Computer-Assisted Tools

for

Auditing XBRL-Related Documents

Efrim Boritz

University of Waterloo

200 University Avenue West

Waterloo, ON N2L 3G1

Won Gyun No

Iowa State University

3133 Gerdin Business Building

Ames, Iowa 50011

May 2009

Abstract

Across the world, regulators and government agencies are increasingly implementing XBRL for regulatory filings. At the same time, the increasing global adoption of XBRL and its potential to replace traditional formats for business reporting raises questions about the quality of XBRL-tagged information. In this report, we indentify a set of issues and audit objectives that auditors might confront if they are asked to provide assurance on the XBRL-Related Documents. We also introduce a prototype of an XBRL rendering tool ("XBRL Audit Assistant") that we developed for supporting various audit tasks on XBRL-related documents and discuss how the identified audit objectives could be accomplished using this tool as well as other computer tools such as validation programs and mapping tools.

Introduction

Accounting has been developed in response to the demands of business and other organizations and users for reliable and relevant information for decision-making. Business information is increasingly being provided on the Internet in HTML or PDF format to meet this demand and to leverage the power of financial information. XBRL (eXtensible Business Reporting Language) was developed to further enhance information exchange by providing a standardized method to prepare, publish, and exchange business, and especially financial, information (Boritz and No 2004b; Hoffman and Strand 2001; XBRL International 2007). XBRL is being used, being implemented, or being pilot tested around the world for financial reporting and government e-filings as well as other uses. For instance, the Securities and Exchange Commission (SEC) in the U.S. has mandated the use of interactive data (i.e., XBRL) for the financial reporting of all U.S. public companies by December 2011 (SEC 2008b), and the Canadian Securities Administrators (CSA) have adopted a voluntary XBRL filing programs (CSA 2007). The U.K. plans to mandate the use of XBRL for tax filings from 2010 (XBRL International, 2006c). The Financial Services Agency in Japan has required all public companies to submit XBRL-tagged financial statements since 2008 (Karen 2008). China has required the use of XBRL for the full financial statements of all listed companies in quarterly, half-year and annual reports since 2004 (SEC, 2007).

The limited guidance for and experience with the creation of XBRL-Related Documents (i.e., documents related to presenting financial information in XBRL format such as an XBRL instance document, extension taxonomy schema, and extension taxonomy linkbase files) raises questions about the quality of XBRL-tagged information, which, in turn, leads to assurance issues related to the use of XBRL (Boritz and No 2004a, 2008, 2009; McGuire et al. 2006; Elliott

2002; Farewell and Pinsker 2005; Pinsker 2003; Plumlee and Plumlee 2008). The goal of this paper is to identify a set of specific audit objectives and related audit tasks for assurance engagements on XBRL-Related Documents and to discuss how a prototype XBRL auditing tool that we are developing can be used to accomplish the audit tasks to achieve the audit objectives. Those objectives and tasks could stem from an external agreed-upon procedures engagement, an examination level attestation engagement, an internal audit program or other internal quality assurance program aimed at ensuring that the XBRL-Related Documents produced by the entity are complete, accurate, valid, and consistent reflections of the source data they purport to portray.

The remainder of this report is organized as follows. Following this brief introduction, the next section discusses a number of issues that auditors might confront if they are asked to provide assurance on XBRL-Related Documents. This section is followed by a discussion of audit objectives and related audit tasks in an assurance engagement on XBRL-Related Documents. Next, we briefly introduce a prototype XBRL auditing tool that we are developing and discuss how the tool can be used to address those audit objectives. Finally, the paper concludes with brief concluding remarks.

Financial Reporting Using XBRL and Assurance

Figure 1 depicts the current status in electronic financial and business reporting and assurance (Boritz and No 2009).

----- Insert Figure 1 -----

Companies first create their official financial statements using their internal financial reporting system. Next, they create XBRL-Related Documents by mapping the information in

the official financial statements to elements in XBRL taxonomies and place them on the corporate Web/FTP server and government sites (e.g., EDGAR[1]). Then, whenever they need to do so, users can obtain the XBRL-Related Documents (i.e., instance documents and taxonomies) over the Internet from the corporate Web site or other sites such as EDGAR and use them for their analysis.

The traditional audit attests to the fairness of the presentation in accordance with GAAP of the "official" financial statements. However, at present, there is no requirement to provide independent assurance on the XBRL version of the "official" financial statements in any regulatory filings around the world, despite evidence of inadequacies in those "documents."[2] For example, Boritz and No (2008) studied XBRL filings in the SEC's XBRL Voluntary Filing Program on EDGAR (hereafter, VFP) from its inception in 2005 to December 31, 2007, and found that most XBRL filings contained exceptions, inconsistencies, and errors that could limit their usefulness as data exchange mechanisms if users felt that the XBRL-Related Documents (i.e., instance documents and taxonomies) were not tagged properly or were otherwise lacking in quality.

Therefore, at some point, it may be desirable or necessary to provide some degree of assurance on the XBRL-Related Documents in addition to the assurance provided on the original financial statements to reassure various parties such as users, management, and audit committees that the XBRL-Related Documents furnished by companies are complete, accurate, valid, and consistent translations of the original paper format documents and, perhaps, that acceptable

---

[1]EDGAR stands for Electronic Data Gathering, Analysis and Retrieval system

[2] Under the SEC's new rule, a filer's interactive data are subject to limited liability during the company's first two years of required XBRL reporting. During this period, interactive data submissions will be deemed to be furnished, not filed, for the liability provisions of Security Acts and Security Exchange Act, and not subject to specified antifraud provisions if inaccurate XBRL-Related Documents are provided with good faith and are corrected promptly after the filer becomes aware of the failure.

practices were followed in preparing those translations. Thus, in addition to the traditional assurance services performed on the official financial statements filed with regulators, assurance may be sought for the XBRL-Related Documents.

Assurance on XBRL-Related Document and Audit Tools

In this section, we briefly discuss audit objectives for assurance on XBRL-Related Documents and XBRL auditing tools required to assist auditors to provide an accountant's report on XBRL-Related Documents. Conventionally, when an auditor performs a substantive test, he or she gathers sufficient appropriate evidence to enable him or her to draw a conclusion whether the subject matter is presented fairly, in all material aspects, in accordance with GAAP or other suitable criteria (e.g., IFRS). An XBRL assurance engagement may be aimed at assessing whether the elements in the XBRL-Related Documents (i.e., instance documents and taxonomies) completely, accurately, validly, and consistently reflect the business facts in the original document and meet regulatory requirements. Therefore, the auditor needs a tool that will enable him or her to check whether the instance document and taxonomies used to create the instance document are valid XBRL instance documents and taxonomies, to evaluate whether the data contained in the XBRL instance document completely, accurately, and consistently reflects the financial facts in the corresponding original financial statements that were the source of the data used to create the XBRL-Related documents, and to verify that the XBRL instance document and company taxonomy extensions comply with regulatory requirements (e.g., the SEC Rules and EDGAR Filer manual) and other guidelines (e.g., XBRL US Taxonomy Preparers Guide, FRIS, and FRTA)[3].

---

[3] Financial Reporting Instance Standards (FRIS) were developed to facilitate the analysis and comparison of data in XBRL instance documents. FRIS provide a guideline for creating instance documents under XBRL Specification

An Assurance Framework for XBRL-Related Documents

There are four guidelines currently available that address the issues related to assurance on the XBRL-Related Documents: AICPA's (American Institute of Certified Public Accountant) Interpretation No. 5, PCAOB (Public Company Accounting Oversight Board), AWG (Assurance Working Group), and AICPA's Statement of Position 09-1. The AICPA's Interpretation No. 5, Attest Engagements on Financial Information Included in XBRL Instance Documents (AICPA 2003), addressed several considerations when an auditor is engaged to examine and report on whether an XBRL Instance Document accurately reflects certain client financial information. PCAOB Staff Q&A (2005) addressed attestation on the XBRL-Related Documents and was intended to provide guidance for auditors engaged in reporting on whether the data contained in the XBRL-Related Documents accurately reflect the corresponding information shown in the official EDGAR filings. The Assurance Working Group (AWG) of XBRL International has proposed an assurance framework for electronic business reporting based on ISA 3000 principles (AWG 2006).[4] The AICPA issued Statement of Position (SOP) 09-1 (AICPA 2009). The SOP provides CPAs with guidance on performing and reporting on agreed-upon procedures engagements, performed under AT section 201, that address the completeness, accuracy, or consistency of XBRL-tagged data. It also includes recommendations that assist CPAs in applying certain aspects of AT section 201 to the subject matter of XBRL.

----- Insert Table 1 -----

---

v2.1 (XBRL International 2004a). Financial Reporting Taxonomies Architecture (FRTA) is a set of rules and conventions which help make taxonomies more usable and efficient (XBRL International 2006).

[4] See Boritz and No (2009) for more detailed and comprehensive information about PCAOB (2005) and AWG (2006).

In general, the assurance process for XBRL-Related Documents can be categorized into four major phases: client/engagement acceptance; planning; testing and evidence gathering; and, evaluation and reporting. Table 1 summarizes the procedures discussed in the AWG (2006) guidance with cross-references to the list of items discussed by the PCAOB (2005) and SOP (2009). In the client/engagement acceptance phase, an auditor needs to decide whether he or she can and wishes to accept an assurance engagement and should agree on the terms of the engagement – including the objective and scope of the engagement, the responsibilities, and the form of the report – with the engaging party. PCAOB (Q4 and Q6) state that an auditor examining an engagement involving XBRL-Related Documents should not only be independent but also have sufficient knowledge (e.g., regulatory requirements, XBRL specifications, and the company's financial statements) to evaluate the risk of misstatement in the XBRL-Related Documents. The AICPA's SOP requires that an auditor who performs an agreed-upon procedures engagement should be independent, and that the auditors and engaging parties need to agree upon the procedures performed by the auditor and the criteria used to evaluate management's assertions about the completeness, accuracy, and consistency of its XBRL-tagged data.

In the planning phase, the auditor determines the amount and type of evidence required to allow a conclusion on whether the subject matter (i.e., XBRL-Related Documents)[5] is presented fairly. In order to do so, the auditor obtains an understanding of the subject matter and assesses the suitability of the subject matter by investigating whether the subject matter is identifiable and capable of consistent evaluation and measurement against the identified criteria. According to

---

[5] According to the AICPA's SOP, the subject matter of the agreed-upon procedures is the XBRL-tagged data as of specific data and for a specified period.

the AICPA's SOP, the auditor also obtains an understanding of other engagement circumstances such as the responsible party, the auditor's responsibilities, the objective of the auditor's agreed-upon procedures, agreed-upon materiality limits (when applicable), and the specified parties to the agreed-upon procedures report. In addition, the appropriateness of the identified criteria should be determined. The SOP states that the criteria used to evaluate the subject matter must be objective, measurable, complete, and relevant. In particular, PCAOB (Q5) suggests that XBRL Specification v2.1, an approved XBRL taxonomy, and appropriate stand alone add-on taxonomies would be considered as suitable criteria. In connection with the latter, the auditor provider must evaluate the appropriateness of the company's extensions to approved taxonomies because those extensions are not developed by following the formal taxonomy recognition process of XBRL International (XBRL International 2004b).

