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THE NEW ECONOMY: SOME ISSUES AND IMPACTS OF ELECTRONIC COMMERCE

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Abstract

The media are constantly bombarding us with information about the "new economy" and its impacts on our daily lives. What is this new economy? In what ways does it affect us? What does the future hold for us, as the rate of technological innovation continues to increase, and our traditional ways of interacting with others and conducting business continues to change? This paper is an attempt to address these questions. Topics discussed include the new economy and its close partner, the information society, along with their impacts on productivity growth. Certain aspects of business activity through electronic commerce are related, along with a series of management issues and their potential responses in the face of the fast rate of change in technological innovation in this new economy.

The New Economy: Some Issues and Impacts of Electronic Commerce

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1. Introduction

There has been a considerable amount of hype and speculation in the media about the so-called "new economy". This creates questions that demand explanations. For example, what is a good definition of the new economy? And what are its impacts on individuals, businesses, and society at large? This paper is an attempt to address some of these questions, by relating the new economy to those changes brought about by technological innovations that are affecting everyone. The effects brought about by easy and inexpensive access to and use of information have provided a diversity of applications in business, government, learning, and society at large We will review the impact of some of these applications.

In this paper, we first define the new economy, and its close relative the information society. Then an important underlying economic impact of technology investments on productivity growth is discussed. Applications in electronic commerce in both business-to-consumer and business-to-business sectors are then addressed briefly. Finally, we review a number of relevant business management issues, including making the transition to the new economy, the relative power of competitors, suppliers, and customers, special issues for small to medium enterprises, intermediary businesses, and supply chain management. Finally, we describe some of the applications and issues in online education that arise out of the new technologies, and conclude with a summary of organizational impacts of the new economy.

2. The New Economy

What is the *New Economy*? It can be defined generally as a set of qualitative and quantitative changes that are transforming the structures, rules, and functions of the economy. The new economy is "new" because, unlike previous economic environments, it is predominantly knowledge-based, and information technology is driving the changes we are observing in the economy. Knowledge industries include: 1) those whose major product is knowledge itself, such as software, biotechnology, and information technology hardware, and 2) those that manage or convey knowledge or information, such as telecommunications, banking,

insurance, government, and education. In the new economy, intangible assets such as knowledge have become as important as tangible assets.

Some of the characteristics that are symptomatic of the new economy include[1]:

- More people work in offices and/or provide services. There is a trend towards a high tech, services, and office-based economy
- High wage, high skilled jobs are growing in number, but so are low wage, low skilled jobs, resulting in a growing gap between high and low income earners
- Jobs requiring post secondary education are growing as a share of total employment
- Trade is an increasing share of the economy, indicating that we are increasingly moving towards a global economy
- Foreign direct investment is on the rise around the world
- There is a premium on innovation and the economy is spawning many new fast- growing companies
- Business competition is fierce. The total number of enterprises and the number of stocks traded on exchanges is rising.
- Collaboration among competitors is increasing, including networks, partnerships, and joint ventures. The demand for outsourcing continues to grow rapidly, opening many opportunities for new companies to provide manufacturing, information technology and systems for such applications as e-commerce, and other services to companies that do not regard these as their core competencies. Firms are turning more to suppliers, customers, and universities as sources of technology and innovation.
- Slow and steady growth in the economy and employment masks a great deal of churning, as an increasing number of firms are being formed or dissolved each year. New and more innovative companies are displacing other companies that cannot adapt quickly enough.
- Consumer choices are expanding rapidly, and new products and services are appearing at a rapid rate
- Rapid change is becoming normal. Product life cycles are shortening dramatically. More revenues are being derived from products that have been on the market for relatively short periods. Patents are becoming less effective in protecting intellectual property as the pace of change quickens.
- Microchips are everywhere: in the home, industry, business, transportation…
- Computing costs continue to drop, with computer power increasing roughly according to Moore's Law (processing power doubles every 18 months), at approximately the same cost
- Data communications costs are dropping dramatically, making new applications in business, industry, and the home increasingly affordable.

