

## Association for Information Systems AIS Electronic Library (AISeL)

---

ECIS 2010 Proceedings

European Conference on Information Systems  
(ECIS)

---

2010

# A Structural View of E-Commerce in SMES in Least Developing Countries

Salah Kabanda

*University of Cape Town, salah.kabanda@uct.ac.za*

Irwin Brown

*University of Cape Town, Irwin.Brown@uct.ac.za*

Follow this and additional works at: <http://aisel.aisnet.org/ecis2010>

---

### Recommended Citation

Kabanda, Salah and Brown, Irwin, "A Structural View of E-Commerce in SMES in Least Developing Countries" (2010). *ECIS 2010 Proceedings*. 136.

<http://aisel.aisnet.org/ecis2010/136>

This material is brought to you by the European Conference on Information Systems (ECIS) at AIS Electronic Library (AISeL). It has been accepted for inclusion in ECIS 2010 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact [elibrary@aisnet.org](mailto:elibrary@aisnet.org).



**A STRUCTURATIONAL VIEW OF E-COMMERCE IN SMES IN  
LEAST DEVELOPING COUNTRIES**

Journal:	<i>18th European Conference on Information Systems</i>
Manuscript ID:	ECIS2010-0253.R1
Submission Type:	Research Paper
Keyword:	Cross-cultural issues/cultural differences, E-business, Electronic commerce, Structural modeling



## A STRUCTURATIONAL VIEW OF E-COMMERCE IN SMES IN LEAST DEVELOPING COUNTRIES

Kabanda Salah, University of Cape Town, Private Bag X3, Rondebosch 7701, South Africa,  
salah.kabanda@uct.ac.za

Brown Irwin, University of Cape Town, Private Bag X3, Rondebosch 7701, South Africa,  
irwin.brown@uct.ac.za

### Abstract

*E-Commerce studies in small and medium enterprises (SMEs) in Least Developing Countries (LDCs) have been labelled as being obscure and characterised by a list of challenges which if, not remedied, will continue to plague these countries. Many LCD studies employ research methodologies that are quantitative and techno-centric in nature. However, although E-Commerce is a technology, it is embedded within a given context – that of a least developing country that is characterised by specific contextual challenges different from both developing and developed countries. Against this background, investigation of E-Commerce in SMEs in LDCs requires initial understanding of structural properties inherent in the specific context and thereafter in the technology. This paper proposes a conceptual framework for examining the interaction of structural properties of E-Commerce in SMEs in LDCs. The framework integrates the structuration theory concepts with factors drawn from E-Commerce studies in SMEs in LDC.*

*Keywords: E-Commerce, Structuration theory, Least Developing Countries (LDC), SMEs*

## 1 INTRODUCTION

Electronic Commerce (E-Commerce) has been identified as one of four key areas in Africa, and in Least Developing Countries (LDCs) in particular, where it can best advance social and economic development (Esselaar and Miller 2001). Least Developing Countries (LDCs) are a category of states that are deemed highly disadvantaged in their development process and face the risk of failing to come out of poverty (UNCTAD 2002). In order to come out of poverty, LDCs are encouraged to adopt and use ICT and E-Commerce related technologies. Yet E-Commerce is still not being assimilated amongst LDCs' Small and Medium Enterprises (SMEs) and even larger organisations. There have been several reasons provided for this lack of adoption: low total factor productivity; inadequate skills and infrastructure related problems; one-sided export structure based on raw material and labour resources; colonial heritage and its repercussions; and geographic isolation (Wohlmuth et al. 2004).

Despite awareness of these problems, E-Commerce related studies in LDCs are limited. Where there have been studies, they are often obscure, producing results that are too generic in nature (Nielinger 2003). They usually present E-Commerce adoption challenges, without providing underlying reasons that shape and create these challenges; or why certain moves (which interplay with the acceptance of E-Commerce for example) are more likely to occur than others. These studies have largely paid attention to the technology aspect at the expense of a plethora of numerous other factors including the social context. Technology is just one of the many factors to consider when introducing E-Commerce to a society that attaches immense value to traditional ways of doing business – such as face to face eye contact, a handshake, and chatting (Ba, Whinston and Zhang 2002). For E-Commerce to form part of this context, LDC social structural properties will have to be well understood and documented to ensure successful outcomes (Tan and Sedera 2007). Understanding structural properties necessitates the ability to understand the meaning individuals attach to the technology and how they use it (Prasad and Heales 2008). This understanding requires the investigation of the interaction that exists between actors, technology and social context. This interaction leads to what Giddens (1984) calls structures - the properties which make it possible for discernibly similar social practices to exist across varying spans of time and space and which lend them a systemic form (Rose 1998). This paper presents a conceptual framework for investigating how E-Commerce shapes and is shaped by social structures employed by SMEs in LDCs and the social context in which SMEs operates. This paper explores this interactivity using structuration theory.

The rest of the paper is structured as follows: Section 2 and 3 provide literature on SMEs and E-Commerce developments in developing countries including LDCs. Section 4 presents the structuration theory that provides the underpinning theory for the conceptual framework. Section 5 maps the E-Commerce adoption literature identified to the structuration theory. Section 6 discusses the conceptual framework and its implications for the study of E-Commerce in LDCs. Finally, in Section 7 we draw conclusions on the contributions of the paper and future research directions.

