

The Level of Adoption of Web-Based Business Reporting in Selected Manufacturing Firms in Nigeria

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Abstract: Reporting via the internet or web has gained popularity and acceptance in the advanced world but the same cannot be said of developing economies. The study therefore examined the level of adoption of web-based reporting practices among selected listed manufacturing firms in Nigeria. The population for the study consist of all 90 manufacturing firms listed on the Nigerian Stock Exchange (NSE). Forty five (45) firms were purposively selected. Structured questionnaire was the instrument used in sourcing primary data. The data was analyzed using Principal Component Analysis (PCA). The results showed that the listed manufacturing firms in Nigeria are exploring the possibility of using or adopting fully web-based reporting. The exploration variables has the highest Eigen values of 4.4297784 and 2.0077 among the extracted components. The study however, recommended that law should be enacted to compel companies to adopt web based reporting and that companies should be encouraged to employ Extensible Business Reporting Language (XBRL) in reporting.

Keywords: Web Based Business Reporting; level of Adoption; exploration variables; XBRL

JEL Classification: F23

Introduction

Technology is in no doubt taking over every facet of human endeavors and it is changing business models, business processes and nature of work or jobs. As businesses become more complex so also the reporting requirements. This therefore, requires the managers to contend with the choice of medium of corporate reporting that will be consistent with the achievement of the overall objectives of their businesses in the area of efficiency and effectiveness of the information provided. This is imperative, because, provision of adequate and required information to the stakeholders is considered as the only means of mitigating agency problems in organizations (Munther & Rekha 2013). Studies have shown that globalization, increased in economic and market competition and regulatory pressures are forcing companies to accumulate and publish information regarding financial performance,

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social and environmental issues, corporate governance, and marketing as well as other information with more frequency, detail in a variety of formats.

Information technology is now seen as a viable platform for corporate reporting as the traditional method of reporting otherwise called paper-based reporting lacks the capability to deal adequately with these dynamisms. Web or internet has become a viable tool for corporate reporting globally. But is more practiced in the advanced countries. Firms adopting web in reporting could be either at the exploratory or infusion level. While firms in the advanced economies have already reached infusion level, firms in the developing economies are far from this reality. The absence of strong standards poses considerable challenges for the practice of web based corporate reporting in the developing countries. This is in spite of the benefits associated with web based reporting. It is however arguable that, web based reporting is more desired in the emerging and developing countries now than ever before. This is because of the need to attract investors especially foreign direct investment in these countries. Attracting foreign direct investment is only possible when adequate and timely information is provided to the global audience. Website provides a major platform for firms to communicate to the global audience instantaneously.

Web-based reporting in quoted manufacturing firms in Nigeria has been empirically examined by some researchers. Salaudeen, Ikhu-Omoregbe, Alayemi and Adeniyi (2016) inquired into the perceptions of major stakeholders towards web-based business reporting in selected manufacturing firms in Nigeria. Agboola and Salawu (2012) examined the determinants of internet financial reporting in Nigeria, while Salawu(2009), focused on financial reporting on the internet by quoted companies in Nigeria. However, there is dearth of empirical studies on the level of adoption of web-based reporting in Nigeria. The focus of this study is to examine the level of adoption of web-based reporting in Nigeria.

Literature Review

The Concept of Web-Based Reporting.

Web-based reporting has been defined or described by various scholars in the field. *International Accounting Standards Committee (IASC) (1999)* define “*Web-based business reporting*” as “*the public reporting of operating and financial data by a business enterprise via the World Wide Web or related Internet-based communications medium*”. Salaudeen *et al.* (2016) also described Web-Based Reporting as involving taking advantage of technology in disseminating business information to stakeholders, benefiting from its numerous advantages such as speed, cost effectiveness, and wider coverage. Jones and Xiao (2004) on the other hand described web as a technology with the power to revolutionize external reporting and

is becoming increasingly important for financial reporting. Abdelsalam , Bryant and Street (2007), also argued that the internet provides a unique form of corporate voluntary disclosure that enables companies to provide information instantaneously to global audience.

