



The Impact Of Extensible Business Reporting Language Education And Adoption On Stock Exchange Development: A Focus On Nigeria

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Abstract

This study aimed at investigating the impact of the possible learning and adoption of Extensible Business Reporting Language (XBRL) in the Nigerian Stock Exchange. The data used for this study were gathered through the instruments of a questionnaire and secondary sources. One hundred and Fifty (150) copies of a questionnaire were administered, out of which one hundred and thirty-one (131) were collated for analysis. Kruskal-Wallis and descriptive statistical tools were used in testing these three hypotheses. Findings showed that environmental factors and problems in the Nigerian Stock exchange will affect the learning and implementation of XBRL in the Stock Exchange as well as the fact that certain infrastructure must be put in place before the implementation of XBRL. The study recommended that the Federal government should announce and compel the educational awareness and adoption of XBRL as a format for regulatory filing and financial reporting in the Nigerian Stock Exchange.

1.0 Introduction

In recent times, the need for updated, accurate and easily understandable financial information in the financial markets has grown. This is facilitated by the upsurge in international trade and unification of markets and increase in the number and users of accounting information. According to Chandran (2010), cited in Faboyede, Mukoro, and Olowe (2011), investors today are very demanding, and emphasize greatly on authenticity, accuracy, and reliability of financial data as financial reporting reveals the true financial and overall health of an organization. However, the differences in presentation, terminologies, interpretation, and accounting standards in financial reports have frustrated users of accounting reports all around the world.

The answer to this problem, it seems, came in the form of the Extensible Business Reporting Language (XBRL) when Charles Hoffman, a Certified Public Accountant (CPA) from the State of Washington, began experimenting with Extensible Markup Language (XML) in April 1998 which eventually led to the development of XBRL. The Extensible Business Reporting Language (XBRL) is defined as—a standard-based method with which users can prepare, publish (in a variety of formats), exchange and analyze financial statements and the information they contain (Malhotra and Garriit, 2004). It is to address internet related business reporting information and bases on XML, which form a standard for electronic data exchange. It is a markup language, rather than a programming one. It enables business data and information to be shared and communicated by companies, banks, stock exchanges, accounting institutions, governments and other relating organizations (Faboyede, Mukoro, Olowe, 2011). It is open-standard, free of charge, and developed by an international non-profit consortium known as the XBRL International (Li, 2007). It should be noted that Extensible Business Reporting Language (XBRL) is a significant part of the Accounting Information System process.

China, in 2004, and the United States of America (USA), in April 2009, set the pace for the world when their respective Securities and Exchange Commissions mandated that regulatory filing by companies be done in the XBRL format. Incidentally, financial markets the world over are mandating that companies listed on the stock exchange report their financial data for the period in Extensible Business Reporting Language (XBRL) including Japan, Brazil, South Africa and many others, with positive results.

In the Nigerian system, little or no strides have been made in the area of XBRL. So far, only the Association of National Accountants of Nigeria (ANAN), has taken steps by joining the XBRL International as a direct member and incorporating XBRL into the ANAN training curriculum for over 10,000 students (Ogundeji, Oluwakayode, and Tijani, 2014). The Nigerian Stock Exchange (NSE) has made no move towards the adoption of the Extensible Business Reporting Language (XBRL) in its regulatory filing system which would have made positive impact on users of financial reports. This is a major reason for undertaking this study.

Thus, the main objective of this study is to examine the usefulness and need for the implementation of the Extensible Business Reporting Language (XBRL) based on the review of its implementation in selected international stock exchanges which include the American Stock Exchange, Japanese Stock Exchange, Chinese Stock Exchange, South African Stock Exchange and the Indian Stock Exchange, and the implications of its adoption for financial report users in those countries and Nigeria.

Other specific objectives include: examining the environmental factors that will affect the implementation of the Extensible Business Reporting Language (XBRL) in the Nigerian Stock Exchange; identifying the infrastructure necessary to ensure the implementation of Extensible Business Reporting Language (XBRL) in the Nigerian Stock Exchange; and analyzing the attitude of participants in the Nigerian Stock Exchange and users of financial reports to the possible implementation of the Extensible Business Reporting Language (XBRL) in the Nigerian Stock Exchange. The remaining part of this paper discusses the literature review, methodology, findings, implications, and recommendations.