[1] Adapted from The New Economy Index, http:/www.neweconomyindex.org/section1_intro.html (accessed September 2000)

But is this new economy the result of new economic principles? Hardly. Changes of the sort we are observing have happened a number of times in the past. Technology may change, but economic laws that relate to innovation do not, and the electronic commerce revolution we are experiencing is based on common economic principles. For example, the industrial revolution was caused by cost reductions and vastly increased capacity of new production technologies, combined with network externalities resulting from more efficient transportation. (When the value of a product to one user depends on how many other users there are, this product is said to exhibit network externalities). Network externality effects were also observed after the introduction of other innovations such as the automobile, telephone, and broadcast radio. Note that real economic benefits to a broad segment of society from such innovations occur when related standards are developed (e.g. standard gauge railroads, and the use of TCP/IP as the standard protocol for Internet data communications), resulting in economies of scale and reduced production and distribution costs. This improves the ability of end-users to afford access to and to use the new technologies.

3. The Information Society

The information/e-commerce revolution now underway is based on an infrastructure derived from computer and communications hardware, supported by information generated via software. Computer hardware and software are valuable when they work together as a system, to form communication networks, databases, user interfaces, and other components that support business processes. Information can be valuable as a commodity itself, or in a form where it can be manipulated or searched. It can also be valuable in the form of products (e.g. software, or packages that can generate useful information, such as advice on investment decisions) or as information about other products and services (certainly true of Internet e-commerce).

Technology innovations subject to economic network externalities are characterized by long lead times followed by explosive growth. From the advent of business computing in the 1950s until the 1980s, there was much discussion about the so-called "information age" and its potential impact on society. But there was little discernible impact on the economy since there was relatively slow growth in information applications, and they were confined more to

structured internal operations of business firms and government. The explosive growth period did not begin until the late 1980s when the Internet was commercialized. The reason that the Internet works so well is that its component networks must use a common world-wide communication standard, and standards are the key to unlocking value from information technologies. This revolution provided the network externalities, the positive feedback, and the basis for the rapid growth in e-commerce we are now experiencing. As an example, the current great demand for business-to-business e-commerce applications is fostered by potential net savings of between 5 to 10% of the value of goods and services being exchanged, which is very attractive to businesses in a highly competitive business world.

4. Productivity Growth

The essence of business investment in technology is that it has the potential of reducing the cost of doing business through productivity improvements. Although some of the short term effects of such investment mean loss of jobs, in the long term, technology investments have a positive societal impact of lower costs for goods and services. This results in an improvement in the standard of living. Productivity increases can result from: 1) improved quality of the workforce through education and training, 2) equipping workers with more and better capital, or 3) improving the technology, so given inputs produce more output. As an example, productivity growth in agriculture and manufacturing in industrialized countries over the past century or more has had a significant impact in making food and manufactured goods increasingly affordable to a broad cross section of the population. This was due primarily to the second of these three sources, with some assistance from the first.

The new economy is also providing benefits from productivity growth, but this impact has taken a long time to take hold. For example, in the years after World War II and leading up to the 1970s, total factor productivity (the technology-based part of productivity growth) grew at approximately 1.9% per year (U.S. economic figures)[2]. Productivity then slowed to about 0.2% over the period from 1970 to about1995. At the same time, (especially beginning in the 1980s)

[2] Productivity figures are based on Alan S. Blinder, "The Internet and the New Economy", Brookings Institute Policy Brief No. 80 (June 2000), http://www.brookings.edu (accessed September 2000).

investment in computer and communication infrastructure grew at a tremendous rate. Resulting productivity growth during the 1980s was significantly higher in only the financial services industry. The impact of these investments was finally evident in the late 1990s, when U.S. productivity growth jumped to an average rate in excess of 2.7%.

Canadian productivity figures changed roughly in parallel with U.S. figures, although the jump in the late 1990s has been considerably less prominent and lags U.S. results[3]. It is generally acknowledged that network externalities triggered by the commercialization of the Internet finally gave the expected productivity improvement from the very large investments in IT infrastructure that began in the 1980s. This view of productivity growth is not uniformly subscribed to by economists. For example, John Cassidy[4] points out that some economists have suggested that much of the measured U.S. productivity growth may be due to much higher productivity in the computer and communications industry alone. This industry is a major factor in the U.S. economy. Further, he indicates that some of the productivity increase may be due to unreported longer working hours by workers in the service industries. Nevertheless, there is little doubt that a major shift is underway in the economy, and that productivity has improved.

