AL KUT JOURNAL OF ECONOMIC AND ADMINISTRATIVE SCIENCES
Publisher: College of Economics and Management - Wasit University

Analysis and review of existing studies of using XBRL on auditors' reports: Impact and quality

Khitam Abd Zaid Al-Shammari[(1)] , Haider Atta Zabin Al-Maksousi[(2)]

, Faculty of Administration and Economics, Wasit University,

Abstract

An analysis and review of existent literature on the effects of using XBRL on the quality of auditors' reports was conducted. The keywords 'XBRL,' 'auditors,' 'XBRL effect on auditing,' "XBRL and auditors' report," and "impact of XBRL on financial reporting" were searched on Science Direct and Google Scholar. These brought many results, which were sorted, picking articles and reports from recognized institutions and journals. The paper identifies that XBRL significantly reduces the time that goes into producing auditors' reports, provides mechanisms for continuous auditing, ensures consistency and authenticity of data used in auditing, reduces audit costs and provides evidence to support auditors' reports. However, lack of effective training on the use of the technology, excess confidence in the accuracy of the technology, errors of original entry, and the high cost of training auditors on how to operate XBRL, among others, have been identified as the negative impacts of the technology on the auditors' report. The positive impacts outweigh the negative impacts, and XBRL contributes to better, more efficient, and more accurate auditors' reports than other financial reporting systems used.

Keywords: XBRL ; Auditor ; External reporting ; Positive impact; Information Systems

Introduction

Extensible Business Reporting Language (XBRL) is an evolution of the Extensible Markup Language (XML). XBRL uses XML data tags to describe financial information for both private and public organizations [1]. Traditional financial reporting was time-consuming, and the information gathered was not accurate. Therefore, XBRL is an electronic language that is used for financial reporting in most organizations. It was developed to solve problems of the traditional way of financial reporting and the fixed formats that were being used in the past, such as PDF, web-based, hard copy, and spreadsheet. Besides, XBRL offers the financial community a standard way of preparing, publishing, extracting, and exchanging financial statements in a better and more effective way [2].

Although the technology is still young, XBRL has been remarkably adopted globally. XBRL is used all over the world in over 50 countries. There are millions of XBRL documents that are created yearly to replace the traditional paper-based versions with more effective, accurate, and useful digital versions. XBRL enables the people who are publishing the reports to do so with confidence since it is an easier way of financial reporting, and the information gathered can be analyzed accurately [3]. Additionally, people who are consuming the report can test them against business and logical rules as a way of capturing and avoiding any mistakes [4].

Charles Hoffman, the founder of XBRL, explains that XBRL not only helps in the creation of financial reports but also impacts all the aspects of the supply chain in the company [5]. Also, the study showed that the use of XBRL streamlines the work of internal auditors and enables organizations to reduce reporting risks, costs, and errors.

Since XBRL is internet-based, it allows for the seamless flow of information between organizations and the customization of data [6]. Before auditors embark on an XBRL initiative, they need to be aware of the various audits and control issues related to its use [7]. Figure 1 shows the reporting process of XBRL.

Although interest has expanded in XBRL research, the literature trends, especially those which compare the advantages and disadvantages, have not been reported in fairly restricted ways.This paper is an attempt to make a comparison between the negative and positive effects

of XBRL and its effects on the quality of the External Auditor's reports as well as the development and improvement of this technology. This research analyzes the effects of using XBRL on the quality of auditors' reports. This research is concerned with the questions: Does XBRL have negative or positive effects on the quality of auditors' reports? What is the impact of XBRL on the audit process? What are the financial effects of XBRL incorporation into financial reporting?

Figure 1. XBRL reporting process

1. Auditing using XBRL

The rise in accounting and corporate scandals involving large organizations in the U.S. in 2002 led to the enactment of the Sarbanes-Oxley Act (SOX) by congress. The act required companies to speed up financial reporting by filing their quarterly reports within 35 days to the close of the quarter and filing annual reports within 60 days to the close of the year. Section

404 of the Act also required firms to produce an internal control report [8]. To implement the new requirements of the SOX, companies had to establish and introduce fast and effective financial reporting systems. The management of companies had to introduce systems that audit and verify each step of the transaction as it happens. This led to the integration of the Enterprise Resource Planning System (ERP) into the accounting processes of companies [9], and many companies have chosen to include XBRL into their ERP systems since it is faster, more accurate, and affordable. Figure 2 show the proposed XBRL-based ERP system.

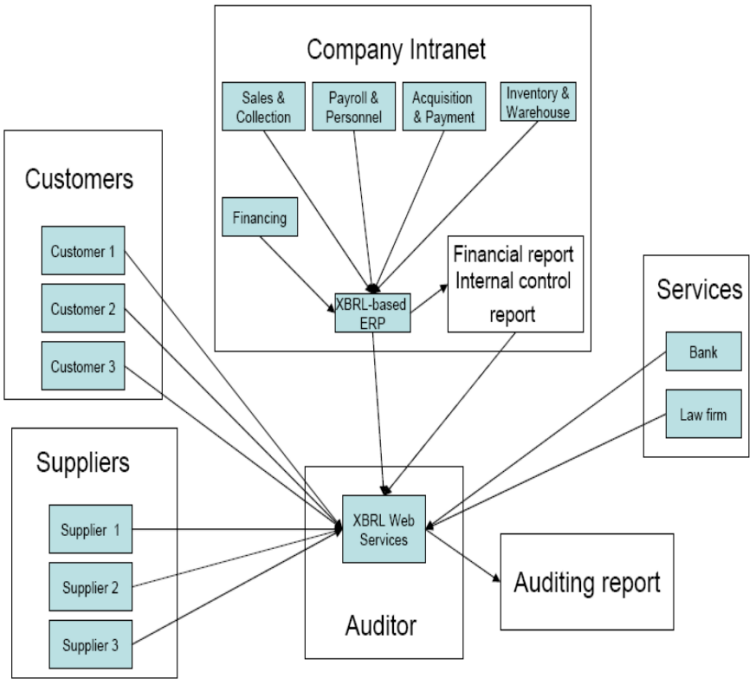

Figure 2. The proposed XBRL-based ERP system [8].

Moving to another country, In Italy, XBRL is mandatory for all unlisted firms. La Rosa & Caserio (2013) conducted research to identify the views and use of XBRL by auditors in Italy. Their research found that auditors did not use XBRL as much as they theoretically should. They report that most of their respondents informed them that their auditors were not interested in auditing their XBRL related reports and documents, and after surveying 200 internal audit executives, they found that 50% were unfamiliar with XBRL. This provides empirical evidence of the low usage of XBRL in auditing in Italy. Firms voluntarily incorporate XBRL into their

ERP systems to build their investor confidence. In genral, companies in the countries that have incorporated XBRL into their ERP systems have lower audit expenses compared to those who do not use XBRL as reported by Shan et al.[11].

Two tools can facilitate auditing using XBRL, the global ledger (XBRL-GL) and continuous auditing (C.A.) as shown in the below sections.

1.1 XBRL-GL

The Global Ledger is a taxonomy that defines business and financial information that is used in the general ledger to allow an organization to embed XBRL in the Enterprise Resource Planning System (ERP) [12]. It allows the company to assign XBRL tags to its business and financial transactions, data files, and account balances. Additionally, it is a tool that multi-national companies use to standardize and align their general ledgers that allow external and internal audit functions due to the comparability of information as shown in Figure 3[13]. When the business has XBRL systems in its supply chain, it will be easy to meet the audit requirements using the XBRL-GL information, for example, the annual financial audit. Continuous auditing is a tool that organizations can use to meet these objectives.