2.0 Literature Review

Extensible Business Reporting Language (XBRL) is a framework based on XML (Extensible Markup Language) that is freely licensed and facilitates the automatic exchange and reliable extraction of financial information among various software applications anywhere in the world. This new business reporting language enables companies and individuals to use financial information in a much swifter and more flexible way (Malhotra and Garriit, 2004). In today's financial markets, financial information should be widely available and easily accessible (Wymeersch, 2008). It should also be in the format that encourages easy and accurate business decision making. Financial reporting in recent times has been unsatisfactory due to discrepancies in terminology, presentation, analysis and standardization of financial reports. Financial

fraternities have been trying to find a solution to this problem with special attention to that of dissemination and standardization especially the financial markets.

Extensible Business Reporting Language (XBRL) is the most reliable and all-encompassing solution to modern day financial reporting issues. As Malhotra and Garriit (2004) put it, Extensible Business Reporting Language is the missing link; the specification that allows financial and business reporting concepts to be expressed quickly, less expensively, and more efficiently. The widespread use of XML will streamline reporting and transaction tracking in every area of business, from regulatory and tax compliance to internal and performance measurements and international harmonization||. Reports that took hours to assemble using any analytical application can now be prepared, distributed and consumed in merely seconds using XBRL tags. Joined in a quiet revolution, many companies around the world are beginning to speak a new but common language known as XBRL (Willis, 2003).

Naseem (2011) explains that XBRL allows companies and individuals to –tag data inside financial reports to facilitate data extraction and manipulation. Its specifications satisfy the major users of the application which include i) business information preparers, ii) intermediaries in the preparation and distribution process, iii) users of this information and iv) the vendors who supply software and services to one or more of these three types of user. UBMatrix (2006) defines XBRL in 3 categories as follows: (a) XBRL is a **global standard** method for the electronic exchange of business information (replacing 100s of proprietary methods). (b) XBRL represents a **global agreement of the semantics** of financial reporting concepts and business rules. © XBRL is also an **organization**, comprised of over 400 members from around the world. The organization stands behind and maintains XBRL.

Summarizing the definitions of XBRL is Eckhausen (2004) who states that: XBRL is a freely available electronic language for financial reporting, based on the XML standards in order to:

i) Prepare financial data ii) Extract reliable financial data iii) Exchange financial data on a system to system basis, and iv) Publish company financial data.

