

"Internet, Disintermediation and Human Capital: Present and Future Candidates"

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Abstract

The Internet is gradually becoming more of a major player in organizational strategies for efficiency and success for public as well as private organizations. The increasing power of the Internet stands out even more as higher levels of displaced and laid off workers are reported. For example, for the first time, the U.S. Postal Service is laying off 7,500 employees, in part because of increased electronic communications using the Internet. This research focuses on examination of the Internet and disintermediation.

Introduction

According to Internet World Statistics, as of March 2011 there are 2 billion Internet users. The Internet is a powerful, constantly growing and evolving resource which has the potential to provide both valuable opportunities as well as devastating threats to many people. Thomas Friedman [2005] discusses how the Internet exploded in 1995 when the user-friendly Netscape browser went public. With the easy-to-use browser, all types of users world-wide were able to connect and easily access the Web. The Internet provides valuable real time, anywhere, anytime, fast, easy and efficient access to all types of resources globally such as: products, services, information and people. The Internet is used for all types of purposes such as: travel, banking, e-book downloads, music and video downloads, buying and selling, social networking and so much more.

Mobile computing and the use of smart phones have also increased functionality and access to the Internet. New mobile applications are steadily being developed to address mobile phone users' needs. For example we can now use our mobile phones to pay for purchases such as food and tickets.

The Internet has evolved into a powerful necessity for many. Before the Internet explosion, face-to-face, telephone and postal mail service were seen as more popular methods of communicating. People went to the banks, the post office, the music stores and book stores to transact business. There were no online emails or social networks to interact with. The Internet had little strength and ability to control our lives.

The Internet, which is defined in this paper as a network of individual networks was very different than it is today. It started with a very limited number of users working on government research. In the mid 1990s the Internet was much more expensive and exclusive. In 1995 there was an estimated 16 million users of the Internet. However in July 2011, this number sky rocketed to 1700 million users.

As the Internet continues to grow, it provides many opportunities for startups as well as existing businesses. The Internet e-business has many e-models such as: business-to-Business (B2B), auctions, and affinity portals. Many businesses are pure e-businesses where all of their business is conducted over the Internet. Whereas, other businesses are mixed where part of their business is conducted over the Internet and part is conducted at a physical (brick and mortar) location.

With both of these methods there maybe workers involved. However, as the product or service becomes more of a “pure” online experience where they are increasing their online e-business activity, there may be more opportunities to remove the “middleman” from the traditional business process. With this removal comes the potential for greater job loss and displaced workers.

Herein is one of the downsides to the Internet. The increased digitization of the products or services in conjunction with lower costs may open the possibility for increased job loss and displaced workers due to Internet disintermediation.

Disintermediation is defined as the elimination of intermediaries also referred to as “middlemen”. One example of disintermediation occurs when a customer buys an e-ticket directly from the airline company instead of the travel agent. The travel agent is being replaced by the customer’s ability to do the task without an agent’s help.

In the future it will become important for firms to continually reassess the role and value of the Internet and possibilities of disintermediation within the firm. It is important to demonstrate value of intermediaries in order to survive [Wigand and Benjamin, 2005; Patel, 1999].

This value becomes particularly important for brick-and-mortar businesses. Firms with strategies involving agility and innovativeness regarding their Internet competitors may experience more success. Evaluation of e-commerce initiatives in concert with their physical businesses may help in sustaining a competitive position [Wigand and Benjamin, 2005; Porter, 1985].

Some services and products are better candidates for e-businesses than others. The e-business success and need for an intermediary can relate to the type of customer that is targeted by the firm Wigand and Benjamin [1995]. For one, if you have a customer who knows the product well and is only interested in getting the product with very basic, generic information, the intermediary may be less valuable. The customer may be more willing to use an online, Internet-based version of the business. In this case, disintermediation may be more of a threat. However, if the customer relationship is more of a strategic partnership which requires more negotiation, and direct interaction, the intermediary may be more valuable and the threat of Internet disintermediation may not be as great.

Wigand and Benjamin [1995] argue that transaction costs and intermediary costs in a Business-to-Consumer (B2C) environment are reduced and therefore the intermediaries' value is lessened which can then lead to disintermediation. These lower transaction and labor costs can lead to lower costs for customers, which may then increase demand for the B2C environment. As customers choose the Internet over the brick-and-mortar location, this can decrease the need for workers and increase job loss.