According to Isenmann and Lenz (2000), the use of the new information technologies has an enormous impact on the standards of availability and diffusion of information, introducing determinant advantages as readiness, low effort, and low cost in communication. Firms that are engaged in Internet corporate reporting attempt to make use of their corporate websites not only to market their products to ordinary consumers or organizational customers (in the case of business-to-business), but also to market *the firms themselves*, that is, to raise the awareness and interests of shareholders and investors in the firms (Ashbaugh *et al.* 1999).

In order words, web based business reporting utilizes web or internet in disseminating both financial and non financial business information to stakeholders. Business information is hosted on the webpage of firms and interested users are allowed unhindered access to the information for their decision making. The internet or web is generally viewed as the principal means of information dissemination in modern business. This technology allows anyone with a telephone line and networked digital terminal to access any data base connected to the network and to download information for their own use. Reporting via internet also creates platform for organisations not only to market their products but also to make the firms visible to shareholders, potential investors and other interested stakeholders.

Extensible Business Reporting Language (XBRL)

Reporting via internet has taken so many dimensions. Companies have resorted to the use of PDF, HTML, Microsoft Excel document, Text Files and Adobe Acrobat Files while reporting their financial and non financial activities on web. The recent major step in the web based business reporting field was the introduction of Extensible Business Reporting Language (XBRL). The recognition of the need for a standardized reporting format that streamlines processes necessitated the development of XBRL. Software AG (2010), describes XBRL as a data description language that enables the exchange of understandable, uniform business information based on Extensible Mark-up Language (XML) which permits the automatic exchange and reliable extraction of financial information across all software formats and technologies including the internet. While HTML, Microsoft Excel documents, text files, and Adobe Acrobat files are useful for editing, these formats offer no advantage over paper photocopies when it comes to sharing data between applications and users on different computing platforms. Financial reporting and analysis tend to be manual, error prone, time-consuming and costly when HTML, Microsoft Excel documents, text files, and Adobe Acrobat files are adopted. This is because, auditors, tax preparer, regulators, analysts, investors and other users will

need to re-enter information for their own purpose. But with XBRL, such manual re-entering is not necessary as the information can be transfer or exchanged to other applications or software formats automatically with a highly degree of accuracy in terms of data extraction. XBRL is considered more appropriate for web-based reporting because, it provides efficient and validated transmission of information between web services

XBRL Adoption

On May 30, 2008, the U.S. Securities and Exchange Commission (SEC) issued proposed rules to mandate the submission of XBRL based financial reports for public companies. In the United Kingdom, HM Revenue and Customs (HMRC) required all companies to file financial statements and corporate tax returns online in iXBRL format (inline eXtensible Business Reporting Language). Online filing is mandatory for all corporation tax returns using the iXBRL standard reporting language. HMRC require filings in XBRL format because information are stored in database format. This way, HMRC analysts can run immediate comparatives analysis between year ends and companies within similar sectors. Several European regulators and other information gatherers have already made XBRL their preferred or mandatory format for receiving data. Companies in the United States, United Kingdom, China, Japan, France and Singapore, as well as others, are already providing information to the regulators or stock exchanges using XBRL. It has been argue that XBRL has the potential to become the global technology standard for reporting financial and operational information because of its adoption by the US Securities and Exchange Commission (SEC) and UK HM Revenue and Customs as well as the increase in the number of regulator and information gatherers round the world. However, no or little attempt has been made by regulators and governments in African countries, especially Nigeria, with a view to encouraging firms to embrace XBRL. In fact, firms are at liberty to report or not to report on their web page. The few that report via web do so with the help of PDF, Adobe Acrobat files, HTML and so on without recourse to the use of XBRL.

The need for Financial Professionals to use XBRL U.

Relevant literatures have revealed the reasons why financial professionals need to use extensible business reporting language. Ikpehai (2012), identified the following as the reasons why financial professionals should use XBRL: XBRL have the capacity to reduce the time required to manipulates data. Data manipulation happens when companies need to reposition the output from their financial systems to meet the needs of diverse users. The time required for this manipulation will be reduced because, if the data on the site was available in XBRL, it could simply be converted from the website into a spreadsheet program (usually instantaneously) that is XBRL compatible. Preparations of multiple reports will take less time as XBRL-coded information can easily be fed into various instance documents to create customized

output. Internal analysis of financial data will also be faster because the data will already be in a format ready for analysis and will not have to be re-keyed. Financial analysts will be able to extract, analyze and process this information with software tools designed specifically for this purpose.