## 2 SME'S AND E-COMMERCE IN LDC'S

Small and Medium Enterprises (SMEs) have been defined differently, using different parameters in different countries. This study adopts the definition of SMEs as postulated by the SMEs Development Policy of Tanzania using the size criterion depending only on employment. Tanzania is one of the LDCs state in the East African region. The policy classifies SMEs as comprising of 5-49 employees and 50-99 employees respectively (The United Republic of Tanzania Ministry Of Industry and Trade 2002). In LDCs, SMEs account for a significant share of production and employment and are directly connected to poverty (one of the characteristics of LDCs) alleviation. They have become the vanguard of many countries' private sector and contribute to the development of the local economies (Wolf 2001). However, for them to continue their efforts and remain competitive in this digital era, they need to acquire and utilise Internet-related technologies such as those used for E-Commerce. This paper

defines E-Commerce as any use of ICT by a business to connect with business partners (specifically customers and suppliers) electronically to enhance business efficiency through lowering of transaction and communication costs. The option of defining E-Commerce in this way is because “businesses in developing countries may be able to reap significant benefits from E-Commerce defined more broadly even when legal, regulatory or infrastructure constraints may make it difficult or impossible for them to actually transact business electronically” (Payne 2002). Although the advantages accrued from E-Commerce are well documented, studies of E-Commerce in LDCs are limited. Most developing country studies emanate from countries such as South Africa and China which are regarded as middle income countries compared to LDCs such as Tanzania. In addition, these studies do not present accurate context-specific interpretations of LDCs in Africa. Challenges and contextual experiences in LDCs differ significantly from other developing countries and these differences need to be taken into account. To this end, a more context specific framework is required to address E-Commerce studies in LDCs.

This paper presents a conceptual framework drawn from a series of studies in literature. Most of the grounding work emanates from E-Commerce literature in developing countries as presented, for example, by Molla and Licker (2005). They note that E-Commerce in developing countries is classed into six phases depending on the extent or level of adoption: no E-Commerce; connected E-Commerce (e.g. basic email); static E-Commerce (e.g., simple website); interactive E-Commerce; transactive E-Commerce; and integrated E-Commerce. With this classification, they note that E-Commerce has not been favourably received in LDCs with most SMEs in either the “no E-Commerce” stage or having just moved to the “static E-Commerce” stage. The next section highlights developments in the study of e-commerce adoption in developing countries.

### **3 E-COMMERCE ADOPTION IN DEVELOPING COUNTRIES**

Given the impact SMEs have on national development, and the need for them to utilise technology to participate in the global digital era, researchers have embarked on the quest for understanding factors affecting the adoption of technology by SMEs and consumers in developing countries. The results of the investigation have led to various dominant perspectives: the organizational imperative; innovation imperative; and environmental imperative respectively. For the organisational imperative, in SMEs the focus is on firm and owner characteristics. Whilst firm characteristics investigate factors such as specialization, functional differentiation, formalization, centralization, readiness, risk taking propensity, and innovativeness; owner characteristics seek to explain innovation adoption based on the innovativeness attributes of SME owners, their commitment to the innovation and IT background (Iskander et al 2001). An analysis of these factors leads to an evaluation of the degree to which an organization has the awareness, business resources, owner support and governance, human resource, technology resources and ICT expertise to adopt E-Commerce (Molla and Licker 2005).

Environmental imperatives describe how external influences affect the motivations or barriers to adopt E-Commerce. These influences include pressure from trading partners; customer and potential customer demand for E-Commerce; dependency on other firms already using E-commerce; and other relevant change agents such as external vendors trying to sell an E-Commerce technology to the firm, or government and industry bodies trying to initiate growth in the adoption of E-Commerce (Grandon and Pearson 2004). An investigation of external factors leads to an indication of (i) market force readiness; (ii) government readiness; (iii) supporting industries readiness and (iv) competitive pressure to adopt E-commerce faced by organisations (Molla and Licker, 2005).

Teo et al.'s, (2004) innovation characteristics can be added to these two perspectives. Innovation is portrayed as an idea, material, or artifact perceived to be new by the relevant unit of adoption (Agarwal and Prasad 1997). Innovation characteristics are usually analysed using technological models, such as diffusion of innovation (DOI) and technology acceptance (TAM) which explain why users accept or reject information technology or new innovations. In the case of SMEs, it is the owner's perceptions of these characteristics that are deemed to impact on E-commerce adoption.

Innovation characteristics include relative advantage, compatibility, perceived costs and the image E-commerce usage portrays.

Integrating these studies yields a more comprehensive view of factors influencing E-Commerce adoption by SMEs as defined in Table 1. The factors in Table 1 alone do not explain how E-Commerce shapes and is shaped by social structures employed by SMEs and the social context in which the SME operates. The table simply presents factors that may influence SMEs to adopt E-Commerce, but fail to highlight how these factors shape and are shaped by structural properties inherent in the environment in which SMEs operate. Understanding structural properties necessitates the ability to understand the meaning individuals attach to E-Commerce and how they intend or are using it (Prasad and Heales 2008). We propose to use structuration theory to explore this interaction between E-Commerce and SMEs in LDCs.