5. Electronic Commerce

Electronic Commerce (EC) or Electronic Business (E-Business) are terms that are synonymous with the new economy. They describe business transactions, customer service, and intra-business tasks that make use of digital communications. Particular applications include buying and selling products, services, and information via computer networks, providing customer service, and performing intra-business tasks with the assistance of groupware, internal billboards, etc. The essential infrastructure for EC and the new economy is a digital networked computing environment that links organizations and individuals in business, industry, non-profit institutions, government, and the home. EC is not simply a new distribution channel, or a new way to communicate. It is many other things: a marketplace, an information source, a tool for manufacturing goods and services. It makes a difference to many things that managers do every

[3] TSE Research Bulletin April 1999 http://www.tse.com/news/bulletins/bull_02.html (accessed November 2000).
[4] John Cassidy, "The Productivity Mirage", The New Yorker, November 27, 2000, pp. 106-118.

day, from locating a new supplier to coordinating a project, to collecting and managing customer data. Each such activity affects the corporation in different ways, with the result that EC brings changes that are more pervasive than anything we have seen before from information technology.

An obviously large component of the new economy is the growth in new business from investments in the innovations that support electronic commerce through the Internet. For the purpose of studying this impact, we can classify related economic activity into four distinct but related layers[5], beginning with the layer that carries Internet communications and working up to those layers where EC is commonly performed by end-users. The layers are: 1) Internet Infrastructure Layer (the network infrastructure that supports communications), 2) Internet Application Layer (products and services that make it feasible to perform business activities online), 3) Internet Intermediary Layer (systems that facilitate interactions between buyers and sellers), and 4) Internet Commerce Layer (those companies that actually sell and distribute products and services over the Internet).

The University of Texas study that developed the Internet layer model also surveyed 1999 U.S. economic activity in each of these four layers, and determined that the related economic impact was $115B, $56B, $58B, and $102B in layers 1 to 4 respectively (all figures in U.S. dollars). Jobs attributed to the same four layers were 372,000, 231,000, 252,000, and 482,000 respectively. So the overall impact of the Internet itself on the U.S. economy in 1999 totaled $301B and 1,204,000 jobs, a substantial contribution to total U.S. economic growth. Obviously, the relative impact in other countries such as Canada is considerably less, but it is an impact that will continue to grow and affect productivity around the world, and it cannot be ignored.

Savings of up to 10% of the value of goods or services traded through EC implementations that take advantage of these innovations have a significant effect on productivity. These savings can accrue from careful attention to redesigning the firm's business

[5] Anitesh Barua, Jon Pinnell, Jay Shutter, and Andrew B. Whinston, Measuring the Internet Economy: An Exploratory Study, University of Texas at Austin, TX: Center for Research in Electronic Commerce (June 1999). An updated view is available at http://www.internetindicators.com/ (accessed December 2000).

processes, and better management of supply chain and customer relationship management activities. Cost savings can result from reductions in inventory costs, reduced delays in fulfillment operations, reductions in cost of goods or services acquired from suppliers, and reduction in off-contract purchasing. Properly designed processes and more focus on customers that is possible with some of the available customer relationship management systems, can improve customer satisfaction and lead directly to increased sales.

The resulting impact of e-commerce on the economy is potentially very large. Consider the U.S. GDP, which currently exceeds U.S. $9 t (trillion). U.S. retail sales exceed U.S. $3 t. Forrester Research predicts U.S. business-to-business (B2B) e-commerce will be U.S. $1.3 t by 2003 (about 15% of GDP), with business-to-consumer (B2C) e-commerce at about 10% of this amount. From the Canadian viewpoint, a recent survey of Canadian businesses indicated that 69% were participating in some form of e-commerce, but other studies indicate that the Canadian adoption rate of e-commerce as a fraction of GDP lags well behind the U.S. rate. A large proportion of Canadian businesses are Small to Medium Enterprises (SME). Many of these companies are utilizing EC at the informational level, which implies Web page or pages that are limited to providing information on the company, its products or services, and contact information. These limited forms of EC are typically not costly to put in place, and are simply another form of advertising. They may not lead to significantly enhanced economic activity, although they may enhance the chance that viewers will follow up after finding information relevant to their needs on the company's Web pages.