On the other hand, XBRL Facilitates paper-less financial reporting. It has been stated that before the introduction of XBRL, financial information for reports was extracted from databases such as a general ledger. This extracted information would then need to be processed several times depending upon the needs of the user. Each process could require an extra handling of the information to create the desired report. With XBRL, the information is coded once and ready for extraction electronically into reports for all information users. With the proper tools in place, the desired output for all uses of the balance sheet information can be transmitted electronically, without the need for a paper-based report. XBRL also Conforms to industry accepted methods.

XBRL is a language based on a W3C recommendation, XML. The W3C, or World Wide Web Consortium, is the world's most authoritative body for establishing Internet protocols. With the growing acceptance of XML as a vehicle for data exchange worldwide, it is safe to say that XBRL is fast becoming the accepted method for data exchange. For instance, U.S. Security and Exchange Commission (SEC) on issued proposed rules to mandate the submission of XBRL based financial reports for public companies. U.S.SEC also took further step to ensure that key regulators and standard setters around the world, such as the International Accounting Standards Board (IASB) and the Financial Services Agency (FSA) of Japan, to begin aligning XBRL initiatives. Also HM Revenue and Customs (HMRC) in UK require all companies to file financial statements and corporate tax returns online in iXBRL format (inline eXtensible Business Reporting Language). Again, major software vendors are committed to developing software that will incorporate XBRL into their financial packages. It will be reasonable for financial professionals to start adopting XBRL. SAP mySAP financials, Microsoft Business Solutions Navision, Oracle FSG, Creative Solutions Announced, Microsoft Office Solution Accelerator for XBRL, Hyperion Financials, PeopleSoft Enterprise Financial Management, Case Ware Financials and Hitachi GEM Planet are some of the XBRL enabled financial packages. XBRL Permits interchangeability of data. Interchangeability of data is facilitated by the use of XML-compatible coding. XBRL is fully-compliant with the W3C's XML 1.0 recommendation. When an XBRL-coded file is created, the document does not make any assumptions about how the data will be used by the requestor (or client). In other words, the XBRL-coded information could be displayed in a Web browser, sent to a database, sent to a printer, used to create another XML document or even listened to as a sound document. The same document can be used by many different applications using the intelligence of the data to build powerful applications.

Areas Where XBRL could be effectively applied

Credit Risk Management

Banking industry stands to benefit from the application of XBRL in the area of loan processing. The loan processing procedures could be reduced and made more efficient especially when making an informed decision on the credit worthiness of a client. Normally it takes bank several days in reaching this decision because much attention is paid in verifying documents manually, but with XBRL less time will be spent on document verification because tasks like gathering information and keying it are eliminated. With this, loan approval could be done in few minutes most especially when a business seeking loan provides their bank with financial statements in XBRL.

Internal and External Reporting

Relevant literatures have pointed out that multinational corporations with several subsidiaries will benefit from XBRL standards. Software (2010), stress that, despite the development of accounting manuals and directives for compliance, subsidiaries inevitably deliver information in a myriad of forms and formats. For a company to report a clear information, a correct and consolidated information must exist, XBRL is capable of taking care of this problem.

Business Intelligence

Software (2010), argue that, business intelligence, business performance management and decision tools stand to gain increased usage, performance and exposure with the adoption of the XBRL standards. This is possible because XBRL enhances analysis, modeling, forecasting and rapid reporting, hence, executive managers have the extensive opportunity to examine their performance and operations.

Theoretical Framework

The upper echelon theory, LoTi framework and Diffusion of Innovation theory were relevant in examining the level of technology implementation by listed manufacturing firms in Nigeria.

The Upper Echelon Theory

The upper echelon theory was first used by Hambrick and Mason (1984) to explain the belief that the characteristics of senior management, or the upper echelon of an organization, can influence the decisions made and practices adopted by an organization. They argued that managers' characteristics (e.g., demographic) influence the decisions that they make and therefore the actions adopted by the organizations that they lead. They suggest that this occurs because the demographic characteristics are associated with the many cognitive bases, values, and perceptions

that influence the decision making of managers. Relying on this theory, the characteristics of the upper echelon is belief to influence the decision they make and therefore the extent to which internet is employed in corporate reporting. Therefore, the level of adoption of web in business reporting is a function of the belief or perception of the senior management which is also influenced by their demographic characteristics.

