management issues, contributes to the likelihood of a functional and successful outcome in channel design and management.

**8.3 Recommendations for Further Research**

The specific tool of the matrix of change is a valuable tool that should be tested in a predictive, rather than historic manner. Additionally a wider sample of firms could be surveyed in an attempt to refine the fundamental problem set. This larger sample should include a sample of firms in an array of industries and value chain positions. Development of either a more orthogonal set or a greater understanding of the interaction of the basic problem types would allow more insight to be derived from the analysis. The array of value chain firms could provide understanding to the difference in issues facing such different firms as manufacturers and retailers. These differences could provide illumination to other possible solutions.

Other architecture and systems engineering tools should be explored for their appropriateness in designing channels to harness and leverage channel conflict.
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