Advancing E-commerce Beyond Readiness in a Developing Country: Experiences of Ghanaian Firms

ABSTRACT

This paper identifies factors affecting the assimilation of electronic commerce in Ghana and the solutions that Ghanaian firms have developed. Drawing from the elements of two electronic commerce readiness frameworks, the study analyzes the readiness of Ghana to support the conduct of electronic commerce at the firm-level. The study covers the government, technology, market and culture readiness factors. Findings suggest that social networks, managerial capabilities and government commitment have an attendant effect on adoption and use of tangible resources like electronic commerce applications. The findings imply that future research and practitioner efforts should focus on developing a broader perspective to address electronic commerce challenges encompassing issues such as how firms can advance to more complex forms of e-commerce after initial e-commerce adoption.

Key words: Electronic commerce strategy, social networks, managerial capability, developing country, Ghana

Paper type: Research Paper

INTRODUCTION

The Ghanaian government has made efforts over the last decade to build a 'knowledge-based economy'. A National Information and Communication Technology (ICT) for Accelerated Development policy was introduced in 2003 with the objective of engineering an ICT-led socio-economic development process. Several ICT projects have been set-up with the support of several international donor and UN agencies. These projects include an e-government portal for Ghana supported by International Institute for Communication and Development (IICD) and an ICT Centre which provides training skills to link academia and industry supported by the Governments of India and Ghana. The use of the Internet in Ghana has also seen significant increases since the liberalisation of the telecommunication industry in the 1990's. The country had about 18 Internet users per 1,000 people in 2005 as compared to one Internet user in 1999 (ITU, 2007). In relation to its progress to bridging the digital divide, the ITU/UNCTAD's Digital Opportunity Index ranked Ghana 21st out of 51 African countries surveyed in 2006, improving by four places between 2005 and 2006 (ITU/UNCTAD, 2007).

With the relative progress in ICT development, Ghana seems serious about using ICT as an engine of growth and as a means of diversifying from its traditional major exports, cocoa, gold and timber (Mainsah & Ikezi, 2004). E-commerce can be a potential application of ICTs to achieve this goal. However, the institutional context of Ghana as a developing country has an attendant effect on e-commerce adoption and creation of benefits at the firm-level. The question of concern is whether e-commerce is a practicable in Ghana?

This paper analyses the readiness of the environment to support the conduct of e-commerce at the firm-level. The paper is structured into six sections. The first section is the introduction to the paper. The second section presents a brief overview of e-commerce and develops a research framework which evaluates four readiness factors: government (or policy), technology, market forces and cultural, based on the PERM Model (Molla & Licker, 2005b) and CPT Framework (Bajaj & Leonard, 2004). The third section discusses the research methods used in this research. The fourth and fifth sections present the assessment of the four readiness factors in Ghana and the discussion of findings, respectively. The last section concludes the paper with research and policy implications.

E-COMMERCE – AN OVERVIEW

E-commerce has been defined as "sharing of business information, maintaining business relationships, and conducting business transactions by means of telecommunications networks" (Zwass, 1996). To conceptualise e-commerce from Zwass' definition and for this research, it can be argued that depending on the type of technology involved and the extent of integration into the business processes in the value chain, e-commerce may constitute part of the business processes or the entire processes. It may also embrace several forms of transactions (including information exchange) between businesses (B2B), between customers (C2C), between businesses and customers (B2C) and between government and businesses (G2B) (Fearson & Philip, 1998).

As the nature of market operations and resource strengths differ, it is likely that firms would take different paths in adopting and integrating e-commerce in their business operations. Molla and Licker (2005a), in their Perceived Readiness Model (PERM Model), present a hierarchical model of the functional application of the Internet by firms to create business value. The hierarchical phases of e-commerce adoption are: *no e-commerce, connected e-commerce, static e-commerce, interactive e-commerce, transactive e-commerce, and integrated e-commerce* (Molla & Licker, 2005a, pp. 881). The model has been subsequently used in other studies (Dada, 2006; De'elak, 2006; Lai, Dahui, Wang & Hutchinson, 2006; Tan, Tyler & Manica, 2007). The adoption phases enable the firms with the following e-commerce capabilities:

- With connected e-commerce, the intended e-commerce capability is communication – using email alongside traditional ICT technologies, like fax and telephone, to support information and transactional processes. However, the reach of connected e-commerce is limited to the existing and potential trading partners, suppliers and customers who know the firm's email address and others the firm decides to contact.
- Static e-commerce builds on connected e-commerce and extends the communication capability to an informational capability; where firms can inform trading partners, customers and suppliers of their products and services through its website. This may increase their marketing reach.
- Interactive e-commerce creates an interactional capability, which adds the capability of online interactions and queries between the firm and its customers to the informational capability.
- Transactive e-commerce creates a transactional capability which goes beyond interactional capability to offer transactional services such as an online purchasing capability for customers to purchase products, track orders, and manage their account information.
- Integrated e-commerce creates a transformational capability, where the firm's website is integrated with suppliers, customers, and other back-office systems allowing most business transactions and processes to be conducted electronically.