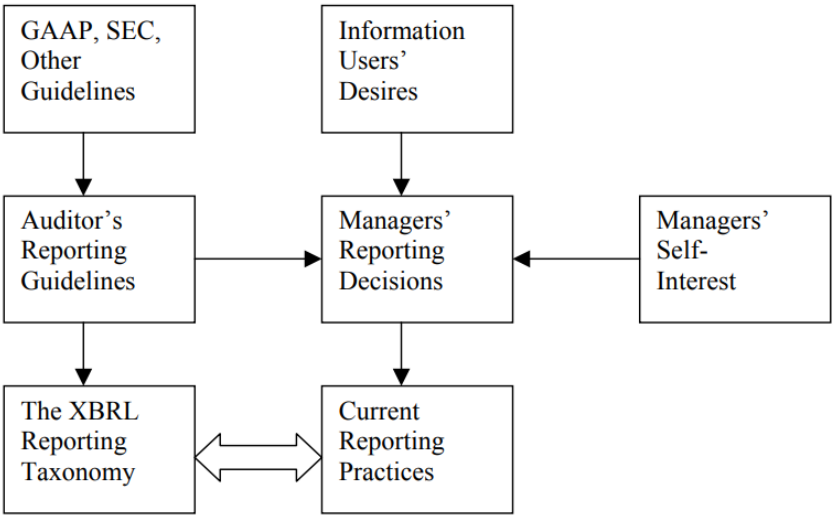

Figure 3. Influence Diagram [13].

1.2 Continuous Auditing

Continuous auditing is a tool that audits all the accounting data as soon as transactions are recorded. Auditing can be done directly using the ERP system of the company, using an auditing module, or by transferring the data from the database of the company to the database of the auditor [14]. The organization maps and tags all its accounts using taxonomies that the auditors use, such as XBRLGL and the U.S. GAAP[12]. This approach has several advantages. Auditors use standardized XBRL that is recognized to reduce the cost and time of the analysis because it is not necessary to customize testing and analytical tools for each client. Additionally, there is high reliability of the audit evidence since it is generated from the data source of the company that is the ERP. XBRL taxonomies that are required to facilitate auditing are work papers, audit opinions, and audit schedules. If the external shareholders of the company, such as suppliers and banks, have XBRL based systems, data transfer and sharing can be done continuously between the organization and the parties involved to meet the requirements. Figure 4 display continuous audit model.

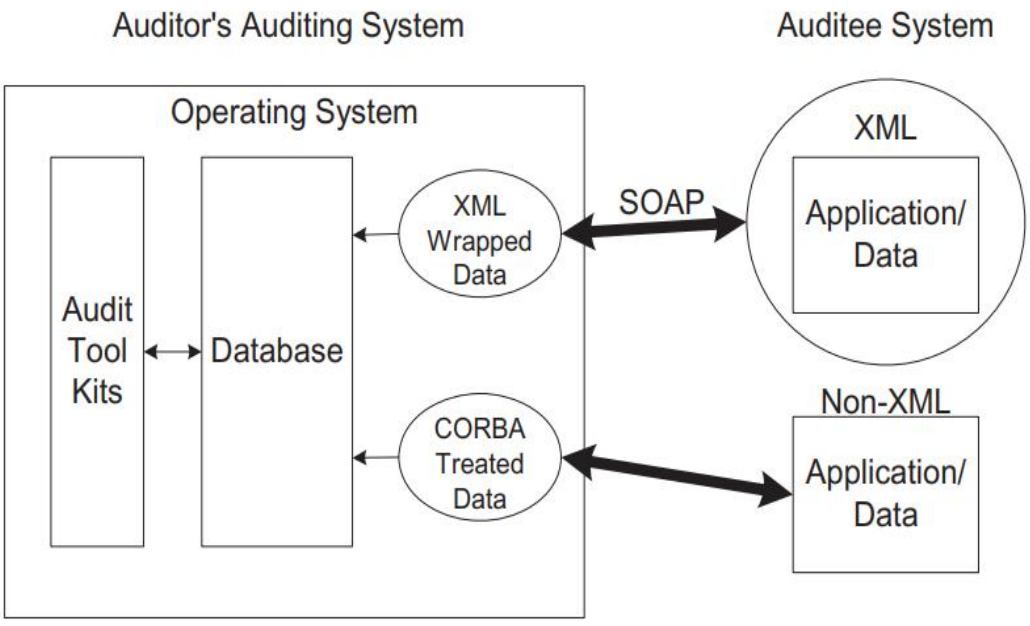

Figure 4. Continuous audit model [14].

The easiness of sharing and transferring data continuously through the XBRL system makes it a more preferred system to its predecessor, the Electronic Data Gathering, Analysis, and Retrieval system (EDGAR), that firms were mandated to include in their reporting systems by the Security Exchange Commission (SEC) in early 1993[15]. Although EDGAR was effective in increasing the speed and efficiency of financial reporting, it did not support the transfer of information, and the external shareholders had to download information from the SEC website or manually search for the same data[16]. The ability to easily transfer data through XBRL allows auditors to confidently analyze accounting transactions accurately and faster than traditional systems.

2. Impact of XBRL on the quality of auditor reports

2.1 Positive impact

2.1.1 Reduced Labor

XBRL is solely based on internet technologies that make it possible to search through different documents and extract data that is required for analysis. Auditors have become consumers of financial information, just like other people in the supply chain. XBRL will make the auditor's work easier, especially for the labor-intensive parts such as the research part, processing, and the analysis of huge amounts of data [17]. Reduced labor means that auditors no longer have to work for long hours since their work is simplified. Auditors no longer have to manually analyze the data or information in the financial reports of companies as XBRL automatically analyzes all transactional information relating to a particular entry in the financial statements of companies[18]. This has made the work of auditors easier and faster, enabling them to present their opinions on financial statements accurately and on time.

2.1.2 Timeliness

Additionally, the manual mining of data that is common with traditional ERP systems, according to EDGAR, will be replaced with the XBRL, which is a more timely and accurate way of analyzing all types of data [19]. The simple balance sheets can be replaced by the 100% validation methods or by the use of deeper analysis of ledger data [20]. XBRL will allow for a more effective way of analyzing data for anomalies. The greater access and the lower costs of accessing data from the ledgers will enable for effective analysis of huge amounts of data for

anomalies of compliance, fraud, and other audit assessments. XBRL has no royalty obligations that are likely to raise the costs of using it [18]; this makes it easy to incorporate the XBRL into a company's ERP system and collect, analyze and share transactional data continuously.

2.1.3 Accuracy

Auditors can access information easily, benchmark, disaggregate, analyze and compare rather than just gathering and compiling information. Auditors can focus on ensuring the accuracy, credibility, and reliability of the financial statements that will help in protecting the public interest [21]. XBRL is an essential aspect of the emerging field of 'continuous auditing.' Continuous auditing is expected to be a powerful auditing form that will change the financial and accounting field in a tremendous way [22]. XBRL will play a role in ensuring that continuous auditing realizes its full potential.

Using XBRL, reports are generated faster, and the increased speed is an advantage to external analysts that compare the results of different companies. XBRL technology shortens the time spent in auditing, allowing auditors to present their reports sooner without compromising the quality of the audit; this is a great asset to external analysts [23]. By increasing human involvement and speed, there is a long-term value that is generated for the company. XBRL allows the comparison of the results of multiple companies without extracting their information from each of their filings, and it can also support the inter-period comparison for multiple or a single company as indicated in Figure 5 [24]. Since the analysis is done without having to rekey the numbers into the system, the comparison can be made conveniently and effectively. Apart from the elimination of the rekeying aspect, auditors do not have to worry about what the right labels for the numbers are; XBRL taxonomies ensure that the right numbers are connected to the right labels.

