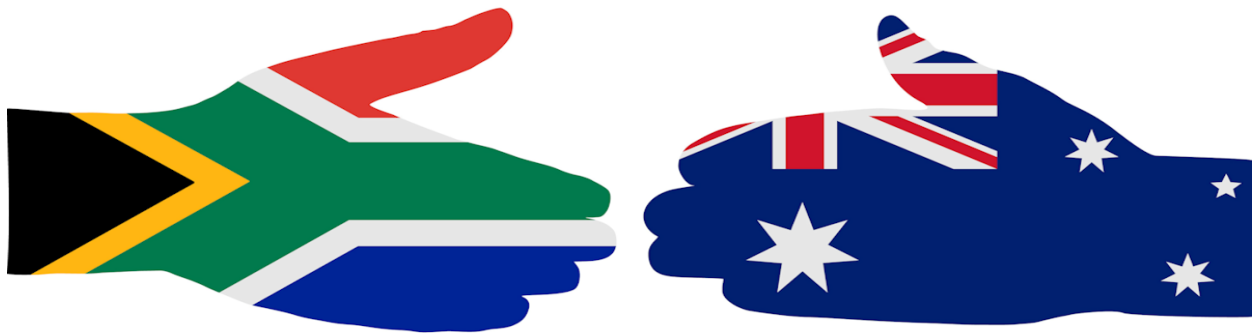


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Leveling E-Commerce Opportunities for Developing Countries

December 31, 2011



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Abstract

Recent studies have raised a disturbing issue concerning the ability of developing countries to compete in the E-business marketplace. Historically, researchers have been optimistic and anticipated that E-commerce technologies could be leveraged and benefit underdeveloped countries. Aside from a slight improvement in communications, recent studies have shown that businesses in developing countries do not benefit from advances made in E-commerce technologies. While E-commerce technologies help foreign countries access the markets of underdeveloped countries, they do not return the favor and help businesses in underdeveloped countries. The net result of this unfortunate situation is an unfair level of competition imposed on businesses in developing countries caused by an increase in the digital divide. This paper assesses the level of E-commerce support developing countries are currently realizing, investigates potential benefits or opportunities that E-commerce technologies could bring to bear, and then reviews the barriers that are keeping these opportunities from being realized. Coordinating the actions of government and industry to encourage investment in E-commerce technologies by government, businesses, and individuals, is recommended so businesses in underdeveloped countries and reap the same advantages as their counter parts in developed countries. Given businesses in developing countries did not get to influence the design features associated with improvements to information and communication technologies; it is unlikely they will offer businesses in developing countries the same efficiencies they do to their counterparts in developed countries. The application of the social shaping would allow developing countries to leverage public policy decisions to influence how technology evolves in their local market places. The governments of underdeveloped countries can provide some assistance by adopting policies and regulations, or even to implement laws, to facilitate development and control of E-commerce infrastructure within their own territories. From a global perspective, however, this would be a piecemeal solution. Some kind of international regulation would therefore be preferred. Creative legislative solutions are called for, but at the international level.

One approach is to mirror how US municipalities encourage private investment for making infrastructure improvements. Due to tight US municipal budgets, many local county governments leverage land zoning approvals to entice real estate developers into making road and utility infrastructure improvements. By making the infrastructure improvements surrounding the land parcel they are developing, the developers become eligible for zoning and building permit approvals. Costs are prorated to customers for each finished lot the developer sells. A similar approach could be adopted where external businesses desiring to participate in the online market place of developing countries are required to make investments to improve the E-commerce infrastructure position in return for authorizations to conduct business. By integrating approvals to enter the market place with requirements to stand up infrastructure

components in government regulated e-portals, the improved E-commerce capabilities could also be leveraged by the businesses within the developing countries, and equal access to E-commerce benefits would be provided to all businesses. Before the products and services of networking and telecommunications service providers are approved for use, the service providers should be required to reduce the gaps in technology and human infrastructure contextual enablers, and level the competitive playing field. An international treaty supported by a list of adopting member states would be a good way to ensure adoption of the approach world-wide, and may encourage positive leveraging of E-commerce capabilities that facilitate growth in underdeveloped countries.