As firms develop a higher level of e-commerce capability, they gain the opportunity of becoming more visible, deepening their business relationships and forming closer ties with trading partners and customers. They increase the potential of achieving more strategic benefits which impact on their organisational performance. However, the ability of firms, especially in developing countries, to effectively take advantage of e-commerce depends on the existence of requisite national level policy and infrastructure (physical, institutional, financial and technological). These pre-conditions tend to act as constraints to successful e-commerce adoption and implementation (Molla & Licker, 2005b; Sharma & Gupta, 2003; Wresch, 2003). Hence, before touting the potential benefits of e-commerce to firms in developing countries (DCs), it is pertinent to take account of the effect of existing constraints. Can e-commerce be practised in contexts where these constraints seem to be pronounced?

The objective of this research is to evaluate how these pre-conditions mediate the adoption and diffusion of e-commerce in a sub-Saharan country, Ghana.

Pre-conditions to E-commerce Adoption

With respect to the research objective, this kind of research tends not be the first of its kind in a DC context. Extant research on e-commerce adoption in DCs are fairly conceptualised with a number of Information Systems (IS) theories, conceptual frameworks and models which dictate the readiness of the institutional foundations, trade policies, and pressure from competitors as among the multi-prong constraints which firms in DCs have to either overcome or circumvent to adopt e-commerce and create value from it (García-Murillo, 2004; Molla, Taylor & Licker, 2006). These studies have been conducted at the national level (Palmer, 2000; Chen and Ning, 2002), sector/industrial and firm-level (Cloete, Courtney & Fintz, 2002; Grandon & Pearson, 2004).

The studies emphasize that there are complexities of factors which make it challenging for researchers to conceptualize the pre-conditions of e-commerce in DCs with one theoretical model or theory. Recourse to comprehensive models has come from category based approaches that make use of a prescribed set of factors based on previous studies to carry out analysis (Bajaj & Leonard, 2004; Molla & Licker, 2005b; Okoli & Mbarika, 2003). In promoting e-commerce readiness, Okoli and Mbarika (2003) developed a framework to assess e-commerce in sub-Saharan Africa. The study proposed a framework which draws us closer to the consideration of cultural and political issues that influence e-commerce adoption, including the preference of cash transactions over electronic payment systems and the existence of corruption. Bajaj and Leonard (2004) followed up with a similar study evaluating the culture, policy and technology (CPT) dimensions of e-commerce challenges. The authors proposed that the starting point for future research is to explore the inter-relationships between these dimensions within the different types of e-commerce transactions. Understanding these inter-relationships would help in defining practical solutions for the challenges.

However, while the two frameworks bring into focus the external issues that organisations have to contend with in e-commerce adoption, they are quiet silent on the internal organisational pre-requisites. These pre-requisites include technical knowledge, expertise, innovativeness and strategic insight to adopt e-commerce. In this respect the Perceived E-Readiness Model (PERM) Model by Molla and Licker (2005a) comes to rescue. The model tends to embrace the managerial, internal and external contextual issues of e-commerce adoption. It consists of two constructs – Perceived Organisational E-Readiness (POER) and Perceived External E-Readiness (PEER). POER consist of technological factors (organisation's perception, comprehension of e-commerce and its potential benefits); managerial factors (managerial commitment, strategic insight); and organisational factors (organisational resources, business processes). PEER refers to environmental imperative factors: the organisation's assessment and evaluation of its external environment factors (Molla & Licker, 2005b, pp. 879).

Unlike the earlier discussed frameworks, the PERM model has been subject to some scrutiny through empirical studies which lent it some validity (Dada, 2006; De'elak, 2006; Lai et al., 2006; Tan et al., 2007; Lin, Huang & Burn, 2007). These studies surmise that the human, business and technological resources and awareness are the influencing factors at the initial adoption of e-commerce; however, these factors become less important as organisations seek to develop a higher level of e-commerce capability. The environmental factors, managerial commitment and strategic insight or governance model of organisations become more pertinent in e-commerce institutionalisation (Molla & Licker, 2005b). These findings are also shared by previous studies by Kuan and Chau (2001) and Grandon and Pearson (2004). The above perspectives - technological, managerial, organisational and environmental - do interrelate in facilitating or inhibiting e-commerce adoption within organisations in DCs. The PERM Model is, perhaps the only model that currently brings a comprehensive approach to evaluating and understanding the multi-prong challenges of e-commerce adoption and institutionalisation in DCs. However, the PERM model lacks specific attention to cultural and policy variables.   The current research draws on the

elements of both the PERM model and CPT framework to analyse the readiness of Ghana to support the conduct of e-commerce at the firm-level.