In the testing and evidence gathering phase, the auditor gathers sufficient appropriate evidence to enable him or her to draw a conclusion on whether the XBRL-Related Documents are presented completely, accurately, and consistently, in all material aspects. PCAOB (Q7) states that the objectives of examination procedures regarding XBRL-Related Documents are to assess whether the XBRL-tagged data comply with the appropriate XBRL specifications and taxonomies and to evaluate whether the data elements in the XBRL-Related Documents reflect the same information as the corresponding official EDGAR filings. Therefore, in an engagement involving XBRL-Related Documents the auditor should determine whether the XBRL instance document complies with XBRL specifications and official taxonomies (i.e., Compliance), whether the extension taxonomies are consistent with applicable regulatory requirements and XBRL specifications (i.e., Compliance), whether the elements in the XBRL instance document completely and accurately reflect the business facts in the official financial statements (i.e.,

Completeness and Accuracy), whether the XBRL instance document only contains valid information, not extra, unrelated information (i.e., Validity), and whether the same rules and taxonomies, unless otherwise indicated, are applied to create the XBRL-Related Documents across reporting periods (i.e., Consistency). According to the AICPA's SOP, the agreed-upon procedures that an auditor may perform to assess completeness, accuracy, and consistency of XBRL-tagged data include identifying the taxonomies used, determining accuracy and consistency of the tagging process, evaluating the creation of taxonomy extensions, assessing completeness of XBRL-tagged data and the level of granularity the entity used to tag its notes, and reviewing linkbases (i.e., labels, calculations, and presentation links).

In the final phase, evaluation and reporting, the auditor evaluates the evidence and prepares a report regarding the XBRL engagement as distinct from the accountant's report on the traditional format financial statements. Table 2 shows the basic elements that should be included in the report.

----- Insert Table 2 -----

Based on our review of the aforementioned guidelines (AICPA 2003; 2009; AWG 2006; PCAOB 2005) and other literature discussing XBRL assurance issues (AICPA 2008; Plumlee and Plumlee 2008; XBRL.US 2008) as well as our experience with XBRL (Boritz and No 2009), we developed the following assurance framework for XBRL-Related documents.

----- Insert Figure 2 -----

The framework represents the necessary characteristics of auditors as well as seven objectives that auditors and other quality assurance personnel may wish to or need to fulfill in connection with an XBRL-Related Document:

a. Internal Control over the Creation of XBRL-Related Document:

   To determine whether the controls over the creation of the XBRL-Related Document are operating effectively (and efficiently)

b. Compliance:

   To determine whether the XBRL-Related Documents are created in accordance with the relevant XBRL specifications and regulatory requirements

c. Suitability:

   To determine whether appropriate elements are used to tag the underlying business facts in the official filing and the extension taxonomies are necessary.

d. Accuracy:

   To determine whether the XBRL-Related Documents accurately reflect, in all material respects, all business facts presented in the source documents or files (e.g., a regulatory filing)

e. Completeness:

   To determine whether all business facts in the source documents or files are completed tagged in the XBRL-Related Documents

f. Occurrence:

To determine whether XBRL-Related Documents contain information that is not in the source documents or files

g. Consistency:

To determine whether the XBRL-Related Documents are prepared in a manner consistent with prior periods

Table 5 provides a summary of these audit objectives and related audit tasks.

Useful Computer-Assisted Functions for XBRL Audit

The attestation or assurance engagement on XBRL-Related Documents primarily focuses on the compliance of XBRL-Related Documents with the relevant XBRL specifications and regulatory requirements, and the effectiveness of the XBRL generating process. An auditor needs to conduct several tasks to achieve the aforementioned seven objectives to verify that the XBRL-tagged data completely, accurately, and consistently reflect the business facts in the original financial statements. In performing such tasks, the auditor would benefit from the following four computer-assisted functions designed for analyzing XBRL-Related Documents. The desired functionalities are summarized in Table 3.

- General function

  Present detailed information about XBRL-Related Documents and provide standard functions such as search, print, help, etc.

- Validation of XBRL instance documents and company taxonomy extensions:

Check whether an instance document and company taxonomy extensions comply with the relevant XBRL specifications.

- Mapping/Tracing:

  Map/trace elements in the XBRL instance document to the financial facts in the original financial statements.

- Rendering XBRL instance documents:

  Render XBRL instance documents to enable visual review and detailed checking of XBRL instance documents to original financial statements and vice versa.

-----   Insert Table 3   -----

1) Validation

A validation tool is essential to check the XBRL codes because this task is too tedious for an auditor to perform effectively manually but essential due to the high frequency of exceptions that currently exist in XBRL-Related Documents.[6] A problem with existing tools is that they can produce different validation error messages. Boritz and No (2008) found a discrepancy between two leading XBRL software products that they used for taxonomy validation tests (Fujitsu and DecisionSoft). While the Fujitsu Taxonomy Editor (Version 42) reported fatal errors in several companies' extension taxonomies, DecisionSoft's True North Personal Validator 2006 (Version

---

[6] Instance validation is a process that checks whether the XBRL instance document is consistent with the XBRL specifications and extension taxonomies. Taxonomy validation is a process whereby a software program analyzes a taxonomy to confirm that the taxonomy complies with the requirements of the XBRL specifications. Boritz and No (2008) studied XBRL filings in the SEC's XBRL Voluntary Filing Program on EDGAR (hereafter, VFP) and examined the validity of 304 XBRL filings of 74 companies in the VFP from its inception in 2005 to December 31, 2007, using currently available validation software to determine whether the filings are in conformity with the suggested XBRL specifications (e.g., XBRL Specification v2.1, FRIS, and FRTA) as well as the requirements for XBRL filings in the VFP. They found that only 104 of the 304 filings (34.2%) passed the instance validation test while 272 filings (89.5%) passed the taxonomy validation test.

2.3.3) did not report those errors at all. For instance, the Fujitsu Taxonomy Editor showed that all XBRL filings of Ford Motor Co. contain a fatal error; an element (i.e., Accounts Payable), which is referenced by links, has no 'id' attribute. However, DecisionSoft's True North Personal Validator did not report this as an error. The fact that different software generates different error messages compounds the difficulties that preparers and users face when they attempt to assess the quality of company taxonomy extensions and could limit the acceptance of XBRL as a data exchange mechanism. Nevertheless, a validation tool is essential for determining whether an XBRL documents complies with XBRL specifications and recommended practices.

2) *Mapping*

Theoretically, a mapping tool would be a useful auditing tool because the main purpose of an XBRL audit is to assess whether the XBRL-Related Documents are a complete and accurate reflection of the business facts in the official financial statements. That is, by mapping the elements in the XBRL instance document to the financial facts in the official financial statements, an auditor can relatively easily determine whether all business facts in the corresponding official filing are completely tagged in the XBRL instance document and whether data elements in the instance document reflects the same information as the corresponding "paper format" official filing. However, the usefulness of a mapping tool declines as the chart of accounts becomes less standardized and as the use of taxonomy extensions increases.

According to Boritz and No's (2008) analysis of the most recent XBRL filings of the 68 companies in the SEC's XBRL Voluntary Filing Program (VFP) as at December 31, 2007, on average, companies used 13 contexts[7] and 352 elements: 162 official taxonomy elements and

---

[7] Context is an element that contains information about the entity being described, the reporting period, and the reporting scenario, all of which are necessary for understanding a business fact captured as an XBRL element.

190 extension elements. Thus, approximately 55% of the XBRL elements in the VFP were from company taxonomy extensions. The use of taxonomy extensions was also observed with the new US GAAP taxonomy (i.e., US GAAP Taxonomies 1.0). It is expected that with the new taxonomy, there will be far fewer company taxonomy extensions because the number of element included in the new taxonomy has dramatically increased compared to the previous taxonomy (i.e., from approximately 4,000 elements to about 13,000 elements). However, Boritz and No (2009) found that the use of taxonomy extensions in notes and MD&A is still prominent even though the use of extension elements in financial statements has decreased.

Since there are no rules or guidelines for defining context information and using company taxonomy extensions, it is very difficult to create a generic mapping tool that would enable an auditor to compare an XBRL instance document with its official financial statements. Even if such a mapping tool existed, it would have little value due to the unstructured nature of context information, the high proportion of elements in company taxonomy extensions, and the level of granularity the entity used to tag notes and MD&A (e.g., single block tag versus detailed tag). Thus, the accuracy of a mapping between the instance document and the official financial statements would be limited, requiring much manual effort. This concern will require the auditor to rely on a rendering tool instead of a mapping tool in settings like North America where a standard chart of accounts is considered to be unacceptable, companies use a wide ranging set of account names in their financial statements and taxonomy extensions frequently represent more than half of the elements in an XBRL instance document.

3) Rendering

XBRL was developed for machine-to-machine information transfer. It was not designed for ease of use by people and most people would find it difficult to review or audit XBRL code. A rendering tool converts XBRL code into a presentation that can be visually inspected by a human. Once an XBRL document is rendered, that version can be visually compared to the original source document (assuming that the original source is indeed a document and not a database or other such digital source).

The SEC provides a rendering tool (i.e., Interactive Financial Report Viewer) on its Web site. An important limitation of the SEC's rendering tool is that it does not portray the instance document exactly as it is represented by the presentation linkbase. That is, it is not the 'true' representation of the instance document based on the presentation linkbase. Instead, the SEC's rendering tool is similar to a template that is superimposed on the company's instance document to provide an idealized version of the instance document. This version may not be an accurate reflection of the underlying XBRL instance document and may not reveal coding errors and inconsistencies. For instance, in the SEC's Interactive Financial Report Viewer, the rendered view of United Technologies Corp's statement of financial position filed at 2007-01-23 was not the same as its original statement of financial position. An auditor must have a rendering tool that accurately parses the actual instance document rather than presenting an idealized version of it.

A Computer-Assisted Tool: XBRL Audit Assistant

To overcome the limitations of the SEC's rendering tool, we developed a rendering tool, called 'XBRL Audit Assistant (XAA).'[8] The tool was designed to include four main features that can facilitate an auditor's work in an XBRL context:

- Graphically represent a systematic structure of the XBRL instance document such as logical ordering of contexts, segments, and elements. This can help auditors understand reporting period, units, the elements used in the instance document, etc.

- Graphically represent XBRL elements to discriminate between those from official XBRL taxonomies and those from companies' own taxonomy extensions (e.g., by using different colors or fonts). This can help auditors understand taxonomies used to create the instance document and the sources of the XBRL elements.

