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ABSTRACT

The Internet has revolutionized the business environment, enabling the conception of the e-economy. Irrespective of the technology divide between developed and developing countries, it is imperative for multinational corporations, their affiliates, and local businesses operating in these economies to use the Internet to sustain their competitive edge in a global market. Hence, this paper provides theoretical insights into Internet usage progression in an emerging economy.

Furthermore, the paper examines empirical factors that influence Internet usage in an organizational context. Data gathered from 224 employees who had access to the Internet at work in 33 organizations in Nigeria were used to examine the relationships between Internet skills, management support, and Internet usage. We also investigated the moderating effects of attitudes on the skills, support, and Internet usage relationships. The correlation and regression results provide strong support for the hypothesized relationships. The findings reveal that Internet skills (general and advanced) and management support contribute to Internet usage in organizations in the emerging economy. Some moderating effects of attitudes were also found. Implications and directions for future studies are discussed.

INTERNET USAGE IN AN EMERGING ECONOMY: THE ROLE OF SKILLS, SUPPORT, AND ATTITUDES

The Internet has revolutionized the business environment enabling the conception of the e-economy. Organizations recognize that participating in an e-economy is imperative for survival in an intensely competitive, dynamic, and global marketplace (Financial Executive 2000; Stephens 1999; Boudreau et al. 1998). Hence, the proliferation of various business forms and work arrangements such as e-businesses, e-commerce, m-businesses, and m-commerce. The overriding benefit of the e-businesses (e.g. e-commerce) is their capability to establish direct links to almost anyone, at any given location, anywhere, and to deliver new products and services at low cost; adjust quickly to customers' needs; become faster in gathering, analyzing, synthesizing, and sharing information (Ghosh 1998; Hodgetts et al. 1999).

With such realization, Internet usage has generated worldwide interest spanning various issues and across disciplines. A syntheses of most of these writings can be categorized under the following streams: generally acclaimed benefits of the Internet by constituents of the developed and developing countries (Leiner et al. 1997; Karakaya and Karakaya 1998; Partrick 1999); potential of the Internet to bridge the technology and economic divide between the developed and developing countries (Atkinson 2000; O'Kane 2000; Gerstenzang 1999); the opportunities, challenges, and constraints posed by the technologically impoverished developing countries, especially in Africa (Maddy 2000; Jensen 1999; Petrazzini and Kibati, 1999; Awde 1998).

Empirical research on Internet usage and its implications has similarly been broad, as researchers explore the relationships between Internet commerce and the customer (Keeny 1999), marketing issues relating to the different forms of e-businesses (Brynjolfsson and Smith 2000; Sullivan 1999) partnerships and alliances fostered by the Internet and its outreach (Dewan, Freimer, and Seidmann 2000). Yet the topic of Internet usage in organizations or factors that influence Internet usage have been noted in the popular press (Financial Executive 1999), but have not been the focus of much empirical work. Exceptions include Anandarajan, Simmers & Igbaria (2000) who examined the antecedents and impact of Internet usage. They found Internet usage to contribute to both positive and negative outcomes for e-business. This study was based on a sample from the U.S. and was a test of the Theory of Reasoned Action. Research on microcomputer usage and technology acceptance (Anakwe et al. 1999, 2000; Igbaria et al. 1995; Straub et al. 1995; Thompson 1994; Igbaria 1992) provides insight into the factors that could influence Internet usage.

However, since Internet usage is positioned more as an interface, an enabler, and the building block for transactions in an e-economy, it is pertinent to focus and examine Internet usage across the globe (developed and developing countries). In most of the developed countries where Internet usage has grown exponentially since its inception in 1969 (Karakaya and Karakaya 1998), understanding factors that influence its use is not as critical as it is in developing countries of Africa. There, the relatively low use of the Internet can be stifling for multinational corporations and other businesses. Although, organizations face some challenges in their use of the Internet in developed countries, they contend with greater and more testing challenges in their use of the Internet in developing countries. The focus of this paper is Internet usage in Nigeria –

an emerging economy. Nigeria is among the 54 developing countries that were considered emerging economies by the International Finance Corporation (IFC) in 1999 (Hoskisson et al. 2000). Multinational organizations operating in an e-economy use the Internet to conduct global business transactions both across their operations and outside their organizations. Some of the operations or affiliates of these organizations are located in developing countries (Awde 1999). For instance, Nigeria is home to over 200 multinational companies including IBM, Hewlett Packard, NCR, Motorola, Dell, Oracle, Novell Inc., Intel, Sun Microsystems, UNISYS, Digital Communications Ltd., Ciba-Geigy, Standard Chartered Bank, ING Barring, and Citibank (Geo-Jaja 2000; Jason 1997; Thompson 1994). In some of the developing countries (e.g., Ghana, Kenya, and Nigeria) multinational corporations are active participants in the development and implementation of new Internet based technologies (Aragba-Akpore 1999; Jensen 1999). Local companies have professed serious commitment to the Internet and participation in Internet enabled businesses as well (Akinmutimi 2000).

Hence, irrespective of the constraints and challenges of ensuring Internet access to developing countries at a level comparable in developed countries, having access to the Internet is a business necessity within local companies and multinational corporations. For these companies and others, since Internet usage is fundamental to achieving various organizational objectives and outcomes as well as personal outcomes, there is a need to understand how employees use the Internet and to also evaluate the factors that influence their use of the Internet in organizations in developing countries or emerging economies. Consequently, we address the following research questions: (1) What factors influence Internet usage in developing countries such as Nigeria? (2) How can Internet usage be enhanced in organizations in developing countries or emerging economies (e.g., Nigeria)? What are the implications of the findings resulting from these two questions for businesses currently operating in Nigeria and similar environments and for a global market that needs to become boundariless to maximize its potential.