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1 Introduction

Recent studies have raised a disturbing issue concerning the ability of developing countries to compete in the E-business marketplace. Historically, researchers have been optimistic and anticipated that a number of E-commerce technologies could be leveraged and benefit underdeveloped countries. Aside from a slight improvement in communications, recent studies have shown that businesses in developing countries do not benefit from advances made in E-commerce technologies. While E-commerce technologies help foreign countries access the markets of underdeveloped countries, they do not return the favor and help businesses in underdeveloped countries expand their market access. The net result of this unfortunate situation is an unfair level of competition imposed on businesses in developing countries caused by an increase in the digital divide. The optimism expressed in the research literature has been unfounded, and an important issue is how industry can turn this around and effectively use E-commerce to stimulate the economies and competitiveness of local businesses in underdeveloped countries. This paper assesses the level of E-commerce support developing countries are currently realizing, investigates potential benefits or opportunities that E-commerce technologies could bring to bear, and then reviews the barriers that are keeping these opportunities from being realized. Recommendations are made with respect to coordinating the actions of government and industry to encourage investment in E-commerce technologies by government, businesses, and individuals, so businesses in underdeveloped countries and reap the same advantages as their counter parts in developed countries.

2 What Went Wrong in E-Utopia?

Despite a preponderance of optimistic research literature predicting that developing countries would leverage E-commerce technologies and improve their economic standing, recent studies have shown this is not the case. This section looks at potential E-commerce opportunities

and investigates how barriers can keep developing countries from realizing benefits from leveraging E-commerce.

2.1 Realization of E-Commerce Benefits has been Disappointing

An important issue that society must address is how new technologies, like those being developed within E-commerce, can be leveraged to stimulate the economies and competitiveness of local businesses in developing countries. This paper begins this quest by assessing the existing benefits, although meager, that businesses in underdeveloped countries have realized.

Molla and Heeks (2007) conducted a study assessing the level of E-commerce benefits businesses in developing countries were realizing. They began by conducting a review of research literature and identifying a list of benefits that optimistic researchers have indicated might be available to businesses in developing countries. They then looked at businesses in South Africa as a typical representation of a developing country, and investigated whether or not they achieved any of the listed benefits. A survey was sent out asking the top leadership in the surveyed companies to assess how well they realized each benefit. Respondents to the Molla and Heeks (2007) survey indicated that the E-commerce benefits realized by businesses in developing countries are limited to small improvements in communications, but that “more strategic benefits relating to market access, customer/supplier linkages or cost savings were not found” (p. 95). The study found that E-Commerce did not enable the surveyed businesses to reduce the cost of operations, purchasing, recruitment, marketing, or of maintaining information (Molla & Heeks, 2007). Further, 84% of respondent companies did not appear to realize increased revenue, improved supplier relationships, or customer loyalty and retention as a result of E-commerce (Molla & Heeks, 2007). Overall, businesses reported only basic communications improvements as a result of E-commerce which is a significant shortfall from

the list of benefits anticipated in research literature (discussed below). Molla and Heeks (2007) found no strong evidence that E-commerce is delivering precursory benefits necessary to address common challenges in today's market place, such as information poverty, exclusion from supply chains, loss of profits and control of market access to intermediaries, and poor cost competitiveness.

The most disturbing issue of the study is not only the fact that potential E-commerce benefits anticipated in optimistic research literature is not being realized in developing countries, but that the structural features of globalization appear to be enlarging infrastructure inequalities. Since businesses in industrialized countries are achieving benefits from E-commerce (Fitzgerald, Papazafeiropoulou, Piris, & Serrano, 2005), they can penetrate markets in developing countries, while businesses in developing countries cannot counter-penetrate industrialized country markets (Molla & Heeks, 2007). E-commerce seems to be part of a broader historical pattern where new technologies result in increases to global economic inequalities (Heeks & Kenny, 2002).

