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JOURNAL OF INFORMATION SYSTEMS APPLIED RESEARCH

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Development of an Evaluation Model for XBRL-enabled Tools Intended for Investors

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Abstract

As the first decade of the new millennium draws to a close, individual investors will find that a new era in financial analysis is beginning. The United States Securities and Exchange Commission (SEC) now requires corporations to use eXtensible Business Reporting Language (XBRL) when submitting their disclosure filings. XBRL has been developed by an international nonprofit consortium to meet corporate reporting needs. XBRL documents will be made available to the public as soon as they are filed. XBRL-enabled financial analysis tools will enable investors to perform their financial analysis more quickly and accurately. It is now time to consider the needs of financial information stakeholders who will use the information contained in XBRL instance documents. The SEC is encouraging software developers to create XBRL-enabled tools to meet the needs of individual investors and other financial information stakeholders. This paper proposes an evaluation model for reviewing XBRL-enabled financial analysis tools to be used by individual investors. Four freely available XBRL viewers were examined using the evaluation model. The SEC's currently available tool was evaluated in detail to better demonstrate the use of the model. To place this evaluation model in its proper context, this paper examines what XBRL is and how it will contribute to financial analysis. The SEC's XBRL tool is then evaluated in detail in light of the model and suggestions are made for how future tools can be developed to fill the needs of individual investors.

Keywords: XBRL, XBRL viewers, XML, evaluation rubric

1. IMPORTANT INFORMATION

A new era in financial reporting and analysis is just beginning. The work of hundreds of people over the past decade is coming to fruition as the United States Securities and Exchange Commission (SEC) begins requiring corporations

to use eXtensible Business Reporting Language (XBRL) when submitting their disclosure filings. Individual investors will benefit from the new system that will allow them to access financial information more quickly and analyze the data with tools similar to those used by professional analysts.

The SEC developed its new Next-Generation Electronic Data Gathering Analysis and Retrieval (EDGAR) System to make XBRL filings immediately available to all financial information stakeholders such as individual investors, institutional investors, professional analysts, regulators, creditors, auditors, media analysts and commentators, and anyone else interested in the information. The new EDGAR system "marks the SEC's transition from collecting forms and documents to making the information itself freely available to investors to give them better and more up-to-date financial disclosure in a form they can readily use" (SEC, 2008b, ¶p. 2).

The proponents of XBRL and interactive data have promised many wondrous things for the future of financial analysis. While documents in XBRL format can be easily read by humans, they are optimized for use by computer programs for data retrieval. XBRL-enabled tools, such as XBRL viewers, will provide the ability to gather and analyze data more quickly than currently available methods. The power and promise of XBRL are found in the ways that software applications will be able to read, manipulate, and use XBRL documents data.

The purpose of this paper is to develop an evaluation rubric to examine XBRL-enabled tools and then use the rubric to evaluate the SEC's currently available XBRL tool in relation to individual investors' needs. No published research was found that evaluated XBRL software or the anticipated benefits to be gained by individual investors by using interactive data. Through this research, the authors hope to provide an evaluation rubric for examining XBRL tools, begin the process of evaluating XBRL software, and focus attention on the XBRL tool requirements of individual investors.

2. XBRL

In defining XBRL, EDGAROnline (2006) noted, "Think of XBRL as bar coding for financial statements. Every piece of data is linked to explanatory information. You don't just get numbers; you get context (p4)." Labels, or "tags" as they are called in XBRL, provide a variety of metadata, or information about the data. This metadata includes data identifiers, financial statement relationships, the year and quarter for which the data pertain, the currency unit, and other descriptive information (Pryde, 2008). Tags tell any computer application that reads XBRL documents what each data item is so that the application can then use or disregard that item depending on what is trying to be accomplished.

Figure 1 illustrates examples of two tagged items from the Adobe Systems August 28, 2009, 10-Q filing. The XBRL example shows that Adobe is using the United States Generally Accepted Accounting Principles (US-GAAP) taxonomy to show the number of treasury shares and their value in United States dollars (USD) on August 28, 2009. "Decimals=-3" means that the XBRL tool does not show the last three digits because elsewhere, it is stated that the numbers shown on the consolidated balance sheet are in thousands.

```
<us-gaap:TresuryStockShares
contextRef="BalanceAs
Of_28Aug2009"
unitRef="Shares"decimals="-3>
76169000</us-gaap:TreasuryStockShares>

<us-gaap:TresuryStockValue
contextRef="BalanceAs
Of_28Aug2009" unitRef="USD"decimals="-
3>
2962530000</us-gaap:TreasuryStockValue>
```

Figure 1. XBRL example from Adobe Systems August 28, 2009 10-Q filing

An XBRL filing with the SEC consists of several files. In addition to the instance document which contains the company's financial information, other files contain information about the taxonomy used, a style sheet describing how the information should be displayed, and files linking various parts of the instance document to online specifications.