RESEARCH METHODOLOGY

Research Framework

The primary electronic communication network being studied in this research is the Internet and its application in B2B and B2C e-commerce. In our attempt to analyse the level of e-commerce assimilation, we adopt four elements from the CPT Framework (Bajaj & Leonard, 2004) and PERM Model (Molla & Licker, 2005b). For each element, we identify and discuss critical issues which have or continue to influence the diffusion of the ICT (Internet) services and the conduct of e-commerce.

The elements are:

- Government-readiness: as in PERM Model and noted as policy in the CPT Framework. It refers to the commitment of government through policy measures and related projects to facilitate diffusion of ICTs and the utilisation of e-commerce (Molla & Licker, 2005b). This influences the confidence of businesses and their propensity to engage in e-commerce related activities (Oxley & Yeung, 2001). We examine the impact of telecommunication policy reforms and ICT policies.
- Technological readiness: noted as a subset of supporting industries readiness in PERM Model and technology in CPT. The ability of firms to engage in e-commerce effectively depends on a number of supporting industries including: availability and support of services from the IT industry. Previous research has argued that, two critical issues – accessibility and affordability – tend to confront access to ICT services in Ghana (Frempong & Stark, 2005: 97) and the conduct of e-commerce in DCs (Molla & Licker, 2005b, pp. 90). We examine these two issues.
- Market forces readiness: as in PERM Model. Market forces readiness refers to the "application and use of e-commerce by a firm's competitor, customers, suppliers and trading partners" (Molla & Licker, 2005b, pp. 90). It is argued that the perceived social pressure to perform or not to perform behaviour – utilising e-commerce – is influenced by market forces; competitors, customers and business trading partners (Dos-Santos & Peffers, 1998). We identify two issues of concern, *the extent of e-commerce adoption* (level of sophistication) and the *extent of usage of e-commerce application* (integration into organisational activities) by the market forces impinging on a firm would influence the adoption and usage of e-commerce in the firm. Hence, we would examine these two issues among Ghanaian firms.
- Cultural readiness: as in CPT Framework. We examine the trust between parties in a transaction and the patterns of communication.

In relation to this framework, we propose two questions:
1. How do these readiness factors (pre-conditions) – government, technology, market and culture – enable or constrain the adoption and usage of e-commerce by Ghanaian firms?
2. How are Ghanaian firms addressing these challenges or taking advantage of the opportunities posed by these factors?

These questions would help us evaluate the readiness of Ghana to support the conduct of e-commerce at the firm-level.

Research Methods

This study intends to understand the dynamics of the readiness factors in the Ghanaian firms' adoption and conduct of e-commerce. There was therefore a strong case for using an exploratory case study method since this supports the research objective set out at the beginning (Yin 2003). In order to get richness of experiences and undertake an in-depth investigation, multiple-case study method was followed (Yin, 2003). In a case study research, there is no universally acceptable number of cases and a case study research could be based on a single case or many cases (Walsham, 1993; Yin, 2003). This is because the validity of the case study has more to do with the "plausibility and cogency of the logical reasoning" (Walsham, 1993:15) and less with the number of cases. In addition, the validity of case studies can be enhanced by the strategic selection of cases rather than their number (De Vaus, 2001). Therefore, this study is based on evidence collected from 10 major cases and other 15 organizations.   .

The data collected consisted of personal interviews with 28 individuals, across 25 different Ghanaian companies, educational institutions and industrial associations involved in e-commerce development in Ghana. This was done in the interest of triangulating data sources. Triangulation provides a unique opportunity to identify inconsistent and contradictory evidences which researchers should analyse and interpret carefully (Mathison, 1988).

Concerning the interviews, organisations selected were obtained from The Ghana Club 100 and referrals from Internet Service Providers (ISPs), academics and ICT graduates from the Ghana-India Kofi Annan Centre of Excellence in ICT. The Ghana Club 100 is an annual compilation of the top 100 companies in Ghana to give recognition to successful enterprise building (GC100, 2004). 35 Ghana Club 100 organisations, covering manufacturing, trading services, and financial sectors, were selected. Only 10 of the 35 organisations responded when contacted. A total of 13 interviews were done across the 10 firms.