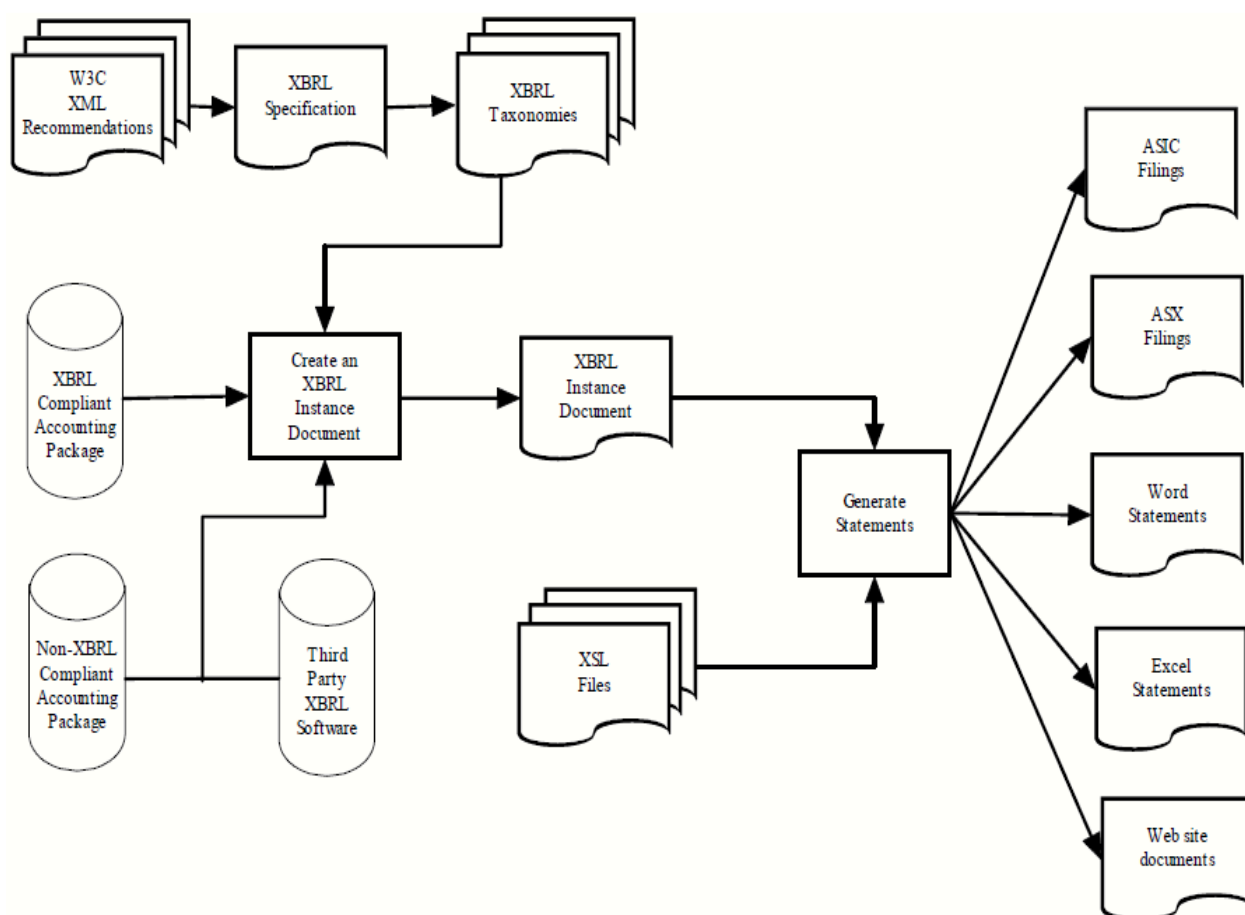
Business organizations are required by regulatory bodies to produce reports periodically for the users of financial statements in different formats as some users require more information than others. With XBRL, all these needs can be met.

3.0 The XBRL Process

Business organizations are required by regulatory bodies to produce reports periodically for the users of financial statements in different formats, since some users require more information than others, but with XBRL, all these needs can be met simultaneously. The diagram below indicates some examples of the need for multiple reports based on the same data. A goal of XBRL is to reduce the manual rework that is usually required to meet the needs/requirements of each of the users. According to Richards and Smith (2004), if all the needs can be met by simply transforming the same data into different formats using XML/XBRL technologies, then many of the repetitive reporting processes can be eliminated.

Shown below is the diagram that shows the different stages which may be involved in a typical XBRL process:

The XBRL Process



Source: Richards and Smith (2004)

4.0 Benefits of XBRL for External Reporting

EDGAR (2007) attests to the benefits of using XBRL for financial external reporting to companies. Such benefits include: quick communication of more accurate data; unprecedented level of transparency for external reporting; reduced costs of automated data gathering and aggregation; efficient data validation; errors are identified/corrected prior to disclosure filings; narrative explanations of valid data discrepancies embedded; faster speed to publishing; expedited reviews from the Securities and Exchange Commission for XBRL filings; leadership and reputation for transparency; improved communications: Companies can ensure that individuals are reviewing their numbers as they were depicted (Umoren and Jeremiah, 2015).

4.1 Benefits of XBRL for Internal Accounting

Although the primary push is for using XBRL in interactive data to prepare financial statements, XBRL also works for internal company information, controls, compliance, and reporting processes. The larger the company, the more benefits there are to using XBRL enterprise-wide to automate business processes (EDGAR, 2011). Other benefits include: (a) Analysis of competitors and benchmark against industry peers (b) Improved audits and analysis of Mergers and Acquisition targets (c) Faster integration of new acquisitions (d) Communication between autonomous business units using different accounting and ERP systems (e) Automation of aggregation of data from various software applications and databases.

