

The Adoption of Knowledge Management Development System in Nigeria Higher Education

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ABSTRACT

The rate of diffusion of knowledge management developmental systems in developed countries may now have reached the late majority phase of Rogers' diffusion adoption model, given the large number of higher educational institutions that have adopted this technology for improving the quality of teaching and learning in the area of course delivery, quick access to information, operating costs reduction, information avalanche, online testing, quiz, online collaboration, submission of assignment, enhance feedback process, information consistency, self-study, on-demand course material availability and announcements to mention a few (Bhuasiri *et. al*, 2012).

However, the rate of diffusion of this emerging technology in developing countries is still very slow (Bhuasiri *et. al*, 2012). For example , several institutions in Nigeria are not following this best practice in modern educational system, hence an in exhaustive exploratory case study was conducted at Imo State University using interview and questionnaire data generation methods to find out the barriers that might be impeding higher education in Nigeria from taking advantage of this educational technology break through. In addition, the study was conducted to identify enablers that may counter barriers and act as catalyst to enablers identified to increase the rate of adoption of this technology in developing countries.

INTRODUCTION

The arrival of information technology has provided modern opportunities for higher education to improve the quality of their teaching and learning process and activities, and statistics shows that more than "1000 higher educational institutions in 50 countries" have adopted various forms of e-learning technology (Bhuasiri, 2012;

Dutta *et. al*, 2013; Wang and Wang, 2009). And recent studies have shown that the e-learning market is growing significantly at a growth rate of 35.6% especially in developed countries where most universities and academic communities have adopted it (Motaghian *et. al*, 2013; Dutta *et. al*, 2013; Wang and Wang, 2009).

In addition, educators reviewing academic technologies have identified that course management systems, an example of knowledge management developmental systems (Chaffey, 2011) used for e-learning and training, are part of the most important educational technologies for delivery of course materials, promote student and staff interaction, reduction of operational costs (e.g, printing costs), syllabus publication, grading of assessments, submission of assignments, setting of quiz, announcements and online testing (Ssekakuboet. al, 2011; Wang and Wang, 2009).

In spite of the significant investment and market growth rate of this technology in developed countries, most institutions in developing countries are not following this trend in modern education given the myriads of daunting socioeconomic issues. For example, Louw et. al (2009) highlighted that in South Africa, some higher educational institutions have started using this technology, suggesting they are early-adopters of this technology according to diffusion-adoption model. However, not every faculty has adopted it due to barriers such as lack of IT support, inadequate technology, pedagogical issues including plagiarism and students negative attitude to e-learning by not attending lectures due to course materials online availability. And whilst most African Universities (Louw et. al, 2009) are contemplating about the cost and benefits of adopting e-learning, Nigeria,

popularly considered as the 'giant of African' is still at the infant stage of adopting this technology (Erah and Dairo, 2008; Folorunsoet.al, 2006). According to these researchers, they revealed that the Nigerian educational system is suffering from serious pedagogical, IT infrastructural and educational policies issues including a deluge of papers used (printed materials), lack of adequate student support services, lack of feedback system, lack of student collaborative platform, lack of continuity of educational policies, brain drain, lack of skilled IT staff, overcrowding in classrooms, lack of adequate funds for IT projects, poor student and staff relationships, lack of appropriate channel for publishing announcements, high costs of printing paper and hand copying of lengthy lecture notes from poorly maintained chalkboards which impacts negatively on student's concentration on lectures.

More so, apart from pedagogical issues and inadequate technological issues plaguing Nigerians educational system, there have been recent security concerns and terrorist activities in the Northern part of Nigeria for quite a long time now. For example, the much published kidnap of more than 273 secondary school girls from Chibok in Borno State on 02 April 2014, by an Islamic terrorist group called Boko Haram (meaning western education is sinful), is inimical to any form of academic growth. Since this incident, the school has been closed due to the

state being declared as a state of emergency and one of the irony of this incidents like this, is that students will have no access to learning materials pending the resolution of the security challenges (Bhuasiri, 2012; Dutta *et. al*, 2013; Korchmarosand Gump, 2009; Soonand Sarrafzadeh, 2010). These issues highlight the benefits of using knowledge management developmental system in Nigerian higher education for quick access to learning materials, reliability and security of learning materials, student and staff collaborations and online submission of assignments.

Another current challenge in Nigerian educational system at the moment is the outbreak of the deadly Ebola virus and consequently, most schools have being closed for fear of further spread of the virus. This action unavoidably must have hampered temporarily the progress of pedagogical activities at schools and higher educational institutions. In view of the above, many researchers have suggested the key benefits of using knowledge management developmental system in situations like this including engaging students and lecturers in pedagogical activities beyond the requirements of traditional physical presence (Korchmarosand Gump, 2009; Conde *et. al*, 2014).

In light of the above, the aims of this study is to identify the barriers and enablers to the adoption of knowledge management developmental system at Imo State University to facilitate their teaching

and learning process, as well as to understand how e-business technologies can be applied to business processes.

REVIEW OF RELATED WORK

Organizational strategy

In the business world today, there are several definitions of the term 'strategy' and its implications, due to the competing external business environment of an organization. Hence, the term strategy as defined by (Johnson *et al*. 2011) “*is about key issues for the future of organizations*”, *plans or actions on* how organizations will deploy their resources, how organizations should relate to his stakeholders, how organizations should stay in business by competing with the competitors in the business environment and how organizations might increase its profit margins and turnovers annually.

However, the term strategy as described by Chaffey (2011) is the:

“Definition of the future direction and actions of a company defined as approaches to achieve specific objectives”. And in support of this view, Chaffey cited Johnson and scholes (1999) definition of strategy as the:

“Direction and scope of an organization over the long-term: which achieves advantage for the organization through its configuration of resources within a changing environment to meet the needs of markets and to fulfill stakeholder expectations?”

And summarized the above concepts into corporate, business unit, regional and functional strategies.

However, for the purposes of this study, Chaffey cited Johnson and Scholes (1999) definition of strategy is the framework for understanding how and where the concepts of knowledge management and information management systems fit into organizational strategy. In addition, it will also serve as the anchor to understanding how e-business strategy, e-marketing strategy, customer relationship management strategy, supply chain management strategy fit into corporate strategy as will be discussed in later sections. But for now, a brief description of these four levels of organization strategies are given below:

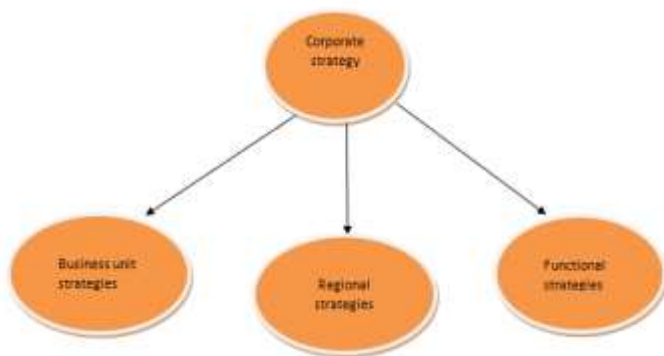


Figure 1.1 – Different forms of organisational strategy

Source: Adapted from Chaffey (2011).