6. The Context for E-commerce

The global networked environment is the Internet, which supports systems such as e-mail, World Wide Web ("the Web"), file transfer protocol (ftp), etc. A counterpart network within organizations is called an intranet. An extranet provides a secure extension to an intranet so it can be accessed by business partners or other external players (e.g. employees, consumers, etc). These linkages may be over private networks or the Internet, usually requiring specific provisions for security to protect from unauthorized external access to company networks and databases.

Business transactions in e-commerce can be classified according to the organizations or individuals involved in these transactions. The main classifications include business-to-business (B2B) transactions that involve two or more businesses, business-to-consumer (B2C) transactions between a business and individual consumers, intra-business transactions involving departments and/or individuals within an organization, and consumer-to-consumer (C2C) transactions between two or more individuals.

6.1 Business-to-Consumer E-Commerce

In B2C Web sites, the level of activity can range from very inexpensive operations of a Web site with only company and contact information, all the way to the investment of millions of dollars (as well as substantial operating funds) in a site that can handle marketing and sales transactions, after-sales service, and customer relationship management. In "brick and mortar" companies, such activities may be carried out in parallel with regular established marketing and distribution channels, resulting in "clicks and mortar" operations. In others, the company may be operating entirely online as "virtual" or "pure-play" companies. EC levels range from the least involvement (and sometimes the least effective) to the most advanced and most effective in terms of customer relationship management. In each case the levels indicated below include any activities included in the levels above them in the list:

- presence only (company information)
- product and/or service information
- after-sales service support information
- direct sales of product (e.g. software) or information for digital products or information and/or handling and tracking sales transactions for physical products over the Internet
- handling the entire sales cycle over the Internet, including on-call human backup support at any point in the cycle (e.g. via customer call centers).

6.1.1 Information Services

Information services comprise one of the major applications of e-commerce and is used here as an example. Information services can be provided at any of the activity levels described above, and are especially suited to online trade because both marketing and delivery can be accomplished through the Internet. It can take diverse forms, a few of which are described here:

1) Online financial services that allow consumers to trade bonds and equities through their online brokers, have had a major impact on the brokerage business by increasing competition and reducing the cost of trading. In addition, online access to banking, insurance, and other services continue to improve and to provide more extensive information and services to end users.

2) Media such as newspapers, magazines, radio, and TV typically have Web sites where they make available all or part of what they provide through their normal channels. The applicable business models vary from revenues derived from display advertisements to subscription revenues. Note that, in most cases, the cost of providing the information is very small because it is already in digital form as presented in the usual channel. The most important aspect of this type of information is that it is on-demand, and has higher potential value if it is provided in a searchable format.

3) Government information, in the form of Web bulletins, frequently asked question listings, etc., which free the inquiring citizen from the interminable waits and run-arounds typically encountered when calling government offices directly for the information. Governments seem to have more difficulty than business corporations in operating efficiently, but on-line information provides one way in which both efficiency and customer satisfaction can be improved.

4) Education and training is easily provided through the Internet to a potentially huge number of individuals. This is a promising marketplace, forcing the educational system to become more competitive as it evolves into a marketplace environment that educational institutions will have to respond to or wither. This is an essential component of the new economy, since the rapid rate of change requires an entirely new approach to life-long on-demand learning.

5) The Internet provides a means of coordinating activities among individuals and firms. This is evident in a variety of situations, including those that involve outsourcing non-core business activities to firms that specialize in such operations, such as manufacturing, engineering, and a variety of information or knowledge-based applications. Outsourcing the latter two activities is giving rise to a rapidly expanding market for Application Service Providers (ASPs) that provide services ranging from managing all a company's information assets to developing, maintaining, and sometimes operating e-commerce operations.

6) Online access to software products and related support services has revolutionized the software industry by linking vendors directly to customers. Customers are able to download software for limited time evaluation, to access FAQ (frequently asked question) sites that give advice about the software, to acquire the software, to pay for the software online with credit cards, and to access online technical support, all via the Internet.

6.2 Business-to-Business E-commerce

B2B activities tend to be different from B2C, since they involve higher volumes, contractual relationships, and the establishment of permanent digital linkages between trading partners. Business-to-business e-commerce has been used by a growing number of companies since the 1970s, when standards were established for the exchange of business transaction documents (in North America, these are industry-specific and are called Electronic Document Interchange, or EDI standards). Since then, many large firms and their trading partners have been using this approach through private networks, supported by intermediary firms called Value Added Networks. The advent of the Internet greatly reduced the cost of exchanging this type of information, but it also allowed the use of on-line supplier catalogues, and one-to-one Internet linkages between supplier organizations and procurement functions in buyer organizations.