15 other organisations, who were not listed in the Ghana Club 100, contributed our remaining 15 interviews. They include 4 Internet Service Providers (ISPs); 4 ICT consultancies; the Ghana Export Promotion Council; 3 non-traditional export firms; the National Communication Authority (NCA) (the regulator of the telecommunication sector); and two academics from two Ghanaian tertiary institutions with expert knowledge on the Ghanaian ICT sector. The representative from NCA and the two academics were interviewed to verify and obtain other perspectives on data obtained from selected firms and ISPs.

The interviews were recorded and transcribed, with copies of transcribed interviews returned to interviewees to check and resolve discrepancies. The interviews were also collaborated with data from documentary materials including past e-commerce project documentation in the selected firms industry reports, verified media accounts and statistical databases. The interview transcription and analysis was done with the aid of ATLAS.ti®software, a qualitative analysis software. The software was used as a data administration and archiving tool for the thematic analysis of the transcribed interviews. Themes from our research framework guided the codification of the text in the transcribed interviewed. The interviews consisted of open-ended questions about the government, technology, market and cultural readiness factors which affect the implementation of electronic commerce in Ghana. Interviews were modified to be relevant to the industry in which the interviewee worked in. Interviewees identified the challenges relevant to their firms and experiences in e-commerce adoption and the ICT sector. Other questions inquired about how they addressed the challenges and suggestions to sustain e-commerce benefits.

E-COMMERCE ASSIMILATION IN GHANA

Government Readiness

We briefly discuss the impact of telecommunication policy reforms and government led ICT initiatives in Ghana.

Telecommunication (Telecom) reforms in Ghana initiated in 1993/94 created a relatively enabling environment for the introduction of new telecom services including licensing four cellular operators and licensing of 46 Internet and public data providers (ISSER, 2003). As of 2001, digital subscriber line technology had been introduced. The Internet penetration rate in the country was 0.15 per a 100 people and only 3 out of 100 Ghanaians owned or had access to a personal computer (ITU, 2007). Most Internet users accessed the Internet through public access points or shared Internet connections – cybercafés, work, and schools. The operations manager of a beverage manufacturing firm which signed up for a dial-up package with a local ISP reflects that,
> "At that time we only had two PCs, one used by the MD and another, shared by the rest of the managers. Only the MD's computer was connected to the Internet. To send an email you had to go to the MD's office and when you receive your emails, you either download them onto diskette or print them out directly".

The few firms, who could afford to have the Internet at the workplace, began to build an informational e-commerce capability after adopting a connected form of e-commerce. These firms had no IT managers and had to rely on either their ISPs who also doubled as website hosts and designers or other young IT enthusiasts in the country. The director of a garment manufacturing firm intimated that the first website of his firm was designed in 1999 by the high school student and the IT tutor of the student. He had a prior social-business relationship with the student to teach him Microsoft Windows 1995. This relationship led to development of informational e-commerce capabilities in the firm. We identify firms using social-business networks to access the few resources that were available. Other firms turned to online Ghanaian business directories to create an online presence.

In addition, government set up specific ICT initiatives for firms in non-traditional exporter sector, a key sector to Ghana's export trade. An information centre was established to provide services including trade information, market access facilitation, and basic Internet training and subsidised access for exporters. An exporter interviewed in this research intimated the choice of using the centre's Internet services over the cybercafés due to the convenience and other related 'ready' business services offered by the centre. Another exporter also commended the addition of other advisory services to Internet services,
> "The Internet has done its work in broadening the market, however there are key issues related to exports and product standards which differs across the various countries".

Though the Internet had aided in initiating export trade enquiries through providing information on the firm's website and email communication, it was not enough to facilitate the export process. A single focus on the technology solution is not enough; hence this comprehensive approach by government is a step in right direction.

In summary, we note that creating a favourable ICT environment is healthy or has a positive impact on ICT infrastructure development at the firm-level. These efforts of the Ghanaian government are suggestive that, an enabling policy environment is an essential resource to the diffusion of ICTs and related services. Hence, we identify the first lesson:

Lesson 1: *Government readiness to address resource-poverty in DCs context has an attendant effect on the diffusion of ICT and related services.*

However, we also argue that government-led efforts (readiness) tend to have no direct effect on the extent of usage of ICT infrastructure and benefits obtained at the firm-level. While government efforts may have an impact on ICT diffusion they tend to have no impact on the usage and benefits creation which can further potentially influence the contextual resource poverty. The findings suggest that DC governments should integrate ICT infrastructure development with business advisory services which will help firms address the other non-technology challenges associated with e-commerce adoption.

Technological Readiness

We examine two critical issues – accessibility and affordability – which confront the access to ICT services and the conduct of e-commerce. Internet enabled/supported services lie not only in the physical availability but also in its affordability, - *the ability for the customer to pay for the service*.