In the United States, the XBRL metadata is standardized to correspond to US-GAAP. These tagging standards are known as taxonomies and have been developed for general business reporting as well as for individual industries. XBRL International, a nonprofit consortium of over 500 organizations worldwide working to create and promote XBRL, approved the US-GAAP taxonomies on August 31, 2008 (XBRL International, 2008). The commercial and industrial taxonomy applies to the majority of

corporations while banking and savings institutions and insurance industries have their own industry-specific taxonomies. The taxonomies standardize individual financial elements allowing investors to compare the same financial elements between companies and across industries.

XBRL is also being developed for use around the world using taxonomies based on International Financial Reporting Standards (IFRS) and other national accounting standards. One instance document can be used by multiple applications all looking for different information. One of the truly compelling properties of XBRL is that multinational corporations can produce an instance document of their financial information and submit that document to the regulatory organizations of different countries. Each organization's computer applications will pull the exact information it needs and ignore the rest. The multinational corporation will not have to spend resources recreating financial information presentations for each regulatory specification.

3. INTERACTIVE DATA AND FINANCIAL ANALYSIS

The financial scandals of the last decade have highlighted the dangers of financial information that is hidden or obscured by accounting mumbo-jumbo. The Sarbanes-Oxley Act attempted to correct these problems by requiring corporations to provide more comprehensive financial information. When it comes to financial information, investors, analysts, bankers, and regulators all agree that more information is better (McClure, 2008). XBRL can assist with this undertaking by making the financial information so easily available that investors will be able to keep a closer eye on the financial condition of corporations.

Currently, investors have to spend many hours collecting financial information because it is located in different places and formats. While the efficient operation of the equities market demands information, the information itself can be difficult to acquire and use. Bloomfield (2002) noted that "While public data are often free, it takes time and effort to extract statistics even as widely publicized as earnings growth…" (p. 234).

Caplan (2006) describes the information acquisition process as repetitive, time consuming, and error prone. Whatever the source of financial information, someone usually has to rekey the information into spreadsheets or other analysis software for analysis. This process introduces errors, since human beings are prone to making data entry errors (Clarity Systems, 2008). One case study described in Microsoft documentation reported data collection and entry into analysis spreadsheets taking two to six hours for a single target company (Renck, 2005, pp. 3-4).

Bloomfield (2002) pointed out that "…no statistic is relied upon by all traders, not even an earnings announcement." Different investors need different pieces of information and the current sources of information, whether printed, electronic, or web-based, can make the desired information difficult to find. This, in turn, affects the efficiency of the financial markets. Bloomfield developed the Incomplete Revelation Hypothesis and formalized this observation.

XBRL reduces the time and effort to find specific information. Hodge, Kennedy, and Maines (2004) found that XBRL facilitated search capabilities in analysis software that assisted users in finding the information they wanted. The two to six hour process mentioned previously in the Microsoft case study was reduced to a few minutes using XBRL (Renck, 2005). XBRL eliminates the need to rekey information since analysis software will be able to read the information directly from the instance document. Thus, "XBRL improves investor and analyst access to a company's financial information, thereby lowering their uncertainty over perceived risks of investing and providing them with credible, reliable information (Watson, McGuire, & Cohen, 2000).

Professional investors have benefited from being able to access costly data aggregation services and sophisticated investment software tools. The SEC is encouraging software developers to create new XBRL-enabled software applications aimed at individual investors to give them the same kind of tools the professionals have been using. Individual investors use less sophisticated valuation models and do not have well-developed methods for analyzing financial information (Frederickson & Miller 2004; Hunton & McEwen 1997). With better tools, individual investors can participate on a more informed level with professional investors.

4. EDGAR

The SEC has developed the Next-Generation EDGAR system as an information portal to enable user-friendly access to the financial data it collects from public corporations operating in the

United States (Securities and Exchange Commission, 2008a). The EDGAR system is a storehouse of corporate reports and forms in text, html, and PDF data formats. Finding a particular financial fact is time consuming since the researcher has to locate the exact document containing the fact and then find the fact within the document.

XBRL documents in EDGAR will allow researchers to automatically search for particular information without having to know exactly which document contains the wanted information. According to former SEC Chairman, Christopher Cox, EDGAR's purpose is to make the information contained in the required financial filings of corporations more readily accessible and give investors "better and more up-to-date financial disclosure in a form they can readily use" (SEC, 2008b). Since 2005, over 100 United States corporations participated in the SEC voluntary filer program by submitting at least one annual or quarterly financial filing using the system. (SEC, 2008a) On December 18, 2008, the SEC approved a new rule requiring corporations with capitalizations of over five billion dollars to supplement their currently required annual and quarterly reports with interactive data starting June 15, 2009. By December 31, 2011, all corporations, required to file with the SEC, will submit their reports in XBRL format according to the phase-in schedule set forth in the new rule (SEC, 2008b).