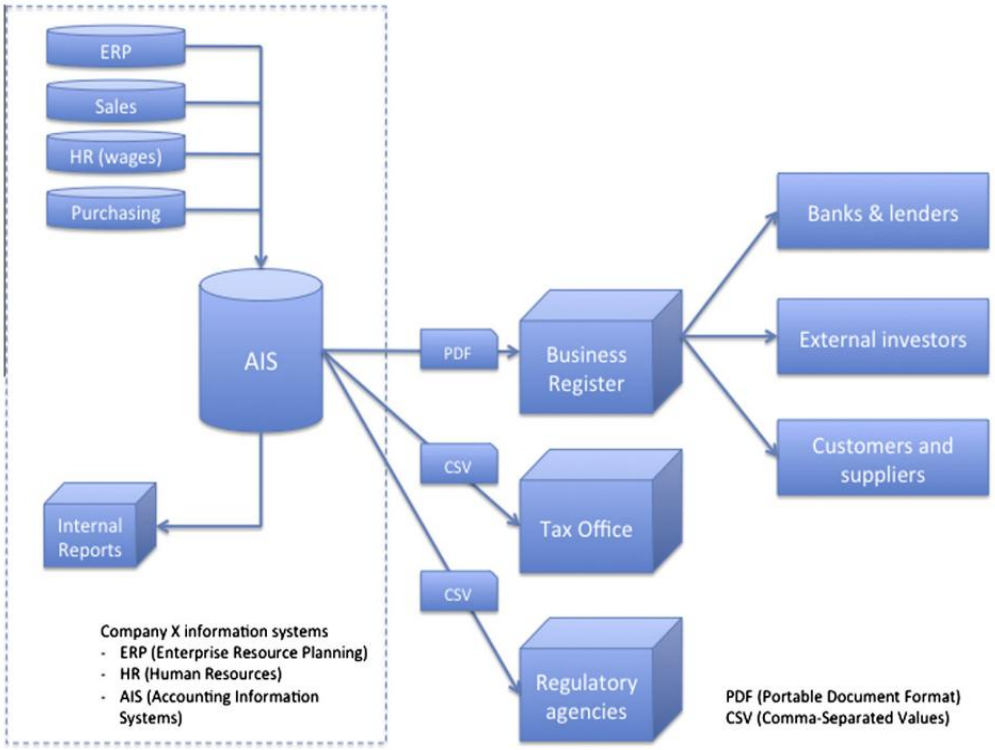

Figure 5. Reporting data flows [24].

2.1.4 Assures the consistency and authenticity of data

XBRL ensures the consistency and authenticity of accounting data that is presented in audit reports. Before the introduction of XBRL, auditors had to match their auditing software with their clients' accounting software so as to be able to access the information initially keyed in by accountants in the client's system [18]. This sometimes led to the rekeying of data for auditing purposes and would sometimes cause inconsistency in the data held in the company's systems and that used by auditors in analyzing the financial statements. XBRL allows for the transfer of data as initially keyed into the company's system to the auditor by the uniform interface between them [25]. Maintaining the authenticity and originality of the transaction would assure consistency in the data used for auditing purposes and consequently generate accurate audit reports.

2.1.5 Reduces the error that arises from the wrongful reinterpretation of data

Moreover, the use of XBRL will help to reduce tagging and eliminate potential errors that occur when financial intermediaries are forced to reinterpret documents [26](see Fig.6). The human error that occurs during auditing and the preparation of other financial documents will drastically reduce. The use of XBRL will improve data quality since it is an automated process that is mostly internet-based [1]. Auditors can analyze huge amounts of data accurately using the XBRL and improve the interoperability of data. The ability of XBRL to transfer data over the internet allows financial intermediaries to access the relevant raw data in its original form and run it through XBRL to automate the interpretation of financial documents. Auditors are able to receive financial information in its raw form in an automated format and, using XBRL interpret it to understand the information contained in financial statements.

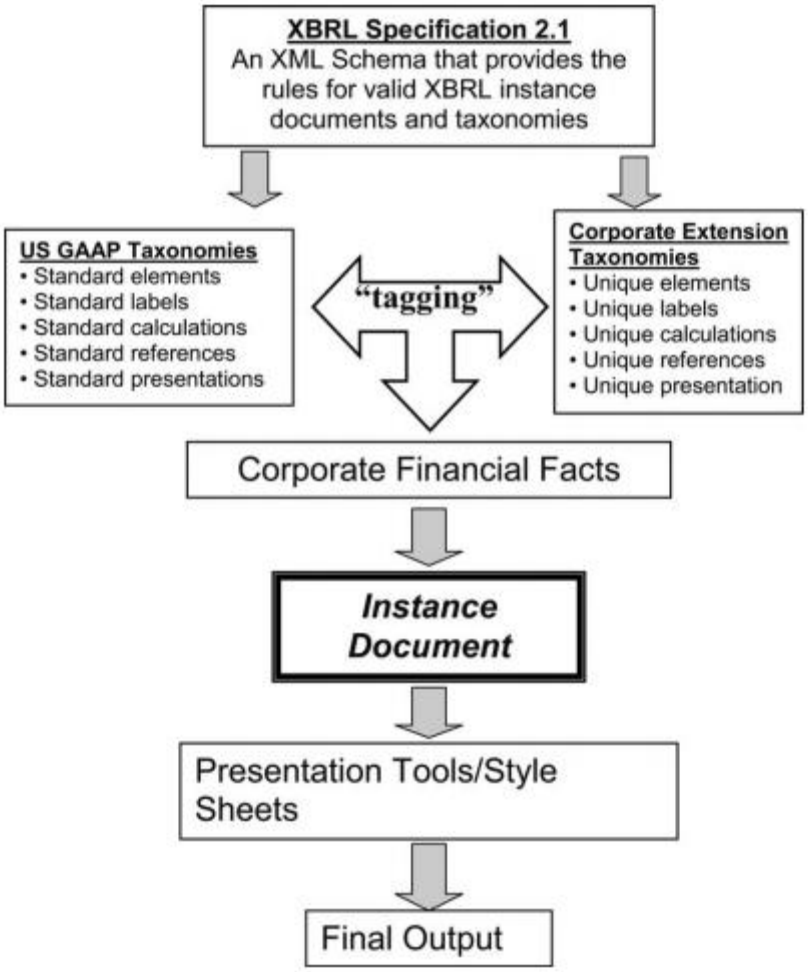

Figure 6. XBRL Document [26].

2.1.6 XBRL incorporates the different accounting concepts and principles that are used in different jurisdictions

XBRL uses two types of documents to analyze financial information and allow for auditing or presentation of financial information. The two documents are instance documents and taxonomies. Instance documents report business facts and rely on taxonomies to provide meaning and explanation to the facts. Taxonomies define the core concepts and accounting principles, and this allows companies to incorporate the accounting principles and policies that are accepted within different jurisdictions [27]. Companies are able to use taxonomies that align with their jurisdictions accounting principles and policies. This enhances the comparability of audit reports across companies and industries [13]. It also allows for

regulation as regulatory bodies are able to establish regulatory frameworks around the technology, ensuring that the financial statements presented by companies are in line with specified principles and policies.

2.1.7 Provides evidence to support the auditor's report

The audit reports from the XBRL technology have sufficient evidence to support the information presented in the auditor's report. The ability of the XBRL to analyze the changes in a transaction throughout the business process in real-time provides evidence to support the findings of the auditing process [28]. This evidence can also be shared through the internet to potential users for cross-examination in the event that there is a need for confirmation [1]. Availability of evidence to the audit report assures the investors and other stakeholders of the authenticity of the audit report and consequently improves the quality of the report. Investors aim at minimizing the risks their investments are exposed to, the ability of XBRL to enrich the auditor's report with record evidence that proves that the report shows a true representation of the firm; will assure them and reduce the risks they are exposed to.

2.1.8 Reduces the costs of preparing the reports

Bizarro and Garcia [29] explain that companies should take advantage of the fact that XBRL is available over the internet to reduce their costs of reporting. Auditors using XBRL should also be able to minimize cost while maximizing efficiency as they use this technology [29]. The costs of manually sourcing for transactional information should reduce significantly as the technology allows them to automatically transfer data from the company's databases to the database of the auditor through the internet [1]. XBRL also reduces the visits that the auditor has to make to the company to review their books of account since they can use the internet to share any important information. The cost-saving that is enabled by the use of XBRL would result in cheap auditing services without reducing the quality of the audit or compromising the independence of the auditor, and this would improve the value quality of the auditor's report since the auditor will spend less time and money than when using traditional systems. Continuous auditing through XBRL should also enable the companies to receive real time feedback on their risks associated with the transactions they make [14]. This should help the

company mitigate these risks. Cost saving gives investors value for their money when receiving the auditor's report. Figure 7 displays the expansion of XBRL beyond financial reporting.