- Render XBRL instance documents to enable visual review and detailed checking of XBRL instance documents to original financial statements. This can help auditors assess whether the data elements in the instance document reflect the same information as the corresponding financial facts in the official financial statements.

- Generate XSLT stylesheets that enable auditors to render the XBRL instance document.9 The generated XSLT stylesheets can be used for other instance documents, if the documents were generated using the same taxonomies (e.g., for other quarters).

---

[8] The research prototype of this tool was developed with funding from CaseWare IDEA Inc.

[9] A *stylesheet* is a file that describes how a document should be displayed.

Figure 3 shows the screenshot of the XBRL Audit Assistant. The tool consists of four panes: Element View, Presentation/Calculation View, Information View and Rendering Pane.

----- Insert Figure 3 -----

1) *Element View*

The element view pane shows the tree structure of elements used in an XBRL instance document. Various colors are used to differentiate official taxonomies and company taxonomy extensions. Users can select an element (or elements) and drag it (or them) into the rendering pane (i.e., drag-and-drop) to create their own report. Also, when an element is selected, the detailed information of the element is shown in the information view pane, and the same element in the presentation/calculation view pane is highlighted.

2) *Presentation/Calculation View*

The presentation (calculation) view pane illustrates the elements in taxonomies based on the presentation (calculation) link in the company's XBRL documents. Various colors are used to differentiate elements from official taxonomies and those from company taxonomy extensions. When an element is selected, the same element in the element view pane is highlighted, and the detailed information for the element is shown in the information view pane. Also, a user can select an element (or elements) and drag it (or them) into the rendering pane (i.e., drag-and-drop) to create his or her own report.

3) Information View

The information view pane provides detailed information on the currently selected element. Using the information view, users also can find detailed information about context, unit, prefix, footnote, and taxonomies used in XBRL instance documents. When an element is clicked in the element view pane, the information view pane presents information about the selected element. It also provides the context, unit, and taxonomy information for the selected element.

4) Rendering/Source Viewer

The rendering viewer enables a user to render a XBRL instance document to enable visual review and detailed checking of the instance document to the original financial statements. It enables a user to drag and drop a XBRL element (or elements) into the design area to create his or her own report. It also provides standard editing and formatting functions such as cutting, pasting, replacing, copying, and formatting. Furthermore, it generates an XSLT file that enables a user to transform the instance document into a HTML file. Finally, the source viewer enables a user to see the XBRL tags used in an XBRL instance document. When an element is clicked in the information view pane, the source viewer highlights the XBRL tags of the selected element. In addition, using the F/S viewer, a user can see the original SEC filings (e.g., 10-K and 10-Q) and compare them with his or her rendered report.

XBRL Audit Case: An Illustration of the Use of Computer-Assisted Tools to Achieve XBRL Audit Objectives

In this section, using a simple case, we describe how the 'XBRL Audit Assistant' can be used to carry out audit tasks to achieve key audit objectives.

Case Scenario

Mark & Sons Future Technology Co. (hereafter, MSFT) is a $40 billion public company that provides high-technology products and services to the building systems and aerospace industries worldwide. The CFO of MSFT, Gerry Thompson, believes that current XBRL practices fall short of addressing the information quality issues that arise from the use of XBRL for business and financial reporting. Currently, XBRL does not require independent assurance. However, to enhance users' confidence and widespread adoption of XBRL, assurance on the XBRL-Related Documents will be needed to reduce users' uncertainties about the accuracy, completeness, and consistency of the XBRL-tagged information. Hence, he wants the recent XBRL filing of MSFT (2008-10-23) to be audited to assure its quality.

After completing his master's degree in accounting at the University of Waterloo, Mike Cullen was hired as an auditor by Waterloo & Co., an accounting firm. He has worked as an auditor for five years. Mike has been requested to manage an assurance engagement on the XBRL-Related Documents of MSFT.

Audit Objectives and Related Audit Tasks

Mike identified the audit objectives and related audit tasks that an auditor would need to accomplish during the assurance engagement on the XBRL-Related Documents under four main headings: 1) client/engagement acceptance; 2) audit planning, 3) testing and collecting evidence and 4) evaluating and reporting.

1) *Engagement Acceptance*

Before agreeing to do the XBRL audit, Mike wanted to make sure he was able to accept the assurance engagement. He also wanted to reach an agreement on the terms of engagement – including the objective and scope of the engagement, the responsibilities, and the form of the report – with Gerry, the engaging party. Therefore, he met Gerry and other MSFT employees who are responsible for preparing MSFT's XBRL filings to determine the feasibility of the assurance engagement and to discuss the nature of the assurance engagement to be performed.

During the meeting, Mike and Gerry agreed that Waterloo & Co. would perform an examination level attestation engagement on the XBRL-Related Documents of MSFT. The objective and scope of the engagement is to examine whether the XBRL-Related Documents are presented completely, accurately, and consistently, in all material aspects and to prepare a report regarding the XBRL-Related Documents. Waterloo & Co. was responsible for identifying matters that constitute material non-compliance with the regulations (or guidelines).

Mike also considered the capabilities of his team against the requirements summarized in Table 4. Mike knew that his team was independent and had all the necessary professional competencies to conduct a standard audit engagement. However, according to PCAOB, AWG, and SOP, an auditor accepting an engagement involving XBRL-Related Documents should have adequate knowledge of regulatory requirements, XBRL taxonomies, and XBRL specifications to perform the examination. In addition, the auditor should also have sufficient understanding of the company's financial statements and underlying financial records to evaluate the risk of misstatement in the XBRL-Related Documents.

Mike realized he needed an XBRL expert to give the team technical advice. Thus, he asked one of the firm's XBRL experts, Jane Russle, to join his audit team. Jane was also excited

about the XBRL audit and wanted to be involved in the assurance engagement on the XBRL-Related Documents of MSFT. Mike was now confident that his audit team possessed the necessary professional competencies and, with Jane on board, had sufficient understanding and knowledge of XBRL and relevant regulatory requirements to accept the assurance engagement on the XBR-Related Documents of MSFT.

----- Insert Table 4 -----

2) *Audit Planning*

The first task that Mike did performed to plan the assurance engagement. Mike and his team members had a meeting to determine the amount and type of evidence required to allow a conclusion whether the XBRL-Related Documents is presented completely, accurately, and consistently. In order to do so, Mike's audit team obtained an understanding of the subject matter (i.e., XBRL-Related Documents) and identified criteria which could be used to assess the suitability of the subject matter. Specifically, Jane pointed out that they would be using XBRL Specification v2.1, the approved XBRL taxonomy, and the company's add-on taxonomies as suitable criteria as recommended by PCAOB and AWG. She also pointed out that the team would have to justify using the extension taxonomy as suitable criteria by evaluating the appropriateness of the company's extension taxonomies (i.e., whether they are appropriately created in accordance with the XBRL specifications and regulatory requirements). Furthermore, Jane recommended the audit team to use an XBRL audit tool, 'XBRL Audit Assistant' (henceforth, XAA) to enhance the effectiveness and efficiency of the audit process.

21

3) *Testing and Evidence Gathering*

As summarized in Table 5, in an audit aimed at assessing whether the elements in the XBRL instance document completely, accurately, and consistently reflect the business facts in the original document, the following seven major objectives are addressed: a) Internal Control, b) Compliance, c) Suitability, d) Accuracy, e) Completeness, f) Occurrence, and g) Consistency.

-----   Insert Table 5   -----

a) *Internal Control*

The quality of XBRL-Related Documents will depend on the process (i.e., internal control) used to prepare the XBRL-Related Documents. With respect to XBRL, internal control can be broadly defined as a process that is designed to provide reasonable assurance regarding the achievement of objectives such as effectiveness and efficiency of the XBRL generating process, quality (e.g., reliability) of XBRL-Related Documents, and compliance of XBRL documents with regulatory requirements. Providing assurance on the XBRL-Related Documents, therefore, needs to begin by assessing whether appropriate controls exist for the mapping of the financial facts to the taxonomies, the creation of the taxonomy extensions, and tagging of the financial data and required information (e.g., company identifier information such as company name and CIK) to create the instance documents.

Task a-1. The audit team examined internal controls and found that employees had limited knowledge about XBRL and were inexperienced in creating XBRL instance documents and taxonomy extensions. There was also limited supervision of their work. As a result, the audit team concluded that MSFT had limited internal control procedures over the preparation of

XBRL-Related Documents and decided to perform substantive tests to determine whether the XBRL-Related Documents are a complete and accurate reflection of MSFT's official statements.

b) Compliance

To assess the compliance of MSFT's XBRL-Related Documents with XBRL specifications and regulatory requirements the audit team decided to use Fujitsu's XBRL instance and taxonomy validation tools.

Task b-1. First, the audit team assessed whether the instance document and extension taxonomies comply with XBRL Specification v2.1, FRIS, and FRTA. FRIS were developed to facilitate the analysis and comparison of data in XBRL instance documents. FRIS provide a guideline for creating high quality and highly interoperable instance documents under XBRL Specification v2.1 (XBRL International 2004a). FRTA specifies a recommended design architecture and establishes rules and conventions which help make taxonomies more usable and efficient (XBRL International 2006).

The validation results indicated that there was no validation error in the taxonomy extensions while 32 validation errors were found in the XBRL instance document. The errors were calculation errors which represent inconsistencies between the XBRL instance document and suggested, but not mandatory, practices. For example, sub-totals that are in the taxonomy but not in the instance document were flagged by the software as calculation errors. The audit team believe those errors are due to a legitimate reporting choice, not a contravention of XBRL Specifications.

In addition, several validation errors were reported regarding Financial Reporting Instance Standards (FRIS) and Financial Reporting Taxonomies Architecture (FRTA) validation tests. The existing official US GAAP taxonomies were themselves not fully FRTA compliant, and therefore companies using those taxonomies would be FRTA non-compliant as well. FRIS is still a working draft that has not yet achieved general agreement; therefore, the exceptions identified by the validation tests may represent inconsistencies due to disagreements with standards still under development rather than errors. Since the SEC's new rule (SEC 2009b) does not require compliance with FRTA and FRIS, the audit team decided that not being consistent with them is not a contravention of XBRL Specifications.

Task b-2. To evaluate whether instance document and any company taxonomy extensions are consistent with applicable legislative or regulatory requirements and XBRL specifications, the auditor should determine the quality or appropriateness of taxonomies in terms of authority, history, and purpose. Unfortunately, there was no tool that could help the audit team conduct this task. Therefore, the team manually examined the appropriateness of both instance document and taxonomies and concluded that both documents were appropriate documents and consistent with applicable regulatory requirements (i.e., SEC rules and EDGAR filer manual). The audit team first visited the SEC's site and then verified the filing with the SEC's requirements. For instance, according to the SEC requirements, the form of submission should be exhibits identified in Item 601(b) of Regulation S–K and Forms F–9, F–10, 20–F, 6–K and 40–F. Table 6 provides a summary of SEC Requirements for Format and Content of XBRL-Related Documents.