This paper addresses these research questions in the context of the gaps that exist in the literature: (1) the need to examine these research questions in the context of a developing country or an emerging economy; (2) the need for a more balanced representation of topical issues in countries of Sub-Saharan Africa such as Nigeria; (3) the need to create theoretical and empirical research platforms upon which to build a literature, where none now exists that examines Internet usage within an organizational context in the countries of sub-Saharan Africa (e.g. Nigeria). For these economies, the socio-economic factors, political climate, cultural factors, history, and other environmental factors impact on the meaning attached to the Internet, how it is perceived and expectations from Internet usage. Also, transferring theories and findings based on developed economies to developing economies have had mixed reviews. Most of the writings are rhetorical as they are overtly focused on the constraints, challenges, and difficulties without recognizing the capability and ingenuity of the organizations and people to adapt and operate within the environmental realities of these economies.

In summary, this paper has two parts: a descriptive – theoretical account of Internet usage in Nigeria and an empirical investigation of Internet usage in an organizational context. The descriptive part of the paper describes Internet usage progression in Nigeria, highlighting relevant

contextual factors followed by insights from the institutional and related theories. The empirical aspect of the paper focuses on Internet usage in an organizational context and addresses the two research questions – by examining the influence of Internet skills (general and advanced) and management support on Internet usage. Also, it examines the moderating effects of attitudes towards the Internet on the relationship between Internet skills and Internet usage, as well as the moderating effects of attitudes on the relationship between management support and Internet usage.

INTERNET USAGE IN NIGERIA

Consistent with most of the world, Nigeria recognizes the Internet as one of the most pervasive Information technology advances in recent years. For instance, the president of the Nigerian Communications Commission (NCC) – the national regulator of communication stated that the "Internet will replace nearly all the vehicles for business transaction, commercial activities, learning processes, and will change the way the world economy functions"(Ugwoke 2000, 1008209u3122). However, the Internet has experienced relatively slow growth in Nigeria and other countries in the poorer regions of the world such as sub-Saharan Africa. Nigeria is among the nine countries in Africa that achieved full Internet access in their capital cities and some secondary towns by 1998 (Jensen 1998). Though, on a global scale, it was predicted that there would be over 700 million Internet users by 2001 and over 900 million electronic devices could be connected to the Internet within five years (Brown 2000).

Increasing Internet usage in Nigeria and other developing countries has attracted a lot of attention (Persaud 2000; Ugwoke 2000; Petrazzini and Kibati 1999). Most of the writings emphasize the capability of the Internet in bridging the technological divide between developed and developing countries. However, they identify challenges and constraints (e.g., lack of adequate infrastructure, restrictive decisions, and inappropriate policies vis-à-vis global telecommunications trend; lack of competition, especially in international service) that limit increasing access to the Internet; they also suggest and promote initiatives to alleviate these challenges. There is also growing concern that, as technology becomes an increasingly important part of the global economy, sub-Saharan Africa, which has approximately 10 percent of the world's population but just 0.1 percent of Internet connections, will be left behind (Brown 2000). In response, notable parties such as the World Bank, the United Nations, and other international agencies, governments, local businesses, and multinational companies and/or their affiliates, have been instrumental to increasing Internet access in Nigeria and other developing countries. With respect to Nigeria and the scope of this paper, we will highlight the influence of three of these groups – government, local businesses, multinational companies and/or affiliates on Internet usage in Nigeria.

Government and Internet Usage

> "Any government of any nation that wants to grow wealthier has to have the basics right – managing the economy well, keeping the markets open establishing the rule of law, creating a good climate for investment" (Vanguard 28 August 2000).

The above excerpt from President Clinton's speech on his visit to Nigeria highlights the significant role of the government in conducting the affairs of any country. Though, the extent of government involvement varies with respect to the type of government, the level of development, and the sophistication of the particular society. Most developed countries have a democratic or mixed system of government, a developed market economy, an established and functional legal system, and a developed human capital. Consequently, they have experienced more success in advancing the needs of the people and have achieved more progress in all aspects of development.

Nigeria has been regressive in promoting initiatives to increase Internet usage because of its history of political instability and military regimes with totalitarian forms of government, fledgling market economy, poorly enforceable legal system, and scarce human capital. However, its transition to a more democratic form of government since 1998 has contributed to recent positive developments in many sectors of the economy including telecommunication.

The government through the NCC is pursuing an aggressive agenda geared toward addressing the inadequate infrastructure, breaking up communication monopolies and enacting policies, rules, and regulations that promote active participation of businesses and other parties in the telecommunication sector; encouraging innovation through tax incentives, strengthening of financial markets, and nurturing a knowledgeable workforce through on-the-job training initiatives (Persaud 2000). For example, greater access to the Internet is predicted with the latest approval by the NCC to allow business centers to offer telephony and related services (Vanguard 9 August 2000). The NCC has developed a collaborative working relationship with non-profit academic-based organizations such as the Nigerian Internet Society that are devoted to increasing use of the Internet and other technologies. It has welcomed input from these organizations in developing a national communications strategy. It sponsors summits/workshops or conferences geared towards sharing ideas and increasing awareness of the Internet, along with suggesting progressive practices and policies toward Internet use (Jensen 1999).

Through government directives, the national telecommunications operator, Nitel, is setting up a national Internet backbone and has established a relationship with Global One in the United States to provide the necessary link for Internet service. The government has authorized independent licenses to companies such as Motorphone, Omnes, and Trend Communications to establish Internet and voice services.

