“The attraction and expansion of e-commerce during the recent economic downturn”

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SECTION 4. Practitioner's corner

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The attraction and expansion of e-commerce during the resent economic downturn

Abstract

The United States and most other countries of the world have experienced major economic downturns during the past several years. While some countries have experienced small improvements more recently, there are still grave problems of unemployment, very high and increasing national debts, and high uncertainty of future conditions which makes businesses cautious about expansion and adding additional employees. More recently the US and several European countries have had their credit ratings reduced. While these economic problems and declines have continued since 2007 for traditional business activities, e-commerce has shown steady and rapid growth. While the majority of e-commerce is still conducted in only a portion of the world's countries, all countries are showing substantial growth as Internet service becomes more available to even the less developed nations and areas.

Keywords: e-commerce, e-business, Internet, online sales, business online, Internet service, economic downturn, weak economy, recession, Internet providers, Internet service providers.
JEL Classification: M10.

Introduction

The US and most of the other world's economies have experienced major downturns over the past several years. While there have been recent small improvements in several areas in some countries' economies the world is still facing serious unemployment and national debt crisis. The world's economists are divided about what economic conditions the next few years may bring to the US and the world.

The US economy began showing down in 2007 and developing major economic problems during 2008 and thereafter. This trend continues, and it still finds itself with major job losses, business and financial failures, greatly increased national debt, and falling tax revenues for federal, state, and local governments among other problems. The American economy and most of the rest of the worlds' economies face a very uncertain future during 2012 and beyond. More recently the US and several European countries have had their credit ratings downgraded.

Objective of this paper. The thrust of this paper is to investigate why, in the past several years, traditional business activity has slowed, and in many cases firms have gone out of business, while e-commerce activities have shown considerable growth.

Drivers of e-commerce. The electric commerce, or e-commerce, is one of the fastest growing sectors of the economy. The industry is evolving very rapidly which makes data collection and evaluation difficult. As a result of this rapid growth, researchers have to rely mainly on surveys by both government and private agencies.

According to data from the US Census Bureau, the manufacturing sector of the economy is the largest contributor to e-commerce sales with 42% of total shipments, followed by merchant wholesalers with 23.4%. These two segments represent the business-to-business category (B2B). Retailers generate 4.0% and service providers 2.3%. These two segments continue to grow over time and make up the business-to-consumer category (B2C).

When totaling all its parts, business-to-business makes up 91 % of total e-commerce sales with the remainder coming from business-to-consumer category. The fastest growing segments were manufacturing and services (the above data from US Census Bureau relate to 2009, as published in May, 2011).

The e-commerce industry is continuing to evolve and its drivers are many. These drivers continue to evolve and change as technology innovations provide more and improved ways of accessing the Internet and new software provides easier and more convenient ways of conducting business on-line.

The initial major drivers of on-line transactions were time savings and convenience. To this the benefits of comparison shopping were added, thus making it possible for the consumer to find the best price, and personal recommendations. As technology required for personal recommendations developed and became more available and its benefits more evident, most Internet sellers started adding the feature to their websites until it is now considered a must-have feature (Barclays Capital, 2011). Customers continue to grow in their search for the best deal. The Internet and mobile media allows customers to search for the best deal which consists of not only price but shipping costs. Dissatisfaction

with shipping is the primary cause of shopping cart abandonment. Customers have come to expect free shipping and 50 percent of them will switch sites if they encounter ones that don't offer it (*eCommerce Report*, 2011).

The current largest driver of growth in the B2C industry is the adoption of smartphones, tablets, and other mobile Internet devices. Smartphones continue to lead all over the world, though tablets are growing very fast, followed by other devices. ComScore estimates that non-computer Internet traffic in the U.S. was 6.8% in August 2011, with smartphones accounting for two-thirds and tablets accounting for most of the rest. This trend continues to present. Some other countries with major recent growth in Internet traffic through non-computing devices include Singapore, the UK, Japan, Australia, Canada, Spain, India, France, and Brazil (Ibid).