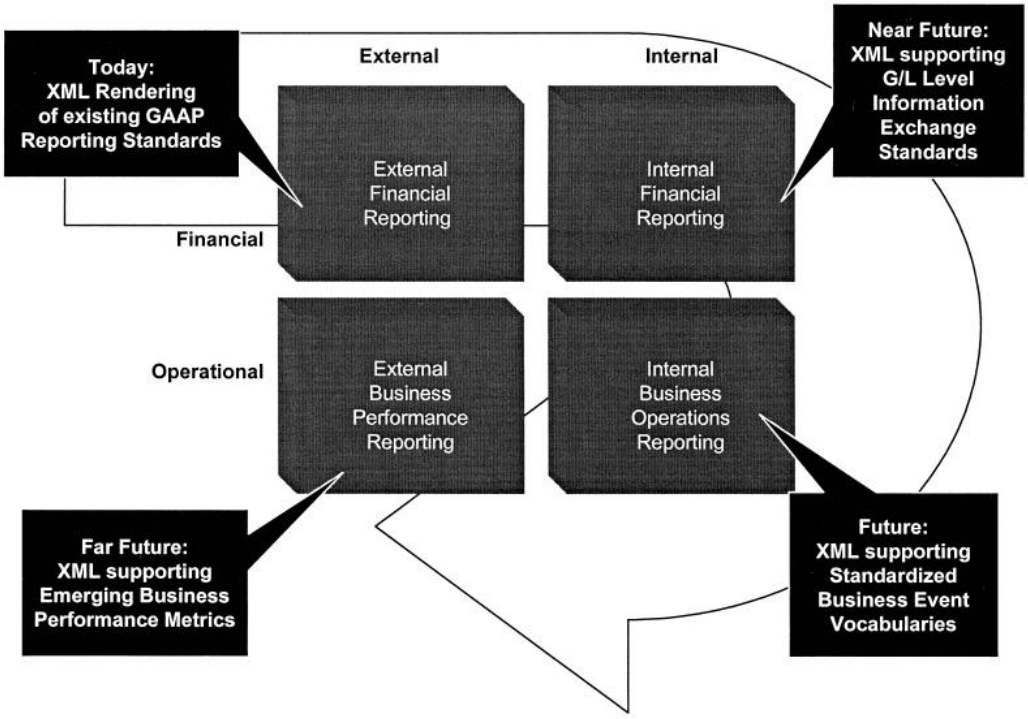

Figure 7. Expansion of XBRL beyond financial reporting [1].

2.1.9 XBRL makes all information, even non-financial information, into the report

XBRL broadens the scope of auditing and incorporates more information, both financial and non-financial information, into the audit reports of companies. XBRL has the potential to analyze information beyond the main focus of financial statements. It analyses the whole business reporting process, as it is able to access information and data from the ledger, trial balance, and even individual transaction entries [30]. XBRL technology enables every data to be labeled accordingly and can also connect the entire business process, and information can be traced back to its original data, extending the scope of auditing to the entire business process, ensuring that the information contained in the auditor's report is very accurate and comprehensive [25]. In the event that an auditor wants to investigate the inventory more, he has full access to all information on inventory from the ledger, inventory accounts, and any transaction that affected the inventory.

2.1.10 XBRL allows for continuous auditing

Continuous auditing is a concept that was introduced in the 1990s as a theoretical concept that lacked technical application. XBRL technology provides the technical applicability of continuous auditing to companies without compromising the independence of auditing [14]. Continuous auditing enables auditors to monitor the activities of companies in real-time and provide solutions to mitigate the audit risks that they are exposed to as they occur. The XBRL technology allows for transactions to be analyzed and processed when and as they occur through the business process. This enriches the audit report as the information contained therein is up-to-date information that has not been altered to accommodate fraud or mismanagement of finances [25]. Continuous auditing also avoids generic synthesizing of financial statements by corrupt managers as information on financial and accounting transactions is collected in real-time and analyzed independently through the business process.

2.1.11 The information contained in the auditors' report is made in a standard format, which allows for comparison

The XBRL technology has gone a long way in standardizing a company's financial information available in the capital markets across the world. The United States Security Exchange Commission (SEC), after requiring that companies use the XBRL technology in preparing their financial statements in April 2009, noted its main objective for introducing the new requirement as being to "assure informational equality in the capital market by providing a level playing field to different types of investors"[31]. Information asymmetry in the capital markets could result in insider trading as players in the markets who have access to critical financial information may use the information to buy, sell, or hold securities hence making huge profits at the expense of others. The XBRL technology allows auditors to confirm that all the transactional information is incorporated in the financial statements, making them possible for all users of financial information to interpret the statements in a standardized way, thereby reducing the chances of asymmetric information in the capital markets [26]. Investors in the capital markets are able to trust that the audit report incorporates all available market information about the firm.

2.1.12 Reduces local bias in the auditors' reports

When conducting research to determine if XBRL has reduced local bias to local U.S. investors, Li et al. [31] used the increase in corporate disclosures as one of the economic channels to explain how the technology reduced local bias. The XBRL technology has significantly increased the number of corporate information bodies release to the public in the form of disclosures. Auditors then use the technology to confirm that all the information that is necessary for decision-making is disclosed in their audit reports. XBRL technology records transactions as they occur, maintaining up-to-date information on the operations and financial position of firms [25]. This feature of the XBRL has caused firms to be vigilant in disclosing all the information about transactions that have occurred within the financial year or reporting period, increasing market efficiency since prices incorporate all information on a transaction. As Li. and his team found in their research, the increase in corporate disclosures has gone a long way to decreasing local bias.

2.1.13 XBRL has reduced the time and resources auditors used to mine data and rechanneled the resources to analyzing data to generate better reports

The XBRL technology has allowed auditors to pour more time and resources into analyzing data than they did before, which has led to increased accuracy of the audit reports they release. Campbell Pryde, the CEO of XBRL US, is reported by Blankespoor et al. [32] to have explained that large firms were using XBRL "to fill gaps in their datasets" [32]. This means that the institutions are using the XBRL technology to fill up the gaps they had when they manually mined data. The introduction of XBRL that allows them to receive financial data easily (Debreceny & Gray [1]) has reduced the amount of time and resources that were previously spent on mining data from 80% the time to about 20% of their time and money, allowing them to use the remaining time (80%) on analyzing the data to report their opinions [32] (See Fig.8).

Post * XBRL Coefficient

	(-1,+3)	(4,8)	(9,13)	(14,18)	(19,23)
2009	0.4465 ***	0.5140 ***	0.4535 ***	0.2821 ***	0.0482
(p-value)	(0.001)	(0.000)	(0.000)	(0.009)	(0.681)
2010	0.5131 ***	0.6336 ***	0.5968 ***	0.3544 ***	0.0629
(p-value)	0.000	(0.000)	(0.000)	(0.002)	(0.615)
2011	0.3718 ***	0.5352 ***	0.4634 ***	0.2985 ***	0.0687
(p-value)	(0.001)	(0.000)	(0.000)	(0.002)	(0.508)

	(-1,+3)	(4,8)	(9,13)	(14,18)	(19,23)
2009	0.6829 ***	0.7409 ***	0.6474 ***	0.3283 ***	-0.0119
(p-value)	(0.000)	(0.000)	(0.000)	(0.007)	(0.925)
2010	0.7212 ***	0.8425 ***	0.7357 ***	0.3713 ***	-0.0127
(p-value)	(0.000)	(0.000)	(0.000)	(0.003)	(0.922)
2011	0.6708 ***	0.8039 ***	0.6786 ***	0.3420 ***	0.0187
(p-value)	(0.000)	(0.000)	(0.000)	(0.005)	(0.884)

Figure 8. Data analysis of XBRL Coefficient [32].