The government's emphasis on increasing privatization of the telecommunications and other industries is fostering more innovation. Knight (2000) expressed the need to leapfrog traditional phone technology and implement a technology infrastructure that can meet current and future world standards. Presently, local companies, in partnerships with multinational companies or multinationals and their affiliates, are developing alternatives such as digital wireless technology to bypass the inadequate infrastructure.

Local Businesses, Multinational Corporations, and/or Affiliates

Local businesses, multinational corporations, and/or their affiliates are all contributing to increasing Internet usage in Nigeria. These businesses, which include banks, oil companies, advertising firms, and small and medium sized technology based companies, are responding to the global trends in Information Technology (IT). For instance, 100 percent of the Association of Advertising Practitioners of Nigeria (AAPN) agencies have computerized all their operations and 40-50 percent of the agencies have various levels of access on the Internet (Amuzu C 1998). In addition, the brewery and cigarette industry invested 20 percent of their total revenue in 1998 to infrastructural development (Amuzu 1998).

Local companies such as INLAKS computers are in partnership with multinational companies such as Unisys, QAD Inc. of the USA, DataStream and Liebert to maintain a competitive edge in the high-profile end of the IT business. In October 1999, INLAKS computers acquired a JavaBased product that enabled it to interface with the Internet. This development supports the use of electronic and Internet banking (Aihe 2000).

The banks have always kept abreast of technological advances and have been described as "pockets of sophistication" in Africa. For example, the executive director of one of the new generation banks, Diamond Bank Limited, discussed his bank's introduction of "FLEXCUBE," designed to operate as a fully automated system. However, he acknowledged that the system is more automated than the environment and there are provisions to modify or adjust it, and provide the customers with the infrastructure to operate in the system. His bank is committed to providing e-banking in addition to Internet banking, which he felt better addressed the company's remote needs (Vanguard 11 September 2000).

Competition among the banks and competition among IT companies striving to provide high-quality and the latest technology to the banking industry are increasing Internet usage. For example, Gemcard Nigeria Limited and BT limited, a Lagos-based IT company in partnership with Dello Sc Associates Incorporated of the U.S. and STM Wireless Incorporated of USA, have introduced Internet-based international money transfer systems such as "SmartPay," "Money Net," and "Cash fast." These allow payment and transactions through the Internet and have been adopted by some banks (Akinmutimi 2000; Vanguard March 2000).

In summary, increasing Internet usage in Nigeria is a high priority. Policies and practices of the Nigerian government and its agencies, along with initiatives from various organizations (local and multinationals), are promoting increased use of the Internet.

THEORETICAL INSIGHTS

This section provides a theoretical explanation of Internet usage progression in Nigeria. Theoretical and empirical insights into organizations' actions and decision-making have benefited from various theoretical perspectives such as the institutional theory, the transactions cost, and the resource dependency. The application of any of these theoretical perspectives to

developing countries is sparse. Hoskisson et al. (2000) noted that in the early stages of market emergence, institutional theory is useful in helping to explain impacts on enterprise strategies. This is because government and societal influences are stronger in these emerging or developing economies than in established economies. Shenkar and von Glinow (1994) also posit the institutional perspective as the most suited paradigm to explain enterprise behavior in developing/emerging economies.

The focus of most of the writings on these theories has been at the macro level, predicting organizations' choice and actions from the environment and market forces. Some of the writings have also considered the micro issues, incorporating the element of cognitions from the environment and market forces and their impact on individual actions. Typically, the institutional theory and related theories are utilized mainly to explain and provide rationale for organizations' actions, thereby making organizations or their actions the levels of analysis. Though, more recently, a multi-level analysis has been advocated (Hoskisson et al. 2000).

However, this paper deviates from the above by drawing upon insights from the institutional theory to explain factors that have influenced the lows and highs of an organizational phenomenon – Internet usage in a developing/emerging economy. Thus, it extends aspects of a traditional theory grounded in studies based mainly on developed countries to understanding the progression of Internet usage in a developing economy.

Institutional theory is cognizant of the influences of the systems surrounding organizations that shape social and organizational behavior (Scott 1995). These systems can vary slightly for different organizations depending on what constitutes systems for particular organizations. DiMaggio and Powell (1983) use the term organizational fields to synthesize environmental influences on organizations. Organizational fields are "organizations that, in the aggregate, constitute a recognized area of institutional life: key suppliers, resources and product customers, regulatory agencies, and other organizations that provide similar services or products" (DiMaggio and Powell 1983, 148; c.f. Boons and Strannegard 2000). Such conceptualization of the environment suggests that in an international setting, the environment comprises a collective organizational field including manufacturers, parent and host governments, consumer organizations, and subsidiaries of other organizations (Davis et al. 2000).

Internet usage in Nigeria has been influenced by the characteristics of the environment before and after the democratic government election of 1998. Prior to 1998, organizations faced a very restrictive and unsupportive environment that hampered the growth of the Internet in many sectors of the economy. However, organizations in the banking and oil sectors as well as multinational corporations used the Internet more consistently with world trend. The banks and oil companies have always been described as the "pockets of sophistication" in Africa. Internet usage by these organizations was driven by competition within the local and global economy. Some new banks, called the second-generation banks, started up in Nigeria with an extensive automation platform. These banks became the leaders in technological advances. Other banks became followers. The environment and the mimetic behaviors of the various organizations influenced Internet usage during this period. It also became apparent that institutional constraints built into this environment forced the organizations to become more

innovative (wireless technologies) and seek out alternatives to move beyond the constraints (Oliver 1991).