Corporate strategy

Corporate strategy generally, is concerned with the whole purpose and scope of an organization and how the organization can add value to the

various business processes of the organization (Johnson *et al.*, 2011; Chaffey, 2011). And this raises issues such as regional scope, range of products/services, synergies and business expansion, and how the deployment of all types of resources - human, materials and costs – will be distributed between the various business processes/sectors of the organization (Johnson *et al.*, 2011).

More so, the proper definition or clarity of the purpose and scope of this strategy must be meticulously outlined by the top management of an organization - and this cannot be over emphasized - because it is this strategy that gives birth to other types of strategies including business strategy or business unit strategies, regional strategies, functional strategies, e-business strategies and e-learning strategies as we shall see later in this chapter.

Business unit strategy/Business level strategy

Business unit strategy or business-level strategy specifies how an organization may compete effectively and successfully within their niche or target market. And because of the vital role of this strategy within the organization strategy, this strategy is often referred to as the competitive strategy (Johnson *et al.*, 2011; Chaffey, 2010; Chea, 2009; Sako, 2012).

In addition, this strategy enables an organization to create various competitive strategies for each business unit in an organization for example, business A, might create two subsidiary companies called business B and C to support the

vision, goal and strategic or corporate objectives of business A (Johnson *et al.*, 2011; Sako, 2012; Teece, 2010). Thus, to achieve the corporate objectives of business A, business A might adopt a comprehensive competitive approach of creating two separate competitive strategies for business B and C, tailored to their specific business niche or external business environments. A real-world example of this type of strategy is a university creating recruitment subsidiaries (study centers and international educational agents) abroad to promote their marketing strategy and competitive strategy to support their recruitment business processes.

Furthermore, the concept of business unit strategy just like corporate strategy also raise issues such as a new ideas, methodologies or products/services which is crucial for the sustenance of any organization within its macro environment, for example we have seen the fierce competition in today's mobile technology market where a leading organization releases new products within a short period to maintain its competitive advantage over rival companies.

Similarly, this type of competition is also existing within the educational industry, for example, most higher education institutions are now deploying several educational agents to support their customer relationship management and marketing strategies (all are part of their competitive strategies) by offering nationality-based scholarship to attract potential students from developing countries like Nigeria, India, China,

Ghana and Cameroon to mention a few (Abubakar *et. al.*, 2014; Nordtveit, 2011; Nemeckova and Krylov, 2014).

And to extend their marketing activities in view of maintaining a competitive edge over rival institutions, most universities now offer tuition bursary to registered and continuing students moving to either a higher level within an undergraduate programmed or starting a postgraduate course after their undergraduate studies with them. In customer relationship management, this type of competition is called 'customer retention' (Chaffey, 2011; Tamuliene and Gabryte, 2014).

Operational Strategies/Functional Strategies

Operational strategies refers to approaches taken by the various constituents or branches of an organization achieves effectively its corporate and business unit/level strategies via the organization processes and resources - such as people, materials and costs resources - (Johnson *et al.*, 2011; Chaffey, 2011). For example, a higher education institution with a marketing strategy of acquiring new students from abroad as part of their corporate strategy must upgrade and install a robust and efficient student registration and enrolment system in order to cater for the new influx of both home and international students into their undergraduate, postgraduate and doctoral programmed; failure to do so may result in an inefficient and ineffective operational strategies. Additionally, operational strategy can be

expanded to include a sub-strategy which is known functional strategy which describes or functions as a guide on how operational strategy will be implemented in various organizational business processes or functional areas (Chaffey, 2011; Papazoglou and Ribbers, 2006).

E-business Strategy

The changes to the traditional bricks and mortar companies business processes, brought about by the advent of a new way of conducting businesses online, popularly known as e-business cannot be ignored. So, what then is e-business? E-business is defined as: *“the conduct of automated business transactions by means of electronic communications networks (e.g, via the internet and/or possibly private networks) end-to-end”*(Papazoglou and Ribbers, 2006). Consequently, since the last decade, several number of organizations have adopted this technology to enhance their business processes in order to achieve their corporate strategy (Xu et al, 2012).

However, the deployment of e-business technologies to support organizational operations must be timely, properly defined in the e-business strategy and the e-business strategy must be properly aligned with the corporate strategy of the organization. To this end, several organizations have incorporated their e-business strategy into their functional strategies or corporate strategies. And whether this approach is the right one or not, has been the managerial issues for most e-business managers and top management to resolve.

In view of these managerial issues, a model that suggested aligning e-business directly below corporate strategy and functional strategies below e-business was recommended by both Chaffey (2011) and Papazoglou and Ribbers (2006) and this solution clearly outlines where the constituents - supply chain management, customer relationship management and marketing strategy - of functional strategies should fit into as seen in the diagram below:

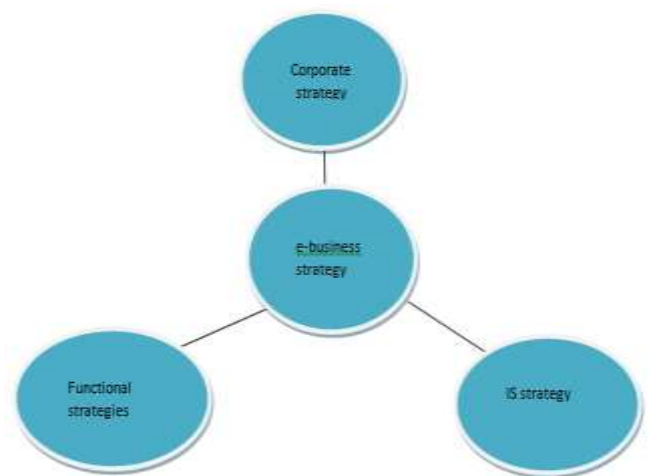


Figure 1.2 – Relationship between e-business and other organisational strategies.

Source: Adapted from Papazoglou and Ribbers (2006).

