

Economic History of M-Commerce: Current and Future Impact

by Joseph Patterson

Before we delve into a paper about M-Commerce let's first define M-Commerce.

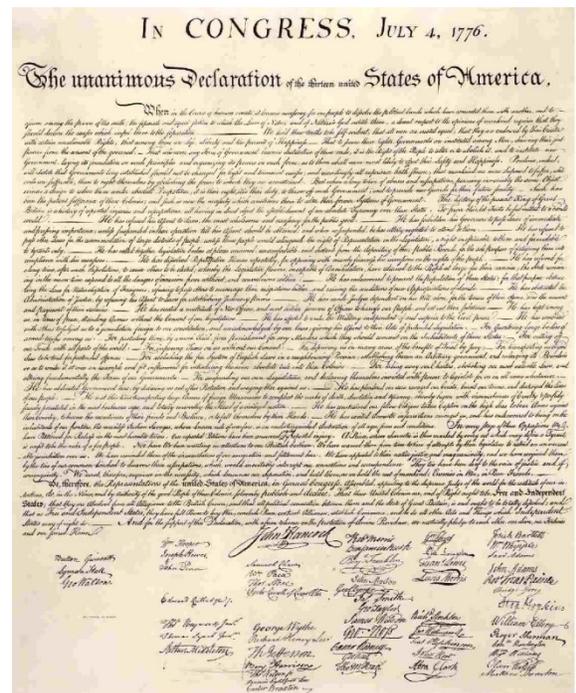
“Mobile Commerce is any transaction, involving the transfer of ownership or rights to use goods and services, which is initiated and/or completed by using mobile access to computer-mediated networks with the help of an electronic device.” (Tiwari and Buse. 2007) The development of the cellular telephones and related personal handheld communication devices is very interesting (particularly in the aspect of how this increased communication has advanced commerce and economic activity by lowering transaction, menu, distribution, and transportation costs).



M-Commerce lowers transaction costs by expanding the distance between buyer and seller and the speed at which they can connect. They do not have to be in the same city or even the same continent in order to complete their order or payment. The buyer simply types their PIN into the keypad or signs the receipt after whatever device is being used has verified the availability of the funds. This method of commerce lowers menu cost

(the cost of updating prices) by allowing the seller or another interested party may conveniently update a website or some other centrally-located information storage center and then that pricing information can be instantly updated through satellite and network connections to the vast majority of people who are interested in the relevant prices.

“How's it all work? No, there isn't someone riding around



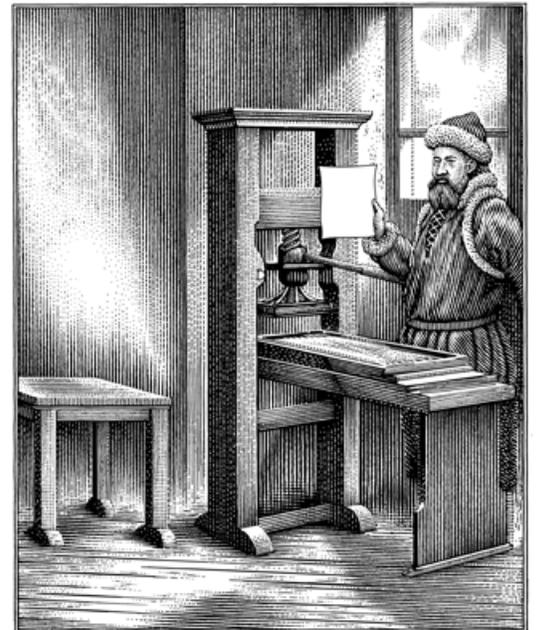
Declaration of Independence

phoning in the latest gas prices.... A company called OpisNet scans the credit card transaction streams for fleet vehicles and watches for gas transactions, checking for gas prices and reporting them”. (Martin 2008). Distribution is faster and cheaper also since the cell phone and text messaging and push-to-talk has allowed different aspects of a business to instantly change the direction or size of their shipments. If there is a natural or other disaster, relief could easily be distributed to those areas where it is most necessary simply through messaging the driver. This driver would not even need to know about the disaster because his truck could automatically receive new coordinates on the GPS and he would just follow the GPS instructions by the most efficient path to the more beneficial destination for whatever good his is hauling. Before we look at all of the new uses of this technology let’s take a short look at its history.