From 1998 to the present, businesses in Nigeria faced a different environment characterized by a stable democratic government, rapid and widespread adoption of market-based policies, restructuring and privatization of public enterprises, openness and favorable policies, and incentives to attract foreign investments. With the present environment, Nigeria meets these criteria: a rapid pace of economic development, and government policies favoring economic liberalization and the adoption of a free market system that describes an emerging economy (Hoskisson et al. 2000).

For organizations operating in Nigeria, the institutional realities are those of support and growth. From the institutional theory perspective, local businesses, and multinational corporations or their affiliates are responding to the institutional progressive policies and practices that increase Internet usage. Nigerian businesses are adapting current institutional realities to those of the past, resulting in more adaptive and winning strategies. Assuming the supportive and progressive environment continues, the institutional theory and related theories, suggest that Internet usage in organizations and with the general population in Nigeria will grow. Thus the descriptive and theoretical discussion of the Internet usage progression in Nigeria establishes the context in which organizations that use the Internet function, thereby providing the background justification for the empirical inquiry.

Dependent Variable

Internet usage. The benefits of Internet usage in organizations are generally acknowledged. The Internet is the backbone for many electronic services offered by numerous organizations in Nigeria and across the globe. We focus on Internet usage as our dependent variable with the following indicators: actual daily use of the Internet, frequency of use of the Internet, and the number of business activities or tasks performed using the Internet. These indicators were adopted from Anandarajan et al. (2000). Similar indicators have been used to measure microcomputer/information technology usage.

Independent Variables

Internet skills. Internet skills are critical to functioning successfully in the new e-economy, which is characterized by extensive use of the Internet and rapid adoption of Internet-based technologies. The demand for employees or candidates with Internet skills has been strong (Helenius 1998). With the predicted Internet usage increasing globally to 900 million by 2005 (Brown, 2000), there will be greater need for Internet skills. Many companies are taking the initiative of having their own in-house training or seeking out candidates from academic programs that provide Internet skills (Pepe 1998).

With the versatility of the Internet and its use, the Internet skills needed for different functions vary from general skills to more sophisticated web skills. The demand for these two types of skills is strong but even stronger for advanced Internet skills such as Java and web-based

skills (McGee 1999). Subsequently, there might be differences in the relationship between the type of skills and work outcomes. We thereby distinguish between general Internet skills and advanced Internet skills.

The relationship between Internet skills (general and advanced) and Internet usage is even more critical for Nigeria (a developing/emerging economy). Access to the Internet is provided mainly by the employing organization. Hence, Internet skills are acquired and utilized mostly in the work environment. Gaining Internet skills in the Nigerian environment can be competitive, thereby fostering individual initiatives to learn on the job and enhance one's skills by continuous use. Thus we state the following hypotheses for the two types of skills:

Hypothesis 1: Internet skills (general) will be positively related to (a) daily use of the Internet, (b) to frequency of Internet use, (c) the number of business activities performed using the Internet.

Hypothesis 2: Internet skills (advanced) will be positively related to (a) daily use of the Internet, (b) frequency of Internet use, (c) the number of business activities performed using the Internet.

Management Support

Researchers have emphasized the importance of management support to achieving individual and organizational outcomes (Lawler 1986, 1992; Igbaria et al. 1995, Thompson et al. 1991; Tesluk et al. 1999; Lynn et al. 2000; Ramus and Steger 2000). Lack of management support has been noted as a critical barrier to effective utilization of computers and negative work outcomes (Fenton-O'Creevy 1998; Fuerst and Cheney 1982; Igbaria 1990).

In the present study, management support entails positive management attitudes towards the Internet based on contextual and cultural factors. This includes top management encouragement and allocation of resources (Guimaraes and Igbaria 1997). Since Internet usage is relatively new in Nigerian society, presently most employees have access to the Internet mainly through their jobs. As such, support from management in the form of positive attitude, encouragement, providing opportunities and resources is quite salient. Culturally, employees respect authority and welcome directives and guidance from their superiors in executing daily functions (Hofstede 1997). Thus, we propose the following hypotheses:

Hypothesis 3: Management support will be positively related to (a) daily use of the Internet, (b) frequency of Internet use, (c) the number of business activities performed using the Internet.

Moderating Effects

We examine the moderating effects of attitudes (pessimism, optimism, and intimidation) towards the Internet on the predicted relationships. Attitude is generally described as

predisposition to respond in a positive or negative manner towards someone or something in one's environment. The relationship between attitudes and behaviors has been discussed extensively in the literature. The Theory of Reasoned Action (Fishbein and Ajzen 1975) and the Theory of Planned Behavior (Ajzen 1991) are examples of theoretical works that have guided research on attitude/behavior linkages. In these models and related research, attitude has been studied as a mediating variable. However, these theories and most of the research were based on developed economies. In a developing country context such as Nigeria, management support and Internet skills carry different levels of significance and expectations for employees compared to their counterparts in developed countries. The novelty of the Internet and the lack of previous exposure to it support the treatment of attitude as exploratory – an independent variable, mediator, or moderator. It suffices as a moderator for this study. We thereby state the following hypotheses:

Hypothesis 4: Internet attitudes (pessimism, optimism, and intimidation) will moderate the relationship between Internet skills and (a) daily use of the Internet, (b) frequency of Internet use, (c) the number of business activities performed using the Internet.

Hypothesis 5: Internet attitudes (pessimism, optimism, intimidation) will moderate the relationship between management support and (a) daily use of the Internet, (b) frequency of Internet use, (c) the number of business activities performed using the Internet.