The employment picture in this country is not rosy. We have an unemployment rate of 9.1% with about 14 million persons unemployed, and there is no indication that employers will begin hiring anytime soon. In addition, there are another 8.8 million people who are underemployed – they are working part-time but would prefer to work full-time. And there are another 2.6 million unemployed people who have become frustrated with their job prospects and have stopped looking for work; they are not counted in the official unemployment figures [Leonard].

There are several reasons why the unemployment rate has remained high. First of all, the recession, which officially ended in June 2009, appears to still be present among workers. Companies have expanded their output, profits are higher, but there has not been a corresponding increase in hiring. Many firms that reduced their employee levels during the recession discovered that they could increase their production without adding employees once the economy brightened. They had become more efficient and learned how to produce more with less.

During the recession firms that saw profit declines evaluated many options to reduce costs. Many decided to move some or all of their production facilities abroad where operating costs were lower. Thus when the economy improved and they decided to add workers, the increase in employment did not help the employment picture in this country.

As the recession ended and the economy improved, there has been no robust increase in consumer spending. There is some question as to whether the economy will continue to improve since consumer spending is the major driver of economic growth. This uncertainty has made some firms reluctant to hire additional workers at this time.

There is also uncertainty over future congressional actions on spending and debt management. The Joint Select Committee on Deficit Reduction, which consists of 3 Democrats from the Senate, 3 Republicans from the Senate, 3 Democrats from the House of Representatives, and 3

Republicans from the House, has the responsibility to develop a proposal to reduce the deficit by November 23. If it cannot agree on a set of recommendations, or if the recommendations are not enacted by Congress, there will be across the board spending cuts. These spending cuts will have a negative impact on the economy, and some firms have developed a wait and see posture.

Spending cuts by state and local governments have resulted in the layoffs of thousands of teachers, university personnel, and other state and local government employees. These layoffs have added to the jobless rate.

When hiring new employees, there is a trend by some employers to refuse to consider unemployed persons for the new positions.

Another contributor to job losses, one that has not been widely recognized, is the Internet. The purpose of this paper is to explore the impact of the Internet on the loss of jobs in this country.

Recent Job Losses Because of the Internet

U. S. Postal Service

The U.S. Postal Service is an agency in financial disarray; it has had large losses in recent years primarily because of drops in revenue. The Internet is primarily to blame: individuals pay bills on line, taxes are largely paid on line, individuals send email and text messages rather than send letters, social security checks and other payroll checks not sent by mail - direct deposit is used. It has been estimated that the amount of first class mail declined by 19% over the last decade, and it is expected to fall by another 37% over the next ten years [Garvin, 2011]. Even those who use the mail can purchase their stamps online. Since about 80% of the postal service's budget goes to employees in the form of salaries and benefits, any cost cutting to reduce the agency's losses will require significant job cuts [Garvin, 2011]. Over the last four years 110,000 jobs have been cut, 7,500 administrative staff positions have been eliminated, and the agency is seeking congressional approval to cut an additional 120,000 positions and close 3,653 post offices [Schmid, 2011; Levitz, 2011].

Book stores

Borders, the second largest bookstore in the nation, filed for bankruptcy and closed 237 of their 642 stores and 11,000 jobs in February 2011 [Barror, 2011]. They are scheduled to close all their stores in September 2011. One factor blamed on their closing is the increased use of downloadable e-books [Barror, 2011]. Bookstores are experiencing major challenges as Internet downloading of digital books to e-readers and electronic books (E-books) continue to increase in popularity.

According to the Association of American Publishers, e-book sales have doubled since 2010 and make up 9% of total consumer book sales. E-readers, such as the Apple Ipad; Sony Reader; Amazon Kindle and Barnes and Noble Nook, are devices that allow Internet access to e-books and other reading materials quickly and easily. With e-readers, customers do not need to go to the bookstores to purchase their books or get help from the sales staff. In many cases, they are buying at reduced costs by cutting out the middleman.

The use of the e-reader and the Internet to access digital books is eliminating the need for many employees working in the bookstores [Barror, 2011]. As the number of e-book downloads are increasing, disintermediation is leading to job losses for employees.

Record stores

The Internet and the use of digitized music have had a major impact on the basic operating principles of the record industry. Increased use of the Internet for digital music has contributed to online music piracy, the decline of purchasing music CD's and DVD's and the decline of the traditional record label business. As digital music downloads to digital electronic devices continue to escalate, CD in-store sales continue to decline [Bachman, 2007]. According to the U.S. census data there was a net loss of 1,900 record stores from 2002 to 2005. In other words, for every four record stores, one record store closed [Tozzi, 2008].