2.1.14 It has allowed audit reports to effectively include the tax performance of the company, which makes the reports useful to the government and provides more information to investors

The eXtensible Business Reporting Language has contributed to the reduction of tax avoidance by small firms in the U.S. This has enabled the auditor's report to include the correct and accurate tax payable by the company. The Internal Revenue Service (IRS) compares information contained in companies' audited financial statements with the information contained in the firm's tax returns to identify any cases of tax avoidance. Small firms which were not required to publish their financial statements have in the past (before the SEC-mandated the use of XBRL) managed to hide crucial information from the IRS and hence successfully avoid paying high taxes. However, after the SEC-mandated firms use XBRL, there has been a significant decrease in tax avoidance among small firms [33]. XBRL records and maintains all transactions throughout the business process [28], and therefore, can be used to identify any alterations by management in an attempt to reduce their tax liability during auditing.

2.1.15 Enhanced transparency of the audit process

The XBRL technology enhances the transparency of the audit process and consequently builds confidence in the audit report by auditors [12]. The level of confidence users of financial information have on the quality of auditing that a firm undergoes is very important as it determines the value the users attach to the audit report of certain auditors. When investors, creditors, or other users of financial information are not confident about the ability of specific auditors in doing a thorough analysis of a firm's transactions and financial statement, the quality of that auditor's audit report is considered of low quality and no value to the investors; Since the investors cannot trust the audit report. The ability of the XBRL technology to trace a transaction through its life in the business process assures the findings of the auditor and can be used to support the audit report [25], making the whole audit process more transparent and consequently increasing its quality.

2.1.16 Has allowed auditors to widen their scope and include more information in their reports

The XBRL technology will enable auditors to widen their auditing raging easily and effectively. When a firm adopts the XBRL technology, it makes it possible for its auditors to widen their audit range, from a single period to comparing longer period ranges [24]. Auditors can track the trend of a particular item in the financial statement over a long period of time to understand how management has improved and performed in the management of that item over several periods and determine the possible cause of current performance. This has made audit reports more solution-based than ever before. An auditor is also able to evaluate the performance of different managers over time; for example, by tracking the trend of sales over a period of five years, the auditor is not only able to explain the possible reason for a reduction in sales at a given time through comparing sales volumes over the time; but is also able to evaluate the performance of the sales manager over that period. All this is made possible by the easiness of accessing financial data through the XBRL system [1], as opposed to the manual mining that was involved with previous auditing systems.

2.1.17 The automation has reduced the companies audit costs

Companies that adopted the XBRL system in preparing their financial statements are enjoying lower costs of auditing in the long run [12]. Since the XBRL system is automated and uses advanced technology that makes access to financial data easier and cheaper, fastens the audit process, and makes sharing of financial information between a company and its auditors, the overall cost of auditing in terms of time and finances incurred by the company reduces after some time. The reduced cost does not reduce the quality of the audit report but instead shortens the time taken to audit the financial statements of the company [23]. This effectiveness allows companies to reap more value from audit reports as they are cheaper, more accurate, and timelier. Shareholders also reduce the agency cost they incur to keep management in check.

2.1.18 XBRL compliance with regulatory principles and concepts makes it easy for authorities to use the audit reports in their regulatory responsibilities

Adoption of the XBRL technology makes it possible for auditors to measure and assure compliance to the regulatory environment through the audit report, increasing the usefulness of the audit report and its quality in general [34]. Every jurisdiction has a regulatory framework that aims at licensing and regulating the operations of firms within those jurisdictions—one of the regulation measures throughout the world in the regulation of financial reporting. Regulatory authorities across the world have set standards and policies that seek to control the way financial information is reported and published by companies. The XBRL, through the use of specific taxonomies, allows firms to incorporate specific policies and accounting standards in the preparation of their financial statements [13]. The technology then ensures that the financial statements produced agree and follow every stipulated guideline and requirement of the respective policy and standard, making it easier for auditors to confirm the adherence of firms' financial statements to the prescribed standard and therefore assuring the quality of the audit report they present.

2.1.19 Avails audit information in real-time to the auditors

XBRL technology has a general ledger taxonomy that incorporates all functions of an accounting ledger into the XBRL technology, which is automated and fast—enabling it to synthesize financial information fast and make available in real-time information that would

have otherwise taken days to prepare by the finance and accounting team of any company [35]. This feature of the XBRL technology comes in handy in the current world when investors, creditors, regulators, competitors, and other users of a company's financial information are found in different geographical locations and prepare their own financial statements at different times from the subject company. The XBRL allows auditors to generate audit reports for these users in real-time and send them across the world, allowing the users to make financial decisions without having to wait for the subject company to publish its financial statements every year-end. This feature makes audit reports more dependable and flexible to fit the current times.

2.2 Negative Impacts

2.2.1 Auditors lack the technical know-how of operating the new technology

XBRL has very many positive impacts on the quality of audit reports that it is impossible to imagine the existence of any negative impacts on the same. However, some of the simplest issues pertaining to XBRL implementation have the greatest negative impact on the quality of audit reports released from the use of the XBRL technology. There are very many auditors today; however, very few of them are conversant with the technologies and taxonomies of XBRL; this makes it hard for most auditors to effectively use XBRL in auditing financial statements [36]. There is very little training on the use of XBRL in auditing, which leads to auditors not being able to effectively use the technology to analyze financial statements. In Italy, very many auditing firm's executives do not know how to use XBRL[37]; This results in auditors' reports lacking the relevant skill confidence that existed in traditional auditing practice.

2.2.2 Overconfidence and reliance on the technology to identify all errors

Most auditors have too much confidence in the XBRL technology and hence do not audit any XBRL related financial statements as they believe them to be the true and accurate representation of the company's financial affairs as shown in Figure 9 [38]. When the financial statements from XBRL are not reviewed by auditors, it becomes hard to confirm their accuracy and consistency. It also becomes hard to identify mistakes in the reporting, and therefore, auditors present unreviewed reports which could contain errors as their audited report, yet they

did not audit the statements. Rosa and Caserio [37] also report that most of their research respondent claimed that their auditors avoided auditing XBRL-related financial statements.

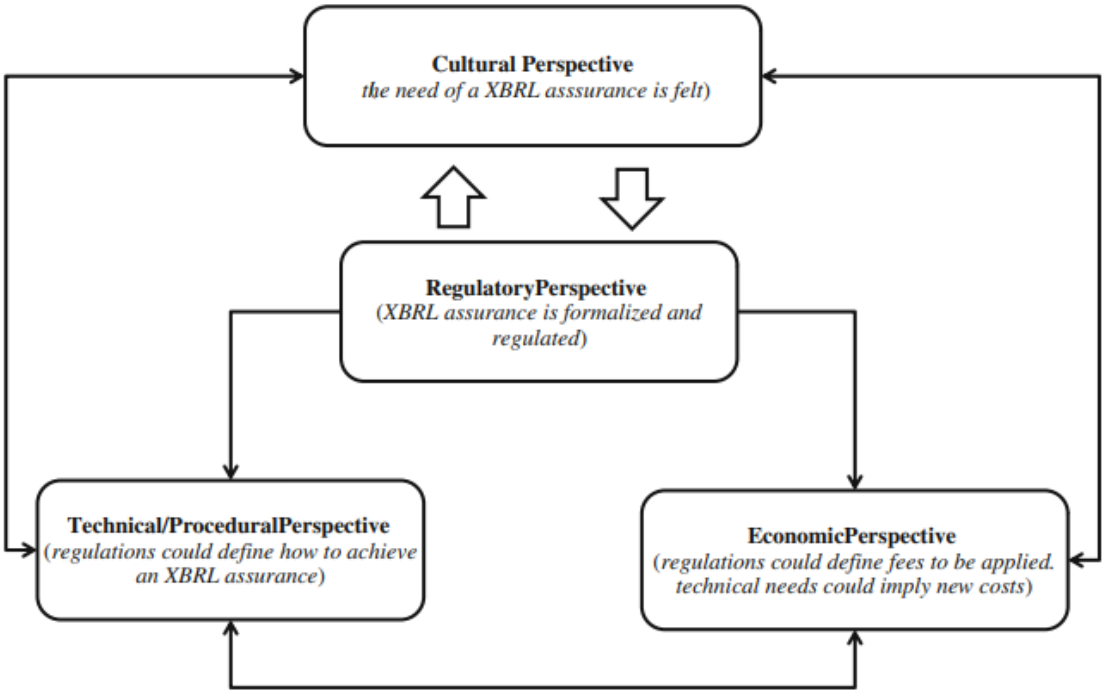

Figure 9. Framework and relationships [38].