E-business Technologies/Infrastructure

E-business technologies are the complex arrangement or structure of several hardware, software, content and data deployed to implement e-business services to an organization stakeholders; both internal and external stakeholders (Lai and Chen, 2009; Shin and Park, 2009). These range of services can be used within the organization or beyond the organization with its external stakeholders. But some key

managerial issues concerning the use of e-business technologies to create business values have been around questions like, which type of e-business applications to adopt or develop – in-house solutions or outsourcing solutions – as part of our e-business strategy, which business processes to apply these technologies on, the cost of adopting e-business technologies and how do we integrate or blend these new technologies with our current or legacy systems. For example, an energy company involved in large scale printing of papers like customers receipts, might decide to reduce cost of printing by transforming or re-engineering the sales process by asking customers to become environmental friendly and receive electronic version of receipts via emails. And one of the benefits of e-business is that it will not only add value to the business especially for customers who are tired of keeping track of their sales history and disposing papers, but it will also reduce the cost of printing large volumes of sales receipts. There are several authors and scholars who have written about the benefits of adopting e-business technologies to support their business processes. However, the type and range of e-business technologies to deploy will largely depend on the nature, corporate strategy and e-business strategy of the company, the supply chain management strategy, the marketing and customer relationship management strategy, and the information systems strategy of the organization.

In view of the above, it is imperative to note that the concept of e-business relates to the use of information to add value to an organization, for

cost reduction, for risk management and to develop new products, services and business concepts (Chaffey, 2011; Yee-Loong Chong, 2009; Su *et. al*, 2009).

Furthermore, it is impossible to implement SCM strategy, marketing/CRM strategy and information systems strategy without the use of information housed in a database or a data warehouse which is relevant for the day-to-day running of an organization's business processes and operations.

Hence, the need for corporate decision-makers to have access to business data within an organization and beyond in order to have a comprehensive analysis of the organization's internal resources, its business requirements, current market trends within their macro business environment - external environment - as part of their strategic analysis. In addition, it is vital that an organization's database or warehouse holds not only current information but also historical data which can be archived for future access or references (Connolly and Begg, 2014).

However, they noted that due to the difficulty of systems integration in implementing a data warehouse or most e-business systems, the challenge therefore is for:

“an organization to turn its archives of data into a source of knowledge, so that a single integrated/consolidated view of the organization's data is presented to the user”. And this brings us

to the concepts of business intelligence and knowledge management which will be discussed in the next section.

Business Intelligence/Knowledge management and its objectives

The goal of business intelligence and knowledge management is to help organizations identify, create, store, share and use knowledge relating to their business processes or departments in order to support staff complete tasks and meet their daily business needs. Consequently, it is important to review these concepts and how they can help organizations like higher education simplify business processes.

The concepts of business intelligence refers to the collection of decision support technologies such as a data warehouse or a single or several group of data marts and the access tools such as Online Analytical Processing (OLAP) and/or data mining (or tools based on this complementary technologies) to assist end-users (all stakeholders) retrieve information from it when required in business processing (Connolly and Begg, 2014; Chaudhuri and Narasayya, 2011; Aimiuwu and Bapna, 2013).

And as mentioned earlier, if these business intelligence technologies must support key organizational business processes, it means that this business intelligence must be integrated or implemented in a manner that will allow the user to retrieve and have a single integrated/consolidated view of data relating to the user's department or business function or

multiple departments or business functions (to overcome the issues associated with data marts). To this end, the organization of codified information (see the knowledge management section below) into several data marts based on the different departments or business functions in an organization is important and this cannot be over emphasized for the reasons highlighted by Connolly and Begg (2014) as summarized below: to provide users access to the data they use frequently in their knowledge work. In addition, to translate data into the format that corresponds to the collective view of data used by a department. Furthermore, to enable quick response by end-users to vast array of organizational data to be accessed. More so, to enable a well tailored and organized data to meet the specifications of the end-user's data access tools which may have their own inherent database structures for storing data. Also, since data marts use summarized data, data mart administration tasks becomes easier to implement, thus, it is simpler to deploy a data mart than a corporate data warehouse. In addition, it leads to cost reduction in implementing a data mart compared to data warehouse. Finally, it leads to better users specifications (use-case analysis), hence making data mart project business case easier to approve by senior management compared to corporate data warehouse project.

Another relevant point to note here is that depending on the organizational needs and business requirements, a data mart is designed to allow quick user access to business information when needed, hence it is contains summarized

data relative to a particular department or business function. In addition, it may be designed to standalone or be populated from the organization's data warehouse – a large source of database containing operational and detailed data – in an architecture with three-tiers so that the first-tier becomes the data warehouse, the data marts becomes the second-tier and the data mining tools as the third-tiers.

But as the data warehouse grows larger due to increase of data marts, it may not meet the business needs of the organization due to risks of its data being compromised by various departmental activities and needs to analyze or tailor data in several ways to suit their departmental needs. And these activities according to Connolly and Begg (2014) are the reason why multiple data marts administration cannot be performed easily owing to issues like:

“Data mart versioning, data and metadata consistency and integrity, enterprise-wide security, and performance tuning.

Furthermore, they also pointed out that data mart administration is one of the key issues associated with the implementation and management of data marts; other issues include data functionality, data mart size, data mart load performance, users access to data in multiple data marts, data mart internet/intranet access and data mart installation.

In summary, data mart administration is a shadow of the bigger picture or idea of having a robust

way of managing data, popularly known as knowledge management which plays an important role in e-business as a tool to help organization achieve their corporate strategy.

What is Knowledge?

The concept of knowledge simply put, is the application of experience to solving organizational problems. But a study by *Mekhilef et al.* (2004 cited Chaffey 2011) suggests that it can also mean:

“the combination of data and information, to which is added expert opinion. Skills and experience, to result in a valuable asset which can be used to aid decision making”. Knowledge may be explicit and/or tacit, individual and/or collective.

In recent studies, most scholars have identified two different types of knowledge as explicit and tacit knowledge. Explicit knowledge refers to knowledge that can be easily or quickly put into words, stored and accessed from information systems to give instructions to staff in accomplishing a task, while tacit knowledge refers to intuitive knowledge not stored and accessed from an information system which is gain from previous experienced on how to deal with issues or complex situations (Nonaka and Takeuchi, 1995). This type of knowledge is very difficult to capture because it resides in the head of employees and this is one of the reasons for brain drain in organizations (Nonaka and Takeuchi, 1995; Agrawal *et. al.*, 2011).

The Use of Knowledge Management in Higher

Education

The concept of knowledge management cannot be ignored in today's global competitive business environment especially in higher education because of the need for fast response to the dynamic educational environment occupied by several rival higher educational institutions (polytechnics, private and public universities) if an organization must achieve its business goals.

However, an organization's business success is largely dependent on its staff's knowledge of the factors affecting their micro-environment (customers, suppliers, intermediaries, competitors and how adequate asset management can add value to the business) (Chaffey, 2011) and educational institutions are no exemption. So, a failure to understand and respond to these dynamic factors swiftly is a decision to be out of business in no distant time and this is largely dependent on having tacit knowledge.

In today's knowledge management practices, one goal of most organizations is to turn tacit knowledge into explicit knowledge which can then be used as repository for sharing knowledge between employees and training of new staff members – the importance of this cannot be over emphasized (Chaffey, 2011; Nonaka and Takeuchi, 1995). In light of the above, it is important for higher educational institutions to adopt similar approach in order to avoid brain drain such as shortage of experienced teaching staff and skilled support staff. And one way of doing this is to encourage approaches to sharing

knowledge within employees (Chaffey, 2011; Nonaka and Takeuchi, 1995).