With the liberalisation of the sector, government efforts in relation to policy contributed to the increase in Internet penetration and the upsurge of several IT-related services in the sector. As of 2004 Internet Service Providers (ISPs) totalled to about 140. Though the number of ISPs increased to 151 in March 2005, only 27 were operating (NCA, 2005). Contributory reasons for the non-performance or inactivity of some of the ISPs is that, first, the target market is relatively dominated by early entrants. These early entrants either owned the existing infrastructure (network of fixed lines) like Ghana Telecom or were able to establish relatively *favourable* contractual agreements with GT to use existing infrastructure and also acquire supporting infrastructure to compete with GT and/or expand into other regions where GT was yet to provide Internet services - NCS, Africa Online Ghana and Internet Ghana.

Second, the target market tends to be limited because of affordability and accessibility. The critical limiting factor on household access to the Internet is the investment involved. To set up household Internet access, it cost a total minimum of US$260 for a second-hand computer (with a modem) and one month household access. At public access points, it costs an average of US$1.30 to browse for an hour in a cybercafé. With a daily minimum wage of US$2 (Mustapha, 2007), this means that Internet access is relatively expensive for a majority of Ghanaians and for businesses.

In addressing these challenges, some ISPs have developed innovative business strategies that focus on differentiating their value offering and pricing to correspond to the different segments in their target market. These strategies also have an implication on the type of technical infrastructure adopted and used by the firms. First, some new ISPs have had to differentiate themselves by bypassing the use of existing infrastructure and introducing wireless based technologies like radio, hot spots, and WIMAX to provide Internet services – e.g. Zipnet from Broadband Home Ltd. These firms tend to respond to a set of clientele who are prepared to pay for reliability and on-time accessibility. Second, other entrants piggyback on GT's existing infrastructure and differentiate their services by price. These ISPs offered prepaid dial-up Internet access through existing fixed lines – e.g. Busy Internet and Access1513. Users could either buy a prepaid card or make payments through their mobile phones or at Internet Cafés. The trade off tends to be advantage of on time accessibility, privacy and convenience to the Internet user.

Third, in 2005, mobile service providers began to provide Internet services through mobile phones and wireless USB-modems, which used SIM-cards. According to the Customer Service Manager of a mobile wireless Internet service provider, patronage to their services has been from the growing percentage of laptop owners, and tourists seeking on time accessibility, reliability, privacy and

convenience. Three firms interviewed in this research also found this to be an affordable and manageable solution to frequent 'downtimes' of fixed lines and power outages.

The business strategies employed by these ISPs include the introduction of lower-priced product and service lines; the focus on value-added services for specific target markets; and the differentiation of products with new value-added features. These strategies tend to reflect the three generic strategies for achieving competitive advantage in an industry – cost leadership, focus and differentiation – as purported by Porter (1985). This is also a characteristic of competitive strategies employed by ISPs in the ICT sectors of developed countries like UK. However, within the context of a developing country like Ghana, the strategies tend not to be primarily (and/or initially) driven by competition in the ICT sector, but more of the response to the resource-poverty in the country. One IT consultant and ISP owner commented that,

> "In delivering Internet services, ISPs have to contend with the issue of the target market's affordability and accessibility. These firms buy Internet data from GT and other foreign providers usually in Europe and USA and decide on the *appropriate means* of delivering them. At a subscription rate between US$2,000 and US$5,000 per month, the *appropriate means* entails adopting the right infrastructure and business strategy to meet the needs of the target market while making enough profit to sustain the business".

Thus, while being a constraint, the resource poverty partly acts as the precursor for these Ghanaian firms to innovative, seek new business strategies, and/or adopt and introduce other technologies that enable them to circumvent the constraints of their context to increase the accessibility of the Internet and related services while generating business value. We note that, *firms in resource-poor environments not only use resources in a way that seeks to internally compensate for resource poverty but also act to try to change the resource-poor nature of the environments in which they work.* We may not be able to assess whether this is a conscious or intentional action of these firms, however, we do observe efforts in adopting business strategies which result in an impact on the resource poverty in Ghana.

On a related point, it has been noted that this growing ICT business scene in Ghana has been supported by a small but active population of Ghanaian expatriates returning to Ghana with IT-business knowledge from developed regions like the USA and Europe (Bridges.org, 2004). This phenomenon of managers (as IT entrepreneurs) acquiring knowledge and expertise from developed countries was also noted among the ICT consultancies, – BroadbandHome, I-Net Ghana and Amourest Consult, – interviewed in this research. It emphasises the impact of managerial capabilities on how these firms develop innovative strategies and orient resources to address their resource constraints. However, the key question is how managerial capabilities are used alongside other resources to facilitate e-commerce adoption and create related benefits.