2.2 Potential Benefits that Underdeveloped Countries could Realize

If implemented properly, E-commerce technologies can result in business process improvements and increased efficiencies. Leveraging E-commerce technologies should result in improvements to developing countries, but so far have not produced the desired results. The focus of this section is on reviewing the potential benefits, or opportunities, that researchers have optimistically anticipated for underdeveloped countries but, as of today, have not been realized.

As part of their study, Molla and Heeks (2007) conducted a survey of research literature and identified 16 benefits that optimistic researchers contend businesses in developing countries may realize. They include:

1. Increased revenue.
2. Reduced operation costs.

3. Reduced costs of purchasing and procurement.
4. Increased customer loyalty and retention.
5. Reduced marketing costs.
6. Improved supplier relationships.
7. Overall satisfaction.
8. Reduced cost of maintaining information.
9. Reduced / service differentiation.
10. Improved customer relationships.
11. Improved competitive position.
12. Extending firms' market reach.
13. Improved process speed.
14. Improved external communication.
15. Improved company image.
16. Improved internal communication.

These benefits were said to fall within four primary groups: market efficiency, operational efficiency, market access, and linkage to supply chains (Molla & Heeks, 2007). *Market efficiency* refers to the fact that most businesses typically depend on long supply chains and intermediaries to market their products (Molla & Heeks, 2007). Intermediaries can take a lion's share of the profits, and decide which products are to be delivered to the market. E-commerce could deliver a significant benefit to businesses in developing countries by increasing their control over its place in the supply chain, thus improving its market efficiency (Molla & Heeks, 2007). *Operational efficiency* refers to the fact that businesses in developing countries incur high costs in coordination of economic activities since they rely on inefficient systems of procurement, communication, inventory control, and operation (Molla & Heeks, 2007). The use of E-commerce could reduce the inefficiencies associated with intra-firm coordination. *Market access* refers to how businesses in developing countries are characterized by information poverty and location-based constraints to accessing information about markets (Molla & Heeks, 2007).

The networking capabilities of the internet give E-commerce the potential to enable these businesses to overcome their informational barriers and achieve increased market access.

Linkage to supply chains refers to the fact that global businesses are increasingly organized around their supply chains, yet most businesses in developing countries are excluded from such chains. Today's business competition is no longer entity against entity, but rather, is supply chain against supply chain (Christoper, 2000). E-commerce could increase the visibility of businesses in developing countries and open up new technology-enabled opportunities by participating on supply chains (Molla & Heeks, 2007).

By taking a more comprehensive look at conceptualizing potential E-commerce benefits, Molla and Heeks (2007) were able to show convincingly that “the majority of businesses do not appear to have obtained E-commerce benefits in terms of expanding their access to markets, improving their reach or linkages to customers or suppliers, or in relation to cost savings or other efficiency gains” (p. 105). Thus, overall market performance or reductions in transaction costs were not realized by businesses in developing countries as a result of E-commerce.

3 How do we fix the disparity?

The population of internet users in developing countries grew by more than 300% to roughly 400 million, increasing their global share of all internet users from 25% to 40% (InternetWorldStats, 2005; UNCTAD, 2005). In light of such unprecedented growth, it is reasonable to anticipate potential economic improvements should be realized by developing countries. Unfortunately, as discussed above this has not been the case. This section investigates methods for fixing the structural disparity between developing and developed countries, with respect to their ability to adopt E-commerce technologies.

3.1 Barriers to Effectively Utilizing E-Commerce in Developing Countries

This subsection looks at the barriers that may be impeding the use of E-commerce technologies in developing countries. These are investigated so conclusions can be drawn about why developing countries are falling farther behind in the digital divide.

3.1.1 Cultural Characteristics and Differences

Hwang, Jung, and Salvendy (2006) investigated the online shopping preferences of users in Korea, Turkey, and the US. Underlying the results of this study is the realization that cultural differences can be a barrier to any program attempting to spread E-commerce benefits to developing countries, so they must be analyzed and remediated. Businesses that pursue international E-commerce “need to consider the issues of information accuracy, security and product-price comparisons as local issues related to the cultural, economic and infrastructural difference between nations” (Hwang, et. al., p. 17).