4.2 Requirements of XBRL

The requirements of XBRL as stated by UBMatrix (2006) include: (i) Automated, efficient and reliable extraction of information from an XBRL document (ii) Automated comparison of information expressed in XBRL documents such as financial and other business information. These include accounting policies, notes to the financial statements between companies and the supply chain information (iii) Drill down from information to more detailed information such as, authoritative literature, and audit working papers (iv) Support for multiple languages (v) Extensibility in terms of adding concepts and modifying relationships which is the highest priority. XBRL must be flexible to meet its users' needs (vi) Semantic and syntactic validation of information within XBRL instances, particularly numeric information, and textual-type information (vii) Presentation, such as the use of bold, italics, and other stylistic techniques are not a requirement (viii) The data in XBRL documents is commonly numeric and has relationships to other

numbers. These relationships need to be accurate.

4.3 Role of XBRL in the Stock Exchange Development

Stock Exchanges that collect standard electronic financials and that have automated the analysis and mining of data are much more attractive to investors than other exchanges which have not complied. Compliant Stock markets can offer increased value and provide competitive advantages to institutions and private investors. Financial data verified in real-time, converted to XBRL and posted directly to an issuer's website improves worldwide exposure and provides rapid analysis capabilities to the investment and analyst community (Selim, 2012; The Nigerian Stock Exchange, 2015). There has been a positive increase in XBRL implementation around the world (Onyebuchi and Eneh, 2014). According to XBRL and the International Accounting Standards Committee Foundation, XBRL in the stock exchange will ensure: (a) Seamless flow of data (b) Filtered data © Validation (d) Creation of enhanced/new revenue opportunities and (e) Saving of time and resources. Also, Selim (2012) noted that the implementation of XBRL in the stock exchange will help market regulators in the following ways:

(i) **Quicker Analysis of listed companies' filings:** In the past, market regulators had to build company data into analysis database and send to investment houses for use. This process usually took months to carry out thus providing these houses with outdated information. XBRL offers investors and market regulators instant access to company financials.

(ii) **Facilitated Data Collection Solutions: XBRL Forms:** Products like XBRL forms remove the financial and technological burden from the filers and provide an easy-to-use, web-based front end for users to verify financial information prior to submission. With the taxonomy identified, the XBRL Forms application dynamically renders a set of taxonomy-driven returns for high quality financial data capture.

(iii) **Profit Centre Opportunities:** By adopting an integrated platform to collect, verify, analyze and report XBRL data in near real-time, market regulators can collect higher - quality data and realize drastically improved time to market. This opens the door for new viable profit center opportunities such as exploring premium data services as a viable profit center.

(iv) **Real-Time Validation:** Since XBRL forms dynamically renders web submission forms from a market regulator's taxonomy, it can also validate each filing in real time before certifying the return and generating the required XBRL instance document.

(v) **Risk Mitigation:** An integrated XBRL-based data collection system enables better risk mitigation for market regulators. Through the validation of financial return data against their taxonomy prior to submission, round tripping and errors related to re-keying data into back-end systems are dramatically reduced. This type of workflow introduces cost, labour, and time efficiencies for the regulator as well as the filer.

(vi) **Data Re-usability:** Fundamentally, structured data like XBRL has meaning and context attached to data, so that it can be exchanged effectively between trading partners, between entities and regulators, as well as exchanged internally. Properly structured data is inherently easier to reuse between automated applications; whereas unstructured data is difficult to share without manual intervention.

(vii) **High-Efficiency Risk Management: XBRL Designer:** One example of these powerful Taxonomy design tools is XBRL Designer: a metadata-driven GUI design tool that streamlines taxonomy design (including data definitions, formula creation and returns definitions) to give business users complete control over the entire data collection process. With XBRL Designer, Market Regulators can quickly react to changing legislation, standards and policies without IT or 3rd party intervention, effectively insulating the business from the inherent complexities of XBRL.