5. LITERATURE REVIEW

Most studies and articles published about XBRL have addressed implementation of XBRL in the accounting and reporting functions (Pinsker & Li, 2008). One barrier to ongoing research has been the lack of tagged financial information and XBRL-compatible software tools. Research into the use of interactive data is just beginning to emerge as government entities around the world start to require the use of XBRL. The SEC in the United States is just the latest overseeing body to mandate filings in XBRL format. Government and regulatory organizations in Singapore, Hong Kong, Spain, and the Netherlands, as well as the FDIC in the U.S., have been collecting information in XBRL format for several years.

A study by Hodge et al. (2004) explored whether a search-facilitating technology improved the transparency of financial reports. The study suggested that technology such as XBRL and related analysis tools could mitigate the problems that inhibit investors from using all available financial information.

Update Frequency

Pinsker (2007) put forth several research propositions concerning XBRL enabled continuous disclosure, i.e., the ability by organizations to release financial information to outside stakeholders as it becomes available inside the organization. The current financial analysis system is based on quarterly and annual reporting of financial information. If information was available monthly or even weekly, the ability of the marketplace to respond to the increased flow of information would need to be examined.

Tools

Pinsker and Wheeler (2009) used XBRL documents, that had been submitted to the SEC's voluntary filing program, along with an online XBRL viewer demonstration tool (which is no longer available), to examine "how initial XBRL use affect[ed] subsequent XBRL perceptions" (2009, p. 242). They found that the subjects who used the online viewer "[had] higher perceptions of analytical effectiveness and efficiency through the use of XBRL-enabled information" (p. 255). One interesting finding of the study was that both subject groups had been exposed to a demonstration of the online viewer demonstration and even the paper-based information subject group perceived XBRL to be advantageous for both preparers and users of financial information. In the short time between the Hodge, et al. (2004) study and the Pinsker & Wheeler (2009) study, tagged information became available through the SEC's voluntary XBRL filing program and XBRL demonstration tools were made available for educating investors in using XBRL.

Use

Other research into XBRL examined issues that could arise with XBRL adoption and proposed possible future extended research. The Working Party of the AAA Information Systems (2005) considered the issues raised by the SEC requiring the use of XBRL in financial reporting. The paper raised several questions about the appropriateness of using XBRL, including concerns about the XBRL taxonomies, whether XBRL would be useful to investors, and the impact of XBRL on SEC filings. In relation to individual investors, the Working Party suggested research could be conducted into how sections of the Sarbanes-Oxley Act could be implemented efficiently using XBRL format, as well as the impact on timeliness of XBRL information.

Refinement

Problems with using XBRL for SEC filings are beginning to be identified and studied. Bartley, Chen, and Taylor (2009) compared XBRL filings with the equivalent HTML or ASCII text documents filed with the SEC in 2006. They found numerous errors in the XBRL filings and discrepancies when compared to the official HTML or ASCII text documents. The causes of many of the problems were traced to problems with XBRL tagging software that have since been resolved by software developers. The study also found many errors due to the companies extending the taxonomy with their own definitions. Clearly, experience with and improvements in tagging data would solve many of the problems found in the Bartley et al. (2009) study.

6. EVALUATION RUBRIC

In researching for this study, no evaluation matrices for assessing XBRL or XML end-user software were found. Investors are unlikely to use interactive data if they do not understand how to use the viewing technology nor understand how interactive data will benefit them. Thus, software developers need to know what functionality will benefit individual investors in utilizing their XBRL software.

To understand the characteristics that are important to end users, other software evaluation matrices were examined. However, the wide variety of user needs also precludes the development of a standard evaluation model for even one category of software (Perera & Costa, 2008). Thus, future evaluators will be able to use this model as a starting point for developing their specific matrices. Although Stamelos et al.'s (2000) Expert System for Software Evaluation (ESSE) model was examined in light of the current XBRL research project, due to its comprehensive nature, the ESSE was not suitable for this study. The ESSE is an inclusive model for the purchase of an entire computer system including networking hardware and software, training, and support. The ESSE attributes that are specific to software evaluation were too few to apply to the current research project.

The model developed in this research study was based on the Revised Richards-Brown CD-ROM Software Evaluation Model (RRBM) (Figure 2) as outlined in Richards (1995).