The first method of communication that I would like to focus on is handwritten letters. Handwritten letters and written language can be applied and adapted to many fields and therefore is a discovery (Kauper 2009). The benefits are transferred beyond the first person to read and write. This quicker way of passing information is easily gained by those who did not work to develop it. As a result, people have left written histories, notes and contracts, many without even considering who provided them with the ability to communicate in this more efficient manner. Recording language for transmission is a basic human skill and handwriting is the most primitive way to record language. Through the use of written contracts, letters and unique signatures people have been able to transfer ownership or rights to use goods and services and be relatively secure in their claim to that property using the written paper as a deed, guaranty or receipt. The main advantages of this form of transaction are that the details are in black and white and it is

transferable without the individuals needing to transport themselves to attest to the validity of an agreement. In this way, an agreement can even stay clear beyond the life of the original participants. Writing is like bartering. It requires knowledge of an individual and larger transaction costs. Each transaction is specific and the terms are not easily reproduced for the next transaction.

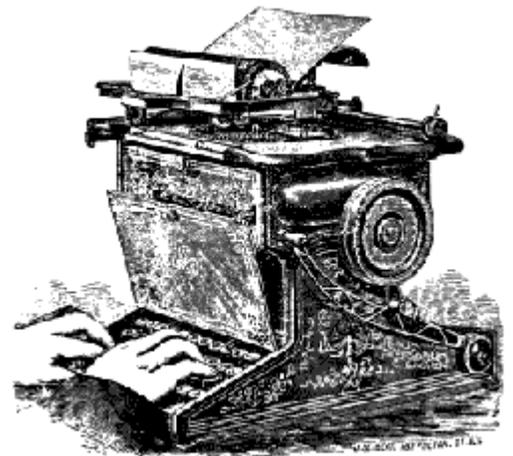
The second form of written communication that can be used for commerce is the Movable Type Printing Press. We spoke in class about Invention and how they were less broad than a Discovery, but have more applications than Innovations, Adaptations or Imitations. The Printing Press can be classified as an Innovation because it initially benefited the Inventor and he was able to choose what was printed (Kauper 2009). But the method quickly spread and others began adapting and imitating. “Johannes Gutenberg



invented the printing press with replaceable/moveable wooden or metal letters in 1436 (completed by 1440). This method of printing can be credited not only for a revolution in the production of books, but also for fostering rapid development in the sciences, arts and religion through the transmission of texts”(Bellis 2009) Can you imagine what affect this would have on commerce? No longer needing to handwrite invitations for customers to know your price or waiting for them to arrive at your shop or receiving incorrect information through word of mouth transmission. The printing press greatly expanded the availability of printed materials (increased supply). No longer was an individual required to sit long hours to handwrite copies of a complicated message. Pamphlets, flyers and all

forms of printed materials could be mass produced. The price of written materials went down as the quantity went up. This certainly lowered the cost of doing business and therefore provided for more opportunities to earn a profit and transfer information freely. Since the cost of printing on a large scale was cheaper than handwriting on a large scale, information that did not appear to be valuable enough to write home about could be printed and if it interested people it could be sold and that sale would cover the cost of the printing. This transmission of news or books in printed form has many positive externalities such as increasing the literacy rate, knowledge of lower income citizens who could not have afforded to hire people to transcribe books for them and so would not have learned to read. I would also like to note that using a printing press for commerce may be thought of as using paper currency. It is very quick to produce, but more difficult to secure who uses it. It is also not very personal. Some additional benefits are that “Printing provided a superior basis for scholarship and prevented the further corruption of texts through hand copying. By giving all scholars the same text to work from, it made progress in critical scholarship and science faster and more reliable.” (Kreis 2000)