Perceived Organizational Factors	
Awareness (Molla & Licker, 2005)	Represents perceptions of E-Commerce technologies, business models, requirements, benefits, threats and projections of future
Business Resources (Molla & Licker 2005)	Includes the openness of organizational communication; risk taking behaviour, existing business relationships, and funding for e-commerce
Owner Support (Molla & Licker, 2005; Teo et al. 2004)	Refers to having a clear-cut E-Commerce vision and strategy championed by the SME owner
Governance (Molla & Licker, 2005)	The strategic, tactical and operational model SMEs put in place to govern their business and E-Commerce initiatives
Human Resources (Molla & Licker 2005)	Refers to the availability (accessibility) of employees with adequate experience and exposure to ICT and other skills needed for e-commerce
ICT Expertise (Teo et al. 2004)	Refers to whether an SME has sufficient expertise (knowledge or experience) to implement and maintain E-Commerce or not.
Technology Resources (Molla & Licker 2005)	Refers to the ICT base of an SME, the extent of computerization, existing systems and experience with network based applications
Perceived External Factors	
Market forces (Molla & Licker 2005)	The assessment that an SME's business partners such as customers and suppliers allow for electronic conduct of business
Government (Molla & Licker 2005)	SME's assessment of the preparation of the nation state and its various institutions to promote, support, facilitate and regulate E-Commerce
Supporting Industries (Molla & Licker 2005)	Refers to the assessment of the presence, development, service level and cost structure of support-giving institutions
Competitive Pressure (Teo et al. 2004, Premkumar & Roberts 1999)	Refers to the nature of competition among potential adopting firms, that is, pressure to conform to industry standards or to competitor's levels
Perceived Innovation Factors	
Relative Advantage (Teo et al. 2004, Premkumar & Roberts 1999)	Degree to which the technology or the innovation is perceived to be better and will enhance the SME's performance.
Compatibility (Teo et al. 2004, Grandon & Pearson 2004)	The innovation's consistency with the SME's existing strategic objectives, values and norms, past experiences and needs.
Perceived Cost (Teo et al. 2004)	Benefits from the adoption of an innovation - commensurate with the costs associated with the adoption of the innovation
Image (Agarwal & Prasad 1997)	Captures the perception that using an innovation will contribute to enhancing the social status of a potential adopter.

Table 1: E-Commerce Adoption Factors

## 4 STRUCTURATION THEORY

### 4.1 Theory Overview

Structuration theory was developed by Giddens (1984) to study social phenomena with the purpose of understanding how social institutions are produced and re-produced over time. These social institutions are a result of individuals whose actions simultaneously condition and are conditioned by structural properties in the social contexts. The produced actions tend to determine how the social system works leading to social practices that are routinized and recursive (Brooks 1997).

In structuration theory, structures consist of three dimensions: signification, domination, and legitimation as depicted in Figure 1. Structures of signification describe prevailing institutional structures that yield meaning and understanding. These structures when applied, guide the way an individual behaves. Structures of legitimation are intended to validate specific behaviours, making sure that the actions of individuals are consistent with the goals and values of the organisation. Structures of domination regulate individual actions and behaviours so as to avoid possible sanctions associated with violations of the organisational rules and way of doing things (Chatterjee et al 2002).

These dimensions are communicated through modalities of interpretive schemes, facilities, and norms (Jones and Karsten 2008). The facilities or resources are structured properties of social systems, drawn on and reproduced by knowledgeable individuals during their series of interactions. They are of two kinds: the authoritative resources, derived from the co-ordination of the activity of human agents; and allocative resources, derived from control of material products or aspects of the natural world (Giddens 1984). These resources become the basis for acquiring individual power and once legitimized, contribute to structures of domination. Norms are defined as techniques or generalizable procedures applied in the enactment/reproduction of social practices (Jones and Karsten 2008). They tend to constrain behaviour within acceptable limits and emerge from patterns of recurrent interaction between human agents based on personal notions of what is sanctioned (Pozzebon and Pinsonneault 2001).

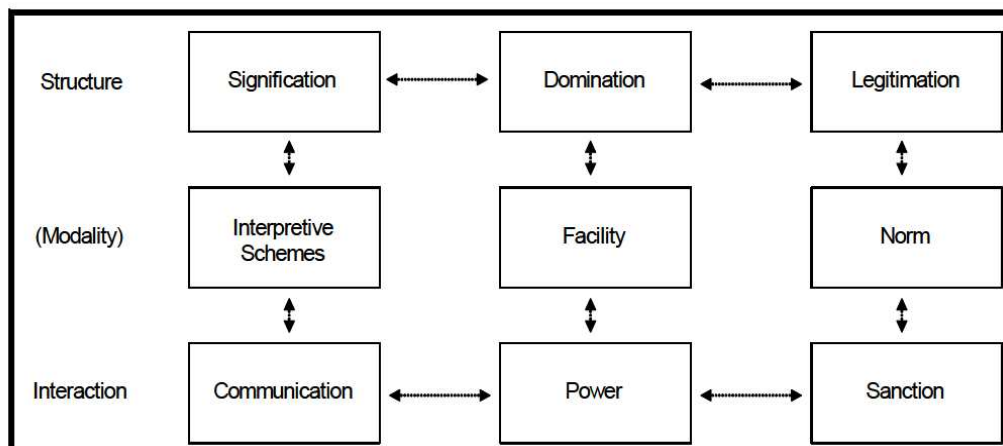


Figure 1: The Dimensions of the Duality of Structure (adapted from Giddens 1984, p. 29)