2.2.3 It is hard to identify errors in the original entry

The automation of the whole auditing process by the XBRL technology means that it is hard to identify and correct original transactional errors in the business process. When an accountant keys in a transaction incorrectly, they expose the whole auditing process to an error of originality [39]. The information regarding that transaction will be incorrectly transmitted throughout the business process, and the XBRL technology will share the information with the auditors with the error embedded within the large information. This would make it hard for the auditor to single out the error, and hence the audit reports generated from such audits would be incorrect and inaccurate. XBRL is subject to the concept of garbage in garbage out [40], which means that the technology cannot correct errors that are keyed in by the accountant when initially feeding data into the system. Investors and other stakeholders would receive inaccurate data or information from the technology and use it to make decisions.

2.2.4 Risk of company's private data getting into the wrong hands

XBRL is an internet-based system that facilitates the transfer of data and information from one person to another across the internet. This puts the company's financial data at risk. Every company has sensitive information and data that it would not wish to share with unauthorized persons for the security of the company's future and operations [41]. Using a technology that transfers data over the internet and that can be accessed by an uncontrolled number of people risks the leakage of this information into the wrong hands [42]. This has gone around to affect the quality of auditor's reports as the company's management actively regulates the data uploaded into the XBRL technology in an attempt to secure the company's private information, reducing the authenticity and consistency of the transactional information made available for auditing using XBRL. Hence, the quality of auditing reports generated from such information is low, inauthentic, inconsistent, and inaccurate.

2.2.5 Errors within the computer systems are impossible to identify

The use of computers introduces a new range of risks into the auditing process. XBRL uses computers to collect, synthesize, analyze, and report financial data and information. Computer errors within the process are most likely to go unnoticed and hence would lead to inaccurate information in audit reports from XBRL [43]. System errors are sometimes hard to identify and could go unnoticed in the final audit report of XBRL auditing. Other times even when they are identified, they may be very hard to correct as the general users are not very conversant with programming languages and other sophisticated computer diagnostic processes [40]. Traditional systems enabled auditors to easily identify and correct any incorrect entries or errors while still in the audit process. XBRL, on the other hand, has real-time analysis of information hence missed computer errors and mistakes would reflect in the audit report without being corrected.

2.2.6 The different taxonomies used in XBRL make the auditors' reports incomparable

Sometimes, companies use taxonomy extensions when the taxonomy they are using is not deemed to have one appropriate label for the data they are tagging. The year 2000 XBRL taxonomy allows for companies to modify their taxonomy to cater to business financial and accounting policies [13]. These extensions create the problem of incomparability of financial

statements across companies [44]. One of the most significant uses of financial information is to compare the financial performance between companies and industries. When the audit report is not able to provide enough information to effectively compare one company's performance to another, the information contained in the auditor's report becomes of little value to the investors who would prefer to know the performance of their investments in relation to foregone alternatives. Therefore, the ability to extend taxonomies in XBRL, reduces the comparability of auditor's reports, thus reducing the quality of the report. Figure 10 shows mapping errors.

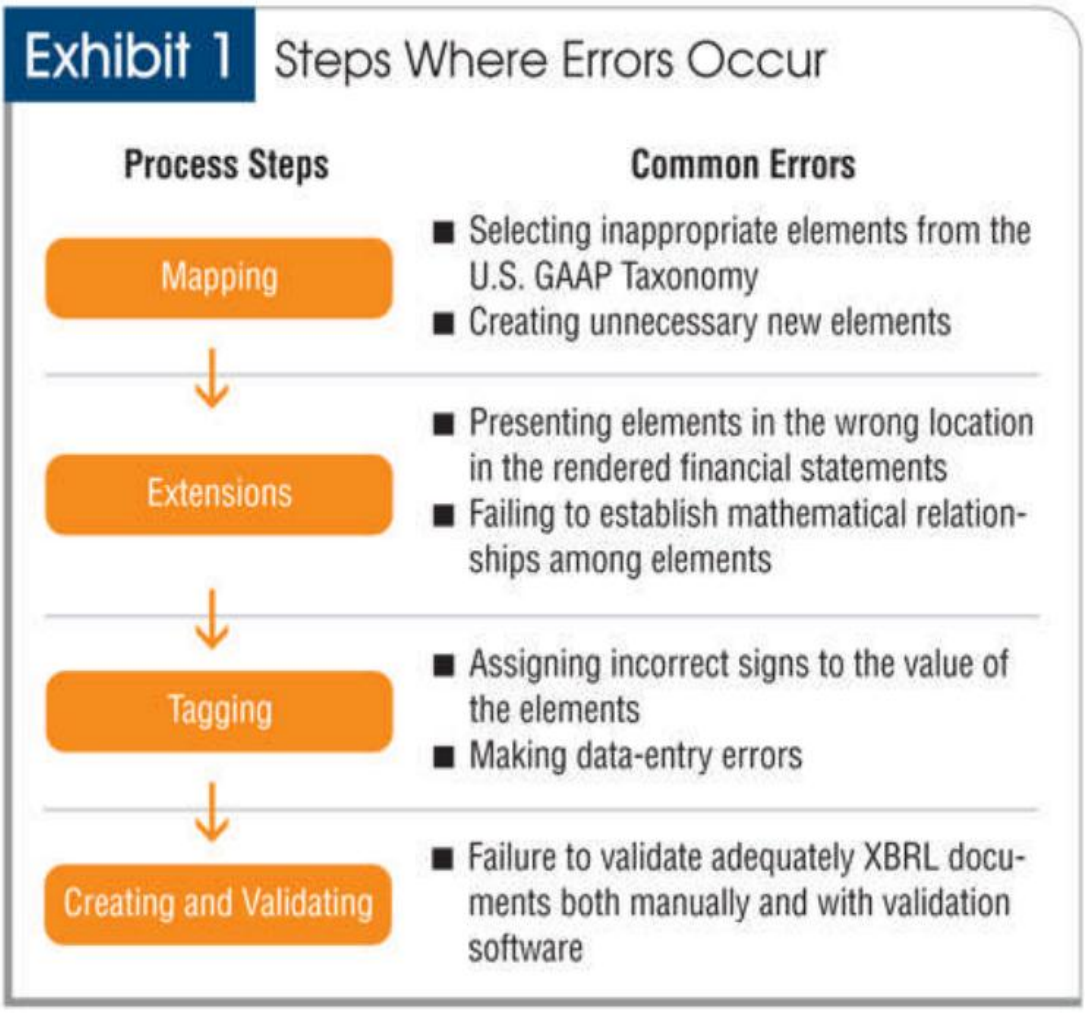

Figure 10. Mapping errors [43].

2.2.7 Small-sized firms will not be able to effectively benefit from the technology

Blankespoor et al. [32] disagreed with the objectives of the SEC in mandating firms to use XBRL when preparing their financial statements, noting that the playing field will not be leveled for all users of financial information. They argued that 'better-endowed users will definitely benefit from information symmetry as a result of the use of XBRL since they have the resources to learn how to use the new technology, unlike the small 'less-endowed users who face financial and resource limitations in acquiring the skills to use the technology. The XBRL technology is fairly new in the market, and the cost of training on how to use it may be too high for the 'less-endowed users, and as a result, very few users of financial information are conversant with XBRL [36]. Auditors are no exception, as Rosa & Caserio [37] reported that most executives of audit firms in Italy do not know how to use XBRL. When auditors do not have the necessary skills to operate an XBRL software due to high training costs, it becomes hard for them to effectively audit the financial statements of firms that have already adopted the XBRL technology.