The third preceding technology is the typewriter. This is a representation of an Innovation. It adapted the Printing Press but even provided for new applications and breadth of use. “Sholes & Glidden Type Writer ... began production in late 1873 and appeared on the American market in 1874.” (Polt) What is unique about a typewriter is that it once again makes the message personal and individual. The printing press has expanded the audience one could reach, but the



typewriter has brought the production of clearly written, quickly produced materials back to the individual. Typing is faster than handwriting, but cheaper than mass producing on a small scale. When people began noticing what could be accomplished on a typewriter, this increased the Demand for typewriters and personal methods of mechanized communication. This demand was seen and so the supply was increased. Soon others began to also invest in producing alternate typewriters. The typewriter resulted from a pursuit of profits. They were developed and mass produced so that they could be sold. They were not just given away. As well, the typewriter is very portable. I would like to compare the invention and use of the typewriter to the checking method of payment. Checks are mass produced for a specific individual use. This allows an individual or a business to make many unique transactions to different individuals, groups or companies and it can be more secure than cash. This allows them to have specific designs or logos for security on their checks.

The fourth preceding technology that I would like to focus on is the telegraph developed by Samuel Morse in the 1840s. The telegraph makes transmission of written language quick over longer distances. Because of the broad application and great uses descending from the telegraph, I



would like to characterize it as a Discovery. Using electricity to send a message was a major breakthrough. It would be hard to imagine our present state of Global commerce without electrically powered communication. “For the first time in history, the telegraph made rapid communication possible between Europe and America, and between Britain and her distant colonies such as Australia.” (One Hundred Seventy 2007)

The fifth preceding technology is the personal computer. I realize that the cell phone had come as a result of the telephone, but I would like to focus instead on the similarities between the cell phone applied to M-Commerce and the personal computer.



“The first such desktop-size system specifically designed for personal use appeared in 1974; it was offered by Micro Instrumentation Telemetry Systems (MITS). The owners of the system were then encouraged by the editor of a popular technology magazine to create and sell a mail-order computer kit through the magazine. The computer, which was called Altair, retailed for slightly less than \$400” (Ament 2007). As more applications were developed for computers, the audience grew even to include children rather than just US Dept of Defense or those who wanted to build them themselves. This increased desire to use personal computers is an increase in demand. As a result of the increased demand, the computer changed from a mail-order kit to a mass produced desktop, laptop, and finally to handheld devices. In the United States it seems like the Internet and the use of the personal computer is as far as we have progressed. Online Banking with automated services allowed me to access the balance of my accounts, pay my credit card inquire about transactions or file a fraud claim. Yet, we are still encouraging our senior citizens to learn email and access their banking needs online. First National Bank Minnesota offers 24-hour account access! How do they accomplish this? By staffing all of their branch locations 24/7 ... of course not! It is 24-hour telephone account access! Check your account balance. Find out if a check has cleared. Receive loan information. Speak to a Customer Service Representative. (First National Bank 2009) It is however expensive

to produce a perfect website, staff a customer service center, and make sure that all of the participants have convenient access to the Internet.

Having completed this brief history, I would be pleased now to introduce to you the great benefits of M-Commerce beyond the Internet.

How can this technology be used? Let us first visit a seemingly insignificant cluster of islands south of China where the average income is around less than \$200 a month. (worldsalaries.org 2008). The Philippines are those islands.