Although many firms continue to use one-to-one links for B2B transmission of purchase orders, invoices, shipping advice, etc., there has been a very rapid growth in recent years in B2B hubs[6]. These fall into three general classes:

1) supply-side solutions, linking single major suppliers to a large group of their customer firms (e.g. *Cisco*, which sells billions of dollars worth of networking hardware and systems through its Web site),

2) buy-side solutions, linking single major customers to a large group of their supplier companies (e.g. *Chevron Oil Corp.* which purchases billions of dollars worth of maintenance, repair and operations supplies from its suppliers through the site it operates), and

3) many-to-many intermediary firms that provide linkages between a large group of buyers and their associated group of suppliers. As an example, earlier this year, the *GlobalNet Exchange* (GNX) was established by a number of major retail companies, including *Sears Roebuck – and Sears Canada, Carrefour (Europe), Sainsbury's (U.K.), Metro (Germany), Kroeger (U.S.), and Coles-Meyer (Australia).* Suppliers of these companies (numbering in the hundreds) were invited to join this exchange. Purchases through such exchanges are for both direct (for sale to the consumer), and indirect (for use internally by the business customer) goods and services.

[6] A listing and description of 200 B2B Web marketplaces, enablers, and application service providers appears in Forbes Magazine *Best of the Web*, July 17, 2000, pp. 105-195.

In addition to physical products, online B2B exchanges are available for many industrial services. Examples include utility services such as natural gas, electricity, and communications bandwidth. An example is the U.S.-based *Altra.com*[7], which trades natural gas, oil, and electricity. Another example is *Link Logistics*, a Canadian firm that specializes in matching freight with available truck transport[8].

7. Management Issues in the New Economy

All the rapid changes that are affecting economic growth worldwide are obviously creating new businesses, new opportunities for existing business, and stress on managers who must learn about and adapt to these new ways of doing business. In this section, we attempt to address some of the related management issues, and offer some ideas and concepts that managers should be investigating in more detail.

7.1 Making the Transition to the New Economy

Perhaps the most difficult management challenge to existing brick and mortar (B&M) firms is how and when to make the transition to the use of e-commerce technologies. B&M firms have both advantages and disadvantages in making this transition, in comparison with pure Internet startup operations[9]. Disadvantages for B&M firms include a series of possible problems and associated risks:

- dominant managerial logic which works well in an existing stable environment but may fail in an environment of change
- competency trap, an inability to shed old ways of doing things and to embrace new ways
- fear of cannibalization and loss of revenue
- potential of channel conflict with a new e-commerce channel
- political power may reside with a managerial group that resists change
- power of major customers or suppliers that resist change
- emotional attachment of managers to an existing technology

[7] http://www.altra.com/ (accessed December 2000)
[8] http://www.linklogi.com/company.htm (accessed December 2000)
[9] Adapted from Allan Afuah and Christopher L. Tucci, *Internet Business Models and Strategies*, Boston: McGraw-Hill Irwin (2001).

On the other hand, B&M firms have some advantages as well:

- complementary assets such as brand name, distribution channels, client relations, important clients, marketing, manufacturing, shelf space, supplier relations, etc.
- e-commerce technology is quite often easy to imitate, so if a decision is made to adopt an e-commerce approach, the company can be brought on stream relatively quickly

Sears Canada is a good example of a B&M firm that is particularly well-placed to take advantage of existing complementary assets. When their Web site opened for consumer sales, they already had a catalogue telephone sales network in place, including a trained sales force, warehousing, and fulfillment operations that include a distribution and returns network blanketing Canada. It is relatively straightforward to parallel catalogue operations with Web sales operations. There are potential rewards in cost savings and customer satisfaction by automating the customer interface in this way. Because of the manner in which e-commerce parallels their existing catalogue sales network, the strategic decision for Sears to move in this direction was less fraught with risk than it is in many companies which do not have the necessary distribution and returns network in place. Incidentally, providing a distribution and returns network either nationally or internationally as a service to retailers is a new intermediary value-added service opportunity that can be particularly valuable to a company that wants to implement e-commerce but does not have these complementary assets in place.