Methodology

Procedure. Three hundred surveys were mailed to two contact persons in Lagos, the largest city in Nigeria. They administered the surveys to employees working in 33 organizations where they have access to the Internet. The organizations included both multinational corporations, especially in the oil and computer industry as well as banks, local companies, and affiliates of multinational companies, primarily in the delivery and provision of Internet services. Each survey was accompanied by a cover letter that explained the purpose of the study and ensured confidentiality of participants' responses. A raffle form was enclosed with each survey along with a return addressed envelope. Participants who completed their surveys and returned them to their administrators within the specified date qualified for a drawing of $100.00. We affixed matched pairs of research numbers on the surveys and the raffle forms for each participant to ensure that only completed surveys were eligible for the drawing.

Sample. Two hundred and forty-two surveys were returned, resulting in a response rate of 69 percent. However, only 224 of the respondents who had access to the Internet at work were retained for data analysis. The respondents included 25 percent of technical staff and over 40 percent were middle level and lower level managers. Seventeen percent of the sample held support staff positions and 12 percent were top management. Nearly 65 percent of the respondents were male (145); the average age was 30.52 years of age (standard deviation = 6.61). Ninety-seven percent of the respondents have at least a college degree.

Measures

Attitudes. Attitudes were assessed with a modified version of a 19-item scale on computer attitudes operationalized by Nickell and Pinto (1986) and validated by Anandarajan et al. (2000). Individuals were asked to evaluate how they felt about the Internet in general, using a five-point scale ranging from 1 = "Strongly disagree" to 5 = "Strongly agree." Examples of the items include: 'Soon our lives will be controlled by the Internet,' 'Life will be easier and faster with the Internet,' and 'I feel intimidated by the Internet.' A factor analysis with varimax rotation revealed three factors: **Optimism, Pessimism,** and **Intimidation** and their alpha coefficients from a reliability analysis were .79, .76, and .74, respectively.

Internet skills. A 6-item scale developed for this study was used to assess respondents' Internet skills. Respondents were asked to indicate their level of experience with using the Internet for things such as: "accessing the Internet," "using the Internet search engines, such as Yahoo, Infoseek," "downloading files from the Internet," "creating web pages," "programming in hypertext based software," and "maintaining web pages". Responses were anchored on a 5-point scale ranging from 1 = "Very Little" to 5= "Very Extensive." The items were factor analyzed with varimax rotation yielding two meaningful factors categorized as "**General Internet Skills**" and "**Advanced Internet Skills.**" Reliability coefficients for the two scales were .85 and .95, respectively.

Management support. A 4-item scale adopted from Igbaria (1990) was used to measure this variable. A reliability analysis revealed an alpha coefficient of .85. The items focus on the degree of support the participants receive from management in using the Internet. Examples of items include: "Management has provided the necessary help and resources to get me used to the Internet quickly." I am always supported and encouraged by my boss to use the Internet in my job." Anchors were on a five-point scale ranging from 1 = "strongly disagree" to 5 = " strongly agree."

Internet usage. Internet usage was measured by three indicators (actual daily use of the Internet, frequency of use, the number of packages used by the participants, and the number of activities or tasks the Internet is used for). These variables were adopted from indicators of computer usage that have been used in several studies (Cheney and Dickson 1982; Igbaria 1992; Igbaria et al. 1995; Straub et al. 1995; Anakwe et al. 1999).

***Actual daily use*.** This variable was measured by one item adopted from Igbaria (1992) that was used by Lee (1986) but modified to reflect Internet usage. Participants were asked to indicate the amount of time spent on the Internet daily using a six-point scale ranging from (1) "almost never" to (6) "more than 3 hours daily."

***Frequency of use*.** This variable was measured by one item adopted from Igbaria (1992) but modified to reflect Internet usage. Participants were asked, "On the average, how frequently do you use the Internet?" Anchors were on a six-point scale ranging from (1) "less than once a month" to (6) "several times a day."

Business activities. A list of eight activities adopted from Anandarajan et al. (2000) was provided in which participants were asked to indicate the extent to which they performed these activities using the Internet. Sample activities include, marketing, sales, purchasing, customer service related, administrative, communicating, information gathering, etc. Responses were anchored on a 5-point Likert scale ranging from 1= "None" to 5 = "Very Extensive." A factor analysis with varimax factors resulted in two meaningful factors: Marketing focused activities (**marketing**) and broader activities (**communicating**). One of the items loaded on both factors was eliminated. Alpha coefficients for the two scales were: .89 (marketing) and .66 (communicating).

Controls

Age and Gender. Age and Gender were ascertained using single-item questions. Age consisted of seven levels ranging from 1 = "under 25" to 2 = "over 66." Gender was assessed with a fixed response item with 1 = "male" and 2 = "female."

Data Analysis

We used correlation, hierarchical multiple regression, and sub-group regression analyses to test the hypothesized relationships. Hypotheses 1(a-c), 2 (a – c), and 3 (a-c) were tested using hierarchical multiple regression analyses. Prior to testing Hypotheses 4 (a-c) and 5 (a-c), we utilized a hierarchical multiple regression analysis to test for moderating effects of attitudes (pessimism, optimism, intimidation) towards the Internet on Internet skills (general and advanced) – Internet usage relationship, and on management support – Internet usage relationship. We conducted subgroup analysis upon obtaining the following significant interaction effects: between pessimism and management support for the number of activities: between marketing (β = -1.13, $p < .01$) and communicating (β = -.96, $p < .05$); between optimism and management support for daily use of the Internet (β = 1.17, $p < .05$) and; between intimidation and general Internet skills (β = -.65, $p < .05$). Subgroup analysis facilitates interpretation of interaction and non-linear effects confirmed by the hierarchical regression analysis.