Knowledge Management Activities

A framework for the various tasks (including sharing knowledge) that constitute knowledge management is shown below:

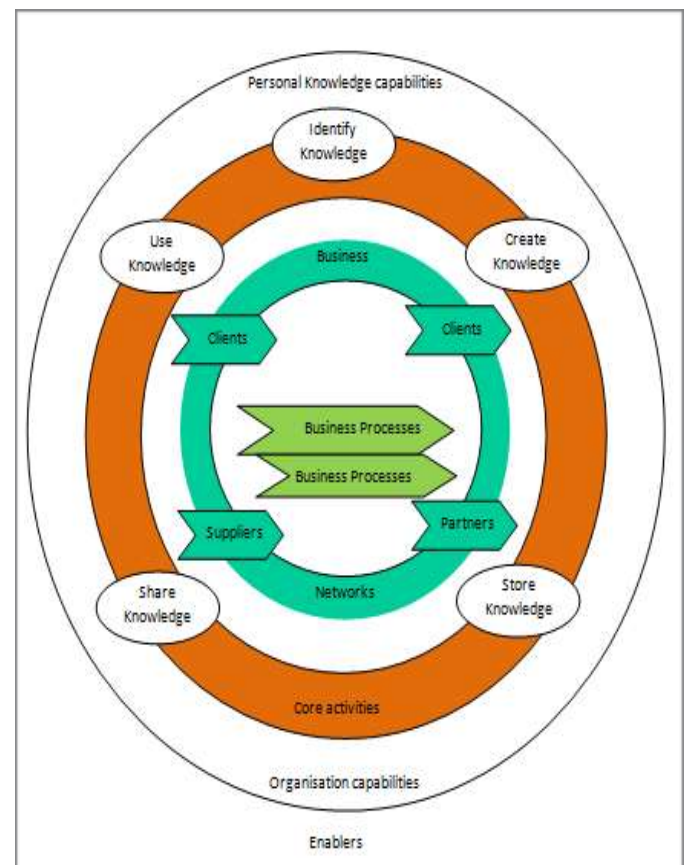


Figure 2.3 – knowledge management framework

Source: Adapted from Chaffey (2011).

Identify knowledge: knowledge identification is the analysis of the accessibility of current knowledge to support business processes and spotting the areas or business processes where there is no knowledge to support it. For example, no directory to search for the details of key teaching and non-teaching staff of a university.

Create knowledge: Knowledge creations look at or examine new ways for creating or developing knowledge both at personal and group levels. For example, the development of an intranet system to house all staff details for effective internal communication in a university.

Store knowledge: Knowledge storage refers to the tasks of converting of tacit knowledge (which is stored in employee's brain) into explicit knowledge stored in information systems. It also means organizational memory derived from revision of business processes that is based on team culture. For example, the migration of all staff details to a new faculty intranet system and the codifying of tacit knowledge on student enrolment into electronic documents guides format stored in a document repository on the intranet for future usage.

Share knowledge: Knowledge sharing refers to transferring of knowledge between employees to promote knowledge availability to support business processes. This requires that knowledge availability or sharing should target specific users in mind and this can be done either through collaboration, conferences, and workshop. For example, chatting with student services help-desk assistant via intranet messenger for directions on how to resolve lecture materials downloadable errors.

Use knowledge: Knowledge usage refers to the proper utilization of an organization's knowledge-base to achieve its corporate strategy and

objectives. For example, a student services help-desk manager checking student counseling staff availability via the corporate intranet directories to book appointments for students re-taking failed modules.

Knowledge Management Objectives

According to recent studies, most organizations are now adopting knowledge management for the following reasons which include enhance profit and increase revenue, retention of skilled staff, improve and enhance customer relations and retention, maintaining of current market share over new competitors, improve and reduce product delivery time to market, cost reduction and increase product varieties and services (Pei Lyn Grace, 2009; Akhavan and Pezeshkan, 2014; Zamani *et. al*, 2013).

Similarly, some higher educational institutions have started following this trend and paradigm shift to enhance the teaching and learning experience, high staff turnover, ability to react promptly to changes in the educational marketplace, increase profit margins, making of strategic decisions and to promote knowledge transfer amongst new and old employees (Ramachandran *et.al*, 2013) to mention a few.

Imo State University Knowledge Management System and Website

Imo State University (IMSU) is one of the most famous state universities in the south eastern part of Nigeria with over 15,000 student base. Although the university currently has a website

designed for both transactional and informational purposes, the transactional features of the website is not operational yet, due to lack of commitment from the senior management. Thus, the website as it stands is only used for informational purposes and as an interface to electronic databases, e-journals and e-libraries the university library department is currently subscribed to.

More so, the university current information system comprises of several independent computer systems at the vice-chancellor's office, exams and record department, library department, admissions office, new ICT training complex and personal laptops for heads of department and some faculty members. However, these computers are not networked together and some of them are not internet-enabled. In addition, they are mostly used for word processing of learning materials, exams papers and guides, minutes of meetings, memos, etc. Thus, current management system at university can be considered as mostly paper-based and isolated systems which must be integrated to function as a proper knowledge management system (see chapter 3 and university website, www.imsu.edu.ng for further details about this university).

Knowledge management activities are carried out independently between departments and faculties, hence there is no sense of corporate knowledge management culture to identify, create, store, share and use knowledge. Reports are filed in each department repository (office cabinet or shelves in hard copies) and accessed by

individuals or secretaries in charge of these duties. And there are no access to these reports from other departments, except by first contacting the heads of department of the relevant department before access will be granted to these files.

Finally, students and staff share knowledge via informal meetings, face-to-face meetings, brain storming sessions, emails and via telephone calls. In addition, according to the researcher's informal conversation with the research assistant for this project via phone, the introduction of the mobile app, 'WhatsApp' and 'Blackberry Messenger' are the two latest mobile platforms for sharing information amongst members of the university community. However, the research assistant reported that the constant electricity power failures in Imo State has been affecting students and staff collaborations via this platform because there is no means for them to recharge their phones if power supply is not restored after 48 hours (Aliyuet. *al*, 2013; Oseni, 2012; Folorunso *et. al*, 2008; Erah and Dairo, 2008).

Knowledge Mmanagement Developmental Systems

The term 'knowledge management developmental system' (KMDS) is a concept used to encapsulates all the characteristics/features of a typical integrated e-learning system to support both knowledge management and pedagogical activities (Chaffey, 2011; Motaghian *et. al*, 2013; Wang *et. al* 2012). Thus, there are several range of e-learning systems that fits into this concept, such as web-based learning systems, learning

management systems, course management systems, instructional management systems, virtual learning environment, virtual classroom systems for online tutoring, offline training systems, web conferencing systems/online audio and video teleconferencing systems, intranet/portals systems, wiki systems to mention a few (Schneckenberg, 2009; Wang *et. al* 2012; Motaghian *et. al*, 2013).