2.2.8 The initial cost of adopting XBRL may be too high for auditors

The cost of adopting the XBRL technology by auditing firms is too high, which in turn raises the cost of auditing. During the time the SEC-mandated firms incorporate XBRL technology in their financial statements filing process, there was very little XBRL software available in the market [33]. This caused the costs to buy and install one very expensive. The costs of training auditors on how to use and operate the new technology in their auditing process were similarly high as there were not very many people able to train on the use of the technology [36]. These costs were to be incurred by audit firms without significantly increasing the audit expense charged to their clients, who expected a reduction in the audit fees since the new technology was assumed to ease the audit process. The increased audit costs made it harder for auditors to fully utilize the new technology, and the quality of their reports did not meet the market expectation after the adoption of XBRL.

2.2.9 XBRL relies on the data entered by accountants, who may be corrupt

The XBRL system may be easy to detect any creative reporting by firms that may be done after an initial entry of a transaction. However, it is important to note that XBRL technology is dependent on the information keyed into the system by people. When management is able to control the actions of the person managing the system, management can very easily alter and change financial data within the whole system and cover it up so that it is impossible to detect since the whole system is managed from a similar source point [45]. When a transaction is manipulated from its point of origin, it becomes very hard for the auditor to later detect the error while doing the audit of the financial statements since the initial manipulation is effectively carried through the system, disguised as accurate information [39]. Changing data from the master file could also go unnoticed. When manipulations can be made to financial data and made impossible to detect and hence hard to identify during an audit, the audit report is compromised.

2.2.10 Auditors may find it expensive to maintain the XBRL systems

Although adoption of XBRL reduces the cost of auditing by reducing the amount of money and time spent in fieldwork and providing easy and cheap access to financial data, the XBRL technology increases costs to the company by increasing the control costs for the system, maintenance costs, and review costs to ensure that the taxonomy, data tagging process, and data integrity are appropriate and reliable [45]. The company incurs costs to keep the XBRL technology system running effectively. These are costs that the company would have otherwise not have incurred had they not adopted the XBRL technology. The maintenance costs, if not met, the accuracy and reliability of the audit report are not assured, and this may reduce the reliability of the audit report presented by auditors.

2.2.11 Auditors have to repeat work since XBRL is not yet globally used, and comparison with traditional audit reports is needed

The most common way of assuring XBRL financial information, according to Gunn [46], is by converting financial statements to the XBRL format then presenting the XBRL format financial statement together with the prepared financial statements. This is because XBRL is not yet globally accepted and used as the reporting language; hence it is paramount to present it

together with traditional financial statements. However, we are headed for a time when financial statements will be presented only in XBRL format—using XBRL technology results in repetition of work in the current times since finance managers have to present the same information in two formats, the traditional format and the XBRL format. This results in too much time being spent and a lot of work going into the preparation of financial statements since managers still have to prepare traditional financial statements even with the availability of new technology that is expected to make the work easier. This is because not very many are familiar with the technology [36]. This increases the work that goes into preparing audit reports as both formats did to be accompanied by qualified audit reports.

2.2.12 Auditing firms have to introduce and manage their data integrity which introduces new costs and expenses to the auditors

Data integrity is an essential component to the successful and effective use of the new XBRL technology in producing financial statements. This concept of data integrity did not exist in many companies across the world, mostly in those firms that had no dealings with information technology. These firms, therefore, did not have any capacity to access, measure, and assure their level of data integrity before the SEC mandated them to use XBRL to prepare their financial statements in 2009 [33]. The costs that go into ensuring data integrity are enormous and may be heavy on small firms with little resources, making it even harder for the small firms to adopt XBRL in the preparation of financial statements [31]. Auditors also suffer the consequences of poorly managed data integrity since they rely greatly on the truthfulness, accuracy, and correctness of the data entered into the system to conduct their assessment and make an audit report. When an unethical employee with little regard to data integrity has access to the master file of the system, such employees may significantly alter the data through the XBRL technology and conceal it using the technology so that it is impossible to detect. This raises the qualification criterion of the audit report since it needs to factor in the data integrity management of the firm.

3. Conclusions

Based on the above survey, XBRL technology is a transformational accounting, technology, and financial innovation that is most likely to transform the fields of accounting, finance, and taxation, among others. The ability to use the internet to share financial information will globalize financial markets and may result in general global capital markets in the foreseeable future. If and when XBRL is mandated globally as an accounting standard, it is likely to transform the accounting, financing, and auditing practices as we know them today to incorporate more honest, transparent, accurate, and cheap practices.

The XBRL has impactful effects on many fields of finance, and this paper focused on its impact on the quality of auditors' reporting. Through a review of other researchers' work and comparing existing literature on the topic, this paper notes the more positive impacts of XBRL adoption on the quality of auditors' reports. From reducing the general audit cost to making audit reports more timely, allowing for continuous auditing, making audit reports more credible through the availability of supporting evidence, to increasing comparability of audit reports, and assuring the quality of the audit reports, among other noted positive impacts, the XBRL technology has significantly added to the positive value, quality, accuracy, credibility, and effectiveness of auditors' reports. In light of this, this paper also noted a few negative impacts of XBRL on the quality of auditors' reports. However, the negative impacts are mostly a result of its newness of use or technicality and can be easily resolved to ensure that the XBRL technology delivers unmatched quality assurance.

References

[1] Debreceny, R., & Gray, G. L. (2001). The production and use of semantically rich accounting reports on the Internet: XML and XBRL. International Journal of Accounting Information Systems, 2(1), 47–74. https://doi.org/10.1016/S1467-0895(00)00012-9.

[2] Liu, C. (2013). XBRL: a new global paradigm for business financial reporting. Journal of Global Information Management (JGIM), 21(3), 60-80.

[3] Baldwin, A. A., & Trinkle, B. S. (2011). The impact of XBRL: A Delphi investigation. *The International Journal of Digital Accounting Research*, *11*(1), 1-24.

[4] Basoglu, K. A., & White Jr, C. E. (2015). Inline XBRL versus XBRL for SEC reporting. *Journal of Emerging Technologies in Accounting*, *12*(1), 189-199.

[5] Hoffman, C., & Watson, L. (2009). XBRL for Dummies. John Wiley & Sons.

[6] Bonsón, E., Cortijo, V., & Escobar, T. (2009). Towards the global adoption of XBRL using International Financial Reporting Standards (IFRS). *International Journal of Accounting Information Systems*, *10*(1), 46-60.

[7] Buys, P. W. (2008). The impact of XBRL on the financial reporting supply chain: a South African case study. *Meditari: Research Journal of the School of Accounting Sciences*, *16*(1), 43-58.

[8] Li, Y., Roge, J. N., Rydl, L., & Hughes, J. (2007). Achieving Sarbanes-Oxley compliance with XBRL-based ERP and continuous auditing. *Issues in Information Systems*, *8*(2), 430-436.

[9] Brown, W., & Nasuti, F. (2005). What ERP systems can tell us about Sarbanes-Oxley. Information Management and Computer Security, 13(4), 311–327. https://doi.org/10.1108/09685220510614434.

[10] La Rosa, F., & Caserio, C. (2013). Are auditors interested in XBRL? A qualitative survey of big auditing firms in Italy. In *Accounting information systems for decision making* (pp. 13-45). Springer, Berlin, Heidelberg.

[11] Shan, Y. G., Troshani, I., & Richardson, G. (2015). An empirical comparison of the effect of XBRL on audit fees in the US and Japan. *Journal of Contemporary Accounting & Economics*, *11*(2), 89-103.

[12] Shan, Y. G., & Troshani, I. (2014). Does XBRL benefit financial statement auditing?. *Journal of Computer Information Systems*, *54*(4), 11-21.