Hypotheses 4(a-c) and 5(a-c) were tested separately for each of the three components (pessimism, optimism, and intimidation) using multiple regression analyses for low and high attitudes towards the Internet. In each analysis, the significance of the beta weights for the hypothesized independent variable was examined to determine support for the hypotheses. To determine whether the relationships of Internet skills to Internet usage and management support to Internet usage was a function of respondents' attitudes towards the Internet, we examined the significance of the differences between the respective standardized beta coefficients obtained for low and high attitudes (pessimism, optimism, and pessimism), applying the formula proposed by Cohen and Cohen (1983).

RESULTS

Table 1 presents the means, standard deviations, correlations, and alpha coefficients of study variables. Among the control variables, age was negatively related to frequency of use ($r = -.15$, $p < .01$), and business activities — communicating ($r = -.17$, $p < .01$); education was positively related to daily use of the Internet; organizational tenure was negatively related to business activities — communicating ($r = -.17$, $p < .01$).

General Internet skills was significantly related to the three indicators of Internet usage: daily use of the Internet ($r = .51$, $p < .001$), frequency of use ($r = .54$, $p < .001$), and business activities — marketing ($r = .46$, $p < .001$), and communicating ($r = .54$, $p < .001$). This indicates that the more the Internet skills reported by employees, the greater their daily use of the Internet, the more time they spend on the Internet, and the more activities (marketing and communicating) they perform using the Internet.

The relationship between advanced Internet/Web skills was significantly related to the three indicators of Internet usage: daily use of the Internet ($r = .46$, $p < .001$), frequency of use ($r = .36$, $p < .001$), and Business activities — marketing ($r = .49$, $p < .001$), and communicating ($r = .33$, $p < .001$). This suggests that the more the advanced web skills reported by employees, the greater their daily use of the Internet, the more time they spend on the Internet, and the more activities (marketing and communicating) they perform using the Internet.

Management support was significantly related to the three indicators of Internet usage: daily use of the Internet ($r = .38$, $p < .001$), frequency of use ($r = .26$, $p < .01$), and Business activities — marketing ($r = .31$, $p < .001$), and communicating ($r = .34$, $p < .001$). This indicates that the more management support perceived by employees the greater their daily use of the Internet, the more time they spend on the Internet, and the more activities (marketing and communicating) they perform using the Internet.

Attitudes (pessimism and optimism) were significantly related to the three indicators of Internet usage. Pessimism was positively related to daily use of the Internet ($r = .21$, $p < .01$), frequency of use ($r = .21$, $p < .01$), and business activities — marketing ($r = .31$, $p < .001$), and communicating ($r = .26$, $p < .01$). This suggests that the more pessimistic the attitude towards the Internet that employees reported, the more they use the Internet on a daily basis, the more time they spend on the Internet, and the more activities they perform using the Internet. Optimism was significantly related to daily use of the Internet ($r = .31$, $p < .001$), frequency of use ($r = .32$, $p < .001$), and business activities — marketing ($r = .37$, $p < .001$) and communicating ($r = .23$, $p < .01$). This indicates that the more optimistic the attitude towards the Internet reported by employees, the more they use the Internet on a daily basis, the more time they spend on the Internet, and the more activities (marketing and communicating) they perform using the Internet. Intimidation was negatively related to only marketing activities ($r = -.17$, $p < .05$). This suggests that the more intimidated the attitude towards the Internet employees report, the less activities they perform using the Internet. (See Appendices, Table 1).

Hypotheses Testing

The results of the hierarchical multiple regression analyses and the sub-group regression analyses used to test the hypotheses are presented in Tables 2 and 3, respectively.

The first set of hypotheses (1a – 1c) predicted that Internet skills (general) would be positively associated with Internet usage. Consistent with the correlation results, the relationship between general Internet skills (1a – 1c) and Internet usage was significant. General Internet skills explained significant variance in the daily use of the Internet ($\beta = .29$, $p < .001$), the frequency of use ($\beta = .42$, $p < .001$), the number of marketing activities ($\beta = .23$, $p < .01$), and the number of communicating activities ($\beta = .41$, $p < .001$), engaged in using the web. Hypotheses 1a – 1c were supported.

Hypotheses 2a — 2c predicted that Internet skills (advanced) would be positively related to Internet usage. The results indicate that advanced Internet skills explained significant variance in the daily use of the Internet ($\beta = .25$, $p < .01$), and the number of marketing activities ($\beta = .27$, $p < .01$), engaged in using the web. The relationships between advanced Internet skills and the frequency of Internet use and the number of communicating activities used through the Internet were not supported. Hypotheses 2b and a part of Hypothesis 2c were not supported. Hypotheses a and the marketing aspect of 2c were supported.

Hypotheses 3a – 3c predicted that management support would be positively related to Internet usage. Management support explained significant variance in the daily use of Internet ($\beta = .21$, $p < .01$), and the number of business activities-communicating ($\beta = .19$, $p < .01$) providing support for Hypotheses 3a and part of 3c. Hypothesis 3b and the marketing aspect of 2c were not supported by the regression coefficients. (See Appendices, Tables 2 and 3).

Table 3 presents the results of the subgroup regression analyses used to test the moderating effects of attitudes on the Internet skills – Internet usage relationship and on the management support – Internet usage relationship. The results of the hierarchical regression in Table 2 indicate significant interaction effects for pessimism and support for business activities (marketing and communicating), interaction effects for optimism and support for daily use of the Internet, and interaction effects for intimidation and general skills for daily use of the Internet.

Hypotheses 4a to 4c and 5a to 5c predict moderating effects of attitudes (pessimism, optimism, and intimidation) on the Internet skills — Internet usage relationship and on the management support – Internet usage relationship, respectively. For employees who reported high optimism about the Internet, general skills explained significant variance on the daily use of the Internet ($\beta = .45$, $p < .001$). For these employees, management support explains significant variance on daily use of the Internet ($\beta = .27$, $p < .01$). For employees who reported low optimistic attitude about the Internet, management support explains significant variance on daily use of the Internet ($\beta = .47$, $p < .001$). There was no significant relationship between Internet skills and Internet usage.

