



A B2C Development Model for Electronic Commerce in Less Developed Countries: The Peruvian Case

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INTRODUCTION

Despite the sudden fall of the NASDAQ composite index in April 2000, drawn by the collapse of the—until then—promising dotcoms, UNCTAD foresees information and communication technologies (ICTs), especially the Internet, will continue driving international economic growth (World Trade, 2002). In this sense, ICTs and e-commerce emerge as the tool to expanding corporate and country competitiveness and improving their people's living standards (UNCTAD, 2002). In the US, 30% of total economic growth has been attributed to ICTs (Schlögl, 2001).

Nevertheless, unequal growth of the Internet, in particular, and ICT, as a whole, across the world's social groups in the last decade has created the so called digital divide (Norris, 2001) that threatens less developed countries.

OBJECTIVE

This research paper explores a business to consumer (B2C) e-commerce development model for less developed countries. Evidence is presented from a survey on e-commerce in Peru.

METHODOLOGY

A wall-to-wall review of the literature on e-commerce in less developed countries led to identifying three sectors involved in developing e-commerce in Peru. Semi-structured interviews were conducted separately with e-commerce policy and regulation makers, Internet Service Providers (ISPs) and managers and executive officers of companies involved in e-commerce.

Analysis of results identified shared traits to outline a development model for e-commerce in developing countries. *A priori* the model was proposed to consider the condition of the national technological infrastructure, penetration of mediums of payments, the logistics of goods' distribution, and on line shopping culture in Peru.

CONCEPTUAL FRAMEWORK

Created in 1969 as a network for military and academic use, the Internet later evolved into a commercial application that brought among other developments the unforeseen spread of electronic mail. Since the invention of web browsing in 1993 it has been possible to carry a wide range of message types over the web including photos, text, video and audio (Westland & Clarke, 1999). Later, the first web-based transactions started.

E-commerce is defined as "the purchase and sale of goods through digital means, specifically [...] the web that allows the restructuring of businesses, markets and provides a competitive advantage" (Kalakota & Robinson, 1999: 23). Three major forces explain the development of e-commerce: digitalization, or more powerful computers and wider bandwidth available at increasingly lower prices; globalization that makes the world an ever smaller place but an increasingly larger market; and deregulation, driven by the perception that free markets are the best resource allocators (Arroyo, Herrera, Temoche, Vilches & Whittembury, 2001). These three forces suffice to change the value chain of any business, regardless of its size.

An 'e-business' uses information technology, specially real time networks for its transactions. E-companies are not only to those selling products on line, but more broadly those resorting to networking technologies in production, supply chains, marketing, and sales and customer care automation (Choi & Whinston, 2000).

The way companies use the web may make the difference between failure and success. According to Porter (2001) the sources of their competitive edge have remained invariable. Although the way Internet technology is integrated into their business strategy may be key in strengthening the roots of their competitive advantages, it cannot replace them. Electronic commerce is definitely one way to do business (Borenstein & Saloner, 2001), although it modifies the way business creates value; "time to market, innovation and quality have become requirements for the survival of organizations" (Westland & Clarke, 1999: 53). We are now able to exchange and spread data anywhere around the globe at a negligible cost, giving business the opportunity to create alliances and to distribute information without the traditional burdens imposed by geography (Lekse & Olivas-Luján, 2001). Although in the short term developed country businesses may derive the greatest benefit, as time passes businesses from less developed countries may reap the greatest advantages as they leapfrog many stages of the developed nations' long learning curve (Panagariya, 2000).

Moreover, the performance of 'e-business' companies will be reflected on states through improved tax collection or greater job creation, an outcome that demands consideration. Some authors hold e-commerce may help to substantially improve country competitiveness (Sprano & Zakak, 2000); from there the need for states to take the relevant actions to overcome the burdens of deficient education and poor technological infrastructure common to less developed countries, in order to make them more competitive in the global scene. Governments' role is to refit regulations not only to not obstruct, but to promote e-commerce, specially taking into account that more often than not governments are the main consumers in many countries.

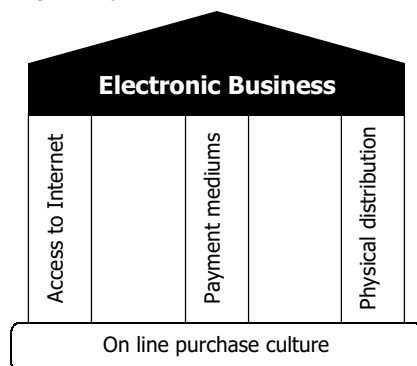
Finally, Internet Service Providers (ISPs) have a major responsibility in developing e-commerce given that their service offering ranges from hardware and software through network access thus making them indispensable for the existence of 'e-business' companies.