A KMDS is one of the six different types of knowledge management applications and it is used for “*enhancing staff skills and competencies via training and e-learning*”, (Chaffey, 2011) to support sharing of knowledge within an organization. And according to a study by Binney (2001 cited Chaffey 2011), the other six types of knowledge management systems are transactional (applications for customer service and helpdesk functionality), analytical (CRM applications based on data warehousing and data mining concept), asset management (content and document management systems e.g, Lotus Notes), process support (quality control management systems) and innovation and creation (social networking and virtual teamwork systems); these are beyond the scope of this project and hence, they will not be discussed further.

Since the arrival of e-business technologies, many organizations have been applying this technology to support their various business processes or workflow management. Thus, when this technology is applied in the marketing sector, it is referred to as e-marketing and when it is applied

in the banking sector, it is referred to as e-banking (Salehi and Alipour, 2011; Khalif *et. al*, 2011). Similarly, when this technology is applied to aid students' pedagogical activities at an institution of learning or training of employees at work, it is popularly referred to as e-learning (Bhuasiri *et. al*, 2012).

In a nutshell, the term 'e-learning' means the application of e-business technology to overcome the traditional classroom pedagogical limitations. For example, in the traditional classroom approach, some students maybe too shy to ask questions in class, and as a result may miss out in the sharing of knowledge (Chennamaneni and Brown, 2013).

More so, in e-learning, the key pedagogical activity that occurs during the process is the sharing of knowledge, and this corresponds to one of goals of knowledge management; to turn tacit knowledge into explicit knowledge which can then be used in the training of new employees and support employees' activities.

According to current studies (Bhuasiri, 2012; Dutta *et. al*, 2013; Wang and Wang, 2009), e-learning is gradually emerging as the new concept of modern education and the e-learning market is growing rapidly, partly as a result of the numerous types of educational technologies used in supporting the traditional classroom pedagogical approach;

So, e-learning is a medium for training students online as an approach to support knowledge

sharing (Chaffey, 2011), and the success of using this platform relies on key factors such as students, lecturers, modules, the specific type of e-learning technology, features and system (Bhuasiri, 2012; Dutta *et. al*, 2013; Wang and Wang, 2009); these and more factors will be explored in a later section on barriers to these technologies with regards to knowledge management.

The functionality of a typical KMDS varies from a simple information system to a complex information system depending on the business and pedagogical requirements of the higher educational institution: Most course management and learning management systems are used for course creation and tuition delivery, creation and publishing of syllabus, students and faculty registration to courses, online assessment quiz, course discussion forum, assignment/coursework submission and grading/feedback (Dutta *et. al*, 2013), More so, they can be used for publishing announcements, uploading and sharing course materials, supporting online group discussions, wikis, chats, video conferencing, webinars and providing of assignment/course feedbacks(Wang *et. al*, 2012;).

The benefits of using KMDSs in higher education are numerous which include improved student access to course materials, flexible learning mode, online question and answer student/teacher collaboration, distance education programmers,

aids vital teaching staff to be assigned on research, instead of being limited to the classroom solely for sharing knowledge (Schneckenberg, 2009),enhancement of the institution brand, collective image communication within the institution, administrative cost reduction, improved student services and marketing cost reduction (Chaffey, 2011).

However, the degree of the perceived usefulness/benefits of these systems to the higher education institution is dependent on the perceived ease of use and technology acceptance by the top management, teaching and non-teaching staff and students; this theory is popularly known as the technology acceptance model which will be explored in later sections.

Barriers to KMDSs Adoption in Higher Education

The barriers to KMDSs according to several recent researches (Birch and Burnett, 2009; Jurado and Pettersson, 2014; Ssekakubo *et. al*, 2011) are numerous, but majority of them can be summarised as technological related, organizational structure and cultural (corporate policies), pedagogical issues, lack of time, inadequate IT staff support, low awareness of knowledge management, inadequate IT skills and lack of knowledge sharing culture issues.

In addition, some of the difficulties in adopting knowledge management was reviewed by Chaffey (2011) as lack of concept and benefits of knowledge management, lack of staff time for knowledge management core activities (identify,

create, store, share and use knowledge), lack of knowledge management techniques, no encouragement to current knowledge sharing culture, no incentives or rewards given to employees for sharing knowledge, lack of e-business budget for implementing knowledge management ideas, lack of the right technology to implement knowledge management and no commitment/buy-in from senior management; these are the general knowledge management impediments affecting most industries in both developing and developed countries.

However, issues specific to higher education adoption of knowledge management have been identified by recent studies as cumbersome academic preparatory and teaching tasks for teachers, upgrading and uploading of course materials to the KMDS, need to publish or tender research outcome, intellectual property theft issues, high set-up and running costs and staff unwillingness to move to e-learning due to the learning curve (Ssekakubo et. al, 2011).

More so, other researchers have highlighted several barriers to KMDSs as IT legacy and new system integration issues, pedagogical issues such as course assessment, data migration - course materials, students records, task-based procedural manuals, etc., students, teaching staff and supportive collaborative issues (Kopcha, 2012; Moscinska and Rutkowski, 2011; Motaghian et. al, 2013).

However, some barriers mentioned above varies from one geographical region to another, and

some studies focusing on barriers peculiar to developing countries highlighted infrastructural problems as a common barrier in this region. In addition, recent studies that focused exclusively on African countries have identified that as part of the infrastructural problems plaguing this region, the rate of uninterrupted power supply in Nigeria is alarming with only 40 percent of country being connected to the national grid (Aliyuet. al, 2013; Oseni, 2012; Folorunso et. al, 2008; Bhuasiri et. al 2012). More so, other barriers in this region include poor level of awareness, high ownership costs, lack of IT budget are the prevalent issues in this region (Folorunso et. al, 2008; Ssekakubo et. al, 2011).

In summary, these issues can be classified into: personal, pedagogical and management challenges or impediments.

Enablers to KMDSs Adoption in Higher Education

Apart from using KMDSs in higher education, previous researches show that modern organisations have implemented these systems for training and enhancement of staff abilities, knowledge and skills. And the enablers to this initiatives as reviewed by Chaffey (2011) are increase in profit and revenue generation, skilled staff retention, enhancement of customer relationships, maintaining of market share against new rivals, quick access to market with products, expansion of products/service and entry of new market domain and operating cost reductions.