1. Growth of the Internet and e-commerce

E-commerce is the subset of e-business that focuses specifically on commerce and has been an ever-increasing portion of the US and most of the other nations' economies since its beginning about 1995. The earliest history of electronic data exchange began in the 1960s and was used by large organizations and the military. It was known as electronic data interchange (EDI) and was used over a private connection between the organizations. In the late 1970s a new protocol was developed known as ASCX12 which is used for the exchange of business information and documents electronically (History of Ecommerce, 2012).

Another system being developed about the same time by the military became known as ARPA net and was first to use the "dial up" concept of sending information over the existing telephone network. This was the beginning of the Internet we know today (Ibid).

In 1982 the Transmission Control Protocol and Internet Protocol known as TCP and IP was developed. This system made it possible to send information in small packets along different routes using packet switching technology, like today's Internet, as opposed to sending the information streaming down one route. The packet concept made more efficient use of the telecommunication network, permitted routing around overloaded or damaged parts of the network, and if errors occurred in a packet, only that packet and not the entire transmission needed to be re-transmitted (Ibid). Thus with the development of the Arpanet the US was provided with a viable backup communication system in case of nuclear war or other major disaster. The early years of the Arpanet were mostly character-based interface users with great computer skills. In 1989 Tim Berners Lee proposed the World Wide Web (WWW) while he was working at CERN, the Swiss based scientific organization for research into subnuclear physics. Berners Lee initially envisaged a text based global hypertext system and he released the first text based browser in January 1992 (e-*Commerce*: *Origins*, *Evolution and Implications).* These early users were mostly from the academic community (Schwartz, Bustus, & Southern, 1997). By the early 1970s and into the 1980s while most applications available today did not exist, there were e-mail communications, file transfers, and other applications available.

Being "on-line" in the early years referred to private on-line clubs hosted by American On-line, CompuServe, and Prodigy that all lunched in the mid-1990s as dial-up information networks. Quantum Computer Services had fewer than 100,000 subscribers when it started in 1985 (Anonymous, 1999, June). Later renamed American On-line (AOL) by the time it offered World Wide Web (WEB) access in 1995, it had 3 million members and had set the industry standard for web access. During 1999 AOL had gained 19 million subscribers and become the leader in the Internet service market (Pickering, 2000). AOL later merged with Time-Warner and become the worldwide leader in the provision of Internet services of the day.

Facilitating the growth of the Internet during the 1990s had been the creation of the Mosaic browser software at the University of Illinois and its release to the public in 1993. The Internet which had previously been a text-based interface now become a graphic based interface and was much easier and more appealing to a larger audience. During 1994 the Netscape Company released their Netscape browser which made use of the Internet easier and more appealing to many people including those with little knowledge, skill, or interest concerning computers or software.

2. Origin of serious e-commerce

Beginning in 1995, Dell, Cisco, Amazon, and others begin to aggressively use the Internet for commercial transactions. Aiding this rapid growth in the 1990s was the liberalization of the telecommunications sector and innovations that greatly expanded the volume and capacity of communications such as optic fiber to replace wire, digital subscriber line technologies (DSL), and satellites. As a result of these continuing improvements and new technologies, barriers to engage in electronic commerce have progressively fallen for both sellers and buyers. Earlier applications of e-commerce had been mostly

expensive, complex, and custom made for use by large business firms. Modern applications are cheap, easy to use, and permit the individual or small business to reach millions of customers worldwide. Previously mostly business-to-business (B2B) transactions has expanded to include anyone who wishes to become involved. In addition to the development of e-commerce, we see the highly developed Internet providing an ever expanding host of services such as electronic banking, online bill paying, booking of travel and entertainment online, sharing and ordering of pictures, music, software, and other items and activities and an ever increasing number of social networks. Recent years have seen on-line education become increasingly available as is information on most any subject with the aid of a host of search engines. Many old out-of-print books are now available online.

3. Additional factors contributing to the rapid growth of the Internet

A contributing factor to the rapid growth of the Internet and its ever-expanding uses is its openness. The Internet belongs to no company or nation, and so it belongs to everyone, and everyone can benefit from it, either as a developer or as a merchant or as a consumer (Daiy, 1999, January). The early widespread adoption of the Internet as a non-proprietary platform for business and other uses has increased its development worldwide. Importantly, openness has emerged as a strategy with many of the more successful e-commerce ventures granting business partners and consumers unparallel access to their inner activities, databases, and personnel.