We identify the second lesson:
Lesson 2: *Firms with the requisite managerial capabilities are able to develop innovative resource strategies which enable them to circumvent or address their resource constraints while creating business value.*

In relation to the earlier discussion on the diffusion of ICTs and related services, we can say in reference to this discussion that,
Lesson 3: *In resource poor contexts, ICTs diffuse along the path of least cost of adoption, which stems from a complex interaction of global, national and firm-level resources.*

Market Forces Readiness

We identify two issues of concern, *the extent of e-commerce adoption* (level of sophistication) and the *extent of usage of e-commerce application* (integration into organisational activities) by the market forces impinging on a firm would influence the adoption and usage of e-commerce in the firm. Hence, we would examine these two issues among Ghanaian firms.

First, consider the extent of e-commerce adoption. The major ICTs being used by firms for e-commerce are the Internet for communication through email and for creating an online presence through an organisational website. According to one local ICT consultancy interviewed, in registering an online domain address, most firms are more interested in the private or firm email addresses associated with the domain addresses than in hosting a website on the domain address. A similar finding was found in Rockfield Consult, a re-seller of computers and office equipment. The firm communicated and maintained business relationships with suppliers in USA, UK and India through email for five years before developing an organisational website.

This characteristic use of email tends to relate to the findings in previous research which emphasise email as the pre-dominant e-commerce application in e-commerce transactions in DCs. These applications contribute to an increase in revenues and profits by reducing communication – telephone – costs (ITC, 2003; Moodley & Morris, 2004). Nonetheless, in the Ghanaian context, Ghanaians consider building social networks as being critical to opening business opportunities and sustaining business relationships (USCS, 2005, pp. 10). Hence, the technology with the least cost of maintaining communication with global trading partners becomes an incentive to adoption. Thus, with a further emphasis, *e-commerce applications tend to diffuse along the path of least cost of adoption*, from email to websites.

Second, consider the extent of usage of e-commerce applications. There exist a dominance of informational websites and a few attempts at providing interactive to some transactional services. One ICT consultancy explained that,

> "Websites in this part of the world are not transactional, they are mostly used for branding, image promotion and information provision. We don't have the supporting systems for transactional websites. Hence, the firms do not put much value to websites since the results are not apparently immediate. Additionally, the switching costs are low; many firms do change their IT solution partners as soon as they fail to deliver or get disappointed about their services. That is the major challenge the firms face, the market (IT sector) is different here in Ghana".

The lack of an online payment system is a contributory factor to the lack of the provision of full transactional services online. It affects the rollout of other related e-commerce services and applications. There is also the issue of low usage of adopted e-commerce applications, which also affects benefits achieved and hence the propensity to adopt advanced forms of e-commerce. Another ICT consultant added that,

> "Most firms just create their websites and forget about them – they are usually not prepared to make any further investments after the website is developed and it is even quite difficult to get them to renew their contracts for the domain name and web hosting. Hence, we are not in the position to offer any value-added services".

It tends to be that most firms tend to be more focused on the social reputation and image of having a 'flashy' website instead of assessing strategic contribution of the website to their performance. It is seen as an *accomplished* project, shelved and not frequently updated. A common characteristic of these firms is the fact that the website development was outsourced and designed with little supervision from the firm and/or the firm is provided with a limited functionality for updating the website. A Financial Director of a Ghana Club 100 pipe-manufacturing firm commented that,

"I don't remember the last time I visited the website. It was designed by a friend's IT consultancy firm, but I have not used the website since it was designed. What I use is email to communicate with suppliers, potential customers and other employees".

We identify that because of the internal resource poverty in firms, firms tend to rely on external resources – vendors and consultants – to implement e-commerce projects. However, though consultants can play an important role in the such IS development projects, they may not be committed to implementation results; thus firms that fail to effectively manage these consultants and vendors may end up achieving less e-commerce benefits in the long term and also fail to develop or increase their extent of adoption. DC firms should, therefore, understand their motives for engaging consultants; consultants should be used to supplement and not replace internal resources (Boateng & Hinson, 2008). The ability to do so effectively lies in the internal managerial competence available. Firms which have staff with requisite IT-business orientation, have a greater propensity to engage in e-commerce activities and integrate it into business activities.

In summary, we identify that e-commerce readiness of the business networks of a firm tend to either constrain or relatively determine the extent of adoption and usage of e-commerce within a firm. In addition, the intangible resources such as social networks, reputation and image influence type of technologies adopted and extent of usage. Perhaps, these intangible resources or social-business networks are the immediate areas where value is demanded or expected; hence ICT applications are adopted to reinforce them.