E-COMMERCE IN PERU

Business communities in less developed countries must overcome major roadblocks to growth within their domestic markets and to access international markets. The number of companies that do on line business in Peru is still minuscule; even if 96% of the 2000 largest companies have an Internet connections, and only 50% have a website. Scarcely 18% do electronic business transactions of which 88% are B2B transactions¹ and 38% are B2C business (Apoyo, 2001, as cited in Telefónica, 2002). Besides, just five companies account for 90% of all on line retail transactions² (E. San Román, speech, November 21, 2002).

In order to develop electronic business three elements are necessary: Internet access, availability of payment mediums and, for tangible goods, the

Figure 1. Building blocks for e-business



physical distribution of products (Mann, 2000), all of them supported by a culture of on line purchases. Figure 1 shows the proposed model for developing electronic business.

Internet Access

Peru's information and communications technology (ICT) infrastructure is weak as shown in Table 1. However, the figures also show that the ratio of Internet users to either the number of fixed or mobile telephone lines, the number of personal computers or the number of hosts, is very high compared to other countries. This is explained by the phenomenon of access to Internet through Internet kiosks, a business model developed in the mid-90s by the Red Científica Peruana ISP. From 580 Internet kiosks in December 1999, Peru went to 1,740 in June 2001 and the figure is growing; currently Peru ranks 13 among countries with the higher rates of public access to Internet (Harvard University, 2001, as cited in Telefónica, 2002).

Means of Payment

Scarce Internet-based payments means continue to hamper the expansion of electronic business in Peru. Bank penetration is extremely low as is the number of credit card holders compared to more developed countries. At the end of 2001, only 24.96% of GDP went through Peruvian banks (ASBANC, 2002) and even as recently as 2000, only 9% of households in Lima, the capital city and Peru's largest and more developed city, held a credit card (INEI, 2000). Some local banks have created Internet-only purchase cards, such as the viaBCP card of Banco de Crédito del Perú (www.viabcp.com) and the NETACTIVA24 card of Interbank (www.interbank.com.pe), both linked to savings accounts. Banco Wiese Sudameris (www.wiese.com.pe) launched the Pagum MasterCard that does not require a link to a bank account. ViaBCP card is the most accepted of these, probably because Banco de Crédito del Perú is the largest bank in the country, has the largest number of clients, and conducts intensive promotion campaigns. Still there are only some 27,000 ViaBCP card users who buy US\$ 350.00 a month; 97% of these transactions are carried out with foreign establishments (R. Dasso, speech, November 21, 2002).

Table 1: Main ICT indicators (for every 100 people)

Countries	Fixed telephones	Mobile telephones	Personal computers	Internet users	Hosts (per 1000 people)
United States	66.5	44.4	62.3	34.6	292.8
European Union	57.5	60.5	24.4	38.0	75.0
Scandinavian countries	65.0+	66.0+	60.0+	50.0+	100.0
Argentina	21.6	18.6	5.3	5.3	12.4
Brazil	21.8	16.7	6.3	3.5	9.5
Chile	23.9	34.0	8.4	11.8	7.9
Colombia	17.1	7.6	4.2	1.7	1.3
Mexico	13.7	21.7	6.9	2.3	9.1
Peru	7.6	5.9	4.8	12.0	0.5
Uruguay	28.3	15.5	11.0	11.1	21.1
Venezuela	11.2	26.4	5.3	5.0	0.9

Source: ITU, CIA, CyberAtlas, INEI, OSIPTEL

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Besides scarce payment means, the diversity of payment channels also poses a problem. Many bank and business credit cards have created proprietary payment infrastructures, further hampering operations. Some companies allow the buyer to pay in cash on delivery of the purchased goods; however, this option requires prior certification in order to avoid transaction repudiation and the subsequent delivery expenditures for returned merchandise.

Physical Distribution

Peruvian on line companies mostly outsource the physical distribution of tangible goods. Delivery rates are based mainly on the distance from the distribution hub to the address of delivery indicated by the buyer. Most e-commerces are located in Lima, and goods are rarely delivered to the provinces of the interior as delivery expenses would be prohibitively high. Some business have started opening stores in cities around Peru to simplify distribution of orders by merging on-line and off-line operations.

Little progress has been made in terms of electronic commerce as a channel for export sales. An assessment is still required of Peru's potential for Internet-based export sales and the most appropriate business model. Some Peruvian e-businesses have successfully developed sales abroad for locally-distributed goods (Santana & Díaz, 2002).

On Line Purchase Culture

In contrast to more developed countries, catalog shopping in Peru is not widespread. Internet shopping arrived with a public unfamiliar with remote purchase selection and ordering. Lima users asked about their personal use of the Internet mentioned from e-mail through video downloading but failed to include web-based shopping among their Internet practices (Telefónica, 2002).

Another study to determine Internet user profiles in Lima found that only 4% of users who access the web at Internet kiosks (more than 70% of all users) had bought by Internet once, compared to 15% of those who access the web from their homes (9% of the total) and 13% of those who join the web from work or school (17% of the total). These figures reveal 92% of users have never carried out an Internet-based purchase. Among users never having shopped on the web, 18% cite lack of confidence as 38% think this channel is unsafe (Apoyo, 2002, as cited in Telefónica, 2002).