----- Insert Table 6 -----

Furthermore, the auditor should examine whether the XBRL-Related Documents (and the related taxonomies, as necessary) conform to the applicable guidelines suggested by regulators. For example, the SEC's public validation criteria suggest checking whether each XBRL instance document properly tagged required company information (e.g., company's name and company's CIK code). The criteria also describe several requirements with respect to company taxonomy extensions (e.g., every new extension element should contain at a minimum a presentation link and a standard label). Table 7 also shows the SEC's public validation criteria for XBRL-Related Documents.[10]

----- Insert Table 7 -----

The audit team used the XAA to determine whether MSFT's XBRL-Related Documents were created in accordance regulatory requirements and suggested guidelines, The audit team found that MSFT submitted its XBRL filing as exhibits to a filing on Form 8-K as required by SEC and created its XBRL-Related documents as required by SEC's file naming rules. They also found that the XBRL-Related documents were appropriately created as described in the SEC's public validation criteria.

c) *Suitability*

One of the main audit objectives is to assess whether appropriate taxonomies and elements are used to tag the underlying business facts in the official filing and that the extension taxonomies are necessary to create the instance document.

---

[10] The recently developed Fujitsu Instance Creator has a new validation feature that enables users to check their XBRL instance documents against the SEC public validation criteria.

Task c-1. To determine the suitability of elements and extension taxonomies (i.e., whether appropriate elements are used to tag the underlying data and whether the use of extension taxonomies is necessary) the audit team used the XAA to determine that the taxonomy selected is an acknowledged or approved one, that the extensions are appropriate, and that the taxonomy, as extended, represents suitable and available criteria.

The XAA uses various colors to differentiate official taxonomies and company taxonomy extensions and enables the auditor to sort elements by name, period, and segment. Hence, using the tool, the audit team was able to identify what taxonomies (e.g., official taxonomies with light blue background color and extension taxonomies with light grey background color) are used to create the XBRL instance document.

Task c-2. Furthermore, the XAA was used to assess the appropriateness of the elements used to tag the underlying data. The tool provided the detailed information of each element used in the instance document such as context and unit information. By comparing this information with the financial facts in the official financial statements, the team were able to determine the appropriateness of the elements used to tag the underlying the financial facts.

Task c-3. Finally, the auditor should verify that the extension taxonomies have only elements that are not in the standard XBRL taxonomies. Using the XAA, the audit team was able to examine whether similar or same elements in official taxonomies are created in extension taxonomies to prepare the MSFT's instance document. The auditor sorted elements by name and examined the presentation view to check whether there are similar elements.

The results indicated that there was redundancy. For example, MSFT created an element (i.e., OperatingExpensesWithCOGS) in their taxonomy extension, but a similar element was already defined in the official taxonomy (i.e., OperatingExpenses). The audit team decided to address this issue in their report. In addition, for the elements that are not used in the instance document, the audit team used Fujitsu's taxonomy viewer to assess the redundancy in XBRL elements. The team found that there was no redundancy for the elements that are not used in MSFT's instance document.

d) Accuracy

One of the main goals of the examination is to gather sufficient appropriate evidence to enable them to draw a conclusion whether the XBRL-Related Documents accurately reflect, in all material respects, all business facts presented in the official financial statements.

Task d-1. First, the auditor should determine whether the elements in the XBRL instance document accurately reflect the business facts in the original document, and also whether data elements in the XBRL-Related Documents are matched with appropriate tags in accordance with the applicable taxonomy. The XAA tool provides detailed information about each element used in the instance document. It includes text, line item names, associated values, dates, labels, and taxonomy information. Hence, by comparing this information with the financial facts in the corresponding financial statements, the audit team can determine whether the elements in the XBRL instance document accurately reflect the business facts in the original document. In addition, taxonomy information (i.e., prefix and XPath of used taxonomies) allows the team to

determine whether data elements in the XBRL-Related Documents are matched with appropriate tags in the applicable taxonomy.

Task d-2. Next, the auditor should check whether the rendered XBRL-Related Documents agree with the corresponding information in the official financial statements and also verify that the data elements in the corresponding official documents have not been changed, deleted, or summarized in the XBRL-Related Documents. Using the rendering function of the XAA, the audit team rendered the instance document to create financial statements (e.g., balance sheet). Then, the rendered financial statements were compared with the original statements to determine whether the information in the XBRL-Related Documents accurately reflects the corresponding content.

Task d-3. The auditor should evaluate whether the XBRL instance document has the required information. The XAA provides information about identifier, unit, precision, language, and period or duration. Using such information, the team was able to determine whether the instance document has the required information such as identifier, unit, precision, language, and period or duration.

Based on their findings, the audit team agreed that the XBRL-Related Documents reasonably (not accurately) reflected, in all material respects, all financial facts presented in the official financial statements. The audit team decided to address their concerns in their report.

e) Completeness

Another main audit goal is to determine that the XBRL-Related Documents completely reflect the official financial statements. The tasks that the auditor should conduct during this process include assessing whether all financial facts in the corresponding official documents are completely tagged in the XBRL-Related Documents and contain all applicable information that is required by regulators and government agencies (*Completeness*).

Jane suggested that a mapping tool would be the best tool for this task. Using a function that automatically maps elements in the XBRL instance document to the financial facts in the original financial statements, an auditor could easily determine whether all facts in the corresponding official documents are completely tagged in the instance document. However, Jane also mentioned that currently available mapping tools were not satisfactory in terms of their mapping accuracy. Most mapping tools gave reasonable accuracy when the tools mapped the elements in the official XBRL taxonomies, but many mapping tools did a disappointing job when they mapped the elements in the extension taxonomies. Thus, the audit team decided to perform a manual tracing with the help of the XAA.

Task e-1. The manual tracing was performed in two steps. First, using the rendering function, the audit team rendered all elements in the instance document. The rendering enabled the team to identified reporting periods and dollar amounts. Second, the team traced each financial fact in MSFT's official financial statements to an element in the instance document and verified whether each financial fact was completely tagged.

Using the XAA, the team were able to find that all financial facts in the original financial statements are completely tagged in the instance document. Therefore, the audit team was

convinced that MSFT's instance document completely tagged all the information in the official financial statements and contained information that was in the official financial statements (i.e., no unnecessary elements)..

*Occurrence*Furthermore, the XBRL-Related Documents should only contain valid information, not extra, unrelated information. For this purpose, the auditor should verify that there is no added information in the XBRL-Related Documents that is not in the official financial statements (Occurrence).

Task f-1. The team also assessed whether the instance document only contained information that was in the official financial statements (i.e., no unnecessary elements). For example, using the information shown in element view pane, information view pane, and source viewer, the auditor can perform a manual tracing (i.e., matching between an element in the instance document and a financial fact in the official financial statements) on a test basis or for all the elements, depending on the assessed level of risk.

f) Consistency

A main goal of XBRL is to provide financial information users with a standardized method to exchange business information. To accomplish such goal, it is important that the XBRL-Related Documents should be properly managed to ensure consistency. That is, the same rules and taxonomies, unless otherwise indicated, should be applied to create the XBRL-Related Documents across reporting periods. There are two tasks that the auditor should perform to achieve this objective. First, the auditor should assess whether there is consistent use of official

and extension taxonomies across reporting periods and whether the same rules are applied to create context information for the XBRL-Related Documents of different reporting periods. Second, the auditor should determine whether there exists reliable, efficient version control and stable access to the extension taxonomies.

Task g-1. The XAA was used for these tasks. The tool provides detailed information about taxonomies used to create the instance documents and context information (e.g., identifier, segment, and period). Furthermore, the tool enables the auditor to copy and paste detailed information about the taxonomies used to create the instance documents and relevant context information into a spreadsheet (e.g., Excel). By examining such information contained in the instance document of each reporting period, the audit team was able to determine that the XBRL-Related Documents were created based on the same official and extension taxonomies and that the same rules were applied to create context information.

Task g-2. The audit team had a discussion with the personnel responsible for generating MSFT's XBRL-Related Documents. The team found that MSFT provided stable access to the extension taxonomies. MSFT placed its extension taxonomies in their Web server, so users can easily access the taxonomies. However, the team found that MSFT had no version control.

4) *Evaluation and Reporting*

After completing the examination, Mike's audit team was able to gather sufficient appropriate evidence to enable them to draw a conclusion that the XBRL-Related Documents of MSFT were presented completely, accurately, and consistently, in all material aspects. The team

then prepared a report regarding the assurance engagement on the XBRL-Related Documents. The report was created in accordance with the relevant standards (e.g., AT section 101, ISA 3000, PCAOB, etc.) as well as regulatory requirements, if any. The report included following information: 1) a title that clearly indicates the report is an independent assurance report; 2) an addressee; 3) an identification and description of the subject matter information and, when appropriate, the subject matter; 4) identification of the criteria; 5) where appropriate, a description of any significant, inherent limitation associated with the evaluation or measurement of the subject matter against the criteria; 6) when the criteria used to evaluate or measure the subject matter are available only to specific intended users, or are relevant only to a specific purpose, a statement restricting the use of the assurance report to those intended users or that purpose; 7) a statement to identify the responsible party and to describe the responsible party's and the practitioner's responsibilities; 8) a statement that the engagement was performed in accordance with specified standards and regulatory requirements; and 9) a summary of the work performed including the opinion and findings. Figure 4 shows the report on the assurance engagement on the XBRL-Related Documents.

----- Insert Figure 4 -----

Preliminary Evaluation of Audit Objectives, Audit Tasks, and XBRL Audit Assistant

To assess the reasonableness of audit objectives as well as the usefulness of the XBRL Audit Assistant (XAA), we conducted a workshop addressing assurance on XBRL-Related documents. A questionnaire was developed to probe participants' opinions regarding assurance on XBRL-Related Documents. The questionnaire consisted of four sections. The first section was designed to gather demographic information. The second section was developed to capture

the participants' XBRL knowledge as well as their previous experiences with XBRL. The third section measured the opinion about the audit objectives and audit tasks as well as their current knowledge about how to achieve them. The last section was designed to obtain the participants' opinion about the computer assisted techniques (i.e., XAA) demonstrated in the workshop with respect to its potential to assist auditors in achieving the specified audit objectives effectively and efficiently.

Participants were solicited through an emailed announcement to the members of a Chapter of ISACA in a large city in North America. A total of 19 audit professionals participated in the workshop. The majority of the participants (89.5%) were male. On average, the participants had approximately 19 years of work experience and were in their current positions for four years. They were employed in various industries: Services including consulting (35%), Finance, Insurance, and Real Estate (20%), IT (10%), Accounting firms (10%), Government (10%), Manufacturing (5%), Electric (5%), and Gas and Sanitary Service (5%). Furthermore, the majority of the participants were working in IT-related areas such as Information Systems Audit (47.4%), Information Systems Management (10.5%), and Information Systems Security (10.5%). About 46% of the participants majored in Information systems, and about 32% had an accounting major. Most of the participants had at least one professional certificate such as CISA, CA, CISSP, PMP, CISM, etc. More than two-thirds of the participants (68.4%) had an undergraduate degree, and about 16% of them had a graduate degree.