The above discussion is suggestive of the fourth lesson:
Lesson 4: *Social networks, as intangible resources, tend to play complementary efforts in adoption and use of tangible resources like e-commerce applications.*

Cultural Readiness

In relating culture with e-commerce adoption, we adopt Hofstede's concept of individualism (Hofstede, 1985) to examine the patterns of communication. Individualism refers to the degree to which people prefer to act as individuals rather than group members. Countries with low degree of individualism include West African countries like Ghana. These countries have rich interpersonal communication cultures. In this study we found that, Ghanaians tend to feel more comfortable to use something which is being used by the groups they are associated with or recommended by the groups. This is very evident in the fact the most popular Ghanaian websites are social news websites – www.ghanaweb.com, www.myjoyonline.com and www.ghanatoday.com. These websites report news on a diversity of topics including politics, business, entertainment and classifieds. They are sources of news on Ghana to many Ghanaians living in and outside Ghana. Some of these websites are associated with radio stations and provide live streaming of their radio programmes. They also provide email functionality and chat rooms to contribute to shows and discussions. One of the website managers of Ghana Today comments that,
> "We won an award for best Ghanaian news website in 2005 by building the website to reflect basic social needs for news, entertainment and gossip and in manner in which the user can participate".

GhanaToday is aimed at Ghanaians in Ghana and those in the Diaspora especially in Netherlands and UK. The website is managed by a team of Ghanaian web developers in Netherlands, where the website is hosted, and in Ghana. They claim to have up to 20,000 listeners a day for its streaming radio service and seek to add the video streaming functionality. Revenue is generated particularly through adverts on the websites. These websites tend to act as communities of interest built around the social need of Ghanaians for news and entertainment. Further they also draw considerable Internet traffic and have become key online advertising avenues for Ghanaian firms. The manager

of an automobile firm interviewed claimed that four of the nine cars it sold during its first year of operation online were sold through Ghanaweb. The firm currently has its own website where its cars are advertised.

As a result, building Internet/e-commerce applications around social networks becomes important in a developing context like Ghana. This reiterates our lessons on the relationship between social networks and the diffusion of e-commerce applications. While these resources tend to complement a firm's efforts in developing e-commerce capabilities, they are also reinforced by these e-commerce capabilities. We may therefore say that,

Lessons 5: *Social networks, as pre-conditions for trust building in online transactions, form part of the medium (process) and the outcome of developing e-commerce capabilities.*

DISCCUSION OF FINDINGS

The findings in the previous section lend the understanding that there are a considerable number of challenges to the implementation of e-commerce in organisations, namely: limited household penetration of the Internet (accessibility and affordability); lack of an online payment system; and collective culture. These challenges tend to stem or constrain e-commerce initiatives and thereby influence the extent of e-commerce adoption and institutionalization in firms and the potential outcome – in terms of e-commerce benefits and the impact on socio-economic development. Though these challenges exist, afore-mentioned accounts of e-commerce in Ghana demonstrate DC firms using accessible resources – internally within the firm and, externally in the nation and/or abroad – to address and circumvent the constraints of their context and realise e-commerce benefits.

IT-business knowledge of top management; unique business relationships and partnerships which offer resource complementarities; and the use of social capital and networks to innovate e-commerce applications are among the critical internal or firm-specific resources identified in this paper. The external resources include the government's readiness in creating an enabling environment through policy and ICT infrastructure; and the accessible global IS resources. These resources tend to be consistent with the constructs of conclusions of Molla and Licker (2005b) Kuan and Chau (2001), Wresch (2003), Grandon and Pearson (2004) and Xu, Zhu and Gibbs, (2004). However, it is not just about having these resources, but the manner in which they are managed and deployed in the firm is what counts. We identified five lessons which offer insight into how DC firms are developing, managing and deploying these resources to navigate the constraints of their context to adopt e-commerce and achieve its potential related benefits:
1. *Government readiness to address resource-poverty in the DC context has an attendant effect on the diffusion of ICTs and related services.*
2. *In resource-poor contexts, ICTs diffuse along the path of least cost of adoption, which stems from a complex interaction of global, national and firm-level resources.*
3. *Firms with the requisite managerial capabilities are able to develop innovative resource strategies which enable them to circumvent or address their resource constraints while creating business value.*
4. *Social networks, as intangible resources, tend to play complementary efforts in adoption and use of tangible resources like e-commerce applications.*
5. *Social networks as pre-conditions for trust building in online transactions, form part of the medium (process) and the outcome of developing e-commerce capabilities.*