However, the factors that motivates the move to

KMDSs in higher education in developed and developing countries are slightly different from some of the factors mentioned above, being that they are specific to the higher education market sector, and these have been highlighted by some recent scholars (Bhuasiri *et. al*, 2012; Chaffey 2014; Kenan *et. al*, 2011; Louw, *et. al* 2009) as tailored and ongoing IT skill enhancement training for teaching and supportive staff and students alike, integration of clear corporate strategy with e-learning strategy to support the pedagogical policies and objectives of the universities, minimization of paper, minimization of running costs, IT systems efficiency and availability of key services, technology evangelists/promoters, skilled IT staff, enhance quick access to course resources or repository, improve the teaching and learning process including automating the process, enhance the quality of higher education services, expansion of services to leverage current use of educational technologies in higher education to retain old students and acquire new students and improving the collaboration between students and staff (Birch and Burnett, 2009; Chaffey, 2014).

Research Conceptual Framework

Technology Acceptance Model

A research framework generally provides the guidance for a researcher to establish the theories/boundaries that shapes the researchers thought about the research question, the process that will be undertaken, the different elements that must be consider with regards to the research question if the research is to be consider as a

contemporary piece of work, the data analyses method of generated field data, the methodologies to create a new knowledge and the procedure to evaluating the researcher's findings.

To this end, several field studies (Wang and Wang, 2009) have used the technology acceptance model as a theoretical framework to achieve the theoretical objectives of their research by helping to forecast if the stakeholders of an e-business system/information system will accept the system if implemented. It is considered as the most widely used theory for researching stakeholder's acceptance of emerging technologies.

The 'Theory of Reasoned Action' suggested by Fishbein and Ajzen (1975) was the basis for the technology acceptance model which was developed by Davis (Bhuasiri *et. al*, 2012; Korchmaros and Gump, 2009; Motaghian *et. al*, 2013; Escobar-Rodriquez and Monge-Lozano, 2012; Wang and Wang, 2009).

The model has four constructs which are the perceived usefulness, perceived ease of use, intention to use, and system use (Korchmaros and Gump, 2009; Motaghian *et. al*, 2013). Although, there are now several variations of this model, adding more constructs/factors to Davis' original four constructs (Motaghian *et. al*, 2013); this is beyond the scope of this study.

The perceived usefulness is the degree to which a potential user of the system believes that using the system will lead to achieving his/her goals. In the same manner, the perceived ease of use is the

degree to which a potential user believes that it is not difficult to use the system - user friendly - and it has a short learning curve.

In addition, the intention to use is the phase in this model when a potential users begins to consider using the system after being persuaded that the system will enhance his/her goal without making a task routine more complex.

Lastly, the system use depicts the actual deployment of the system in the user's business environment if the other three factors are true; otherwise if one of the other factors is false, the potential user will decline accepting the technology (Korchmaros and Gump, 2009; Motaghian *et. al*, 2013).

Diffusion of Innovation Theory

The diffusion of innovation theory just like the technology acceptance model is also widely used as a theoretical framework for exploring the visibility of emerging or new technologies.

This diffusion-adoption model was identified by Rogers (Chaffey, 2011; Birch and Burnett, 2009; Rogers, 2008; Rogers, 2003; Rogers, 2010) to help categorized individuals trying new technologies as early adopters, opinion leaders, early majority, late majority and laggards. However, a recent graphical modification of this model has been identified by a modern technology analyst Gartner (2005 cited Chaffey 2011), which is also beyond the scope of this study (Chaffey 2011).

This model is primarily used in two different ways by both business and IT managers to determine

the position users or customers has reached in the diffusion-adoption bell curve, using a new technology or product, which is helpful in making key informed business decision. For instance, KMDSs is now widely used in higher education in developed countries as opposed to developing countries which seemed to suggest that in the west, we are now in the late majority stage of this technology. However, no current literature was found to measure the current phase of this technology according to diffusion-adoption model. Thus, a manager's enquiries here is to find out if the rate of diffusion of the technology in its market or industry in order to avoid the risks of early IT investment into the technology that could cost the company a significant loss of money.

Secondly, the model could used by managers to scan their business environment to investigate if their rivals have adopted a new technology to consider if they should follow similar trend (Chaffey, 2011).

Gaps in Previous Work

Most of the previous works contributed (Jurado and Pettersson, 2014; Bhuasiri, 2012) to the body of knowledge in the domain of KMDSs were conducted using a post-implementation approach; this implies that the studies were aimed at finding out what happened (measuring staff and student use of KMDS with a view to overcoming limited use of this system) after a new KMDS was installed at a higher educational institution. For example, Jurado and Pettersson (2014) work was

based on a longitudinal study of KMDS which can be considered a post-implementation approach. However, the outcome their studies were peculiar to developed countries and outlined few barriers without a root cause for the barriers identified.

More so, Birch and Burnett (2009) and Dutta *et. al* (2013) conducted a case study to investigate the factors affecting the way academics adopt and streamline “*education technology and ICT*”. However, their studies used a post-implementation approach and reported some barriers to peculiar to teachers and students adoption of educational technologies like KMDS and also suggested enablers to encourage wide diffusion of KMDS in higher education.

In addition, most of the studies in this domain were carried out by researchers based in developed countries, focusing on how users (students, lecturers, tutors, supportive staff and top management) of these systems are using them to achieve the pedagogical objectives of their institutions. And some of the previous work carried out was aimed at finding out the barriers preventing some teachers from adopting KMDSs in their faculties, even after being aware of the benefits of using these systems to support the teaching and learning processes; studies in this area were aimed at using the emerging trends in educational technologies to achieve pedagogical objectives.

Furthermore, the studies seeking remedial solutions to the barriers preventing both early and

late adoption of these systems were aimed at establishing the factors that might promote the use of these systems by teaching and supportive staff. Similarly, some studies have been conducted measuring students’ usage of these systems too with a view to find out factors that might promote adoption of these systems; these studies were aimed at contributing to the well-being of teaching, support staff and students.

More so, most of the studies carried out on the barriers and enablers by researchers in developed and developing countries were conducted using survey strategies (research methodologies) and questionnaires to generation data; this implies that the data set generated were not rich enough compared to the benefits of using an interview, observation and document approaches to obtain a richer, holistic and natural data set from multiple data sources (case study strategy). And the most case study-based research work done was either a descriptive or explanatory case studies.

But only a small proportion of studies used an exploratory case study approach to identify the barriers and enablers to KMDSs. And remarkably, these studies did not explore the root cause of these problems which would have been beneficial to inform future researchers to define their research questions or form hypotheses to prove or disprove in surveys.

However, only few researches have been carried out to underpin the need for higher educational institutions to develop a new e-learning policies/e-business strategy, in order to integrate these

strategies and align their IT investments with corporate strategy for better profit turnover and defending of their market share in the educational sector.