As music devices and digitized music increased, the Internet provided easy access to the music through downloads. Since 1996 when illegal downloading of music gained major attention, the retail music industry has been steadily declining [Ryan and Hadida, 2010]. Users were able to use different websites such as Napster to access music for free. The music was accessed and delivered directly over the Internet, which eliminated the need for the intermediaries in the physical record stores. Customers were able to select which music they wanted rather than being limited by the selections on the shelf. So convenience, cost and accessibility helped to diminish the value of the record store employees. Physical distribution of CDs dropped to 21 percent in 2009 [Ryan and Hadida, 2010]. Many employees in the music industry are no longer needed when customers are able to obtain their music without the help of music employees. This is another case of disintermediation leading to job loss.

Video rental companies

Video stores are experiencing the effects of the Internet and possible layoffs for many video store employees. Blockbuster, the nation's largest video chain, filed for bankruptcy a year ago. They are not alone in their struggles as numerous accounts of problems from other video stores are also being reported [Hodges, 2009]. Hollywood Video, Family Video are just a few of the companies that are closing some of their stores. The video industry is changing as new ways of obtaining video movies are spreading.

Customers are turning to other more attractive, cheaper alternatives such as on-demand downloads and online rentals from competitors such as Netflix, Vudu and Amazon. Netflix has

over 11 million subscribers who are able to inexpensively get mail-order rentals and online streams using the Internet [Hodges, 2009].

The ease, cost and convenience of using digital video downloads is forcing video stores to rethink their strategies and look for inter-connections with the Internet. For example, Blockbuster started selling their CDs and DVDs rentals online like Netflix. The Video stores will have to find common connections using online web-based businesses.

Future job losses because of the Internet

Bookstores

E-books are growing in popularity and at the same time creating challenges for traditional books stores. Bookstores are struggling with how to adapt and continue to show their value as intermediaries within the stores. Without new strategies that look for synergies that complement the e-reader and the e-book popularity, the cost and value of in-store employees may steadily decrease. Along with this is the potential for many bookstore employees to lose their jobs through disintermediation.

Barnes and Noble, the nation's largest bookstore is restructuring and re-strategizing to address the e-books and the threat of increased disintermediation. They are planning for the future by increasing their digital presence and consolidating many of their 717 superstores [Minzesheimer, 2011]. Their digital presence will complement their in-store presence and capitalize on their customers and loyalty programs.

Barnes and Noble is also selling their own e-reader. They promote their own e-reader called the Nook where customers can download e-books from their websites. After books are downloaded, they can customize them. For example, they can convert the text to large print books. Young readers who are familiar with the Internet devices and technology may quickly gravitate toward reading e-books.

Book Publishers

Self-publishing using the Internet continues to grow. It provides competition for the traditional publishing process while also increasing the potential threats of disintermediation.

Self publishing using electronic publishing software allows a user to publish their books effectively and efficiently without help from publishing staff. In the future, if this trend continues, many publishing staff employees will not be needed as authors decide to use the Internet resources to publish for their self. Benefits of self-publishing include: independence, cost savings, convenience, flexibility, reduced time associated with interacting with the publishing company.

For example, one e-publishing company, Lulu.com is inexpensive, easy and faster as it cuts out the middleman (intermediaries). Lulu.com allows the authors to pick the layout, put their text into the layout and the book is then ready to sale to customers through Amazon.com. Amazon will get 20% of the profit as opposed to the traditional publishing (non-electronic) where publishers get a 50% cut [Kharif, 2005].

Traditional publishing companies will need to find creative ways to demonstrate value while complementing the electronic self publishing market.

Movie Theaters

All across the country there are reports of movie theaters closing. One contributing factor involves downloadable digital movies. The ability of users to access and download digital movies is creating competition for the movie theater industry.

For years people have been enjoying going out to the movie theaters with friends and family. However, fewer people are going to the movies as they find less expensive alternatives to viewing movies at movie theaters. As a result, movie theaters are experiencing reduced viewership and less profit [Fisher, 2008].

In many cases, downloading digital movies are less expensive. For one, movie piracy provides a free alternative for potential movie theater customers. There has been increased interest and access to illegal movies through illegal file sharing and movie piracy. In June 2007 nine websites were shut down for movie pirating where users were allowed to download and view movies illegally for free [Smith and Benoit, 2007].

Movie theaters are also experiencing competition from legitimate websites such as: Netflix, Vudu and Amazon where customers can buy or rent movies from a broad selection.