These findings tend to suggest that in resource-poor contexts like developing countries, first, ICTs diffuse along the path of least cost of adoption which may occur through the substitution of global information systems (IS) resources for local IS resources and/or the use of social networks and relationships to access the few IS resources that are locally available. This finding is consistent with

other the reported accounts of websites which sell 'cultural capital products' online, like Ethiogift.com (Ethiopia) and Munshigi.com (Bangladesh) (UNCTAD, 2001). Other initial e-commerce efforts of DC firms in Ghana, Tanzania, and Kenya have also been characterised by their use of web-hosting services abroad to bypass local web service weaknesses (Wresch, 2003). The ability of a DC firm to determine the path of least cost of adoption of e-commerce technologies largely lies in the managerial capabilities accessible to the firm. Firms that are able to develop an intimate or direct interaction between managerial capabilities and e-commerce capability development processes are more likely to influence usage. Such interaction may offer firms the opportunity to achieve benefits of more strategic value.

Second, social networks, trust and credibility as intangible resources play a critical role in the manner in which firms use IS to develop and use e-commerce capabilities, hence the benefits that would be obtained. Previous studies have emphasised that 'physical' interpersonal relationships tend to influence the quality of electronic exchanges and transactions – in some situations the electronic transactions have been confined to only pre-existing 'physical' business relationships (Kraut, Steinfield, Chan, Butler & Hoag, 1999). Thus, firms that are able to create a strategic fit between these set of resources are more likely to develop other resources which are more socially complex and have a greater influence on the extent of adoption and usage of e-commerce within the firms. Wade and Hulland (2004) in a theoretical discussion on IS resources and e-commerce, proposed that future research should examine these complementarities: whether IS resources (like IS infrastructure and technical skills which have gained much focus in the IS literature), must interact with other constructs – non-IS resources (like social networks, trust, firm credibility/reputation and brand) – to create e-commerce benefits. This finding is, perhaps, a preliminary answer to this question. These non-IS resources form part of the medium and outcome of e-commerce capability development processes and thus suggest that IS resources interact directly and indirectly with intangible resources to create e-commerce benefits.

Third, the question asking how firms develop a strategic fit between resources to influence e-commerce tends to be the starting point of future research. The focus is to understand the processes through which resources available to firms or acquired by them are developed, combined, and configured in manner which enable these firms to achieve e-commerce benefits amidst the constraints of their context. We suggest that research on e-commerce in DCs from a strategic perspective may offer some answers to understanding this complex interaction between resources and e-commerce capabilities.

CONCLUSION

The objective of this paper was to analyse whether the organisational use of e-commerce is a practical reality in Ghana. In answering this question, we analysed the readiness of the environment to support the conduct of e-commerce at the firm-level. Though these challenges exist, there are examples of how the readiness of the government promotes and supports ICT diffusion, and firm-level innovations stemming from managerial capabilities. Thus, the answer to this chapter's question is, 'Yes'; e-commerce is a practical reality for Ghanaian firms, and for that matter Ghana. However, the next question is what can Ghanaian firms do to take advantage of these government efforts and their relatively limited resources to create and sustain e-commerce benefits?

Relatively, each of the readiness factors discussed above can form part of the resources which can be utilised by a firm to create e-commerce capabilities. However, as earlier argued it is not just about having these resources, but the manner in which they are integrated to develop e-commerce capabilities in the firm than counts. For this, we argue that theories from strategic management may provide an opportunity to investigate how DC firms develop firm-specific capabilities within their volatile environment and thereby identify the process or generate a framework that other DCs firms

can use to develop e-commerce capabilities to create and sustain their benefits. Future research may provide a stronger sense of size and strength of some of the relationships discussed and lessons learnt.

In terms of policy, we note that creating a favourable ICT environment is healthy or has a positive impact on ICT infrastructure development at the firm-level. However, the question we ask is how can government collaborate with firms to increase the extent of usage and perhaps the benefits obtained? The findings suggest that the development of comprehensive approaches which go beyond technology-based solutions to address e-commerce challenges. This is consistent with earlier arguments on the need to understand the inter-relationships between the dimensions of e-commerce challenges in order to define practical solution (Bajaj and Leonard, 2004). An enabling environment is required not only for initial adoption, but for institutionalising e-commerce and sustaining value created.

Finally the research has some limitations. Ideally, more case studies are desirable for greater reliability of the findings. Future research using more case studies is therefore needed to test if the results obtained here are replicable. In addition, because of the qualitative nature of the study, most of the lessons drawn out of the study could only be considered as propositions which require further empirical validation. The study is also conducted within the Ghanaian context only. A comparative analysis of cases from two or more markets can identify additional insights. One of the findings in this study indicates the importance of social networks as important mediators. This requires further validation as the result might have been influenced by the business size of the selected cases; that is, most can be classified as small and medium size. The research findings in this study constitute a contribution to guide such further studies.

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