[13] Bovee, M., Ettredge, M. L., Srivastava, R. P., & Vasarhelyi, M. A. (2002). Does the year 2000 XBRL taxonomy accommodate current business financial-reporting practice?. *Journal of Information Systems*, *16*(2), 165-182.

[14] Du, H., & Roohani, S. (2007). Meeting Challenges and Expectations of Continuous Auditing in the Context of Independent Audits of Financial Statements. International Journal of Auditing, 11(2), 133–146. https://doi.org/10.1111/j.1099-1123.2007.00359.x.

[15] Chen, G., & Zhou, J. (2019). XBRL adoption and systematic information acquisition via EDGAR. Journal of Information Systems, 33(2), 23–43. https://doi.org/10.2308/isys-52140.

[16] Shin, R. Y. (2003). XBRL, FINANCIAL REPORTING, AND AUDITING - ProQuest. The CPA Journal, 73(12), 61–63. https://search.proquest.com/openview/e80cf4ae07a61d703e555771a7726ead/1?pq-origsite=gscholar&cbl=41798.

[17] Avallone, F., Ramassa, P., & Roncagliolo, E. (2016). The pros and cons of XBRL adoption in Italy: a field study. In Strengthening Information and Control Systems (pp. 157-170). Springer, Cham.

[18] Wu, J., & Vasarhelyi, M. (2004). XBRL: A New Tool For Electronic Financial Reporting. In Business Intelligence Techniques (pp. 73–92). Springer Berlin Heidelberg. https://doi.org/10.1007/978-3-540-24700-5_5.

[19] Hwang, S., No, W. G., & Kim, J. (2020). XBRL mandate and timeliness of financial reporting: The effect of internal control problems. Journal of Accounting, Auditing & Finance, 0148558X20929854.

[20] Amin, K., Eshleman, J. D., & Feng, C. (2018). The effect of the SEC's XBRL mandate on audit report lags. Accounting Horizons, 32(1), 1-27.

[21] Cheng, X., Huang, F., Palmon, D., & Yin, C. (2020). How Does Information Processing Efficiency Relate to Investment Efficiency? Evidence from XBRL Adoption. Journal of Information Systems, 0000- 0000.

[22] Bartolacci, F., Caputo, A., Fradeani, A., & Soverchia, M. (2020). Twenty years of XBRL: What we know and where we are going. Meditari Accountancy Research.

[23] Efendi, J., Park, J. D., & Smith, L. M. (2014). Do XBRL filings enhance informational efficiency? Early evidence from post-earnings announcement drift. Journal of Business Research, 67(6), 1099–1105. https://doi.org/10.1016/j.jbusres.2013.05.051.

[24] Eierle, B., Ojala, H., & Penttinen, E. (2014). XBRL to enhance external financial reporting: Should we implement or not? Case Company X. Journal of Accounting Education, 32(2), 160-170.

[25] Mao, Y., & Zhang, L. (2018). The impact of the XBRL environment on auditing.

[26] Plumlee, R. D., & Plumlee, M. A. (2008). Assurance on XBRL for financial reporting. In Accounting Horizons (Vol. 22, Issue 3, pp. 353–368). Allen Press. https://doi.org/10.2308/acch.2008.22.3.353.

[27] García, R., & Gil, R. (2010). Triplificating and linking XBRL financial data. ACM International Conference Proceeding Series, 8. https://doi.org/10.1145/1839707.1839711.

[28] Cohen, E. E., Schiavina, T., & Servais, O. (2005). XBRL: The standardised business language for 21st century reporting and governance. International Journal of Disclosure and Governance, 2(4), 368–394. https://doi.org/10.1057/palgrave.jdg.2040006.

[29] Bizarro, P. A., & Garcia, A. (2010). XBRL-Beyond the Basics . The CPA Journal, 80(5), 62–71. https://search.proquest.com/openview/8772bd0d2641518456475308872cf980/1?pq-origsite=gscholar&cbl=41798.

[30] Garbellotto, G., & Hannon, N. (2005). Why XBRL Is a “Business” Reporting Language . Strategic Finance, 86(11), 57–58. https://search.proquest.com/openview/bf721219db4c69489298e4869f074cf2/1?pq-origsite=gscholar&cbl=48426.

[31] Li, B., Liu, Z., Qiang, W., & Zhang, B. (2020). The impact of XBRL adoption on local bias: Evidence from mandated U.S. filers. Journal of Accounting and Public Policy, 39(6), 106767. https://doi.org/10.1016/j.jaccpubpol.2020.106767.

[32] Blankespoor, E., Miller, B. P., & White, H. D. (2014). Initial evidence on the market impact of the XBRL mandate. Review of Accounting Studies, 19(4), 1468–1503. https://doi.org/10.1007/s11142-013-9273-4.

[33] Chen, J. Z., Hong, H. A., Kim, J. B., & Ryou, J. W. (2021). Information processing costs and corporate tax avoidance: Evidence from the SEC's XBRL mandate. Journal of Accounting and Public Policy, 40(2), 106822. https://doi.org/10.1016/j.jaccpubpol.2021.106822.

[34] Pinsker, R., & Li, S. (2008). Costs and benefits of XBRL adoption: Early evidence. Communications of the ACM, 51(3), 47–50. https://doi.org/10.1145/1325555.1325565.

[35] Pinsker, R. (2003). XBRL awareness in auditing: A sleeping giant? Managerial Auditing Journal, 18(9), 732–736. https://doi.org/10.1108/02686900310500497.

[36] Baldwin, A. A., Brown, C. E., & Trinkle, B. S. (2006). XBRL: An Impacts Framework and Research Challenge. Journal of Emerging Technologies in Accounting, 3(1), 97–116. https://doi.org/10.2308/jeta.2006.3.1.97.

[37] Rosa, L. F., & Caserio, C. (2013). Are Auditors Interested in XBRL? A Qualitative Survey of Big Auditing Firms in Italy. In Accounting Information Systems for Decision Making. http://103.5.132.213:8080/jspui/bitstream/123456789/1263/1/Accounting Information Systems for Decision Making %28 PDFDrive.com %29.pdf#page=23.

[38] Vasarhelyi, M. A., Chan, D. Y., & Krahel, J. P. (2012). Consequences of XBRL standardization on financial statement data. Journal of Information Systems, 26(1), 155–167. https://doi.org/10.2308/isys-10258.

[39] Du, H., Vasarhelyi, M. A., & Zheng, X. (2013). XBRL mandate: Thousands of filing errors and so what? Journal of Information Systems, 27(1), 61–78. https://doi.org/10.2308/isys-50399.

[40] Gray, G. L., & Miller, D. W. (2009). XBRL: Solving real-world problems. International Journal of Disclosure and Governance, 6(3), 207–223. https://doi.org/10.1057/jdg.2009.8.

[41] Yayla, A. A., & Hu, Q. (2011). The Impact of Information Security Events on the Stock Value of Firms: The Effect of Contingency Factors. Journal of Information Technology, 26(1), 60–77. https://doi.org/10.1057/jit.2010.4.

[42] Branson, M. (2002). Using XBRL for data reporting. Statistical Journal of the United Nations Economic Commission for Europe, 19(3), 201–204. https://doi.org/10.3233/sju-2002-19309.

[43] Bartley, J., Al-Chen, Y. S., & Taylor, E. (2010). Avoiding Common Errors of XBRL Implementation. Journal of Accountancy, 209(2), 46–51. http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=47841895&site=ehost-live.

[44] Capozzoli, E. A., & Harmon, W. K. (2012). The Impact of XBRL on the Audit Process. http://www.xbrl.org/TechSupport/.

[45] Mardian, S. (2016). XBRL, How It Implies The Audit Process? INTERNATIONAL JOURNAL OF SCIENTIFIC & TECHNOLOGY RESEARCH, 5(04). www.ijstr.org.

[46] Gunn, J. (2007). XBRL: Opportunities and Challenges in Enhancing Financial Reporting and Assurance Processes. American Accounting Association, 1, A36–A43. https://doi.org/10.2308/ciia.2007.1.1.A36.