### 4.2 Rationale for the theory in LDCs

Crenshaw and Robinson (2006) believe that variables such as the nature of the innovation, the mode of communication used, the variety of networks and links used to transmit the innovation, and the characteristics of the receiving society are important features in either aiding or hindering the spread of an innovation. They highlight that past research has concentrated on the innovation and the characteristics of receiving societies (i.e., structural conduciveness). However, these studies have concentrated in economies where structural conduciveness is significantly different from LDCs as

earlier indicated. An emphasis on structural conduciveness specifically for LDCs cannot be ignored because firstly “certain internal traits, like the existence of suitable markets for investment and output, are necessary before a nation launches toward the take-off’ stage of industrialization”; (Crenshaw and Robinson 2006); and secondly, the biggest challenge for enterprises in LDCs is not the technology aspect but the business culture and practice changes required to ensure successful adoption (UNCTAD, 2001). Thus the analysis of social institutions is an essential step in explaining E-Commerce adoption and non adoption in LDCs. Social institutions encompass culture, practices and ways of behaviour which shape the way actors perceive and attach meaning to the technology. That is, actors use different meanings that they attach to the technology and the various features that they emphasize and use. It is therefore useful to understand the effect of this interaction (between individuals and technology) so as to identify areas requiring intervention before, during or after technology adoption. If possible interventions are required, actors need to perceive opportunities to exercise control, or more actively perceive that they have the capacity to make a difference. This capacity is connected with power because “the loss of the capacity to make a difference is also powerlessness” (Rose and Scheepers 2001; Rose 1998). The ability to possess power gives the actor the edge to enforce change in the social system. Thus organizations are not only shaped by technology alone but are also strongly influenced by social and political processes and by the actions of members of the organization (Pozzebon and Pinsonneault 2001). Structure is therefore activity-dependent and is both the medium and outcome of a process of ‘structuration’ - the production and reproduction of practices across time and space (Rose 1998). Against this background, structuration theory provides a vehicle for unveiling these structural properties (for example, culture and practices) so as to propagate E-Commerce adoption in LDCs.

Based on the structuration and E-commerce literature, the next section maps the E-Commerce dimensions of Perceived Organizational, External and Innovation factors; to structuration dimensions of Signification, Domination and Legitimation. The mapping is necessary to ensure that we capture all structural properties in existence which have been missing in E-Commerce studies in SMEs in LDCs, and enlighten how E-Commerce should be propagated in LDCs to lead to more successful outcomes.

## **5 MAPPING E-COMMERCE ADOPTION FACTORS TO STRUCTURATION THEORY**

### **5.1 Signification**

An organization’s properties (behavior and patterns) represent structures of signification (meaning) (Chu and Smithson 2003) which are communicated via interpretive schemes or stocks of knowledge that provide meaning and promote understanding, and serve as cognitive guides for individual action and behaviour (Rai et al 2009).

#### *5.1.1 Organizational Factors*

Organization’s properties are driven by the organization’s strategies, vision and goals as articulated by top management (Huff and Kelley 2005, Kao and Decou 2003). Through its strategy, the organization crafts patterns of activities which have an impact on the achievement of the organizational goals in relation to its environment (Hakansson and Snehota 2006). The patterns of activities consist of shared knowledge and organizing rules that guide social interaction and behaviour on the way business operations are conducted (Yuthas et al 2004). They become reinforced or changed through social interaction and environmental constraints or opportunities, as the organizational rules are reaffirmed or challenged through their use by human agents (Orlikowski 1992). Chatterjee et al (2002) found that top management’s belief and commitment towards technology offers a strategic opportunity and serves as a powerful sign to the rest of the managerial community about the importance placed on the technology. Their interpretations and belief of the technology and how secure it is constitute structures



of signification. Top management commitment and technology belief therefore map to the SME owner support and technology resource components of Table 1 (see Figure 2).

### 5.1.2 *External Factors*

In order to be successful, an organization's top management is always striving for a "fit" between the capabilities of the organization and the characteristics of the environment (in particular customers and competitors) (Hakansson and Snehota 2006). Gibbs et al (2002) posit that adoption of E-Commerce by organization is driven by forces in the environment, both at a global and national level. At a global level, Gibbs et al. (2002) deduce that a country's integration in global production networks, the presence of multinational corporations, and the extent of trade liberalization are all factors that increase the level of global competition and therefore the pressure for countries to adopt E-Commerce as a means of reducing costs and/or expanding markets. At a national level, factors such as presence of an IT labour force and general IT literacy are enabling condition for E-Commerce. How an organisation perceives the environment is important because the perception translates into beliefs and the meaning they consequently attach to, for example, organization business partners' (customers and suppliers) benevolence and integrity (adhering to sets of principles such as honesty and keeping promises), political leadership, and the extent to which the business environment is conducive for technology adoption (availability of support-giving institutions such as telecommunications, financial, trust enablers and the IT industry) (Wang and Benbasat 2008). Whilst people assess each other's behaviour and performance during an interaction to determine their trustworthiness (Wang and Benbasat 2008); organizations assess market forces, and the supplier's behaviour and performance in particular during an interaction in order to form trust. Thus structures of signification are also represented by external factors as documented in Figure 2.