Virtually all of the respondents were experienced with computer-assisted auditing - only one participant did not have previous experience. With respect to XBRL, 15 participants (approximately 79%) had previous experience with XBRL. However, only four participants (21.1%) had prepared an XBRL document. The main challenges (or concerns) that they

33

encountered when they prepared an XBRL document include 1) Change of the standards over the years, 2) XBRL acceptance, 3) Lack of sophisticated tools, 4) Mapping companies' chart of accounts into taxonomy, and 5) Technical issues. In addition, only two participants (10.5%) among them had assessed the quality of an XBRL document and did it as a research project.

----- Insert Table 8 -----

Table 8 summarizes the participants' knowledge about XBRL and XBRL audit objectives. Most of the participants believed that they did not have the necessary knowledge with respect to XBRL, reporting low levels of knowledge on a scale of 0-100: Company's Financial Statement Creation Process and the Process Used to Create XBRL-Related Documents (28.68), XBRL Taxonomies and Specifications (18.68), Applicable Regulations (14.74), Evaluating Extension Taxonomies (12.63), and Regulatory Requirements in terms of Context and Formats (9.74). Similarly, the respondents believed that they did not have current knowledge about how to achieve audit objectives in connection with XBRL documents, reporting the following levels of knowledge for meeting key audit objectives: Internal Control (47.21 on a scale of 100), Compliance (30.00), Suitability (30.00), Accuracy (34.32), Completeness (28.89), Occurrence (30.00), and Consistency (34.84). Likewise, most participants did not have confidence in their current knowledge about how to complete the 21 XBRL-related audit tasks discussed in this paper. Table 9 summarise the participants' knowledge about how to complete audit tasks. The highest knowledge audit task was audit task No. 13 (48.42 on a scale of 100) whereas the lowest knowledge audit task was audit task No. 4 (16.05).

----- Insert Table 9 -----

Table 9 also shows the participants' opinions about the computer assisted techniques demonstrated in the workshop, The participants believed that a CAAT (i.e., XAA) is needed for most of the audit tasks identified (more than 50% of the participants said 'Yes.') except for audit task No. 1 (33%)[11]. Similarly, the participants considered that a CAAT would be the most effective and efficient for 20 audit tasks (more than 70% of the participants said 'Yes' for effectiveness and efficiency) except for audit task No. 1 (44% for effectiveness and efficiency).

Concluding Remarks

Regulators and government agencies in many countries are increasingly implementing XBRL for regulatory filings. Recently, the SEC adopted a rule that requires U.S. companies to provide financial disclosures to the SEC and on their websites in an interactive format using XBRL (SEC 2008b). The increasing global adoption of XBRL and its potential to replace traditional formats for filed business documents raises questions about the "quality" of XBRL-tagged information. However, there are few tools that auditors can use while they are conducting an assurance engagement on the XBRL-Related Documents. In this report, we discussed assurance issues regarding the XBRL-Related Documents. We identified several key audit objectives and related audit tasks and briefly introduced an XBRL auditing tool that we developed (i.e., XBRL Audit Assistant). We also discussed how the tool could be used to address those audit objectives for a company.

---

[11] The auditor should evaluate whether any company extensions of the taxonomy are consistent with applicable legislative or regulatory requirements and XBRL specifications.

The tool is still under development. The next step, based on participants' reactions to the tool demonstrated in the workshop, will be to add additional functions such as a mapping tool and an assurance report generator.

References

American Institute of Certified Public Accountants (AICPA). 2003. *Attest Engagements: Attest Engagements Interpretations of Section 101, Interpretation No 5. Attest Engagements on Financial Information Included in XBRL Instance Documents.* Available at: http://www.aicpa.org/download/members/div/auditstd/AT-00101_9.PDF

———. 2008. *The Shifting Paradigm in Business Reporting and Assurance*. Available at: http://www.aicpa.org/Professional+Resources/Accounting+and+Auditing/BRAAS/downloads/AICPA_ASEC_Whitepaper_Final_20082008April_2008.pdf

———. 2009. Performing Agreed-Upon Procedures Engagements That Address the Completeness, Accuracy, or Consistency of XBRL-Tagged Data SOP 09-1. New York: AICPA.

Assurance Working Group of XBRL International (AWG). 2006. INTERACTIVE DATA: THE IMPACT ON ASSURANCE, NEW CHALLENGES FOR THE AUDIT PROFESSION: XBRL International.

Boritz, J. E., and W. G. No. 2004a. Assurance Reporting for XML-Based Information Services: XARL (Extensible Assurance Reporting Language). *Canadian Accounting Perspectives* 3 (2):207-233.

———. 2004b. Business Reporting with XML: XBRL (Extensible Business Reporting Language). In *The Internet Encyclopedia*, edited by H. Bidgoli: John Wiley, 863-885.

———. 2008. The SEC's XBRL Voluntary Filing Program on EDGAR: A Case for Quality Assurance. *Current Issues in Auditing* 2 (2):A36-A50.

———. 2009. Assurance on XBRL-Related Documents: The Case of United Technologies Corporation *Journal of Information Systems* 23 (2).

Canadian Securities Administrators (CAS). 2007. *Canada's securities regulators launch eXtensible Business Reporting Language (XBRL) voluntary filing program.* Available at: http://www.osc.gov.on.ca/Media/NewsReleases/2007/nr_20070119_csa-xbrl-launch.jsp

Elliott, R. K. 2002. Twenty-first century assurance. *Auditing* 21 (1):139-146.

Farewell, S., and R. Pinsker. 2005. XBRL and Financial Information Assurance Services. *The CPA Journal* 75 (5):68-69.

Hoffman, C., and C. Strand. 2001. *XBRL Essentials*. New York: AICPA.

Karen, K. 2008. XBRL Around the World. *Journal of Accountancy* 206 (4):62-66.

McGuire, B. L., S. J. Okesson, and L. A. Watson. 2006. Second-Wave Benefits of XBRL. *Strategic Finance* 88 (6):43-47.

Pinsker, R. 2003. XBRL awareness in auditing: a sleeping giant? *Managerial Auditing Journal* 18 (9):732-736.

Plumlee, R. D., and M. A. Plumlee. 2008. Assurance on XBRL for Financial Reporting. *Accounting Horizons* 22 (3):353-368.

Public Company Accounting Oversight Board (PCAOB). 2005. *Staff Q&A Regarding XBRL Financial Reporting*. Available at: http://www.pcaobus.org/standards/staff_questions_and_answers/2005/05-25%20.pdf

Securities and Exchange Commission (SEC). 2007. *Chairman Cox, Overseas Counterparts Meet to Discuss Interactive Data Timetable*. Available at: http://www.sec.gov/news/press/2007/2007-227.htm

———. 2008a. *Public Validation Criteria*. Available at: http://www.sec.gov/spotlight/xbrl/publicvalidationcriteria.htm

———. 2008b. *SEC Approves Interactive Data for Financial Reporting by Public Companies, Mutual Funds*. Available at: http://www.sec.gov/news/press/2008/2008-300.htm

———. 2009a. *EDGAR Filer Manual (Volume II) EDGAR Filing (Version 11)*. Available at: http://www.sec.gov/info/edgar/edgarfm-vol2-v11.pdf

———. 2009b. *Interactive Data to Improve Financial Reporting* Available at: http://www.sec.gov/rules/final/2009/33-9002.pdf

XBRL International. 2004a. *Financial Reporting Instance Standards 1.0*. Available at: http://www.xbrl.org/technical/guidance/FRIS-PWD-2004-11-14.htm

———. 2004b. *XBRL Taxonomy Recognition Process*. Available at: http://www.xbrl.org/TaxonomyRecognition/XBRL-Taxonomy-Recognition-Process-2004-11-19.doc

———. 2006. *Financial Reporting Taxonomies Architecture 1.0*. Available at: http://www.xbrl.org/technical/guidance/FRTA-RECOMMENDATION-2005-04-25+corrected-errata-2006-03-20.htm

———. 2007. *Frequently Asked Questions*. Available at: http://www.xbrl.org/faq.aspx

XBRL.US. 2008. *Request for Proposal: XBRL US Consistency Checks*. Available at: http://www.xbrl.us/Documents/RFP-InstanceValidation.pdf