E-commerce has altered the concept and use of time. Wireless devices have had tremendous growth in recent years making it possible to communicate, transact business, shop, be entertained, surf the web, and do all the things which required a physical connection only a few years ago. E-commerce is also reducing the importance of time by speeding up business activities, allowing firms to operate in close coordination, and enabling customers to conduct transactions around the clock.

4. Short history of Internet growth

During the relative short history of the Internet, the US has been the early world leader in the use of the Internet and in e-commerce sales. Most recently the rest of the world has been growing but remains behind the US. Presently the US is followed by the UK and Japan. While the US, the UK, and Japan are the more mature markets and will continue to grow, but not as fast as countries in Southern and Eastern Europe. Substantial growth is forecast for Latin America. In 2010 the UK had the highest spend per capita of over 1300 British pounds followed by the Scandinavian countries (Weening, 2011). The US still leads the world in e-commerce sales and in business-to-business transactions over the Internet and total amounts spent by consumers buying goods and services over the Internet. In early 2008, China became the world leader in Internet subscribers, surpassing the US ("China Telecommunication and Telecoms", 2010). In the early years, the US Internet services market increased 500 percent in only three years, from $1.3 billion in 1996 to an estimated $8.0 billion in 1999 revenues ("US Leads World", 1999).

Looking at e-commerce sales data for 2000 to 2007, we see US total e-commerce sales increasing from $27.6 billion in 2000 to $143.4 billion in 2009, a compound annual growth rate of 20.11 percent. This is an impressive accomplishment, given the US economic turmoil that the country experienced during that period which also included the dot.com crash of 2000 (Anonymous, 2010).

5. Growth of e-commerce

While the present economic slowdown is curbing the e-commerce growth rate somewhat in some markets, there is evidence so far that the online retail market has remained steady and grown due mostly to the lower prices and convenience provided by online shopping. Growths in alternative payment systems have aided this growth as have advances in use of mobile devices for ordering and paying for purchases. This is referred to as m-commerce or m-payment (Ibid). Social media is becoming a key focus in the digital economy as the leading players in this sector look to expand their services and incorporate e-payments and m-payment services. An example is Facebook with its e-payment/m-payment partnerships with Zong and Boku for payments via cell phones. Others are the worldwide online payment systems of Pay Pal and Twitter's TwitPay. Mobil banking is growing in the developing world where financial services are poor and conventional money transactions by banks are expensive. China's m-commerce market reached RMB 1.3 billion ($163 million) in 2006 and was expected to reach RMB 7.6 billion ($953 million) during 2010 (Wansink, 2009). In 2011 China achieved 39.9% of its population using the Internet for a total of 538 million. Most of these were city dwellers (Associated Press, 2012).

6. Annual e-commerce spending

Forecast of future e-commerce spending varies depending on the research institution making the estimate. Inc. Corporation made projections in December 2010/January 2011 of the following annual e-

commerce spending in billions of US dollars by 2014 (Shivers, 2011).

Table 1. Projections of the e-commerce spending in billions of US dollars by 2014

North America	$202.8
Western Europe	$166.5
Asia – Pacific	$93.2
Latin America	$27.1
Eastern Europe & Russia	$27.0
Australia	$4.9
Africa & The Middle East	$3.0

Corporation Inc. also projected that while the US and Canada leads the world in e-commerce spending in 2009, other nations were increasingly shopping online. They estimated that global e-commerce spending would increase more that 90 percent by 2014. A sizable portion of that growth is expected to come from Latin America, where the amount spent online is expected to more than double (Ibid). While these projected amounts and growth rates may appear large, a study undertaken by the University of Texas found that the Internet portion of the US economy grew at a compounded rate of 174% from 1995 to 1998. During that same time period the US gross domestic product grew at only 2.8%. Another part of e-commerce that has experienced rapid growth and even predated much of the beginning of business-to-consumer (B2C) is business-to-business transactions usually referred to as B2B. The Forrester Group stated that US B2B had already reached $200 billion annually in 2000 (McLaughlin, 2002).