3.1.2 Disparity in the Rate of Adoption of E-commerce

A number of countries around the world are planning and developing their own information technology policies, which are implemented, at different speeds, and in different ways. The result is a disparity in the rate of adoption of information and communications technologies (ICTs). Businesses in developed countries are diffusing ICTs at an accelerated pace and have an economic advantage, when compared with the developing countries wishing to catch up (Genus & Nor, 2000).

3.1.3 Differing E-Readiness Levels

Genus and Nor (2000) describe an “e-readiness” factor as a composite measure of the extent a market is conducive to internet-based opportunities. It takes into account the quality of the IT infrastructure, the ambition of government initiatives, the technical capabilities of the population, and the degree to which the internet is creating commercial efficiencies. Much is at

stake for businesses in countries deemed E-commerce unready. Companies can be reluctant to award supply contracts to electronically unready or unwilling suppliers (Genus & Nor, 2000).

3.1.4 Pushing COTS Products to Developing Countries

For progress to proceed in developing countries, advanced technologies are typically imported, or “pushed,” from developed countries. Transferring off-the-shelf technologies in this way eliminates the ability of businesses in the developing countries to exercise influence over the design of the innovative products. Thus, it is unlikely that these products will be compatible with local cultures and requirements (Genus & Nor, 2000). Since the nature and characteristics of the features and interfaces favor people in developed countries, they are not likely to be a good fit for underdeveloped countries.

3.1.5 Appropriateness of Technology

The appropriateness of technology for a local culture is a significant issue for the diffusion and adoption of ICTs in developing countries. Problems arise when there is incompatibility of technology and society (Genus & Nor, 2000). Muir and Oppenheim (2002) note that policies pursued on the basis of technical imperatives, rather than on the basis of a desirable shared vision of society, can increase the digital divide, rather than reduce it.

3.2 Defining a more Effective Path Forward

This subsection offers recommendations with respect to coordinating the actions of government and industries to overcome the barriers just described, and encourage investment in E-commerce technologies.

3.2.1 The Growing Digital Divide

As previously noted, there is a growing disparity between the E-commerce benefits realized by businesses in developed countries, as compared to those realized by businesses in developing countries. Genus and Nor (2005) label the disparity as a “digital divide,” which they

describe as “a phenomenon associated with disparities between groups and societies in the adoption and diffusion of electronic information and communications technologies (ICTs) and E-business practice” (p. 82). The consequence of the digital divide is the inability of people in underdeveloped countries to use ICTs, to grow E-business and E-commerce, and to realize economic development (Genus & Nor, 2005; Molla & Heeks, 2007).

3.2.2 Action Plans Addressing the Driving Factors for Leveraging E-Commerce

Al-Rawi, Sabry, and Al-Nakeeb (2008) demonstrated the need for an action plan to create an enabling environment for E-commerce that addresses the key factors that contribute to economic growth, taking into account regulatory policies to stimulate and maximize the effect of E-commerce on their economies. In a study on E-commerce in the gulf region, they developed a list of factors that drive E-commerce development, which include:

- E-commerce awareness and education levels
- Government support
- Law awareness for E-commerce
- ICT infrastructure and Technological advances
- Endorsement of banks to on-line payment systems
- Change management (from traditional approaches to digital approaches)
- Establishment of effective regional online business models
- Global / External forces
- IT skills and English language fluency
- Cultural and social factors
- User confidence in online transaction, trust and security
- Usability and interactivity of websites
- Industry standards and competitive advantage (Al-Rawi, et. al., 2008, p. 27).

They concluded the role of government is essential in promoting E-commerce in the gulf region in terms of ensuring coherent IT and E-commerce policy for consumer protection, and providing a secure, transparent, and enabled online environment (Al-Rawi, et. al., 2008). While E-

commerce was said to enhance existing business processes and improve efficiencies, it does not necessarily replace existing ways of doing business in their entirety (Al-Rawi, et. al., 2008). The evolution of new business processes must be integrated into current methods, may take time, and can require several stages of growth before perfecting (Al-Rawi, et. al., 2008).