Figure 1   Electronic Financial Reporting Using XBRL and Assurance
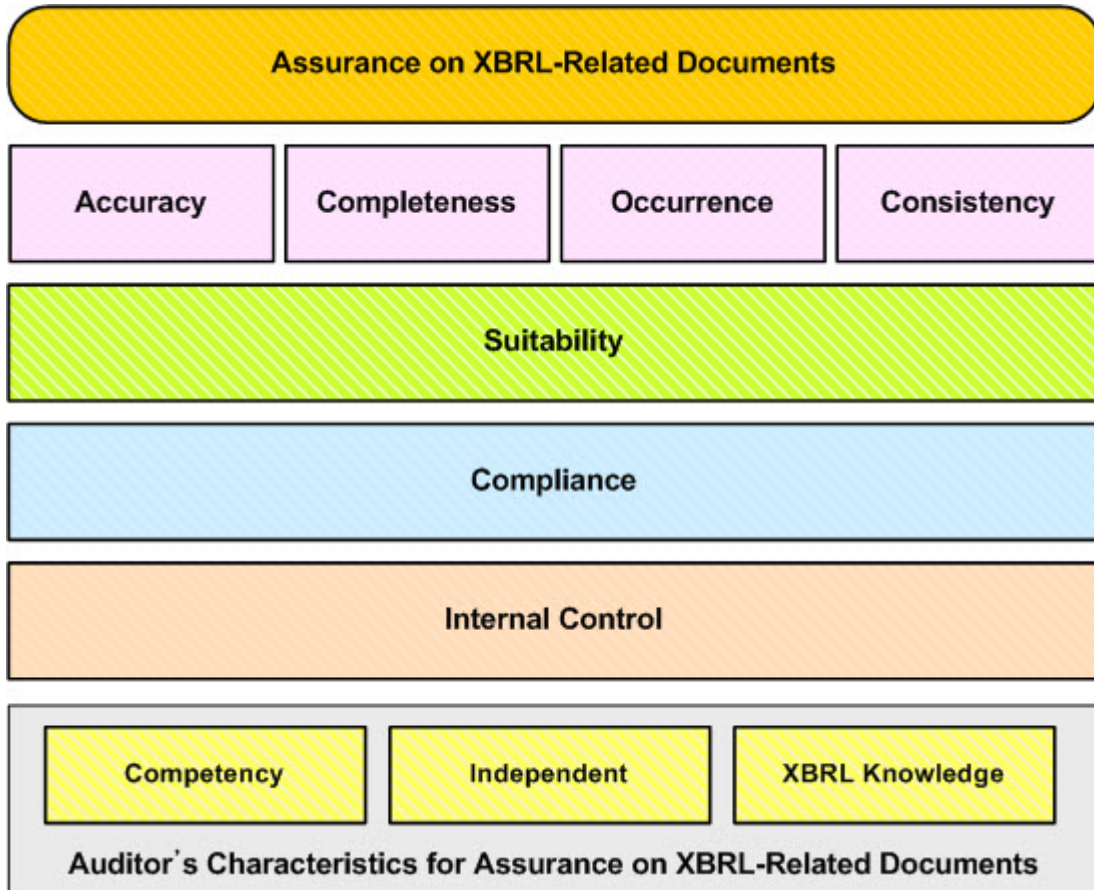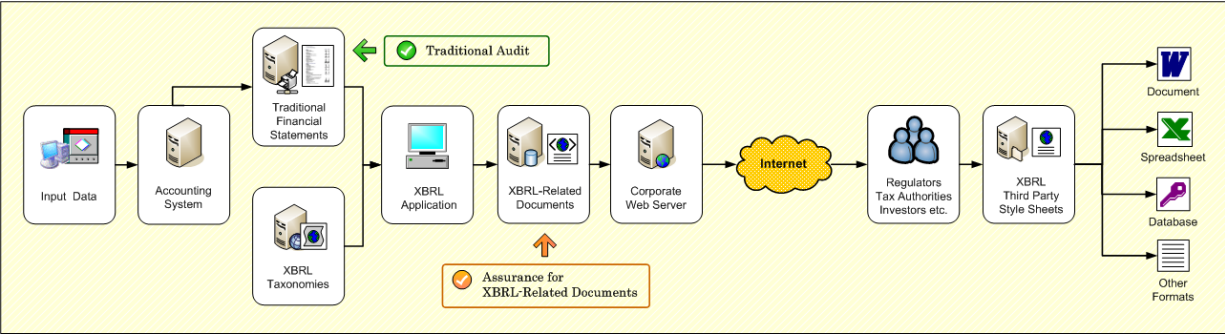
Figure 2   Assurance framework for XBRL-Related documents
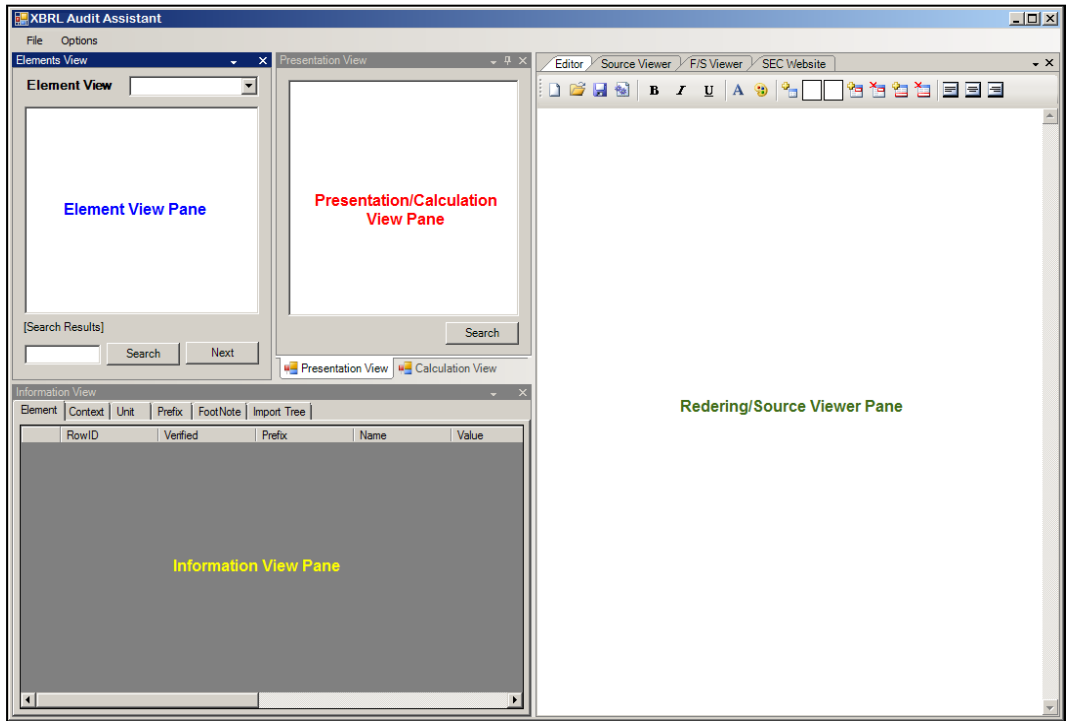
Figure 3　　XBRL Audit Assistant

Report of Independent Registered Public Accounting Firm on XBRL-Related Documents

To the Board of Directors and Shareowners of Mark & Sons Future Technology Co.:

We have examined the accompanying XBRL-Related Documents of Mark & Sons Future Technology Co. (the "Corporation"), presented as Exhibit 100 to the Corporation's Current Report on Form 8-K dated October 23, 2008, which reflect the data presented in the consolidated balance sheets and the related consolidated statements of operations, and of cash flows included in Part I, Item 1 of the Corporation's Quarterly Report on Form 10-Q for the Quarter ended September 30, 2008. The Corporation's management is responsible for the XBRL-Related Documents. Our responsibility is to express an opinion based on our examination.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the consolidated balance sheets as of September 30, 2008 and 2006, and the related consolidated statements of operations, and of cash flows for the three months in the period ended September 30, 2008, and the effectiveness of the Corporation's internal control over financial reporting as of September 30, 2008, based on criteria established in *Internal Control - Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO), and in our report dated December 21, 2008, we expressed unqualified opinions thereon. We were not engaged to and did not conduct an audit (or review) of the information contained in the consolidated balance sheets and the related consolidated statements of operations, and of cash flows included in Part I, Item 1 of the Corporation's Quarterly Report on Form 10-Q for the Quarter ended September 30, 2008, the objective of which would have been the expression of an opinion (or limited assurance) on such aforementioned information. Accordingly, we do not express an opinion or any other assurance on such aforementioned information.

Our examination of the XBRL-Related Documents was conducted in accordance with the standards of the Public Company Accounting Oversight Board (United States) and, accordingly, included examining, on a test basis, evidence supporting the XBRL-Related Documents. Our examination also included evaluating the XBRL-Related Documents for conformity with the applicable XBRL taxonomies and specifications and the content and format requirements of the Securities and Exchange Commission. We believe that our examination provides a reasonable basis for our opinion.

Based on our examination, we found a redundant element in the Corporation's taxonomy extensions. An element in the standard XBRL taxonomies was also defined in the Corporation's taxonomy extensions. In addition, the Corporation's instance document did not completely reflect all financial facts presented in the official financial statements. Several financial facts in the official financial statements were summarized (i.e., represented as the summarized an element) in the instance document.

In our opinion, the XBRL-Related Documents of United Technologies Corporation referred to above accurately reflect, in all material respects, the data included in the consolidated balance sheets and the related consolidated statements of operations, and of cash flows included in Part I, Item 1 of the Corporation's Quarterly Report on Form 10-Q for the Quarter ended September 30, 2008, in conformity with the US GAAP - Commercial and Industrial Taxonomy, US Financial Reporting - Accountant's Report Taxonomy, extensions specific to United Technologies Corporation (as included in Exhibit EX-100.SCH), and the XBRL Specifications (Version 2.1). In addition, our opinion included

/s/ Waterloo

Cullem, Mike
August 28, 2008

---

*   Adapted from PCAOB (2005)

Figure 4   A Report on the Assurance Engagement on XBRL-Related Documents

Table 1   Comparison between AWG, PCAOB, and SOP

	AWG	PCAOB	SOP
Client Acceptance	• Acceptance	Q4: Auditors' sufficient knowledge of the applicable SEC Regulations and XBRL taxonomies and specifications to perform the examination Q6: Auditor's independence in order to perform an attest engagement regarding XBRL-Related Documents	• Subject matter of the engagement • Conditions for engagement performance
	• Terms of engagement	Q3: Primary engagement standards regarding XBRL-Related Documents Q7: Objectives and examination procedures regarding the XBRL-Related Documents	• Conditions for engagement performance • Agreement on sufficiency of procedures
Planning	• Planning the engagement – understanding the subject matter	Q3: Primary engagement standards regarding XBRL-Related Documents Q4: Auditors' sufficient knowledge of the applicable SEC Regulations and XBRL taxonomies and specifications to perform the examination	• Establishing an understanding with the client • Responsibilities of management • Responsibilities of the practitioner
	• Assessing the appropriateness of the subject matter	Q5: The attributes of suitable and available criteria for examination engagements regarding XBRL-Related Documents	• Subject matter of the engagement • Establishing an understanding with the client
	• Assessing the suitability of the criteria	Q5: The attributes of suitable and available criteria for examination engagements regarding XBRL-Related Documents	• Establishing an understanding with the client
	• Risk and materiality		• Establishing an understanding with the client
Testing and Evidence Gathering	• Obtaining evidence	Q7: Objectives and examination procedures regarding the XBRL-Related Documents	• Procedures to be performed • Knowledge of matters outside agreed-upon procedures
	• Using the work of an expert		• Involvement of a specialist
	• Management representations	Q7: Objectives and examination procedures regarding the XBRL-Related Documents	• Written representations
Evaluation and Reporting	• Reporting	Q8: Reporting requirements for examination engagements regarding XBRL-Related Documents	• Reporting considerations • Explanatory language in the practitioner's agreed-upon procedures report
		Q1: General information about XBRL Q2: Information about the XBRL Voluntary Financial Reporting Program on the EDGAR System	

Table 2   Basic Elements Suggested by the AWG and AICPA

AWG	*SOP*
1. A title that clearly indicates the report is an independent assurance report 2. An addressee 3. An identification and description of the subject matter information and, when appropriate, the subject matter 4. Identification of the criteria 5. Where appropriate, a description of any significant, inherent limitation associated with the evaluation or measurement of the subject matter against the criteria 6. When the criteria used to evaluate or measure the subject matter are available only to specific intended users, or are relevant only to a specific purpose, a statement restricting the use of the assurance report to those intended users or that purpose 7. A statement to identify the responsible party and to describe the responsible party's and the practitioner's responsibilities 8. A statement that the engagement was performed in accordance with ISAs 9. A summary of the work performed	1. A title that includes the word independent 2. Identification of the specified parties 3. Identification of the subject matter and the character of the engagement 4. Identification of the party responsible for the completeness, accuracy, and consistency of the XBRL-tagged data 5. A statement that the subject matter is the responsibility of the responsible party 6. A statement that the procedures performed were those agreed to by the specified parties identified in the report 7. A statement that the agreed-upon procedures engagement was conducted in accordance with the attestation standards established by the AICPA 8. A statement that the sufficiency of the procedures is solely the responsibility of the specified parties and a disclaimer of responsibility for the sufficiency of those procedures 9. A list of the procedures performed and related findings 10. When applicable, a description of any agreed-upon materiality limits 11. A statement that the practitioner was not engaged to and did not conduct an examination of the subject matter, the objective of which would be the expression of an opinion, a disclaimer of opinion on the subject matter, and a statement that if the practitioner had performed additional procedures, other matters might have come to his or her attention that would have been reported 12. A statement restricting the use of the report to the specified parties and that the report is intended solely for the use of the specified parties 13. When applicable, reservations or restrictions concerning procedures or findings 14. When applicable, a description of the nature of the assistance provided by a specialist 15. The manual or printed signature of the practitioner's firm 16. The date of the report