(viii) **Keeping Your Taxonomy Up to Date:** In Taxonomy design, skilled XML programmers and/or XBRL specialists are traditionally required to prepare taxonomies by specifying detailed concepts, groups, dimensions, calculations, and validation rules. Manually editing these Taxonomy files can be very complex and time consuming, and in the past has required significant relaying of the data collection/validation requirements to highly paid XBRL experts for ongoing management of the Taxonomy. Over the past few years however, powerful and business user-friendly Taxonomy design tools have emerged and now policy changes can be implemented faster and more efficiently directly by business users (Faboyede, Nwobu, Akande, and Oladipo, 2016).

4.4 Factors affecting XBRL Adoption

There are various factors that might affect the implementation of XBRL in the stock exchange. According to Cordery, Fowler and Mustafa (2009), factors that affect XBRL adoption in an organization can be classified into:

i. Environmental context factors: Environmental context factors include industry characteristics, support infrastructure and Government. Industry characteristics involve

consideration of the level of competition, influence or pressure from and organization's trading partner, and/or regulatory and government agenda.

ii. Organization context factors: According to Janvrin, Bierstaker and Lowe (2008, as cited by Cordery et al 2009), these factors relate to the organization's structure, processes and resources which constitute the organization's readiness to adopt technology. These factors include organization size and resources, top management support and organization champion.

iii. Technology context factors: These factors include relative advantage, compatibility, complexity, trialability and observability of an information system technology like XBRL. These play a significant role in the decision to adopt it.

5.0 Research Hypotheses

The hypotheses of this study include:

Hypotheses 1:

H₀ –There is no significant difference in the opinion that environmental factors will affect XBRL implementation across the 3 groups of respondents.

Hypotheses 2:

H₀ – Certain infrastructures are not necessary to ensure the implementation of XBRL in the Nigerian Stock Exchange.

Hypotheses 3:

H₀ –The attitude of users of financial reports will not be positive to the possible implementation of the Extensible Business Reporting Language (XBRL).

5.1 Methods of Data Analysis

A well-structured five-point scale questionnaire was administered to stakeholders in financial reporting in Nigeria, notably, investors, Tax practitioners, auditors, preparers of financial statement and capital market operators. A total number of 150 questionnaires were distributed and 131 of these questionnaires were returned, showing an average return rate of 87.3%. We employed the Kruskal-Wallis Test (sometimes referred to as the Kruskal-Wallis H Test), which is a non-parametric alternative to a one-way between-groups analysis of variance, in testing the hypotheses.

5.2 Hypothesis Testing

Hypothesis 1

H₀₁ –There is no significant difference in the opinion that environmental factors will affect XBRL implementation across the 3 groups of respondents.

Ranks

Respondent Group	N	Mean Rank
Respondent industry factors	46	65.21
Investor effect on XBRL implementation	36	64.25
Tax Practitioner	39	53.04
Auditor	121	
Total		

Test Statistics^{a,b}

	Respondent Industry factors effect on XBRL Implementation
Chi-Square	3.416
df	2
Asymp. Sig	.181

- a. Kruskai Wallis Test
b. Grouping Variable.

Respondent Group Interpretation

The Asymptotic Significance of 0.181, which is greater than 0.05, shows that there is no significant difference in the perception of the groups. The three groups agree to equal degree that a major environmental factor (industry factors) will affect the implementation of XBRL. The Investors have a mean rank of 65.21 followed by the Tax Practitioners with 64.25 and the Auditors with 53.04.

Decision

Level of significance; $\alpha = 0.05$. Since $p \text{ value} = 0.181 \geq 0.05 = \alpha$, accept the null hypothesis which states that there is no significant difference in the opinion that environmental factors will affect XBRL implementation across the 3 groups of respondents and reject the alternative hypothesis.

Hypotheses 2:

H₀₂ – Certain infrastructures are not necessary to ensure the implementation of XBRL in the Nigerian Stock Exchange.

Ranks

Respondent Group	N	Mean Rank
Respondent Company formal policies on electronic matters	Investor 47	73.56
	Tax Practitioner 36	57.25
	Auditor 39	50.99
	Total 122	

Test Statistics a;b

	Respondent Company formal policies on electronic matters
Chi-Square	10.633
df	2
Asymp. Sig	.005

- a. Kruskai Wallis Test
- b. Grouping Variable.