Finally, no research within these domain have been done using a pre-implementation approach to identify emerging barriers that might be impeding developing countries with vast human and natural resources, yet still plagued with several fundamental and social issues affecting the pedagogical objectives and strategic goals of higher educational institutions from adopting KMDSs. A pre-implementation approach is a preventive approach to these problems (by discovering their root cause) already highlighted by previous researchers. In addition, one of objectives of this study is to develop a better understanding of the problems affecting higher education communities and emerging knowledge management technologies that might help them to inform their teaching methods and pedagogy; the findings might help knowledge management and e-learning software developers to design better systems for them.

Summary

The aim of this study was to find out the barriers that have been impeding Imo State University in Nigeria from reaching their maximum goal of becoming “*a first class university*” (see vision statement on their website) by adopting knowledge management developmental system to improve their teaching and learning process. More so, the study was conducted to identify

enablers that might improve the general well-being of the university community and lead to the adoption.

Thus, an exploratory case study was conducted at the university and the questionnaire results revealed that there are 35 barriers impeding this university’s adoption of KMDS, while the interview transcripts showed that there at least 21 barriers (including barriers previously identified in the questionnaire results) to the adoption of KMDS; 16 barriers out of 21 barriers suggested 40 root causes to these barriers.

In contrast, the questionnaire results indicated 17 enablers to their corresponding barriers, while the interview transcripts also suggested 31 enablers to the barriers identified, with 52 additional catalytic enablers to the main enablers.

The findings of this study can be generalized to most universities in Nigeria and although enablers that may resolve some of the barriers have been identified, the results from a pre-implementation view, suggests that IMSU and potential early-adopters might not start the innovators stage of diffusion-adoption process, if the major barriers are not rectified soon. For example, a key findings from the interviews transcripts suggests that incessant electricity power supply is the key issue in Imo State and Nigeria in general, which has crippled e-learning pursuits and most knowledge management initiatives in higher education.

In addition, the low-level of knowledge

management awareness as a result of its root causes identified suggests that the university's communities do not have knowledge management culture. Consequently, they do not understand and perceive its key benefits in higher education. These lacks of knowledge seem to be the rationale for lack of proper IT governance to utilize any free funds for knowledge management technologies investment.

On the contrary, with the exception of stable electricity power supply (which is beyond the control of the university) the findings suggests that if the university management at any point in time starts thinking towards the 9 critical enablers: (rows with at least 5 asterisks in the interview transcripts results), there is a tendency that IMSU may accept this technology and reach the 'system use' stage of the technology acceptance model (Motaghian *et. al*, 2013). The justification for this prediction is rooted in this theory and the evidence given in both questionnaire and interview transcripts that if IMSU perceived the benefits of KMDS, and its ease of use due to the upgraded ICT skills of its staff and students, their intention to use the system will increase and adequate funds will be provided. If the outcome of the analysis performed suggests that the benefits to them outweighs the costs, then, the technology acceptance model theory of finally adopting the system will come true (Korchmaros and Gump, 2009; Moscinska and Rutkowski, 2011).

However, as suggested by one of the teaching groups interviewed, "Teaching Staff Group B

(6)/08/Dec/2014"(see Appendix D - Qualitative Analysis of Interview):

"it maybe easier for private universitiesto seek alternative sources of power generation because the founders of private universities can implement projects swiftly if they think it will improve the visibility of their business without consulting their management team".

More so, most of the findings of this study has already been highlighted by previous researchers and can be generalised to other higher educational institutions in developed countries(Louw, *et. al* 2009).

Nevertheless, barriers such as incessant electricity power supply, poor communication/relationship between student and staff, lack of government support with their corresponding root causes are exclusive to developing countries (Louw, *et. al* 2009).

Recommendations

This study was conducted to explore, if possible, all barriers and enablers to KMDS adoption and also to serve as a source of projects ideas to establish research questions/hypotheses by future researchers. Similarly, the findings reported will help researchers evaluate the use of KMDS in higher education, secondary schools, corporate organizations and primary schools.

In addition, key findings suggest the need for future research to explore the issues of incessant electricity power supply, lack of government interest and support and poor

communication/relationship between student and staff issues in Nigeria.

REFERENCES

- Abubakar, A., Shneikat, B. and Oday, A. (2014). Motivational factors for educational tourism: A case study in Northern Cyprus. *Tourism Management Perspectives*, 11, pp.58-62.
- Agrawal, A., Kapur, D., McHale, J. and Oettl, A. (2011). Brain drain or brain bank? The impact of skilled emigration on poor-country innovation. *Journal of Urban Economics*, 69(1), pp.43-55.
- Aimiuwu, E. and Bapna, S. (2013). Utilizing Business Intelligence to Enhance Online Education at For-Profit and Non-Profit Institutions. *International Journal of Business Intelligence Research*, 4(1), pp.29-42.
- Akhavan, P. and Pezeshkan, A. (2014). Knowledge management critical failure factors: a multi-case study. *VINE*, 44(1), pp.22-41.
- Aliyu, A., Ramli, A. and Saleh, M. (2013). Nigeria electricity crisis: Power generation capacity expansion and environmental ramifications. *Energy*, 61, pp.354-367.
- Beins, B. and McCarthy, M. (2012). *Research methods and statistics*. Boston: Pearson.
- Bhuasiri, W., Xaymoungkhoun, O., Zo, H., Rho, J. and Ciganek, A. (2012). Critical success factors for e-learning in developing countries: A comparative analysis between ICT experts and faculty. *Computers & Education*, 58(2), pp.843-855.
- Birch, D., & Burnett, B. (2009). Bringing academics on board: Encouraging institution-wide diffusion of e-learning environments. *Australasian Journal of Educational Technology*, 25(1), 117-134.
- Chaffey, D. (2011). *E-business & e-commerce management*. Harlow: Financial Times Prentice Hall.
- Chaffey, D. (2014). *E-business & e-commerce management*. Pearson education, Essex.
- Chaudhuri, S., Dayal, U. and Narasayya, V. (2011). An overview of business intelligence technology. *Commun. ACM*, 54(8), p.88.
- Chea, A. (2009). Exemplary Models of Firm Innovation: Strategy and Leadership for the Twenty-First Century Competitive Environment. *International Business Research*, 2(2).
- Chennamaneni, A., & Brown, J. G. (2013). Improving Knowledge Management in e-Learning: A Contingent Framework for Efficient Knowledge Transfer. pp.22-41.
- Conde, M., García, F., Rodríguez-Conde, M., Alier, M. and García-Holgado, A. (2014). Perceived openness of Learning Management Systems by students and teachers in education and technology courses. *Computers in Human Behavior*, 31, pp.517-526.
- Connolly, T. and Begg, C. (2005). *Database systems*. Harlow, Essex, England: Addison-Wesley.
- Devi Ramachandran, S., Chong, S. and Wong, K. (2013). Knowledge management practices and enablers in public universities: a gap analysis. *Campus-Wide Information Systems*, 30(2), pp.76-94.
- Dutta, A., Roy, R., & Seetharaman, P. (2013). Course management system adoption and usage: A process theoretic perspective. *Computers in Human Behavior*, 29(6), 2535-2545.