Levels of Technology Implementation (LoTi) Framework

Whitley (1997) posited that Interaction between humans and computers is affected by quite a number of human factors and its characteristics to which studies have come up with theories and models to investigate factors that influence humans to use computer and its applications. The Level of Technology Implementation (LoTi) Framework by Moersch (1995) is one of the prominent models for studying the level of technology implementation. Ever since its inception, the model has been assessed using different applications, and it has become a de-facto for measuring the level of technology implementation. The framework was originally employed to provide a fair approximation of teacher behaviours in relation to technology implementation. Moersch (1995) used self-efficacy theory to advance the framework. The self-efficacy theory suggests that individuals with a low level of self efficacy will often choose a level of innovation that they believe they can handle, which may or may not be the best or most effective option. This study relied on self-efficacy theory as put forth by Moersch (1995) to examine the level of adoption of web based reporting. The study proposed that the level of adoption of innovation (i.e. web-based reporting) is a function of self-efficacy or technical competence of management. Individual managers and others responsible for corporate reporting will often choose a level of innovation they believe they can handle. Therefore, managers with low level of self efficacy will choose a lower level of innovation and vice versa.

Diffusion of Innovation Theory

The diffusion of *innovation* theory as originally used by Rogers (2003), holds that an innovation progresses through different communication channels over time among the members of a social system. Individuals are observed as having different degrees of willingness to adopt innovations and the portion of the population adopting an innovation is approximately normally distributed over time. In summary, an individual's decision about an innovation is not an instantaneous act. Rather, it is a *process* that occurs over time and consists of a sequence of actions. Relying on this theory, the present study propose that, the adoption of web in business reporting progresses through different communication over time and that the portion of firms adopting web based reporting is normally distributed over time.

Methodology

The thrust of this study is to examine the level of adoption of web in corporate reporting in Nigeria. The target population comprised all the 90 listed manufacturing firms in Nigeria. Structured questionnaire was used in data gathering. A sample of 45 firms was purposively selected. The accessible population consists of the senior accountants who are involved in the preparation of financial statement and the information technology experts in the sampled manufacturing firms. Senior accountants and information technology experts were selected because they have an in-depth knowledge and information with respect to their firms usage of information technology in information dissemination. The questionnaire was constructed using validated scale in the field. Specifically, Level of Technology Implementation (LoTI) Framework by Moersch (1995) was adopted in designing the questionnaire. Cronbach's Alpha test was conducted to test the internal level consistency and reliability. There is no specific benchmark value for the alpha coefficient, but a higher value indicating a higher degree of reliability is expected (Gravette & Forzani 2003) Principal Component Analysis (PCA) was the method of analysis used.

Results and Discussions

To determine the appropriateness of the use of Principal Factor Analysis (PCA), Kaiser-Meyer-Olkin (KMO) and Bartlett's Test of Sphericity (BTS) were employed. According to Field (2005), PCA requires that the KMO measures of sampling adequacy be greater than 0.50 for each variable as well as the set of variable. Principal Component Analysis also required that the probability associated with Bartlett's Test of Sphericity be less than the level of significance Field (2005). The overall KMO measure of sampling adequacy as shown in table 1 for the set of variables included in the analysis was 0.737 which is considered satisfactory. The Bartlett's Test also showed a p-value of 0.000 which is less than the level of significance of 0.05. This implies that the use of factor analysis is appropriate and the sampling is adequate.

Table 1. KMO and Bartlett's Test

Kaiser-Meyer-Olkin (KMO) Measures of sampling Adequacy	0.737
Bartlett's Test of Sphericity Approx Chi-square	1419.243
Degree of freedom (diff)	300
P-Value (Sig)	0.000

Source: Authors Computation, 2019

Table 2. Results of Horn's Parallel Analysis for Principal Components.