Table 3   Basic Elements Suggested by the AWG and AICPA

Function	*Description*
General	Clearly and easily present XBRL-Related Documents (i.e., instance documents, taxonomy schemas, and linkbases). • Present raw XBRL codes. • Provide detailed information about standard taxonomies and extension taxonomies. • Summarize the structure of linkbases. • Show information about any customization applied (e.g., custom labels used in the presentation linkbaes as opposed to the standard labels). • Present all detailed information about XBRL instance documents (e.g. context and unit information). • Show the block-tagged data such as notes and MD&A.
	Provide a search mechanism that allows users to search a specific element, context, label, etc.
	Provide generic query and report writing capability for pulling information from XBRL instance document and taxonomies.
	Generate reports (e.g., review reports and summary of taxonomies).
	Provide audit trails. • Track test performed. • Allow to store checklists, documentation of tests, reviewer comments, etc.
	Allow to exchange data (e.g., parsing data and test results) with other tools.
Validation	Check whether an instance document and company taxonomy extensions comply with: • Appropriate specifications (e.g., XML v1.1, XLINK v1.0, and XBRL Specification v2.1). • Regulatory requirements (e.g., the SEC Rules and EDGAR Filer manual) • Other guidelines (e.g., XBRL US Taxonomy Preparers Guide, FRIS, and FRTA).
	Provide useful and user-friendly information • Show appropriate reference information, validation criteria, rules (e.g., XBRL Specification and SEC requirements). • Show adequate messages (e.g., detailed error messages for instance and taxonomy validation tests).
Mapping/Tracing	Map elements in the XBRL instance document to the financial facts in the original financial statements for comparing the financial facts of the original financial statements with the instance document. • Provide automated identification of matching content in source document and XBRL-related documents (best match) • Provide automated highlighting of matching content in source document or XBRL-related documents based on manual selection and ability of software users to accept and store mappings • Provide tracking the manual mapping of content in source document with XBRL-related documents.
Rendering	Render XBRL instance documents to enable visual review and detailed checking of XBRL instance documents to original financial statements. • Provide flexible and easy to use report rendering capabilities that will allow the user to generate reports based on the presentation linkbase. • Easily show dimensioned data in a table-like view. • Print all information from rendered view. • Export rendered document to XSLT, Excel, Word, etc.

Table 4   Audit Team Criteria for Assurance on XBRL-Related Documents

Audit Team Criteria	Description
Competency	The auditor should possess the necessary professional competencies.
Independent	The auditor should be independent in order to provide assurance on the XBRL-Related Documents.
XBRL Knowledge	The auditor must have sufficient knowledge of: • The XBRL taxonomies and specifications. • The applicable regulations. • How to evaluate the extension taxonomies. • The company's financial statement creation process and the process used to create the XBRL-Related Documents. • Relevant regulatory requirements in terms of context and formats (e.g., the SEC rules and EDGAR Filer Manual).

Table 5   Audit Objectives and Related Tasks

Objectives		*Audit Tasks**
Internal Control: The controls over the creation of the XBRL-Related Document are operating effectively and efficiently.	a-1	1. The auditor should access whether appropriate controls exist for the mapping of the financial statements to the taxonomies, the creation of the extension taxonomies, and tagging of the financial statements to create the instance documents.
Compliance: The XBRL-Related Documents are created in accordance with the XBRL specifications and regulatory requirements.	b-1	2. The auditor should evaluate whether the XBRL instance document complies with the appropriate XBRL specification and appropriate XBRL taxonomies. 3. The auditor should test whether the XBRL instance document complies with FRIS. 4. The auditor should test whether the extension taxonomies comply with FRTA.
	b-2	5. The auditor should evaluate whether any company extensions of the taxonomy are consistent with applicable legislative or regulatory requirements and XBRL specifications. 6. The auditor should determine the quality or appropriateness of the taxonomy, or taxonomies in terms of authority, history, and purpose. 7. The auditor should determine whether the XBRL-Related Documents (and the related taxonomy documents, as necessary) conform to the applicable legislative or regulatory requirements.
Suitability: Appropriate taxonomies are used to tag the underlying business facts in the official filing and the extension taxonomies are necessary to create the instance documents.	c-1	8. The auditor should determine that the taxonomy selected is the most recent acknowledged or approved one, that the extensions are appropriate, and that the taxonomy, as extended, represents suitable and available criteria.
	c-2	9. The auditor should assess that suitable elements are used to tag the underlying financial facts.
	c-3	10. The auditor should verify that the extension taxonomies have only elements that are not in the standard XBRL taxonomies.
Accuracy: The XBRL-Related Documents accurately reflect, in all material respects, all business facts presented in the official filing.	d-1	11. The auditor should test whether the data elements (i.e., text, line item names, associated values, unit, decimals, dates, and other labels) in the XBRL-Related Documents reflect the same information as the corresponding source document (i.e., the HTML or PDF version). 12. The auditor should evaluate whether data elements in the XBRL-Related Documents are matched with appropriate tags in accordance with the applicable taxonomy.
	d-2	13. The auditor should compare the rendered XBRL-Related Documents to the corresponding information in the official filing. 14. The auditor should verify that the data elements in the corresponding official filing have not been changed, deleted, or summarized in the XBRL-Related Documents.
	d-3	15. The auditor should evaluate whether the XBRL instance document not only has required information (e.g., identifier, unit, period, language, etc.), but also appropriately tagged financial facts as required by rules (e.g., each complete footnote tagged as a single block of text required by SEC rules).

Completeness: All business facts in the official filings are completed tagged in the XBRL-Related Documents.	e-1	16. The auditor should assess that all business facts in the corresponding official filing are completely tagged in the XBRL-Related Documents. 17. The auditor should assess whether the XBRL-Related Documents contain all applicable information that is required by regulators and government agencies.
Occurrence: The XBRL-Related Documents only contain valid information.	f-1	18. The auditor should assess that information not in the official filing is not in the XBRL-Related Documents.
Consistency: The XBRL-Related Documents are properly managed to ensure consistency.	g-1	19. The auditor should determine whether the XBRL-Related Documents are created based on the same official and extension taxonomies, unless otherwise indicated, across reporting periods. 20. The auditor should test whether the same rules are applied to create context information for the XBRL-Related Documents of different reporting periods (e.g., the same identifier and scheme are used in all contexts).
	g-2	21. The auditor should assess whether there exists reliable, efficient version control and stable access to the extension taxonomies.

* The Appendix provides a step-by-step guide to using XBRL Audit Assistant for audit objectives and related audit tasks.

Table 6   SEC Requirements for Format and Content of XBRL-Related Documents[*]

Requirements	Details
Taxonomy	• U.S. GAAP taxonomy or IFRS taxonomy as issued by the IASB, in either case as approved for use by the Commission.

Content	• Complete financial statements
	• Any financial statement schedules prescribed by Article 12 of Regulation S–X
	  ▪ Financial statement schedules will be tagged using two different levels of detail:
	    (i) Each complete financial statement schedule tagged as a block of text; and
	    (ii) Each amount (i.e., monetary value, percentage, and number) separately tagged. Each narrative disclosure in such schedule can be separately tagged to the extent desired by the filer.
	  ▪ Only the first level will be required in the first year.
	  ▪ Both levels will be required starting one year from the filer's initial required submission in interactive data format.
	• The footnotes to the financial statements
	  ▪ Footnotes are tagged using four different levels of detail:
	    (i) Each complete footnote tagged as a single block of text;
	    (ii) Each significant accounting policy within the significant accounting policies footnote tagged as a single block of text;
	    (iii) Each table within each footnote tagged as a separate block of text; and
	    (iv) Within each footnote, each amount (i.e., monetary value, percentage, and number) separately tagged.
	  ▪ Each filer's first year of interactive data reporting, only level (i) will be required.
	  ▪ All four levels will be required starting one year from the filer's initial required submission in interactive data. In year two, for the first filing required to have detailed tagging of footnotes and schedules, the filer will have an additional 30 days to submit the interactive data exhibit.
	• Does not require filers to provide interactive data for their Management's Discussion and Analysis (MD&A), executive compensation, or other financial, statistical or narrative disclosure.

Form of submission	• As exhibits identified in Item 601(b) of Regulation S–K and Forms F–9, F–10, 20–F, 6–K and 40–F.
Timing of XBRL submissions	• At the time the registration statement or report is filed or required to be filed, whichever is earlier. • At the same time the filer files the restated or revised traditional format financial statements as an exhibit to the registration statement or report containing those financial statements.
Initial Filing Grace Period	• Each company's initial interactive data submission, regardless of filing type, will have a 30 day grace period. • In year two for the first filing that is required to have footnotes and schedules tagged using all levels of detail, the interactive data exhibit is required within 30 days after the due date or filing date of the related registration statement or periodic, current or transition report or Form 6–K, as applicable.
Reports Covered by the New Rules	• Financial statements contained in periodic reports on Forms 10–Q, 10–K, 20–F, Form 40–F annual report, and Forms 8–K and 6–K that contain revised or updated financial statements. • Transition reports on Forms 10–Q, 10–K, or 20–F. • Registration statements filed under the Securities Act, include interactive data when financial statements are included directly in the registration statement, rather than being incorporated by reference.
Web Site Posting	• The same interactive data that it will be required to provide to the Commission on its corporate Web site. • Should be posted for at least 12 months, which is consistent with issuers' full one year reporting cycle.