- Erah, P. and Dairo, E. (2009). Pharmacy Students Perception of the Application of Learning Management System in Patient-oriented Pharmacy Education: University of Benin Experience. *Int J Health Res*, 1(2).
- Escobar-Rodriguez, T. and Monge-Lozano, P. (2012). The acceptance of Moodle technology by business administration students. *Computers & Education*, 58(4), pp.1085-1093.
- Folorunso, O., Shawn Ogunseye, O. and Sharma, S. (2006). An exploratory study of the critical factors affecting the acceptability of e-learning in Nigerian universities. *Information Management & Computer Security*, 14(5), pp.496-505.
- Islam, *et.al.* (2011). Adopting knowledge management in an e-learning system: Insights and views of KM and EL research scholars. *Knowledge Management & E-Learning: An International Journal (KM&EL)*, 3(3), 375-398.
- Jognson,G. , Whittington, R. and Scholes, K.(2011). *Exploring strategy*. Essex, England: Person education
- Johnson, *et al*, (2008). *Exploring corporate strategy*. 1st ed. Harlow: Prentice Hall.
- Jurado,.G and Pettersson, T.(2014). The use of learning management systems: a case study. *E-learning and education*, 8(1), 1-12.
- Kenan, T., Pislaru, C., & Elzawi, A. (2011). Comparing the impact of E-learning and ICT in Higher Education institutions in Libya and United Kingdom.
- Khalaf Ahmad, A. and Ali Al-Zu'bi, H. (2011). E-banking Functionality and Outcomes of Customer Satisfaction: An Empirical Investigation. *IJMS*, 3(1).
- Kopcha, T. (2012). Teachers' perceptions of the barriers to technology integration and practices with technology under situated professional development. *Computers & Education*, 59(4), pp.1109-1121.
- Korchmaros, J. and Gump, N. (2009). Evaluation of using Course-Management Software. *College Teaching*, 57(3), pp.161-166.
- Laferrière, T., Hamel, C. and Searson, M. (2013). Barriers to successful implementation of technology integration in educational settings: a case study. *Journal of Computer Assisted Learning*, 29(5), pp.463-473.
- Lai, J. and Chen, W. (2009). Measuring e-business dependability: The employee perspective. *Journal of Systems and Software*, 82(6), pp.1046-1055.
- Louw, J., Brown, C., Muller, J. and Soudien, C. (2009). Instructional technologies in social science instruction in South Africa. *Computers & Education*, 53(2), pp.234-242.
- Moscinska, K., & Rutkowski, J. (2011). Barriers to Introduction of e-learning: a Case Study. *In Global Engineering Education Conference (EDUCON), 2011 IEEE* (pp. 460-465). IEEE.
- Motaghian, H., Hassanzadeh, A. and Moghadam, D. (2013). Factors affecting university instructors' adoption of web-based learning systems: Case study of Iran. *Computers & Education*, 61, pp.158-167.
- Němečková, T. and Krylova, P. (2014). Corrigendum to “The Czech government scholarship programme for students from developing countries – Evaluation findings and policy reflections” [Eval. Program Plan. 43 (2014) 83–92]. *Evaluation and Program Planning*, 45, p.182.

- Nonaka, I. and Takeuchi, H. (1995) *The knowledge-creating company: how Japanese companies create the dynamics of innovation*. Oxford University Press
- Nordtveit, B. (2011). An emerging donor in education and development: A case study of China in Cameroon. *International Journal of Educational Development*, 31(2), pp.99-108.
- Oates, B. (2006). *Researching information systems and computing*. London: SAGE Publications.
- Oseni, M. (2012). Improving households' access to electricity and energy consumption pattern in Nigeria: Renewable energy alternative. *Renewable and Sustainable Energy Reviews*, 16(6), pp.3967-3974.
- Parazoglou, M. P. (2006). *E-Business Organisational & Technical Foundations*. John Wiley & Sons
- Pei Lyn Grace, T. (2009). Wikis as a knowledge management tool. *Journal of Knowledge Management*, 13(4), pp.64-74.
- Pickard, A. (2007). *Research methods in information*. London: Facet.
- Rogers, E. M. (2003). *Diffusion of innovations*. Simon and Schuster.
- Rogers, E. M. (2010). *Diffusion of innovations*. Simon and Schuster.
- Sako, M. (2012). Business models for strategy and innovation. *Commun. ACM*, 55(7), p.22.
- Salehi, M. and Alipour, M. (2010). E-Banking in Emerging Economy: Empirical Evidence of Iran. *International Journal of Economics and Finance*, 2(1).
- Schneckenberg, D. (2009). Understanding the real barriers to technology-enhanced innovation in higher education. *Educational Research*, 51(4), pp.411-424.
- Shin, J. and Park, Y. (2009). On the creation and evaluation of e-business model variants: The case of auction. *Industrial Marketing Management*, 38(3), pp.324-337.
- Soon, L., & Sarrafzadeh, M. (2010, June). Student experiences: collaboration for group assignment in distance education. In *Education Technology and Computer (ICETC), 2010 2nd International Conference on* (Vol. 2, pp. V2-421).
- Ssekakubo, G., Suleman, H., & Marsden, G. (2011). Issues of adoption: have e-learning management systems fulfilled their potential in developing countries.(pp. 231-238).
- Su, Q., Li, L. and Cui, Y. (2009). Analysing relational benefits in e-business environment from behavioural perspective. *Syst. Res.*, 26(2), pp.129-142
- Tamuliene, V. and Gabryte, I. (2014). Factors Influencing Customer Retention: Case Study of Lithuanian Mobile Operators. *Procedia - Social and Behavioral Sciences*, 156, pp.447-451.
- Teece, D. (2010). Business Models, Business Strategy and Innovation. *Long Range Planning*, 43(2-3), pp.172-194.
- Wang, Q., Woo, H., Quek, C., Yang, Y. and Liu, M. (2012). Using the Facebook group as a learning management system: An exploratory study. *British Journal of Educational Technology*, 43(3), pp.428-438.
- Wang, W. and Wang, C. (2009). An empirical study of instructor adoption of web-based learning systems. *Computers & Education*, 53(3), pp.761-774.

Xu, S., Xu, L. and Basl, J. (2012). Introduction: advances in E-business engineering. *Information Technology and Management*, 13(4), pp.201-204.

Yee-Loong Chong, A., Ooi, K., Lin, B. and Yi Tang, S. (2009). Influence of interorganizational relationships on SMEs' e-business adoption. *Internet Research*, 19(3), pp.313-331.

Zamani Moghaddam, A., Mosakhani, M. and Aalabeiki, M. (2013). A study on relationships between critical success factors of knowledge management and competitive advantage. *j.msl*, pp.2915-2922.