B&M firms may be able to overcome their disadvantages by finding a management team with complementary skills and a willingness to take on the challenges of implementing an e-commerce operation. Further, an employee population which is willing to embrace change and which is given the opportunity to educate themselves in new technologies and techniques, along with appropriate consultant support, will have a good chance of succeeding. However, if the B&M company is a stable operation with little advanced technical knowledge and a workforce that is not amenable to change, the best solution may be to set up a totally separate e-commerce operation that complements its existing operation and tries to avoid competing with its parent firm by attracting new customer segments.

Pure startup firms have several major advantages over B&M firms. They have less inertia, as they are not encumbered with any baggage acquired over the years from B&M

operations. In addition, they may have less difficulty in attracting new talent and, if they have excellent prospects, they may be able to attract a significant amount of venture or equity capital in the stock market. Their greatest disadvantage is that they lack the complementary assets of the B&M firms.

To compensate for their lack of complementary assets, startup firms have a first mover advantage. For example, the online bookseller *Amazon* was able to build brand recognition and a large customer population in the U.S. before large incumbent B&M firms such as *Barnes and Noble* were able to react. Consequently, it has been difficult to dislodge Amazon from its commanding lead in online sales. Since Internet technology is easy to imitate, startup firms can also establish a "run" strategy where they initially build a platform for their e-commerce activities that can be extended to other product lines and services. *Amazon* has chosen this strategy by establishing relationships with other retailers and hosting them on its Web site.

7.2. Changes to the Relative Power of Competitors, Suppliers, and Customers

In Porter's five forces[10] model (suppliers, customers, rivalry, threat of new entrants, and substitutes), e-commerce has changed the competitive landscape in a variety of ways, depending on the specific industry or application. However, there is clearly an increased threat of new entrants in almost every industry due to the lower barriers to entry, substitutes are continuing to arise due to the ubiquity of the Internet, rivalry is greater due to low switching costs, and the power of customers has increased substantially at the expense of suppliers because of the wider selection of online suppliers and products. The latter change is clearly illustrated in the B2B marketplace, where suppliers must become trading members of a B2B hub if they wish to do business with the business customers associated with that hub. In the face of more competition, rivals or business suppliers and customers may need to develop business models that involve joining forces in some way through strategic alliances. An example of such alliances is the radical shift in the past few years towards outsourcing those components of the supply chain that firms do not consider within their core competencies.

[10] M.E. Porter, *Competitive Strategy*, New York: Free Press (1980)

7.3. Critical Problems for Small to Medium Enterprises

Small to medium enterprises (SMEs) face a different class of problems than large firms, in adapting to the new economy. Unless they specialize in high tech, small firms lack the technical expertise to investigate and make good management decisions on whether they should invest in e-commerce solutions. Furthermore, the original investment is only part of the solution since the firm must adapt its operations so it can maintain the fast and reliable response that online customers expect. As a consequence, many SMEs content themselves with providing online company information or product/service information on their Web sites. Although this is a good way to learn about Web technology, it is basically a low-risk approach with a minimal chance of a reasonable return.

Among other choices available to such firms is outsourcing part or all of their online operations to Application Service Providers (ASPs). Some Canadian banks (e.g. ScotiaBank) and other service providers such as Bell Canada have moved into this marketplace. Typical services offered by these providers may include designing and setting up a client Web site with the appropriate information, handling the financial aspect of transactions, and passing customer orders through for the company to handle through their fulfillment operations.

The difficulty for SME management in making intelligent decisions is the lack of information on what is available in the way of e-commerce solutions, and how to adapt the firm's operations to handle online transactions in a way that will help to grow the business. E-commerce is a rapidly growing and evolving activity that impacts a broad spectrum of business, government, other institutions, consumers, and society in general. Although this is a relatively new field of study for academic institutions, enough is known of the relevant impacts to make the provision of online continuing education quite practical for those managers needing to make appropriate choices of e-commerce solutions. Rather than requiring business managers to take full programs, short courses that address particular technical or management problems are in order. Of course this is not a problem unique to SME management, but to managers across the spectrum of business, industry, non-profit institutions, and government departments.