### 5.1.3 *Innovation Factors*

In addition to organizational and external factors, Innovation factors have also an impact on structures of signification. They are attached to owner's perceptions of the degree to which the technology or the innovation will enhance the organizations performance, decrease transactional delays, and result in improved efficiencies and communication with business partners (Teo et al. 2004, Grandon and Pearson 2004). These perceptions translate into beliefs and meaning that actors consequently attach to the innovation, which could translate to willingness to adopt the innovation (E-Commerce).

## 5.2 **Domination**

Structures of domination are provided by structures that enforce established institutional rules to regulate actions and behaviours of individuals (Rai et al 2009, Chu and Smithson 2003). These include issues of power which are part and parcel of human interaction through providing organizational capabilities for humans to accomplish outcomes (Orlikowski 1992). Power involves the exploitation of resources present in the context (Rose 1998).

### 5.2.1 *Organisational Factors*

Organizations have been linked to structures of domination "where power and domination refer to a collective capacity to act" (Xavier 1996). Organizations and their members have the ability to act using the available resources in order to facilitate the realization of specific social goals or objectives. The realization of such goals, according to Yuthas et al. (2004) results in the manifestation of power by agents controlling the resources (both allocative and authoritative). Whilst allocative resources have been linked to finances (Rai et al 2009, Kao and Decou 2003) and technology availability (Kao and Decou 2003, Rose and Scheepers 2001); authoritative resources have mainly been linked to ICT related technology awareness, commitment from management (the ability of the organization to arrange sufficient funding to support the technology to be adopted), and the extent to which IT innovativeness, in general, is desirable and pursued in the organization and across a country (Barzilai-

Nahon and Scholl 2004). Against this background, structures of domination are mapped to organisational factors as depicted in Figure 2.

### 5.2.2 *External Factors*

Environmental variables play a pivotal role in producing structures of domination because “human activity is dependent on the existence of the environment” (Woodgate and Redclift 1998). Organizations that have access and control over scarce resources tend to be more dominant in the business industry than those that do not, even though the forms of domination differ (Hambrick 1981). Apart from accessibility to resources, organizations need to perceive structural assurance both in the technology (innovation factors) and the environment at both global and national level in order to utilise the opportunity to invest in the E-Commerce venture (Wang and Benbasat 2008). Structural assurance refers to the degree to which actors believe that institutional structures such as contracts, guarantees and legal protections encourage trust by providing a safe operating environment to promote innovation success (Sha 2009). Existing institutional structures have a significant impact on actors’ beliefs and intentions and can lead to either adoption or non adoption of E-Commerce (Pavlou 2002). Huang et al (2006) and McKnight et al (2004) affirm that structural assurance influence actors’ trust beliefs and trust intention, and consequently, affects their behavioural intention to use the innovation. Thus organizations that have confidence in the institutional structures (structural safety or favourability of the setting) are easily inclined to take the opportunity to venture into E-Commerce. This is not to say that they will always be inclined to adopt E-Commerce. On the contrary, organizations may decide not to adopt (even though there exist structural assurances) because of their values and internal political processes or because of their assessments of their relative strengths and weaknesses (Hambrick 1981).

### 5.2.3 *Innovation Factors*

An organisation’s perceptions of the technology play a role in producing structures of domination. The owners perceive power when they can foresee further advantages (resources) from their environment such as acquiring a competitive advantage in the industry if the technology will enhance the organisation’s operations and performance (Chatterjee et al 2002). For example, if E-Commerce adoption will be compatible with existing systems, and is able to address inherent challenges of local content to curb the multilingualism problem, then that is perceived as a resource.

## 5.3 **Legitimation**

Structures of legitimization are established by organizational conventions that validate whether certain behaviors are desirable and congruent with the goals and values of the organization or not (Rai et al 2009). They define appropriate procedures and protocols which are articulated and sustained through rituals, socialization practices, and tradition; and of which if not adhered to, may invoke sanctions (Jones and Karsten 2008). These procedures and protocols, evolve over time, and are created, reinforced, changed, and dismantled by human action (Chu and Smithson 2003).

### 5.3.1 *Organizational Factors*

Structures of legitimization in an organization are as result of people’s (employees) social practices, which become routinised, established and legitimized by organizational actors (specifically, top management), who have the ability to legitimize the willingness of managers to expend their time and energy in making sense of technology, exploring ways in which the technology’s functionality could be leveraged into the business processes and activities, and justifying the viability of specific technology oriented projects (Chatterjee et al 2002). Top management are key responsible agents for ensuring that strategic, tactical and operational rules to govern their business activities and E-Commerce initiatives are in place. Thus in a SME context, owner support and their ability to govern the organization are factors that map to structures of legitimization as documented in Figure 2.

### 5.3.2 *External Factors*

Structures of legitimation refer to moral codes (norms) which help determine what can be sanctioned in human interaction (Rose and Scheepers 2001). An organisation naturally experiences these codes of conduct (norms) as explicated from the external environment. These norms include copyright protection laws, privacy and security protocols designed to promote legal certainty, trust and reliability of the technology (Rai et al 2009). In addition, there is pressure for organizations to conform to industry standards or to a competitor's level of technology (Bayo-Morione and Lera-Lopez 2007, Teo et al. 2004, Castleman and Chin 2002). Figure 2 summarizes the mapping of Legitimation to E-Commerce adoption factors.