Intimidation moderated the relationship between skills (general and advanced) and one indicator of Internet usage. For employees who reported low intimidation with the Internet, general skills explained significant variance on daily use of the Internet ($\beta = .45$, $p < .001$). For these employees, advanced skills also explained significant variance on the daily use of the Internet ($\beta = .38$, $p < .001$). Management support explained significant variance on daily use of the Internet ($\beta = .16$, $p < .05$). For employees who reported high intimidation with the Internet, none of the relationships were significant.

For employees who reported high pessimism about the Internet, general skills explained significant variance on the business activities — marketing ($\beta = .54$, $p < .001$) performed using the Internet. For employees who reported low pessimism about the Internet, advanced skills explained significant variance on the business activities — marketing ($\beta = .25$, $p < .05$) performed using the Internet. For these employees, management support explained significant variance in the business activities — marketing ($\beta = .38$, $p < .01$). Parts of Hypotheses 4a, 4c, 5a, and 5c were supported.

DISCUSSION

This paper addressed two research questions: (1) what factors influence Internet usage in developing countries such as Nigeria? (2) How can Internet usage be enhanced in organizations in developing countries or emerging economies (e.g., Nigeria)? In response to the first research question, we presented a historical-theoretical perspective of Internet usage in Nigeria. In response to the second research question we conducted an empirical study. The insights and findings from these inquiries reveal the following: many constituents outside the country (e.g., World Bank, governments of developed economies, organizations and people) and inside the country (e.g. host governments, organizations which include local, multinationals and/or their affiliates, and people) influence Internet usage in Nigeria as well as in other developing countries of sub-Saharan Africa. It synthesizes the descriptive account of Internet usage in Nigeria mainly from an institutional theory perspective.

From the theoretical perspective, the relatively low growth of Internet usage in Nigeria was a function of the systems in which organizations or users had to operate. The influence of the Nigerian government on Internet usage is dominant, as indicated from the pre-democracy (totalitarian) to democracy era. It also demonstrated the capability of organizations and people to enact behaviors and actions to cope with the realities of their environment as indicated by the generation of alternatives through innovation, partnerships, and mimetic behaviors by organizations and individuals.

From the empirical perspective, we found support for six out of the nine predicted direct relationships between skills and Internet usage and between management support and Internet usage. We also found moderating effects with support for parts of four of the six predicted relationships. We'll discuss the findings related to each of the three variables (Internet skills,

management support, and attitude), followed by the contributions of the study, implications, limitations and future directions, and conclusion.

Internet Skills (General and Advanced) and Internet Usage

We found that general Internet skills seem to enhance respondents' use of the Internet daily; more often; and for performing business activities. We found advanced Internet skills to enhance respondents' daily use of the Internet and the number of marketing activities performed using the Internet. Our findings are novel and contribute to new knowledge on Internet Usage generally, and specifically to developing countries. The findings from the possible referent study Anandarajan et al. (2000) are not comparable. Their study was exploratory, with a sample size of 39 students in the United States, compared to our sample size 224 full-time employees from Nigeria. They used correlational results, which are all positive for this study, and we used regression results. However, our findings are consistent with the established paradigm of skills-performance relationship in the management and training literature. The findings add value to the Information technology literature, where the distinction between the types of skills was not always that critical. The difference in findings between the two types of skills and Internet usage validates the current trends of organizations towards making the distinction (McGee 1999; Pepe 1998).

Management Support and Internet Usage

Consistent with the management and information technology literature (Lawler 1986, 1992; Igbaria et al. 1995; Thompson et al. 1991; Tesluk et al. 1999; Lynn et al. 2000; Ramus and Steger 2000), we found that management support contributed to respondents' daily use of the Internet and to the number of communicating activities they perform using the Internet. However, we also found that management support did not seem to have any impact on how frequently the respondents use the Internet or on the number of marketing activities they performed using the Internet. A possible explanation for this finding may be the characteristics of the sample, as well as contextual and cultural factors. A possible explanation is that access to the Internet may be for the privileged few. Although, employees might have access to the Internet, how often they use it would be inconsequential because it is restricted. Similarly, if use is restricted, the number of activities they use it for could also be restricted by company policies. Another possible explanation is that the sample includes respondents with different levels of skills and different types of jobs or responsibilities, thereby suggesting possible moderating effects, especially since all the findings were significant from the correlation results.

Attitudes and Internet Usage

Our findings reveal that the three types of attitudes about the Internet affected some of the predicted relationships. The finding between general Internet skills and daily use of the Internet exists only for employees who reported high optimism about the Internet. The finding between advanced Internet skills and daily use of the Internet disappears for both groups. This finding

supports the treatment of attitude as a moderator rather than a mediator. This extends the Information technology literature (Igbaria et al. 1995; Guimaraes and Igbaria 1997) and research tradition of attitude as a mediating variable (Fishbein and Ajzen 1975; Ajzen 1991). A possible explanation is that in a developing country context, such as Nigeria, the employees only have access to the Internet at work. The conceptualization or meaning of attitude might be different because of their circumstances. Both groups value management support as they contribute to their daily use of the Internet. Similarly, our findings for intimidation and pessimism all stem from a possible interpretation of the items and meaning of the Internet as well as its novelty.

CONTRIBUTIONS, LIMITATIONS, FUTURE DIRECTIONS, AND CONCLUSION

This study contributes to new knowledge and theoretical insight in the development of the use of Internet in an emerging economy. It also provides an empirical validation of the factors that influence Internet usage in an organizational context in a developing country.