The ease of digitizing and accessing digital movies may increase the chances of disintermediation and job loss in the movie theater industry. Porter [1985] emphasizes the need to find synergies when developing competitive strategies. New strategies for the movie theater industry may include inter-relationships between the online and brick and mortar businesses.

Banking

The Internet is having a substantial impact on employment in the commercial banking industry. The need for bank branches at traditional banks will be decreased because more and more deposits are being made online, payments are being made online, and cash can be obtained from automated teller machines. Brokerage firms Charles Schwab and E*Trade offer online banking services without brick and mortar banking locations, and there are several Internet only banks (ING Direct, Ally Bank, FNBO Direct, and HSBC Advance are several examples). As branch banking declines, there will be declines in the need for tellers, head tellers, branch managers, janitors, security guards, and other branch related personnel.

Real estate agents

The use of the Internet is slowly destroying the business of real estate agency. The days are long gone when a typical agent, for a commission, would take a client to physically inspect several houses, prepare and submit an offer to the agent of the seller, negotiate a counter offer, and arrange the closing. Today one can specify the area and price range in which he is interested, the number of bedrooms, bathrooms, and other amenities desired, and arrange a virtual tour, where he can view the bedrooms, kitchen, living room, back yard, and other features of the house – all from a computer screen. After a potentially desirable house has been found, an appointment can be made for a physical inspection, and arrangements for a sale can be made – all without the use of an agent [Virtual Future, 2009]. Some agents will still be needed for unsophisticated purchasers and the sale of very expensive properties, but the number of agents in the business will decline substantially. The number of agents at Coldwell Banker Triad Realtors, a real estate firm operating in the Greensboro, NC area, decreased from nearly 300 agents in 2006 to about 210 today. A smaller Greensboro area firm, Century 21 Elliott Properties, saw a decrease from 45 to 22 agents. And the North Carolina Real Estate Commission licensed 2,500 new agents in 2010, a drastic drop from the 15,000 licensed in one year when the real estate market was at its height [Frazier, 2011]. The decline in the need for agents will also decrease the need for real estate schools and their instructors who provide pre-licensing education for new agents and continuing education classes for established agents.

Life and Automobile Insurance Agents

Agents who sell life, health, and auto insurance to clients for a commission will see a continued decline in the need for their services. Individuals are increasingly purchasing insurance coverage from insurance carriers directly without use of an agent. There are a variety of web sites that allow individuals to compare insurance costs online, information is widely available about the

features of different types of insurance policies, and purchases can be made without the pressure of dealing with an agent [More Drivers, 2009]. If one wishes to discuss his insurance needs with an agent, that option is, of course, still available.

College and University Faculty Positions

There is a cost squeeze in college education today, and the public anxiety is becoming more evident. David Shi, a former president of Furman University, noted that college costs have increased 50% over the last decade, whereas family incomes actually fell between 2000 and 2009. [Fischer, 2011]. In a survey conducted by the Pew Research Center, 75% of those polled felt that college education was out of reach of most families because of the cost. In this year of cost cutting, state legislatures around the country have not been much help; they have been cutting higher education budgets at a time when enrollments are increasing.

The Internet has an answer to this problem: cut costs by eliminating faculty positions. A continuation of events occurring today will lead to a reduction of thousands of faculty positions. What are some of these events?

An online course on artificial intelligence is being offered by the computer science department at Stanford University by two leading experts in artificial intelligence. There is no cost for the course, and over 58,000 students from around the world have registered for it. This course is one of three that Stanford is offering on an experimental basis. [Markoff, 2011] Technical assistance from Google and Amazon will provide for grading and online chat sessions [Chu, 2011].

Consider the cost savings (and job reductions) if other courses in the computer science department were prepared by experts and offered in a similar fashion; video tutorials could be prepared and students could review them at their leisure. Students from other universities around the country could be directed by their schools to take the courses and thus eliminate the need for those schools to offer them. Courses in other disciplines could also be prepared by experts in those fields for online delivery, and thousands of faculty positions could be eliminated. Of course some faculty members in each department at each university would be retained to teach those courses that are not amenable to the online process and to answer questions raised from the online courses. The loss of faculty positions would also likely result in the loss of ancillary positions and consolidation of some departments.