3.2.3 Using Social Shaping to Address E-Commerce Disparities

In a research study Genus and Nor (2005) considered the merit of using “social shaping” to analyze innovation in ICTs, assess the prospects for bridging the gap in the digital divide, and for stimulating economic development in underdeveloped countries through the promotion of E-business. In practical terms, social shaping can be thought of as using regulation to establish public policies that shape how technologies evolve in developing countries to ensure they are compatible with the local society.

The international recognition of applying social shaping to the disparity is indicated by a series of national-level policies that are being produced to create information-based societies, including some in developing countries. In Europe these policies are advocated by the:

- French Information Autoroutes.
- Danish Information Society 2000.
- UK’s Information Society Initiative (Ducatel, Webster, & Herrmann, 2000).

In Asia they include:

- Singapore’s Intelligent Island Strategy.
- Malaysia’s Vision 2020.
- Japan’s high-performance information infrastructure plan.
- China’s NII 2020 Policy.
- Vietnam’s IT 2000 (Ducatel, et. al., 2000).

By reviewing research literature related to the “social shaping” of technology, Genus & Nor (2000) identified important implications for E-business and economic development in

poorer nations. Social shaping describes how social processes shape not only the form, features, and content, of particular technologies, but also the patterns, general characteristics, and direction of technologies across whole areas of development and application (Russell & Williams, 2002). Overtime, the social shaping approach can reinvent how new technologies feed back into upstream activities linked to public policy decisions about the designs, purposes, and uses of potential new technology (MacKenzie & Wajcman, 1985; Genus & Nor, 2000; Russell & Williams, 2002). This type of approach can be beneficial to develop information societies with appropriate technologies to close the gap in the digital divide (Genus & Nor, 2000).

3.2.4 The Potential for Marginalizing new IT Capabilities

In contrast to enthusiasts inclined to believe that societies benefit from the introduction of information and communications technologies, which are thought to transform society in a positive way, Lyon (1988) asserts information technology merely represents a stage beyond industrial capitalism, in which the dominant forces in capitalist society find new opportunities for profit exploitation. The overall concern is businesses in underdeveloped countries are marginalized from the new IT capabilities and thus find themselves at a competitive disadvantage (Genus & Nor, 2000).

3.2.5 Effectively Shaping Regulatory Efforts

Now that the benefits of social shaping have been addressed, the next step is to define the best approach for implementing it. What should regulatory efforts address in terms of subject matter? With respect to developing countries, demand aggregation policies can result in pooling at the community level and ensure suppliers make a profit (Genus & Nor, 2000). Application of a social shaping perspective draws attention to other factors, including: the skill required to use the technology being introduced, intellectual, social, and human capital, technological curation, the appropriateness of the technology to satisfy local needs, and the price and ease of

access (Genus & Nor, 2000). Legislation could be introduced that is focused on establishment of common electronic portals to facilitate inter-firm collaboration, and support centers to share best practices with regard to E-business strategies (Genus & Nor, 2000).

3.2.6 Examples of Successful Social Shaping

Although Malaysia may be categorized as a developing country, Genus and Nor (2000) noted the population of internet users in Malaysia is remarkably high with more than 30% of the population being internet users (Genus & Nor, 2000). This is a likely result of the Vision 2020 comprehensive public policy on adoption of information technologies. The author considers this proof that shaping policies can make a positive difference in developing countries. Similarly, China effectively used public policy to shape the creation of a 3rd-generation mobile communications standard to forestall domination of the market by foreign companies. Egypt developed technological cultivation with its Ministry of Communications and Information Technology's (MCIT's) policy offering free internet access and a Global Schools Online programme that integrated internet technologies with educational systems to strengthen the existing information infrastructure (Loch, K., Straub, D., & Kamel, S. 2003). Setting up centers to facilitate growing suitable business-level E-commerce strategies and capabilities has been suggested by Genus and Nor (2000).