Hence, it contributes to research in the international management area, as well as to Information Technology and related areas. In the international management area, the findings provide organizations (both multinational, affiliates, and local companies) with theoretical and empirical information that will be useful in understanding the dynamics of Internet usage in developing countries. Since developing countries of Africa, in particular, are similar with respect to the form of government, market economy, challenges, and constraints of doing business – infrastructural, etc. and scarce human capital, the information and findings from this study provide useful insights about other countries.

In Information Technology and related areas, the findings contribute to possible new insights into future research. Attitude was examined as a moderating variable in this study, thereby resonating the examination of this variable and others within the context of developing countries. The findings provide a basis for comparison for future studies and a possible reconceptualization of variables.

Although this study is the first attempt to provide a balanced perspective about Internet usage in a developing economy, it has limitations. Caution should be exercised in generalizing the findings of this study because of the unique history of each developing country. Future studies should extend the theoretical part of this paper to more theorizing and possible empirical studies. A more comprehensive set of factors should be examined since Internet usage is on the increase in Nigeria and other developing countries.

In conclusion, this paper has contributed a balanced perspective to a topical issue – Internet usage – that has attracted world-wide attention. The study has provided a capsulated account of what is usually a fragmented atheoretical piece, which is equally informing but limited. Recent interest in Internet usage is overwhelming; both developed and developing countries have to consider it seriously. The concern about the technological divide leading to a further economic divide, using the example of Nigeria, could be diminished, if all of the following entities policies continue to be supportive: the Nigerian government; multinational and local Nigerian organizations; developed countries' governments; and world agencies.

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APPENDICES

TABLE 1

Means, Standard Deviations, and Correlations

	Mean	S. D.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Age	31.52	6.61														
2. Education	3.65	.93	.21**													
3. Organizational Tenure	4.06	3.73	.52***	.24**												
4. General Internet Skills	3.36	.91	-.18**	.11	-.12											
5. Advanced/Web Skills	1.79	1.06	.06	.26**	.12	.46***										
6. Management Support	3.47	.90	-.17*	.04	-.18*	.28**	.25**									
7. Attitude - Pessimism	3.04	.89	-.09	.02	.03	.16*	.10	.09								
8. Attitude - Optimism	4.09	.72	-.06	.12	-.05	.33***	.25**	.29***	.16*							
9. Attitude - Intimidation	1.81	.70	.10	-.16*	-.04	-.24**	-.06	-.02	.04	-.09						
10. Daily use of the Internet	4.05	1.27	-.13	.17*	-.06	.51***	.46***	.38***	.21**	.31***	-.13					
11. Frequency of use	5.18	.95	-.15*	.07	-.10	.54***	.36***	.26**	.21**	.32***	-.13	.57***				
12. Activities – Marketing	2.57	1.17	.02	.11	.05	.46***	.49***	.31***	.31***	.37***	-.17*	.56***	.38***			
13. Activities–Communicating	4.03	.88	-.17*	.06	-.16**	.54***	.33***	.34***	.26**	.23**	-.13	.51***	.48***	.57***		
14. Gender (1=male; 2=female)				-.22**	-.06	-.17*	.04	-.01	.01	.13	.03	.04	-.13	-.01	.10	.10

*p < .05, **p < .01, ***p < .001.

TABLE 2

Results of Hierarchical Multiple Regression Analyses Predicting Internet Usage

Independent variables = Skills, Management Support and Attitudes; Interaction terms = Attitudes x Support; Attitudes x Skills

Control Variables - Education, Age, Gender, Organizational Tenure

Variables	Daily use of the Internet			Frequency of use			Activities – Marketing			Activities -- Communicating		
	ß	R^2	ΔR^2	ß	R^2	ΔR^2	ß	R^2	ΔR^2	ß	R^2	ΔR
Age	-.04			-.10			.05			-.08		
Gender	.03			-.03			.13			.12		
Education	.27**			.19*			.11			.15		
Organizational Tenure	-.03	.04*		.01	.01		.06	.01		-.04	.02	
General Internet Skills	.29***			.42***			.23**			.41***		
Advanced/Web Skills	.25**			.12			.27***			.10		
Management Support	.21**			.06			.11			.19**		
Attitude - Pessimism	-.04			.13			.25***			.17**		
Attitude - Optimism	.09			.10			.16*			.04		
Attitude - Intimidation	.12	.42***	.38	-.03	.32***	.31	-.06	.42***	.31	-.09	.39***	.37
Pessimism x Support	-.34			.17			-1.13**			-.96*		
Optimism x Support	1.17*			-.87			.93			.13		
Intimidation x General skills										**-.65* .47*** .11 .42** .34*** .02 .08 .44*** .02 .43 .39***.**		

TABLE 3
Results of Sub-group Regression Analysis for Daily Use of the Internet and Marketing Activities with Internet Usage

Independent Variables — General Skills, Web Skills, and Management Support
Control Variables — Education, Age, Gender, Organizational Tenure
Moderator Variables — Pessimism, Optimism, and Intimidation

Variables	Optimism		Intimidation		Pessimism	
	H ß	L ß	H ß	L ß	H ß	L ß
1. Daily use of the Internet						
General Internet Skills	.45***	.26	.38	.45***		
Advanced Web skills	.18	.11	.11	.38***		
Management Support	.27**	.47***	.01	.16*		
2. Activities - Marketing						
General Internet Skills					.54***	.21
Advanced Web skills					.11	.25*
Management Support					-.10	.38**

*p < .05, **p < .01, ***p < .001.

03

*p < .05, **p < .01, ***p < .001