7. Growth of e-commerce in other nations

To illustrate how rapidly the Internet has grown around the world and with that growth the raped expansion of e-commerce and other services made possible by the Internet, some significant examples from major areas of the world are presented.

A sampling of other countries will help to show that use of the Internet tends to be followed by e-commerce expanding rapidly over the globe. Canada, mentioned earlier with the US information, had over 500,000 of its households shopping online and spent $400 million as early as 1998. Only $40 million of that amount was spent on Canadian web sites because Canada did not have many web sites in 1998. In earlier years Canadians seemed to prefer to purchase books and CDs on-line as they began to experience e-commerce (Griffin, 1999). By 2011, Canada had a population of 34 million and 27 million of these were Internet users or 79.5% ("North America/Canada", 2011).

7.1. The United Kingdom. The UK was another early user of e-commerce as the British people spent 230 million British pounds for on-line sales in 1998. This amount had grown to 3.1 billion British pounds in 2003 (Reed, 1999). Earlier growth in e-commerce and other online activities were slowed in the UK by the fact that telephone usage was charged on a per minute basis. This resulted in higher cost to online users as compared to the US where a flat monthly fee provided unlimited local access or in Canada where a flat monthly fee provided unlimited access to both local and long distance calls. In addition, the UK had laws and regulations that add to the cost of e-commerce since 2000 and these laws were harmonized with the EU's regulations in 2002. To offset some of this cost for high telephone usage charges in earlier times, some UK service providers offered free incoming calls to encourage consumers to spend more time on their web-sites. They often used advertisements to help cover the costs ("EU Tries to Keep Pace", 1999). Since these earlier times more competition now exists in the telephone and Internet services market but British citizens still pay high telephone and Internet rates plus 20% VAT tax.

The UK is recently Europe's leading e-retail economy with sales expected to be 81 billion British pounds in 2011. Global e-retail sales increased by almost 25% in 2010 and are currently growing at about 16% per annum in spite of the current recession. E-retail sales contributed 9.4% of total retail sales in May 2011 (excluding automotive fuel). The UK's per capita spend 1333 British pounds per annum and that is the highest in the world. The total digital commerce market provides employment for over 730,000 persons while 37 million Brits shop online out of a population of 61.1 million and over 48.8 million are online as of June 2011 which represented 79.8% of the population. More than 1.2 billion parcels are shipped as the results of online purchases each year ("UK of GB and Northern Ireland", 2011).

7.2. Australia. Online retail in Australia is expected to get its stride in 2012 with as much as 93% of households expected to have high-speed broadband access in the next few years. Mobile commerce is expected to become an important part of Australia's online retail mix. Local lean startups will bring mass customization to more customers, placing pressure on the retail giants that lag in this area. Couriers, software developers, and other partners to online retail will step up their efforts to provide the services that e-business professionals actually require (Noble, 2011). As of 2011 Australia had 17.0 million Internet users out of a population of 21.8 million or 78.3%.

7.3. Other European countries. Many European executives seem to have placed a low priority on e-commerce in earlier years (37%). Internet security

concerns (31%), a lack of relevance to their industry (28%), technology issues (16%), and tax and regulatory issues (12%) were also identified as barriers to using e-commerce ("European Executives Say Lack of Customer Demand" 1999). Finally, telephone charges and technology notwithstanding, an early study found that Europeans spent more time on the Internet for doing things as part of their daily life despite their slow acceptance of the Internet for purchases online ("Round-Up: Europeans See Internet," 1999). Even though early European web-sites had the ability to use different languages and even after the creation of a single market and single currency for the EU, shopping across frontiers was slow to develop ("EU Tries to Keep Pace", 1999).

7.4. Central and South America. Central and South America has been slow to develop their e-commerce activities. Brazil has been the leader in the area but problems of cultural differences, greater resistance to the use of credit cards, and tendencies to protect individual countries' economies have all slowed and reduced the volume of e-commerce as well as other web-relate activities ("E-Commerce Grows Roots", 1999). Brazil and Argentina are the major e-commerce players in South America. Brazil has 76.0 million Internet users out of a population of 203.4 million people or 37.4 in 2011. They have 202.9 million mobile cellular subscribers as of December 2010 or 99.8% penetration which should provide potential for m-commerce and m-payment growth in the near future ("South America/Brazil", 2011). Argentina has 27.5 million Internet users out of a population of 41.8 million or 66.0% as of 2011. They also have 57 million mobile cellular subscribers as of December 2010 ("South America/Argentina", 2011).