7.4. The Changing Landscape for Intermediaries

Intermediaries typically generate revenue on a per-transaction basis for the services they provide to other companies or consumers. There has been much publicity about the disintermediation that has occurred and is likely to occur, because suppliers or manufacturers can reach end-consumers directly without relying on intermediaries. This can cause serious dislocation to traditional intermediaries such as retailers, distributors, brokers, financial firms, and consultants. For example, the travel industry has been seriously affected because airlines can use the Internet to deal directly with customers, and have lowered the commissions they are willing to pay travel agents. However, other intermediaries such as online auctions, securities brokers, distributors, hubs, and banks, have either introduced new online services or re-invented the services they provide and are prospering in the new economy. The key to success as an intermediary is to provide a value-added function that will assist other online companies to interact with customers or suppliers in a way that they cannot do as well at a lower cost. This may require an innovative approach with new ideas being applied to solve electronic commerce problems.

7.5. Supply Chain Management Issues

In performing the activities relating to its supply chain, a firm may interact with its suppliers, customers, firms in related industries, and intermediaries in its distribution network. In traditional supply chain management systems, a supplier firm interacts with each firm or customer that is the next or most recent link in the supply chain. If the end-customer is not one of these links, then the firm must trust the inputs it gets from other companies that ultimately deal with its customers. Connections enabled by an online system enable a firm to be in contact with all the participants in its supply chain. In particular, the firm may be able to interact directly with its customers through a two-way flow of information that allows it to understand customer needs and to establish long-lasting customer relationships. This makes it easier to stimulate demand for its products and services.

To operate a supply chain effectively, a firm must decide what links in its supply chain lie within its core competencies, and continue to operate these itself. The days of vertical integration are gone, and the speed of change is so high that firms must outsource those functions with which it does not have a high degree of competence. With online linkages through e-commerce, it is clear that the links that a company should retain are its marketing, service, and any other functions that give it a competitive advantage. Other links should be outsourced to companies with the expertise and focus on these links, through alliances or joint ventures. For example, Wal-Mart has a high degree of expertise in logistics, which is one of its core competencies. This has enabled it to achieve high economies of scale and bargaining power with their suppliers.

The current trend to outsourcing, strategic alliances, mergers, acquisitions, and takeovers has led to a greater need for firms to coordinate their activities by interacting and sharing information and other resources in a cost-effective way with remotely located partners. Virtual project management has also become quite common, where project teams may not be collocated and must interact at a distance regularly to share information and progress on the project. In many cases, significant reductions in travel and moving costs can be achieved, particularly for firms that carry on much of their work through a project organization. There has been a considerable amount of development of systems such as *Microsoft NetMeeting, Lotus Notes*, and *CuSeeMe* that support online interaction, either synchronously or asynchronously.

In the new economy, distance has become less of a barrier to effective management and task performance. However, there are certain types of interactions that are more effective when the participants are co-located, either temporarily for meetings, or permanently on assignment. Tacit knowledge is sometimes difficult to transfer or may be transferred erroneously in a virtual environment, and physical collocation is often preferable for R&D activities. Sales and marketing personnel also understand the need for personal interaction with customers, although virtual support can help reduce the amount of time spent on physical visits.

7.6. The Education and Training Marketplace[11]

The rapid evolution in societal needs due to the new economy has created a demand for training and education to help not just young people, but people at all stages of their lives, to learn about the changing world about them. Because of the rapid pace of change, people can anticipate three or four careers requiring diverse skill sets during their lifetimes. As it happens, however, the Internet is a component part of the new economy. In this context, the Internet is a new, ubiquitous, and easily used tool that allows people to access widespread sources of information and learning. When this learning is organized into courses or programs, it is called distance or distributed education. Distance education is not new, and has existed in many different forms since it was first used in the U.S. in the late 19th century. Distance education is currently offered in Canada and elsewhere from a variety of universities, colleges, and private institutions. The advent of the Internet has altered the distributed education scene significantly, since online education through the Internet adds:

- the capability of on-demand multimedia, self-testing, and self-paced courses
- synchronous or asynchronous communication between instructor and students or among student groups
- ready access to very large amounts of online resource materials from around the world via the Web,
- courses that are not limited by international boundaries
- online and instantaneous access from sites in the home or at work, locally or remotely located

The education and training Internet marketplace in Canada is relatively underdeveloped, but it is beginning to receive a great deal of attention. A number of U.S. and Canadian universities and colleges offer degrees online, and online training packages are in place for training in a wide variety of technical applications. It appears likely that this marketplace will become highly competitive as managers and professionals require upgrading of their background and skills to meet the rapidly changing business environment, but are unable to take significant amounts of contiguous time off to attend classes. In this particular context, online Internet education is an important component of the new economy.