National administrations must contribute to creating an environment of confidence that will induce economic agents to develop on line business, including a regulatory environment providing enhanced transaction security (Goldstein & O'Connor, 2001). Peru's legal system is however a tangle of complex regulations shown in Appendix A. Most of them have only been recently enacted and some experts even suggest that regulations may have moved faster than on line commercial practices in Peru.

DISCUSSION

As Kirkman and Sachs (2001) say, to benefit effectively from the advantages offered by information technologies, electronic commerce included, a determined political will from the state and adequate business leadership are needed.

Government regulations enacted in Peru for privatizing telecommunications services, promoting these services in rural zones, the projected use of information technology in education through the Huascarán Program (www.huascanan.gob.pe)-the government's IT project-forums on the information society organized by the government and the norms which to promote Internet use as a commercial toll all signal the political will to promote the information society where electronic commerce is an important component.

Moreover, the will of private business to become major players in the moving to the Internet world, on line business initiatives already underway, including electronic banking and Internet purchase cards, the proposed Puyhuán Plan to create a sustainable development model for rural areas supported by greater IT use (www.setinedic.edu.pe/proyectoPuyhuan/modeloplan.htm) and the increasing number of Internet kiosks, among others.

Although Peruvians show interest in accessing information technologies, doubts linger on the convenience of using the web as a channel for their commercial transactions. Hopefully, the multiplier effect of initiatives mentioned in the foregoing paragraphs may increase consumer comfort with and confidence in transacting from a computer.

Given the particular present conditions in a less developed country like Peru where economic inequalities and a notorious digital gap subsist, it is not likely that an e-commerce model similar to that of developed countries will

succeed. In those countries, Internet access and payment means are widespread, as well as adequate physical distribution services, while growth builds on a tradition of catalog shopping.

In Peru, an already large and still growing network of Internet kiosks could serve not only as a way to access the web but also as payment centers for on line orders. The Peruvian government is already planning to turn Internet kiosk managers into fee collectors for on line government services to citizens, with an undeniable impact on developing e-commerce. Business could likewise enter into agreements with select authorized Internet kiosks for collecting revenues from goods and services commercialized on line. These Internet kiosk owners would benefit from an edge against strong competition which prevents them to generate surpluses to make their business profitable in the long term while business which trade on the web would be able to offer an additional purchase channel to clients and so reach new markets.

In this on line work scheme, logistic operators may increase their now reduced volume of operations, and thus cut distribution costs. Internet services providers should be prepared to meet the need for enhanced connectivity and may find it interesting to expand their service network to cover larger geographic coverage where they identify a market opportunity.

ENDNOTES

¹ Mining companies and their suppliers account for the greatest volume of B2B transactions in Peru.

² E. Wong Supermarket (www.ewong.com), virtual store and travel agency on web-based information service peru.com (www.peru.com), Rosatel florist (www.rosatel.com), SAGA-Falabella department store (www.sagalabella.com.pe), and virtual store of the El Comercio Newspaper portal (www.ec-store.com).

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APPENDIX A: REGULATIONS GOVERNING TELECOMMUNICATIONS, IT AND E-COMMERCE

Legislative Decree N° 681	Regulates digital document archiving
Legislative Decree N° 702	Promotes private investment in telecommunications
Supreme Decree N° 013-93-TCC	Enacts the Telecommunications Act
Supreme Decree N° 011-94-TCC	Approves the concession contract between the Peruvian government, and ENTEL-Peru and CPTSA
Ministry Resolution N° 250-97-MTC	Approves the National Plan for of Bandwidth Allocation
Supreme Decree N° 020-98-MTC	Assigns OSIPTEL exclusive competence on interconnection of telecommunication services
Guidelines for free and fair competition	OSIPTEL decides against cases of abuse of dominant position and restrictive practices
Interconnection regulation	OSIPTEL regulates interconnection between businesses
Law N° 27291	Allows the use of electronic means to communicate declarations of will
Law N° 27309	Includes computer crime in the Criminal Code
Law N° 27419	Accepts serving notice by e-mail
Law N° 27269	Creates an infrastructure of digital certificates and signatures
Directive Council Resolution N° 015-2001-SC/OSIPTEL	Establishes the conditions to use Internet public services
Supreme Resolution N° 292-2001-RE	Gives INDECOPI the administration of Peru's domain name
Supreme Decree N° 66-2001-PCM	Defines outlines for Internet expansion
Ministry Resolution N° 266-2002-PCM	Creates e-Government Project Office
Regulations of Law N° 27269	Regulations pertaining to the law for digital signatures and certificates
Supreme Decree N° 67-2001-ED	Initiates Huascarán Program
Emergency Decree N° 67-2001	Creates the National Fund for the Use of New Information Technologies (FONDUNET)
Law N° 27806	Transparency and access to public information

Source: Various

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