7.5. Mexico. Mexico is the major country in Central America with 113.7 million people of who 35 million have Internet access or 30.7% penetration. Mexico users began to receive broadband in 2005 and now have access to combined TV, Internet, and telephony in many areas ("Mexico/Central America", 2011).

7.6. Caribbean Nations. The Caribbean has no significant activity. Cuba is the largest country with an 11.1 million population but only 1.6 million Internet users in June 2010 or a 14.5% penetration rate ("The Caribbean/Cuba", 2011).

7.7. African Continent of Nations. The African continent is composed of 57 countries and many of these with citizens who have only one to five percent Internet access. All 57 countries combined have 1,037 million people but only 37.7 million have Internet or 3.6%. Three of the largest countries, Egypt with a population of 82.1 million has 20.1 million Internet users or 24.5%, Ethiopia with its population of 90.9 million has only 447,000 Internet users or .5%, and the same low coverage exists for the Democratic Republic of the Congo (ex Zaire) with 71.7 million people but only 696,000 or 1.0% have Internet. Morocco while having a population of only 32.0 million people has 13.2 million Internet users or 41.3% ("Africa", 2011).

7.8. Middle Eastern Nations. The Middle East is also an area of many nations. Total area population in 2011 was 216.3 million persons with 72.5 million Internet users. Unfortunate there are large differences between the countries. The good news is that the area experienced a growth in Internet usage of 1,648.2% between 2000 and 2011. This should indicate a much-improved future for Internet usage and with more Internet usage will come more e-commerce activities ("Middle East", 2011). Additional benefits to the people of these countries and all other countries is the growth in access to world news, product information and sources, and education concerning all topics and being available in many languages.

7.9. Asia. A look at Asia which is a large land area of 35 countries with 3,879.7 million people and with 922.3 million of them having Internet access gives a penetration rate of 23.8% as of March 2011. By far, the largest countries in this region are India and China. India is a country of 1,189.2 million people with only 100 million of them with Internet access in December 2010. This represents only an 8.5% penetration rate. The other large country in this area is China with 1,338.7 million people and 485 million of these have Internet access. This represents a penetration rate of 36.3%. Hong Kong statistics are not included in China's numbers ("Asia", 2011). China has a large difference in Internet usage between rural and urban users. Rural areas of China have few computers in addition to slower connect speed. Most rural users only use the Internet to read news and search for information using search engines. Few have done purchasing, online banking or stock trading. In large cities where connect speeds are higher and many more individuals own computers as well as more Internet cafes being available in addition to more cell phones there is a much higher use of the Internet. All of China should see a rapid growth in the use of the Internet for e-commerce and the many other activities available in the near future ("China", 2011).

7.10. Central and Eastern Europe. Europe consisting of 53 countries has a total population of 816.4 million people and Internet usage by 476.3 million of these for a 58.3% penetration rate. Most

individual countries in this group have an Internet usage of 40% to 60% with several in the high 90s.

Within 53 European countries there are 27 member states of the European Union. These states have a combined population of 502.7 million people with 338.5 million of them being Internet users at the end of June 2011. This is a penetration rate of 67.3%. All areas of Europe are significant users of e-commerce, cell phone technology, and members of Facebook ("Europe", 2011). European B2C e-commerce sales totaled 106 billion euros ($133 billion) in 2006 and were expected to grow at a rate of 25% over the next 5 years. This would project sales of 323 billion euros for 2011 (Ibid).

The most significant nations of Eastern Europe are Russia and Ukraine. Russia's market for online shopping is both the most dynamic and the youngest in Europe. It really began major development about four years ago, but by 2011 had outpaced Germany and France in terms of unique visitors. The Russian shoppers are now embracing online shopping despite horror stories of fraud among early adapters. It is believed that 2012 will see a huge number of Russian Internet users who will become online shoppers. "We expect explosive growth in the market," said Svetliana Sorokina, organizer of the Online Retail Russia Congress (Kuzmin, 2011).