## 6 DISCUSSION

The conceptual framework from the mapping of the E-Commerce dimensions to the structuration dimensions is presented in Figure 3. The framework presents researchers with a way of investigating how E-Commerce shapes and is shaped by the social structures employed by SMEs in LDCs. That is, it provides a way of examining the impacts of both social structures and institutional factors on the extent of E-Commerce adoption in SMEs in LDCs. This understanding is critical in identifying novel ways of ensuring E-Commerce adoption amongst SMEs in LDCs.

The framework identifies how the three critical dimensions (organisational, external and innovation) for E-Commerce adoption shape the thinking and interpretation of SME owners. The interpretations are based on interpretive schemas of, just to mention a few, strategy (whether the E-Commerce strategy matches the organisation's strategy, vision and goals); beliefs (having same beliefs with and about the suppliers and consumers with regard to E-Commerce and its implications); and structural assurance (having the guarantee that the business environment is secure and conducive for E-Commerce transactions). The interpretive schemes are communicated via written documents, for example organisation strategies; unwritten statements that the organisation and the business context operates in; meetings with business partners, E-Commerce and ICT experts in the industry, and government policies and regulations; or unspoken or uttered means such as gestures.

Structures of domination are drawn from a pool of Facilities from which the SME owner draws necessary resources to implement the E-Commerce venture. For example, a positive owner's perception of the internal organisation capabilities and his or her commitment to implement E-Commerce is a resource. In this regard, the owner sees him or herself as having the capacity to successfully initiate an E-Commerce venture. However, if the owner's interpretation is that the resources lie with other external parties, this would limit their intentions to adopt E-Commerce. For example, having either organisational or country policy regulations that do not favour E-Commerce implementation could leave the owner with limited enthusiasm to venture into E-Commerce. These regulations and social ways of doing things, (either documented or not), present structures of Legitimation and result in penalties if not adhered to. For example, if SMEs perceive that their governments does not pay attention to core E-Commerce legal regulations of E-contracting/transaction laws; E-signature laws; and other auxiliary legal issues such as laws protecting parties, transactions, systems and data; then the SME would perceive the possibility of "sanctions" from customers who will not shop online due to security, trust and privacy related issues. If they do continue to operate online, and a breach of security occurs, consumers could file legal actions against them. To avoid these consequences and risks brought about by lack of structural assurance, SME owners would probably rather not venture into E-Commerce.

The maturity level (from no E-Commerce at all, to integrated level of E-Commerce in the organisation) of E-Commerce adoption in SMEs (Molla and Licker, 2005) may be represented by the time that the organisation took to arrive at this level. We incorporated this dimension into the conceptual framework because structuration theory allows one to capture the time-space dimension. The time-space dimension is critical in this framework as it allows one to look at each SME

individually, with its own structural properties and growth. Although there could be generic structural properties affecting all SMEs, there could also be unique structural properties, depending on the level at which an SME is at. Each SME should thus be seen as unique in order to assess structural properties that play a significant role in shaping behaviour towards E-Commerce.