Education online is rapidly growing field; most universities offer some courses online, entire degrees at some traditional universities can be earned online, and there are several online universities. Students can order, pay, and track transcript requests online, and at least one university, the University of Hawaii, has held a virtual graduation [Gutierrez, 2011]. Job losses will be huge as the use of the Internet increases on the college campus. the quality of course offerings will decline, but state governments will save billions of dollars.

Secondary school teachers

At the secondary school level, use of the Internet will also lead to job losses. A forecast of things to come occurred in Guilford County, North Carolina during the summer of 2011. Most school districts offer summer school classes for students who failed a course during the regular school year and wish to make it up, or who wish to get ahead. For the first time ever, no classes were offered this summer in the typical classroom setting with a teacher; instead, all of the classes were offered on-line. Thus students could complete their work at home, at the library, or anywhere else where they could access the Internet. This Internet-only approach enabled the schools to reduce the summer school budget by over \$350,000; of course this savings meant fewer jobs for classroom teachers and other school personnel who might be needed to assist the students [Glover, 2011].

Online learning has been expanded substantially beyond summer school offerings. In an article in the Wall Street Journal, it was noted that 39 states have established virtual schools that allow students statewide to enroll, providing advanced placement, remedial, and other courses that might not be available at the local level [Moe, 2011]. The Florida Virtual School offers a full academic curriculum, with more than 220,000 annual course enrollments, and virtual charter schools operate in 27 states with a full-time enrollment of over 200,000 students [Moe, 2011]. Online teaching will certainly increase, thus reducing teaching jobs.

Attorneys

Attorneys are also in danger of losing some of their business because of the Internet. Attorneys answer legal questions for their clients, provide legal advice, prepare documents, negotiate settlements, and represent their clients in court. Some of these functions can be performed online, without a face-to-face meeting with an attorney. Legal questions can be answered, advice can be given, and simple forms can be completed and sent by email to the client. There is a website, www.justanswer.com, which provides experts to answer legal questions that one might have. For a nominal fee, one can ask a legal question, an expert (an attorney with several years experience) will obtain as much information from the client as possible concerning the issue, and provide an answer and give advice when needed. The experts are rated by individuals who submit questions, and the ratings generally range from 95% to 100% satisfaction. There will still need for attorneys to negotiate, prepare complex documents, and represent their clients in court, although there is a company that provides a “Complete Case-Winning 24-hour Self-Help Course” that promises to teach one how to win in court without a lawyer [Graves, 2011]. Access to the course is delivered by email for a cost of \$249.00. There will be some persons who will use this course to avoid hiring a lawyer, and others who will get their questions answered through the Internet. Thus, there will likely be some decrease in the need for attorneys in the future because of the Internet.

Medical doctors

Physicians can also expect repercussions from use of the Internet. Physicians answer questions posed by their clients; provide medical advice; complete disability, health, and other required medical forms; and provide treatment for diseases, accidents, and other medical conditions. Answering questions, providing advice, and completing some forms can be accomplished online without a face-to-face meeting with a doctor. www.justanswer.com and www.healthcaremagic.com are two of several web sites where individuals can submit questions to medical experts and receive an answer and/or medical advice. Doctors from a variety of medical specialties are available to answer questions, and individuals have indicated a high level of satisfaction with the services. This portion of local physicians' practices will decline as patients become more acclimated to using the Internet for medical purposes, although physicians will certainly be needed to perform surgeries and other medical procedures.

Retail stores

Brick and mortar retail outlets are also feeling the impact of the use of the internet from the proliferation of Internet sales. Most items that are offered for sale at shopping malls and other retail outlets can be ordered online and shipped to one's home. Shoppers find Internet purchases convenient, prices are often lower than prices on identical items at retail outlets, and no sales tax is added to the total if the purchase is made from out of state (although purchasers are supposed to pay their state's sales tax as a use tax at tax time, but many often do not). According to the U.S. Commerce Department, Internet sales increased to \$165.4 billion in 2010, an increase of 14.8 % from 2009; total retail sales, which includes online sales, increased by only 7.0% in 2010. Internet sales now make up 4.2% of total retail sales, up from 3.9% in 2009 [Enright, 2011]. The largest online retailer, Amazon.Com, had a sales increase of 39.5% in 2010 [Brohan, 2011].

The recession and loss of business to the Internet has had a devastating effect on some retailers. They have responded by reducing the number of employees per store, reducing the number of hours employees work, and in some cases closing stores [Farfan, 2010]. In 2008, more than 500,000 jobs in the retail industry were eliminated [Farfan, 2009]. Sears is an example of a retailer that has been battered by the recession and the Internet. During the second quarter of 2011, same store sales declined, it closed 29 stores and 7 product repair center locations, and it reported a loss of \$146 million. Its online sales, however, increased by 32% [Talley, 2011].