3.2.7 Dubai: An Indication of how Effective Government Influence can be

Dubai has made major gains toward establishing itself as an E-commerce hub (Al-Rawi, Sabry & Al-Nakeeb, 2008). Through an e-Government project completed in 2002, Dubai brought basic services offered to businesses online. In 2007 Dubai enhanced its data protection law when the Dubai International Financial Centre (DIFC) appointed a Data Protection Commissioner tasked with consolidating international best practices. These efforts have resulted in an impressive increase in E-commerce, as indicated by the increasing number of IT companies

granted licenses to operate in the Dubai Internet City portal. In 2000 only 100 licenses had been granted, which increased to over 500 by 2004, and was last reported as almost 1000 in October 2007 (Al-Rawi, et. al., 2008). E-commerce products and services are appearing in Dubai as well. The first online bookshop complete with secure financial services for a global market space over the internet is operating, and the Dubai e-Government portal now offers services for visitors, residents, and businesses. DHL is implementing a joint effort with Dubai customs authorities for the creation of an electronic customs clearance system to streamline procedures and improve business efficiencies in the United Arab Emirates (Al-Rawi, et. al., 2008).

4 Conclusions and Summary Recommendations

ICT infrastructure products developed in E-commerce are regarded as tools that developing countries can utilize to change their societies in an attempt to improve their economic statuses. Genus and Nors (2000), however, report that the ICTs adopted to bridge the digital divide in developing nations tend to be the subject of technology push “on the assumption that the adoption of ICT infrastructure per se will drive e-business, e-commerce, and economic development” (p. 91). Given businesses in developing countries did not get to influence the design features associated with the technology; it is unlikely this assumption holds true. In fact, economic conditions in developing countries are even deteriorating further due to increased competition from foreign businesses as a result of E-commerce.

The application of the social shaping approach would allow developing countries to leverage public policy decisions to influence how technology evolves in their local market places. Genus and Nor (2000) assert “the future points to the application of social shaping approaches to the analysis of innovations downstream, concerning the manner in which firms and consumers use ICTs” (p. 92). The governments of underdeveloped countries can provide

some assistance by adopting policies and regulations, or even to implement laws, to facilitate development and control of E-commerce infrastructure within their own territories. From a global perspective, however, this would be a piecemeal solution. Some kind of international regulation would therefore be preferred. The United Nations Commission on International Trade Law (UNCITRAL), World Trade Organization (WTO), United Nations Conference on Trade and Development (UNCTAD), World Intellectual Property Organization (WIPO), International Telecommunications Union (ITU), and the Organization for Economic Cooperation and Development (OECD), are examples of international institutions that could also facilitate the dissemination of E-commerce benefits by influencing national laws, regulations, and policies to be conducive to the advancement of E-commerce in developing countries (Kshetri, 2001). Creative legislative solutions are called for, but at the international level.

One approach might be to mirror how US municipalities encourage private investment for making infrastructure improvements. Due to tight US municipal budgets, many local county governments leverage land zoning approvals to entice real estate developers into making road and utility infrastructure improvements. By making the infrastructure improvements surrounding the land parcel they are developing, the developers become eligible for zoning and building permit approvals. Costs are prorated to customers for each finished lot the developer sells. A similar approach could be adopted where external businesses desiring to participate in the market place of developing countries are required to make investments to improve the E-commerce infrastructure position in return for authorizations to conduct business. By integrating approvals to enter the market place with requirements to stand up infrastructure components in government regulated e-portals, the improved E-commerce capabilities could also be leveraged by the businesses within the developing countries, and equal access to E-commerce benefits

would be provided to all businesses. Before the products and services of networking and telecommunications service providers are approved for use, the service providers should be required to reduce the gaps in technology and human infrastructure contextual enablers, and level the competitive playing field.

An international treaty supported by a list of adopting member states would be a good way to ensure adoption of the approach world-wide, and may encourage positive leveraging of E-commerce capabilities that facilitate growth in underdeveloped countries. Once the international law is established, companies wanting to do business in underdeveloped countries would have obligations to make standardized technology improvements to the IT infrastructure first. With the clout of an international treaty and a list of participating nations behind it, such regulatory approaches could cause sweeping improvements and facilitate the realization of E-commerce benefits to businesses in developing countries.

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