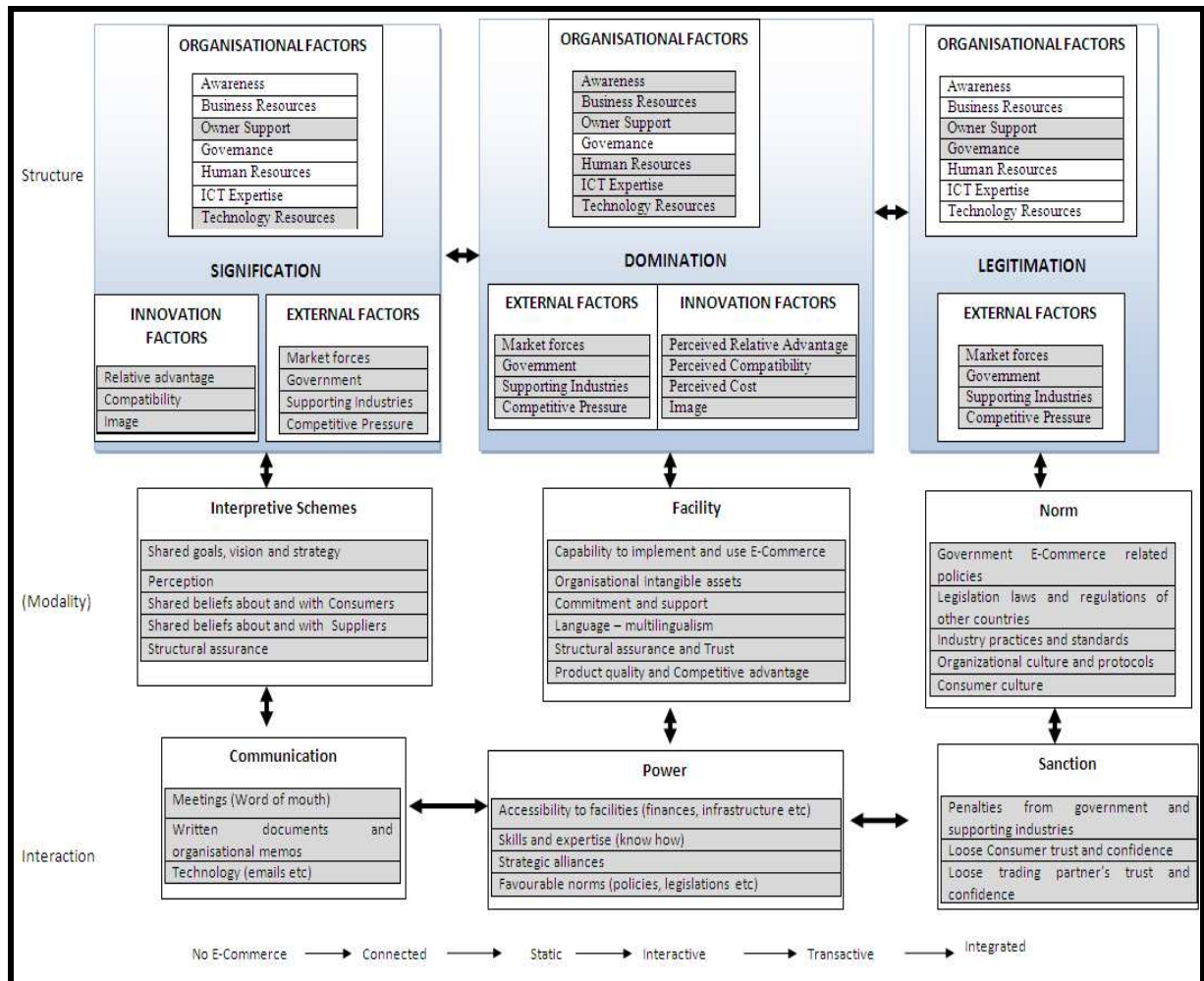


Figure 2: Conceptual Framework of E-commerce in SMEs in LDCs

## 7 CONCLUSION AND FUTURE WORK

E-Commerce studies in LDCs have been few, and are typically generalised from other developing country contexts. LDCs are a category of states that portray different characteristics from other developing countries and thus face specific challenges. To understand these characteristics which are at the heart of whether SMEs in LDCs will adopt E-Commerce or not, a thorough understanding of technology adoption and structural behaviour and patterns of SMEs in LDCs is required. This paper presented a conceptual framework that allows for the identification of these underlying structural activities and institutional properties that breed challenges towards E-Commerce in SMEs in LDCs. The framework facilitates a comprehensive understanding of the social structures and human action in the context of E-Commerce. It calls for the need to investigate current business practices which could provide insight into internal structural properties of signification, domination and legitimation. This investigation could lend us an understanding on intentions to adopt and continue to use E-Commerce.

Future work will apply the conceptual framework to investigate the E-Commerce phenomena in SMEs in LDCs with the intent of uncovering structural frameworks and social practices of SMEs; and how SMEs interact to produce and reproduce social structures that either promote or inhibit E-Commerce activities.

## References

- Agarwal, R. and Prasad, J. (1997). The Role of Innovation Characteristics and Perceived Voluntariness in the Acceptance of Information Technologies. *Decision Sciences* 28 (3), 557 – 582.
- Ba, S. Whinston, A.B. and Zhang, H. (2002). Building trust in online auction markets through an economic incentive mechanism. *Decision Support Systems*.
- Barzilai-Nahon, K. and H.J. Scholl (2004). Similarities and Differences of E-Commerce and e-Government: Insights from a Pilot study. In 40th Hawaii International Conference on System Sciences (HICSS40), R. Sprague, Ed. Waikoloa/Big Island, HI: IEEE, 92, 1-10.
- Bayo-Morione, A. and Lera-López F. (2007). Firm-level analysis of determinants of ICT adoption in Spain. *Technovation*, 27, 352–366
- Brooks, L. (1997). Structuration theory and new technology: analysing organizationally situated computer-aided design (CAD). *Information Systems Journal*, 7, 133-151
- Castleman, T. and Chin, C. (2002). E-Commerce and the Competitiveness of Small Enterprises: A Study of the Restaurant Industry, Working Paper 2002/01, School of Management Information Systems, Deakin University, Melbourne.
- Chatterjee D, Grewal R and Sambamurthy V. (2002). Shaping Up for E-Commerce: Institutional Enablers of the Organisationa Assimilation of Web Technologies. *MIS Quarterly*, 26, 2, 65-89.
- Chu, C. and S. Smithson (2003). Organisational structure and e-business: a structural analysis. *Proceedings of the 5th International Conference on Electronic Commerce*, 205 - 212
- Crenshaw E.M and Robinson K.K (2006). Globalization and the Digital Divide: The Roles of Structural Conduciveness and Global Connection in Internet Diffusion. *Social Science Quarterly*, 87, 1.
- Esselaar, P. and Miller, J. (2001). Towards Electronic Commerce in Africa: A Perspective from three country studies. *Southern African Journal of Information and Communication*, 2, 1.
- Gibbs, J., Kraemer, K L., and Dedrick, J. (2002). Environment and Policy Factors Shaping E-commerce Diffusion: A Cross-Country Comparison. UC Irvine: Center for Research on Information Technology and Organizations.
- Giddens, A. (1984) *The Constitution of Society, Polity*, Cambridge.
- Grandon, E.E. and Pearson, J.M. (2004). Electronic commerce adoption: an empirical study of small and medium US businesses. *Information & Management* 42, 197–216.
- Hakansson H and Snehota I (2006) No business is an island: The network concept of business strategy. *Scandinavian Journal of Management*. 22, 256–270.
- Hambrick D.C. (1981). Environment, Strategy, and Power within Top Management Teams. *Administrative Science Quarterly*, 26, 2, 253-275
- Huang L., Yin K., and Farn C. (2006). The influence of consumers' consciousness of institutional factors on initial trust building. *Proceedings of the 5th WSEAS International Conference on Telecommunications and Informatics, Istanbul, Turkey, May 27-29*, 360-365.
- Huff, L. and Kelley, L. (2005). Is collectivism a liability? The impact of culture on organisational trust and customer orientation: a seven nation study. *Journal of Business Research* 58, 96-102.
- Iskander, B.Y Kurokawa, S. and LeBlanc L.J. (2001) Adoption of electronic data interchange: the role of buyer-supplier relationships, *IEEE Transactions on Engineering Management*, 48, 4, 505-517.
- Jones, M. R. and Karsten, H. (2008). Giddens's structuration theory and information systems research. *MIS Quarterly*, 32, 1, 127-157.
- Kao, D. and Decao, J. (2003). A strategy based model for e-commerce planning. *Industrial Management and Data Systems*. 10, 3/4, 238-252