Respondent Group Decision

Level of significance; $\alpha = 0.05$. Since $p \text{ value} = 0.005 \leq 0.05 = \alpha$, reject the null hypothesis and accept the alternate hypothesis which states that certain infrastructures are necessary to ensure the implementation of XBRL in the Nigerian Stock Exchange.

Hypotheses 3:

H₀₃ -The attitude of users of financial reports will not be positive to the possible implementation of the Extensible Business Reporting Language (XBRL).

Ranks

Respondent Group	N	Mean Rank
Respondent XBRL contribution to speeding up reporting and filing cycle	Investor 46	63.70
	Tax Practitioner 36	67.04
	Auditor 38	50.43
	Total 120	

Test Statistics ^{a,b}

	Respondent XBRL contribution to speeding up reporting and filing cycle
Chi-Square	6.52
df	2
Asymp. Sig	.038

a. Kruskai Wallis Test

b. Grouping Variable.

Respondent Group Decision

Level of significance; $\alpha = 0.05$. Since $p \text{ value} = 0.038 \leq 0.05 = \alpha$, reject the null hypothesis and accept the alternative hypothesis which states that the attitude of users of financial reports will be positive to the possible implementation of the Extensible Business Reporting Language (XBRL).

Sequel to the closed ended questionnaire administered, we found out that Extensible Business Reporting Language has a very important role to play in the Nigerian Stock Exchange and has positive implications for users of financial reports at large. Other findings include:

1. The study found out that environmental factors are capable of affecting the implementation of Extensible Business Reporting Language in the Nigerian Stock Exchange
2. The research also found out that certain infrastructure such as Company formal policies on electronic matters must be put in place before the implementation of Extensible Business Reporting Language
3. Challenges such as operational, organizational and Nigerian Stock Exchange problems will affect the implementation of XBRL in the Nigerian Stock Exchange.
4. The major stakeholders/users of financial reports (investors, tax practitioners and auditors) have a positive attitude towards the possible implementation of XBRL in the Nigerian Stock Exchange.
5. Based on the opinion of the experts, Extensible Business Reporting Language will improve Accounting Information System and the decision making process.

5.3 Other Findings

After a critical analysis of the questionnaires recovered from respondents, the following observations were made:

The Nigerian Capital Market has a low awareness of Extensible Business Reporting Language.

Industry factors will affect the implementation of Extensible Business Reporting Language in the Nigerian Stock Exchange.

The presence of support infrastructures will affect the implementation of Extensible Business Reporting Language in the Nigerian Stock Exchange.

The Nigerian economic environment is suitable for XBRL implementation.

Stakeholders believe that XBRL can contribute to speeding up the reporting and filing cycle, fosters data comparability, reduce processing errors and be a reliable resource for the preparation of tax returns.

Stakeholders believe that XBRL will improve the transparency, comparability, relevance and reliability of financial statements.

5.4 Conclusion

The global adoption of the programming language Extensible Business Reporting Language (XBRL), will improve business data and information sharing among companies, banks, stock exchanges, accounting institutions, governments and other related concerns. Transparency, comparability and reliability of financial statements promise to also improve.

Thus, Extensible Business Reporting Language (XBRL) is needed and should be adopted by the Nigerian Stock Exchange as the standard for financial reporting and regulatory filing. Only then can it gain back investors' confidence and make strides towards the global stock exchange it aspires to be.

5.5 Recommendations

Awareness campaigns of the existence of Extensible Business Reporting Language (XBRL) must be carried out to encourage smooth and easy transition to XBRL-based financial reporting. Analysts, fund managers and other institutional investors should be made aware of XBRL through their professional bodies.

The Institute of Chartered Accountants of Nigeria (ICAN) should join XBRL International, become an active member and include XBRL in its curriculum in order to increase the

awareness of XBRL and enable aspiring accountants to fit into an XBRL-based financial reporting system.

Voluntary filing should first be encouraged to give companies time to prepare, train employees, establish appropriate infrastructure and policies within the system and develop an XBRL-based financial reporting.

The Nigerian Stock Exchange should join and become an active member of XBRL International to have access to information, network and establishments that will make transition to XBRL-based reporting possible.

XBRL training for all preparers of financial report should be undertaken to ensure smooth transition to XBRL-based financial reporting.

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