Data Tags Requirement	• Tag financial statements using the most recent list of tags for U.S. financial statement reporting, as released by XBRL U.S. and required by the EDGAR Filer Manual. • Use one or more of the five standard industry-specific lists identified in the EDGAR Filer Manual, as is appropriate for its business. • Filers using IFRS as issued by the IASB are required to tag their financial information using the most recent list of tags for international financial reporting, as released by the IASCF and specified in the EDGAR Filer Manual. • Interactive data elements must reflect the same information as the corresponding traditional format elements. • No data element can be ''changed, deleted or summarized'' in the interactive data file. • The amendments will require the financial information and document and entity identifier elements, such as the form type, company name, and public float, to be tagged according to Regulation S–T and the EDGAR Filer Manual.
Format	• Each data element (i.e., all text and all line item names and associated values, dates and other labels) contained in the XBRL-related documents reflects the same information in the corresponding official EDGAR filing (i.e., the HTML or ASCII version) • No data element in the corresponding official EDGAR filing is changed, deleted or summarized in the XBRL-Related Documents • The XBRL-related documents correlate to the appropriate version of a standard taxonomy, supplemented with extension taxonomies. • Each data element contained in the XBRL-related documents is matched with the appropriate tag in accordance with any applicable taxonomy. • The XBRL-related documents contain any additional mark-up related content (e.g., the XBRL tags themselves, identification of the core XML documents used and other technology related content) not found in the corresponding official EDGAR filing.
Consequences of Non-Compliance	• If a filer does not make the required interactive data submission, or post the interactive data on the company Web site, by the required due date, the filer will be unable to use short form registration statements on Forms S–3, F–3, or S–8. This disqualification will last until the interactive data are provided. • During the period of disqualification, the filer also will be deemed not to have available adequate current public information for purposes of the resale exemption safe harbor provided by Rule 144. Once a filer complies with the interactive data submission and posting requirements, it will be deemed to be timely and current in its periodic reports.
Submission rules (EDGAR filer manual)	• XBRL instance, schema, and linkbase documents must be attached to an EDGAR submission using the EX-100.* or EX-101.* document types.

XBRL Document	XBRL Related Document Type	Interactive Data Document Type	Root Element	Required Element
Instance	EX-100.INS	EX-101.INS	xbrli:xbrl	
Schema	EX-100.SCH	EX-101.SCH	xsd:schema	
Calculation Linkbase	EX-100.CAL	EX-101.CAL	link:linkbase	link:calculationLink
Definition Linkbase	EX-100.DEF	EX-101.DEF	link:linkbase	link:definitionLink
Label Linkbase	EX-100.LAB	EX-101.LAB	link:linkbase	link:labelLink
Presentation Linkbase	EX-100.PRE	EX-101.PRE	link:linkbase	link:presentationLink
Reference Linkbase	EX-100.REF	EX-101.REF	link:linkbase	link:referenceLink

• XBRL document names must match {base}-{date}[-{suffix}].{extension}.

XBRL Document	Documentname Format
Instance	{base}-{date}.xml
Schema	{base}-{date}.xsd
Calculation Linkbase	{base}-{date}_cal.xml
Definition Linkbase	{base}-{date}_def.xml
Label Linkbase	{base}-{date}_lab.xml

Presentation Linkbase	{base}-{date}_pre.xml
Reference Linkbase	{base}-{date}_ref.xml

- ▪ The {base} must begin with the registrant's ticker symbol or similar mnemonic abbreviation identifying the registrant.
- ▪ The {date} must denote the ending date of the period. If the instance document is a prospectus or other report whose period is indefinite, {date} must match the prospectus date.
- ▪ The {base} and {date} should be the same as that used for the instance in the same submission.

- • An XBRL document must not contain HTML character name references.
- • The ampersand character must begin a valid XML predefined entity or numeric character reference.
- • The URI content of the xlink:href attribute, the xsi:schemaLocation attribute and the schemaLocation attribute, after XML Base resolution, must be relative and contain no forward slashes, or a recognized external location of a standard taxonomy schema file, or a "#" followed by a shorthand xpointer.
- • XBRL document names are case sensitive.
- • A submission must contain exactly one EX-100.INS or EX-101.INS.
- • Filers must use one of the taxonomies from US Financial Reporting Taxonomies, as specified on the SEC website as their standard taxonomy: US GAAP Taxonomies, V1.0, US Financial Reporting Taxonomies 2005, US Mutual Fund Risk/Return Taxonomy 2008, ICI Risk/Return Taxonomy 2006, and US Financial Reporting Taxonomies IM 2005.
- • A submission must contain a company extension schema EX-100.SCH or EX-101.SCH.

*   From SEC (2009a, 2009b)

Table 7   SEC's Public Validation Criteria[*]

Specification	• All XBRL documents shall be XBRL 2.1 compliant.
Tagging	• Use tags from the Document Entity Information (DEI) taxonomy to tag required company information (e.g., *EntityRegistrantName* for the company's name and *EntityCentralIndexKey for* the company's CIK code). • Use the entire 10-digit Central Index Key (CIK) code assigned by the SEC as the company identifier. • Use the *decimal* attribute instead of the *precision* attribute in the contexts. • No duplicate elements (same value) in the instance document (same taxonomy concept, same context, same units, same value). • No duplicate elements (different values) in the instance document (same taxonomy concept, same context, same units, different value). • Use dimensions within segment and not scenario of contexts.
EDGAR filing	• Comply with document type and file extension requirements (i.e., *EX-100.** or *EX-101.** for document types, *.xml* and *.xsd* for file extension). • The namespace of elements declared in the submission must match http://{authority}/{versiondate} where {versionDate} matches CCYYMMDD and the {authority} is a name identifying the registrant, preferably an Internet Domain Name controlled by the filer.
Taxonomy extensions	• Every new extension element should contain at a minimum a presentation link and a standard label. • No documentation labels (definitions) in the extension taxonomy which were added to existing elements in the standard taxonomy. • No references in the extension taxonomy which were added to existing elements in the standard taxonomy. • No elements with the *Tuple* type in instance documents or in extension taxonomies. • Provide absolute paths for references to base taxonomies and relative paths for extension taxonomies. • Taxonomy extensions shall not reference the *statement-dis-all* entry point in the base taxonomies. • An element in extension taxonomy shall not have the same name as an element in the base taxonomy. • Element declarations for concepts shall contain an "id" attribute whose value begins with the recommended namespace prefix of the taxonomy, followed by an underscore, followed by the element name (e.g., utx_DividendsOnESOPCommonStock). • Ne embedded link bases in taxonomy schemas. • No typed members in extension taxonomies. • Use the same namespace and local name in all extended-type links in a single link base.
Other	• Do not contain any invalid or extended ASCII characters (e.g. foreign language characters), inconsistent schema, inconsistent reference link base, inconsistent label link base, inconsistent presentation link base, inconsistent definition link base, or inconsistent calculation link base. • Extended-ASCII characters or SGML tags shall not be used within XBRL document text. • No active content (Actions, embedded JavaScript, etc.) in XBRL documents. • External References (Destinations, Hyperlinks, etc.) shall not be included in instance documents or linkbases except for references to approved XBRL taxonomies and core XBRL files.

[*]   From SEC (2008a)

Table 8   Knowledge about XBRL and XBRL Audit Objectives

	Items	Mean	Rank
Current knowledge about XBRL	Knowledge of Company's Financial Statement Creation Process and the Process Used to Create XBRL-Related Documents	28.68	1
	Knowledge of XBRL Taxonomies and Specifications	18.68	2
	Knowledge of Applicable Regulations	14.74	3
	Knowledge of Evaluating Extension Taxonomies	12.63	4
	Knowledge of Regulatory Requirements in terms of Context and Formats	9.47	5
Current knowledge about XBRL audit objectives	Internal Control	47.21	1
	Consistency	34.84	2
	Accuracy	34.32	3
	Compliance/Suitability	30.00	4
	Validity	30.00	4
	Completeness	28.89	6

Table 9   Knowledge about How to Complete Audit Tasks and Opinion about the Computer Assisted Techniques

Task No.	Audit Tasks	Knowledge about How to Complete Audit Tasks		Opinion about the Computer Assisted Techniques (%)		
		%	Rank	A CAAT Needed	Effective for Task	Efficient for Task
1	The auditor should evaluate whether any company extensions of the taxonomy are consistent with applicable legislative or regulatory requirements and XBRL specifications.	35.6	11	33.3	44.4	44.4
2	The auditor should evaluate whether the XBRL instance document complies with the appropriate XBRL specification and appropriate XBRL taxonomies.	34.1	12	100.0	92.9	100.0
3	The auditor should test whether the XBRL instance document complies with FRIS.	24.5	19	93.3	100.0	100.0
4	The auditor should test whether the extension taxonomies comply with FRTA.	16.1	21	86.7	100.0	83.3
5	The auditor should evaluate whether any company extensions of the taxonomy are consistent with applicable legislative or regulatory requirements and XBRL specifications.	27.7	16	71.4	92.3	90.0
6	The auditor should determine the quality or appropriateness of the taxonomy, or taxonomies in terms of authority, history, and purpose.	29.8	14	35.7	70.0	71.4
7	The auditor should determine whether the XBRL-Related Documents (and the related taxonomy documents, as necessary) conform to the applicable legislative or regulatory requirements.	25.6	18	64.3	90.0	100.0
8	The auditor should determine that the taxonomy selected is the most recent acknowledged or approved one, that the extensions are appropriate, and that the taxonomy, as extended, represents suitable and available criteria.	23.9	20	85.7	84.6	90.9
9	The auditor should assess that suitable elements are used to tag the underlying financial facts.	26.4	17	64.3	70.0	87.5
10	The auditor should verify that the extension taxonomies have only elements that are not in the standard XBRL taxonomies.	30.8	13	84.6	100.0	80.0
11	The auditor should test whether the data elements (i.e., text, line item names, associated values, unit, decimals, dates, and other labels) in the XBRL-Related Documents reflect the same information as the corresponding source document (i.e., the HTML or PDF version).	41.8	4	100.0	100.0	100.0
12	The auditor should evaluate whether data elements in the XBRL-Related Documents are matched with appropriate tags in accordance with the applicable taxonomy.	38.2	8	84.6	100.0	100.0
13	The auditor should compare the rendered XBRL-Related Documents to the corresponding information in the official filing.	48.4	1	84.6	91.7	100.0
14	The auditor should verify that the data elements in the corresponding official filing have not been changed, deleted, or summarized in the XBRL-Related Documents.	44.2	3	92.3	92.3	81.8
15	The auditor should assess whether the XBRL instance document not only has required information such as identifier, unit, precision, language, and period or duration, but also appropriately tagged financial facts as	39.5	6	91.7	100.0	100.0

	required by rules (e.g., block tag for footnote).					
16	The auditor should assess whether all business facts in the corresponding official filing are completely tagged in the XBRL-Related Documents.	37.9	9	76.9	100.0	90.9
17	The auditor should assess whether the XBRL-Related Documents contain all applicable information that is required by regulators and government agencies	29	15	75.0	100.0	100.0
18	The auditor should assess that there is no information in the XBRL-Related Documents that is not in the official filing.	38.7	7	92.3	100.0	100.0
19	The auditor should assess whether the XBRL-Related Documents are created based on the same official and extension taxonomies, unless otherwise indicated, across reporting periods.	40.5	5	91.7	100.0	100.0
20	The auditor should test whether the same rules are applied to create context information for the XBRL-Related Documents of different reporting periods.	36.6	10	92.3	100.0	91.7
21	The auditor should assess whether there exists reliable version control and stable access to the extension taxonomies.	44.7	2	50.0	75.0	70.0