Telecommunications

Cell phone usage has changed the way individuals communicate and reduced the need for workers in the industry. According to the Labor Department, telecommunication firms employed 869,900 people in June 2011, 28,400 fewer than a year earlier, and about 560,000 fewer than a decade ago [Lahart, 2011]. The decline in employment is likely to continue as cell phone increase, since many individuals use their mobile phones as their primary means to access the Internet [Hood, 2100].

Printing: Newspapers and Magazines

For several years newspaper circulation, the purchase of magazines at newsstands, and magazine subscriptions have declined. According to figures released by the Audit bureau of Circulations, the declines have been widespread, with almost all of the large newspapers and many small ones suffering declines [Plambeck, 2010; Liedtke, 2011]. The magazine industry has also seen a substantial decline in its advertising revenue, as advertisers recognize the drop in readership [Magazines, 2010]. There is less reliance on newsstands today, compared to the past, to acquire sources of information; rather, individuals use the Internet through their smart phones and computer terminals. In recognition of the trend toward use of the Internet, many newspapers and magazines now offer an online version, as well as a print version, of their papers. As online usage continues to increase, some companies may eliminate their print versions to reduce costs. The elimination of the print versions will cost thousands of jobs, since those involved in the production and distribution functions will no longer be needed. Of course when magazines and newspapers cease publication, jobs will also be lost. Some recent examples of magazines that are no longer published in print version because of financial problems brought on by the Internet and the recession include Gourmet, the country's oldest food magazine; PC Magazine, a magazine popular with computer buffs; and Southern Accents, a magazine devoted to home decorating, entertainment, and landscaping [Ives, 2009].

Pages in the House of Representatives

For almost 200 years the House of Representatives has brought high school students to the Capital to deliver correspondence, packages, and phone messages to lawmakers and their staff members. The pages were usually high achieving juniors, sponsored by their member of Congress; they spent a semester living and working in Washington, DC, learning about the intricacies of the legislative branch of government. The House has decided to end its page program because the use of e-mail and other technological advances has rendered the program superfluous [Glueck, 2011]. The demise of this program will not have any impact on job losses in the economy, but it is one more indication of the impact of the Internet on the decreased need for individuals to perform certain tasks.

The use email and fax machines has decreased need for local messenger services, where letters and other documents are delivered within a city or county. The messengers were often young men in their 20's or early 30's who made their deliveries by bicycle. These messengers have largely disappeared. To remain in business, these messenger services have expanded their operations to include ship by air service, medical deliveries, lost luggage retrieval, printing materials, and package deliveries of all sizes.

CONCLUSIONS

Progress cannot be stopped; throughout our history technological change has destroyed some jobs and created others. In the 1800's farriers were hired to make and place shoes on horses' hooves. But today travel by automobile, air, and train has practically eliminated the need for farriers. The transportation industry, though, has created thousands of jobs that did not exist earlier. In the 1940's and early 1950's elevators required the use of an elevator operator; someone had to open and close the elevator doors manually and stop the elevator on the appropriate floors. The introduction of the automatic elevator, however, has eliminated the job of the elevator operator. In recent years a company called InstyMeds has developed a machine that dispenses prescription medication. The machine has been installed in 33 states and Washington, DC, and it has been approved by the federal Drug Enforcement Agency and appropriate state regulators [Sennott, 2011]. The machine cannot counsel patients, but there will be a decrease of the need for pharmacists if use of the machines becomes widespread.

The use of the Internet has created more efficient methods of distributing and obtaining information than existed 30 years ago. An unintended consequence has been the elimination of thousands of jobs in a variety of industries. Unlike job losses due the recession, most of these jobs are not coming back as the economy recovers. Jobs lost because of companies moving their operations abroad will also not be coming back. Even when companies begin to hire again, they may place their part-time employees into full-time positions, thus having no impact on the official unemployment rate [Leonard, 2011]. We are also likely to see little or no hiring at the federal, state, or local government levels with the spending cutting legislators now in power. It appears, then, that extraordinary job creation efforts will be necessary if there is to be a dint in the unemployment rate.

The growth of the Internet has certainly created some jobs: Internet providers, web developers, programmers, security personnel. But the number of new jobs created is substantially less than the number of job losses. If these jobs are not replaced, we may experience several years of a near double digit unemployment rate.

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