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[11] This section has drawn a significant amount of material from Marcel Mongeon, *Distance Learning and e-Commerce*, K724 Term Paper, Hamilton, Ont.: Michael G. DeGroote School of Business, McMaster University (Fall 2000).

Although there is controversy about the effectiveness of online education, there is some proof that certain topics can be taken asynchronously through the Internet at the convenience of individuals, with little loss in learning quality. Other topics that involve group work and/or class-instructor interaction, require some form of synchronous interaction in order to be effective. This is more difficult to arrange, but ultimately online technology can resolve all these problems except any need to be physically in the same room with other students and the instructor while learning is taking place.

There are a number of issues that are relevant to distributed education. These include:

- the marketplace
    - the need for students to advance their own prospects without taking time off for educational programs
    - the need for education in settings where it would otherwise not be available
    - the potential of online course material as a complement to in-class instruction
- the education provider's viewpoint
    - online education is only one of several alternative delivery mechanisms for an institution (e.g. college or university)
    - cost reductions through less need for fixed infrastructure
    - higher cost for course development
    - the larger potential marketplace
    - the growing competition from online programs that other institutions may offer
- challenges to the development of distributed education
    - legal, through the lack of agreements to cover distribution of copyrighted materials online
    - ownership of material used in online courses
    - delivery of the material in a way that anticipates all the requirements of the learner, including interaction between instructor and student and among groups of students
    - availability of bandwidth to support distribution of content in the most effective learning mode
    - providing subject matter in a manner that encourages interactive learning
    - student reactions to online courses tend to be mixed, often due to the isolation that some feel, in contrast to classroom instruction

There have been a number of detailed investigations into the cost effectiveness of online Internet learning.[12] On balance, these indicate that the setup costs for high quality online courses

[12] A.W. (Tony) Bates, *Managing Technological Change*, San Francisco: Jossey-Bass Publishers (2000).

tend to be larger than for equivalent classroom-based courses, and upgrades and maintenance are significant for courses that address innovation and technology issues. But if a large audience is reached (e.g. 40 or more students per annual offering over several years) an online course offering can be cost effective. If cost reductions are shared with students, the net result to the economy should be a slowing of the increase in educational costs for programs and short courses, while at the same time supporting a key need for lifetime learning. In particular online education, as one of the attributes of the new economy, is a particularly attractive alternative for people who wish to adapt to changes in the business environment by upgrading or refreshing skills.

8. Conclusions

This discussion has touched on a wide variety of issues that have arisen from the new economy. We cannot hope to mention every important aspect of this environment, but have attempted to provide some examples of the issues we should be considering. Finally, to focus the discussion of the new economy on its business impacts, it is worthwhile to consider how it is affecting organizations of different types. To this end, Table 1 is a SWOT (strengths, weaknesses, opportunities, and threats) analysis of how organizations are positioned in general to respond and adapt to the new economy. From the table, it is obvious that the new economy has not only created many opportunities for organizations of every kind, but these organizations must adapt by taking advantage of the new ways of dealing with their environment, in order to thrive and grow.

Table 1. Organizational SWOT Analysis In The New Economy Environment

Organization	Strengths	Weaknesses	Opportunities	Threats
SMEs	Flexible, easy to change direction, adaptable	Lack of market power and complementary assets	Innovations, new applications can attract new customers, markets	Power of major business customers and competitors
Intermediaries	Ability to add value to products or services	May be bypassed by direct links between business partners	New applications not previously possible	Innovations easily imitated by competitors
Large Established Companies	Market power, complementary assets	Difficult to change established ways. Slow to change	Major cost reductions, new markets, outsourcing non-key activities	Reduced barriers to entry by other competitors. More difficult to lock customers in
Educational Institutions	Intellectual power and property	Typically slow to adopt innovations	Global marketplace, lifelong education for managers, professionals, and others	Customers easy for competitors to reach via distributed/ distance education
Government	Bargaining, purchasing, legislative power	Difficult and slow to adopt innovations	Major cost reductions, improved ability to distribute, collect information	Loss of economic activity due to innovations in other jurisdictions

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