- McKnight D. H, Kacmar C. J. and Choudhury V. (2004). Shifting Factors and the Ineffectiveness of Third Party Assurance Seals: A Two-Stage Model of Initial Trust in a Web Business. *Electronic Markets*, 14, 3.
- Molla, A. and Licker, P.S. (2005) eCommerce adoption in developing countries: a model and instrument. *Information and Management* 42, 877-899.
- Nielinger, O. (2003). Fact Sheet: ICT-utilisation of Small and Medium Enterprises (SME) in Tanzania Retrieved June 12, 2008 from <http://www.ourtanzania.com/smes%20ICT%20utilisation.pdf>
- Orlikowski, W.J. (1992). The Duality of Technology: Rethinking the Concept of Technology in Organizations. *Organization Science*, 3, 3, 398-427.
- Payne, J.E. (2002). E-Commerce Readiness for SMEs in Developing Countries: A Guide for Development Professionals. LearnLink, Academy for Educational Development 1825 Connecticut Avenue, N.W. Washington, D.C. 20009-5721, USA
- Pavlou, P.A. (2002) .Institution-based trust in interorganizational exchange relationships: the role of online B2B marketplaces on trust formation. *Journal of Strategic Information Systems* 11, 215–243
- Pozzebon, M. and A. Pinsonneault (2001). Structuration Theory In the IS Field: An Assessment Of Research Strategies. *Global Co-Operation in the New Millennium. Proceedings of the 9th European Conference on Information Systems Bled, Slovenia, June 27-29.*
- Prasad, A. and J. Heales (2008). Understanding the use of technology in organisations: A Structural approach. *Proceedings of the 19<sup>th</sup> Australian Conference on Information Systems. 3-5 Dec, Christchurch.*
- Premkumar, G. and Roberts, M. (1999) Adoption of new information technologies in rural small businesses. *Omega*, 27, 467-484
- Rai, A. Brown, P. and Tang, X. (2009). Organizational Assimilation of Electronic Procurement Innovations. *Journal of Management Information Systems*, 26, 1, 257-296.
- Rose, J. (1998). Evaluating the Contribution of Structuration Theory to the Information Systems Discipline, *Proceedings of the 6<sup>th</sup> European Conference on Information Systems.*
- Rose, J. and R. Scheepers (2001). Structuration theory and Information System Development – Frameworks for Practice. *Proceedings of the 9<sup>th</sup> European Conference on Information Systems, Bled.*
- Sha W. (2009). Types of structural assurance and their relationships with trusting intentions in business-to-consumer e-commerce. *Electronic Markets* 19, 43–54
- Tan, T.C.F. and Sedera, D. (2007). Conceptualizing interaction with ERP systems using adaptive structuration theory. *Proceedings of the International Conference on Information System, Montreal.*
- Teo, T.L. Chan, C. and C. Parker (2004) Factors affecting e-Commerce Adoption by SMEs: A Meta-Analysis, *Proceedings of the 2004 Australasian Conference on Information Systems.*
- The United Republic of Tanzania Ministry Of Industry and Trade: Tanzania Small and Medium Enterprise development Policy (2002).
- UNCTAD. (2002). UN recognition of the Least Developed Countries. 2002. <http://www.unctad.org/Templates/Page.asp?intItemID=3618&lang=1>
- Wang, W. and Benbasat, I. (2008). Attributions of trust in decision support technologies: A study of recommendation agents for E-Commerce. *Journal of Management Information Systems*, 24, 4, 249-273.
- Wohlmuth, K. Gutowski, A. Knedlik, T. Meyn, M. and Ngogang, S. (2004). Private and Public Sectors: Towards a Balance. *African Development Perspectives*, 183
- Wolf, S. (2001). Determinants and Impact of ICT use for African SMEs: Implications for Rural South Africa. Center for Development Research (ZEF Bonn). Paper prepared for TIPS Forum 2001.
- Woodgate G and Redclift M., (1998). From a ‘Sociology of Nature’ to Environmental Sociology: Beyond Social Construction. *Environmental Values* 7, 3-24
- Xavier L. (1996). Organizations as Structures of Domination. *Organization Studies*, 17, 1, 23-25.
- Yuthas K, Dillard J F., Rogers R K. (2004) Beyond Agency and Structure: Triple-Loop Learning. *Journal of Business Ethics*, 51, 2, 229-243.