Component	Adjusted Eigenvalue	Unadjusted Eigenvalue	Estimated Bias
1	4.4297784	5.255714	82593572
2	2.0077285	2.7290731	72134459
3	1.5741085	2.1223771	54826856
4	1.2966497	1.7301438	43349409
5	1.1112094	1.4593518	34814239
6	96526471	1.275442	31017733
7	94827479	1.1502392	20196438

Criterion: retain adjusted components > 1

Source: Authors Computation, 2019

Based on the results of Horn's Parallel Analysis and in recognition of Kaiser's criterion, Five components were retained because they have an adjusted eigenvalue > 1 as presented in table 3. In addition to the analysis of eigenvalue, an inspection of the Scree Plot of eigenvalues also gave a useful insight to the relative importance of each factor or item. The five (5) principal components are:

Exploration: I seek major modification of present innovation to achieve increased impact in web reporting (with adjusted eigenvalue 4.4297784);

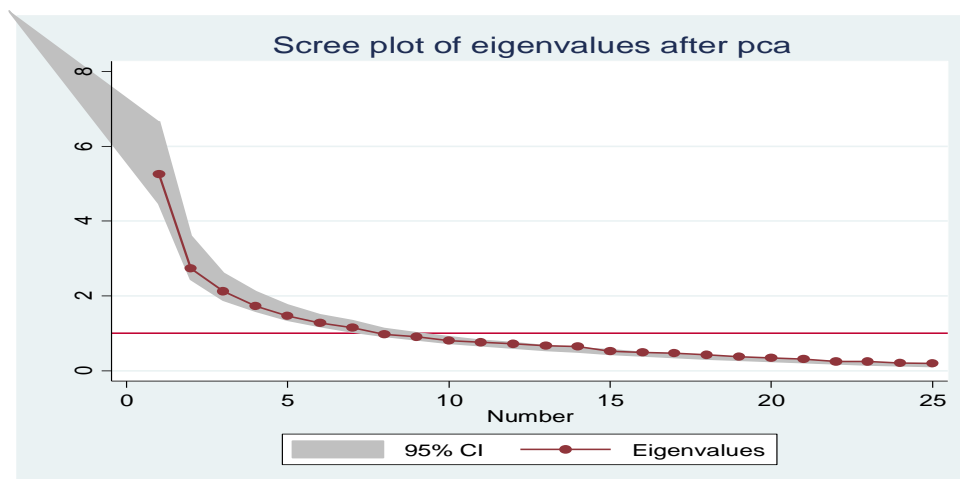
Exploration: web is employed either as extension activity or enrichment exercise to business reporting (with adjusted eigenvalue 2.0077285);

Non-Use: I have little or no knowledge of web-based reporting (adj eigenvalue 1.57);

Non-Use: I am doing nothing to involve in web based reporting(1.2966497); and

Awareness: I am aware of what technology can do for my company in the area of reporting.

The results as presented suggested that manufacturing companies in Nigeria are at the exploration level/stage in web-based reporting. This is because exploration has the highest adjusted eigenvalues of 4.4297 and 2.0077 among the extracted components. By implication, manufacturing firms are exploring the possibility of infusion or total adoption of web based reporting. They are currently seeking modifications of present innovation to achieve increased impact in web reporting. Consequently, web is employed either as extension activity or enrichment exercise to hard copy business reporting model.



The findings of this study provides some implications for the stakeholders of listed manufacturing firms. Since investors need timely and adequate information instantaneously for investment decision making, it however becomes imperative for managers to seek for a means of satisfying the information need of the investors and other stakeholders. Web based reporting is the economical means of achieving this.

Also, the need to reduce agency problem arising from information asymmetry never changes, using web in corporate reporting will help to reduce the agency problem and increases stakeholders confidence in the firm. In addition, adopting web in reporting is cheaper and more efficient than the traditional hardcopy method.

6. Conclusions and Recommendation

From the analysis of the data collected and its interpretations, the study concluded that, listed manufacturing firms are yet to fully infuse/adopt web in their corporate reporting. The firms still adopt hard copy reporting model while using web as extension activity or enrichment exercise. The technical knowledge or level of efficacy of either the managers or other concerned stakeholders, the characteristic of the upper echelon and the absence of standard might be responsible for the current level of adoption. Managers should take advantage of web based reporting to enhance their performance. Also regulatory bodies should enact laws that will require web reporting using Extensible Business Reporting Language.

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