GCASH:

“GCASH, Globe’s flagship M-Commerce service, was born from a simple goal of transforming a mobile phone into a wallet. With its launch in October 2004, GCASH has effectively given Globe and TM subscribers access to a cashless and cardless method of facilitating money remittance, donations, loan settlement, disbursement of salaries or commissions, and payment of bills, products and services, with just a text message.”(Globe Telecom, Inc. 2009)

On the right please notice an advertisement for paying student tuition through the cell-phone. Clearly this is Innovation of the cell phone from interacting to deliver information to a person and now to directly deliver it to a computer system. The bytes and visual representations of figures on



cell phone screens have replaced physical currency in many transactions. This limits transaction costs and encourages more activity. Because it is cheaper for people to use GCASH to make payments, they are able to make more payments and more purchases in a day. It is also easier for the school to collect tuition which lowers the cost of printing out demand letters and receipts. GCASH is more portable, does not require time making change, cannot be easily stolen, and is not forgotten at home. These all increase the benefit to the seller and the buyer. This translates into increased demand for the product and new, faster, more convenient methods. They have access to this technology within

their basic device, a cell phone. No need to even own a computer or visit a library. This obviously encourages economic growth as there are more transactions, lowered costs and clearer communication. Lowering the cost of paying bills promotes prompt payment and clearer communication saves time of having to repeat a message a 2nd, 3rd or 4th time. Time is money and communicating clearly the first time saves money. This savings translates into increased demand as the firms and customers want to have more, simpler technologies to simplify their lives and allow them to have a higher standard of living.

Now to the seemingly less economic spillover this technology has found in America. The US is a very large economy that could no doubt discover many benefits for M-Commerce and something similar to GCASH, but what do we do with our cell phones?

American Idol: Americans pick their favorite contestant, but they don't have to send in a self-addressed stamped envelope or even voice their opinion.



“To vote, simply watch American Idol on FOX each week (see local listings for dates/times in your area) and dial the telephone number of the contestant for whom you wish to vote. Or, AT&T Mobility subscribers may text the word 'VOTE' to the 4 digit short code numbers promoted for each contestant. Only send the word 'VOTE' to the 4 digit short code numbers you see on screen” (FOX 2009)

They make it very simple, but why can't I vote on the Internet? “Only toll-free and AT&T Mobility Text Messaging voting is available for *American Idol*.” (FOX 2009). I wonder if they have a deal with AT&T to receive a portion of this new income that results from mobilizing most of America to use their text messaging capability. Or are they simply moving with the times and encouraging new forms of communication. Or are they trying

to make it more available to a larger audience and recognize that most of the people who have access to the Internet also have access to cell phones but it is not the other way around. Or are they expecting to be able to more clearly market to individuals since they have their personal cell phone number. This does however provide an example of how the cell phone has surpassed the Internet in some areas. Even in the US as entertaining as American Idol has become the use of the cell-phone to text in your vote is directly benefiting GDP. When Americans watch television and are required to find the voting code, they are also being influenced by all of the advertising on the commercials.

The Philippines is a great example of a country that has utilized not only the increased transaction capability available from M-Commerce but has also recognized many of the social spillovers. They have government numbers that you can text to report crimes or abuse to the police or complaints against the lower official to higher levels. In the National Statistics Office of the Philippines those waiting in line may text to the office if they would like faster service or to make customer suggestions/complaints.

Perhaps the most important impact of M-Commerce is that it is setting the pace for our immediate future. Continued development and use of cell-phones and other handheld devices will encourage all people in society to quickly and conveniently exchange possessions at nearly any moment during any day. The rate at which a country develops is not solely based on the amount of natural resources or some innate strength inside their citizens. Much of their development and the increase that they could recognize in their standard of living could be attained from working smarter. The countries that do not recognize the benefits of M-Commerce will be at a severe disadvantage because they are wasting money providing services where they are not most

beneficial, spending too much to get them there, and not increasing the number of transactions because they cannot quickly, clearly and cheaply benefit directly with their consumers. Those countries that recognize M-Commerce can grow faster and can bypass the personal computer. They can jump to web-enabled cell phones and more efficiently conduct whatever business they have. These millions of domestic transactions contribute to their global trading ability because it lowers the cost and increases the value of their exports. Their exports are worth more because the consumer can quickly and clearly provide feedback on quality and price. Exports are cheaper because they have been produced at minimum cost through the use of the best information available.

M-Commerce is the future of commerce.

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