Estimates of online purchases for 2011 were 270 billion rubles ($9 billion) up from 240 billion ($8 billion) in 2010. While online purchases have grown significantly, traditional retail growth in Russia has been slower at about 5 to 7 percent per year. At the present time, the share of online sales as a percentage of total turnover of retail sales is only 1.6 percent. Only in Moscow, where the share of Web sales is around 20 percent, does volume approach the global average. The Euroset mobile phone retailer has increased its sales in the past year from 1.5 percent to almost 5 percent (Ibid).

Ukraine, the other major player in Eastern Europe, has weathered the economic dip in 2009 and experienced a GDP growth in 2010 of 4.2 percent. Steady growth is expected in the future which speaks well for all business activities and especially for e-commerce as online sales did better during the 2009 crisis than traditional retail sales (Weening, 2011).

Current Internet penetration in Ukraine is around 35 percent or 15.3 million users from its population of about 46 million. A unique feature that assists e-commerce purchases from outside Ukraine is the waiver of customs duties and VAT on up to 200 euros of goods to private persons (Ibid). Internet access continues to grow and with it the potential for an increasing use of e-commerce for the purchase of goods.

8. Prospects for future e-commerce growth

Internet usage has been reviewed for many countries and rapid growth was found over the past few short years. It appears that increases in Internet usage leads to an increase in e-commerce in its various forms and applications. At present in the US e-commerce as a percent of total retail sales is a little over 4%. This rate has increased from about 3.2% in 2007 to 3.6% in 2009. The rate has varied from quarter to quarter, but has continued to increase while traditional overall retail sales amounts have declined during the last several years of very poor business conditions in the US and most of the world (Winters, 2011).

The evidence supports the hypothesis that e-commerce not only has continued to grow during the recent economic downtrend worldwide but support the projections made by many research organizations that it will continue to grow and become a larger percentage of future total retail sales in good economic times or otherwise.

Thus it would appear to be sound business advice for companies not presently involved in B2B and/or B2C to develop and promote an active Web presence. For those already involved in e-commerce to quickly increase their Web activities and devote more of their marketing efforts to e-commerce activities as a means of increasing their firm's revenues during the present world-wide economic slowdown.

9. Future predictions

Forrester Research Company in 2010 predicted that online sales will average a 10% growth per year over the next 5 years. While there was an economic downturn beginning in 2008, e-commerce has remained the greatest positive sector during the past several years and Forrester has projected that online retail sales in the US will increase in 2011, as compared to 2010, to 197.3 billion from the $176.2 billion of 2010. They project that the rate of increase will decline slightly each of the next several years, with online retail sales in 2015 rising 7.81% over 2014 to $278.9 billion from $258.7 billion. This represents a 9.62% compound annual growth rate for the US over the five-year period (Solorzano, 2011). More recently, EMarketer has increased its e-commerce growth forecast for 2012 and predicts online shoppers will spend $224.2 billion in 2012 up 15.4 percent from 2011 (Rueter, 2012).

In Western Europe, Forrester projects online retail sales will rise 13.1% in 2011 over 2010 to 91.9 billion euros ($125.6 billion) from 81.3 billion euros

($111.0 billion). As in the US, they project the annual rate of increase will decline slightly in each of the next several year, with online retail sales in 2015 rising 7.8% over 2014 to 133.6 billion euros ($182.5 billion) from 123.9 billion euros ($169.3) (Ibid). The projected compound annual growth rate for Europe over 2010 to 2015 is 12.47% as projected by Internet Retailer.Com. (Forrester, 2011).

Conclusions

Beginning in 2007 and continuing to the present, the US and most other nations of the world have experienced declining economic conditions, increasing job losses, large increases in public debt, falling tax receipts due to decreased economic activity, and have experienced little success with government attempts to stimulate their economies and create significant job growth for their people. During this time period, a significant area of growth has been e-commerce.

The greater portion of e-commerce sales has been in the US and several other developed nations but smaller nations are growing their e-businesses at a more rapid rate and should become important players in the world of e-commerce in the near future. While the future in the near term is uncertain for the world's economies and their traditional businesses, it appears that e-commerce will continue to grow in sales as well as an increase in its percentage share of total sales.

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