CD-ROM retrieval software evaluation was very important in the early 1990s as information providers began to sell or lease CD-ROM resources to libraries. The large databases required special software to access, format, and display or output that information much like today's XBRL viewer tools access, format, and display or output the information contained in XBRL instance documents.

Top Level	**80**
User guidance	8
Indexing	10
Search features	37
General output features	12
Record display	10
Database management	3
Operational	**4**
Navigation	**6**
Ergonomics	**10**
Total	**100**

Figure 2. Revised Richards-Brown CD-ROM Software Evaluation Model

The RRBM is a compensatory model allowing the higher scores of certain attributes to compensate for the lower scores of other attributes. It is broken down into four main areas, referred to as variables, which are further broken down into specific criteria. The number of points allocated to each main attribute provides a self-weighting model with more important attributes assigned a greater number of points. A rating of poor, satisfactory, or good is assigned based upon the accumulated total number of points.

While many of the CD-ROM software criteria do not apply to an evaluation of XBRL tools, the methodology and organization of the CD-ROM model has provided a workable framework. The evaluation rubric developed from this framework is entitled "Investor Tool Evaluation Model" (ITEM).

ITEM uses RRBM's compensatory, self-weighting model divided into four main variables (Appendix A). Variables that applied specifically to CD-ROM retrieval software "Top Level" and "Ergonomics" were replaced with the variables "Interactivity" and "Analysis Function" which are unique to XBRL tools. They reflect the promises made by XBRL promoters when describing the potential abilities of XBRL for financial analysis. The criteria in the "general operation" and "guidance" variables have been modified to reflect the

expectations and needs of individual investors who are just beginning to learn about XBRL.

The points available for each attribute are assigned according to how well or how easily the XBRL tool carries out the indicated function. Unless there is a problem with a tool's particular performance of an attribute, the maximum number of points for each attribute will be given. While it is possible to describe each of the evaluative items, only broad guidelines could be provided for assigning specific scores when examining a tool as individual perceptions play a major role in assigning scores.

The point distribution of the rubric reflects the importance of the main variables, "Interactivity" (50 points) and "General Operations" (24 points). Due to its composition of attributes not currently represented in XBRL tools, the variable "Analysis Functions" received only 10 points "Guidance," the last main variable was defined by only two criteria and was allocated 16 points. A brief overview of the definition of the variables follows.

Interactivity

Interactivity describes the ability to manipulate and use the information in ways that the user specifies. Interactivity distinguishes interactive data from the traditional, static information that individual investors currently use.

Interactivity was measured by the following attributes:

- **Searching** – searching for terms.
- **Exporting to spreadsheets and other data formats** – the ability to export rather than rekey data.
- **Comparing data** – the ability to compare data between reporting periods and across companies.
- **Context** –information provided to explain data elements.
- **Taxonomy** – definition of elements used in the XBRL document and relationships between elements.

Analysis Functions

Because the attributes it evaluates are not well supported in current XBRL tools, Analysis Functions was allocated fewer overall points.

- **Liquidity, profitability, other common investment ratios** – The number of useful ratios available to investors.
- **User defined calculations** – The ability for users to define their own calculations.
- **Charting** – The ability to provide interactive charts for user selected data.

General Operation

This variable makes up twenty-eight percent of the evaluation points and has four attributes:

- **Ease of installation** – How easy the software is to install.
- **Terminology** – The amount of XBRL terminology used with less being better.
- **Design of the interface** – Screen design, readability, and accessibility.
- **Open company filing** – Automation level for finding and opening the appropriate SEC filing.

All four constructs are important to the first impression developed by the individual investor for the XBRL tool. User perceptions are involved, thus a zero base point system was followed. Web based tools receive full points. Except for "ease of installation," investors continue to experience these constructs every time they use the software. In these categories, specific situations that warrant zero base points (from the user's perspective) are stated. Individual investors do not have the information technology support that is available to professional analysts so the easier an XBRL viewer tool is to install and operate, the more likely an investor is to use the tool.

Guidance

The variable "Guidance" examines the help, instructional, and tutorial materials included with the software. Since XBRL is a relatively new technology, instructions and help information are very valuable to users learning to use interactive data to analyze financial data.

- **Help** – The value and accessibility of the help function and the help content it provides.
- **User manual and/or tutorial** – Print and/or online resources available to assist users.

Ratings

The ratings of "poor," "satisfactory" and "good" were based on the total number of points received by each tool for each of the variables, and associated variable constructs, of the model. The score of each area was determined by using

the point guide in Table 1, as adapted from the RRB (Richards, 1995).

Evaluation Point Guide			
Item	**Poor**	**Average**	**Good**
Interactivity	0-10	11-30	31-50
Analysis Function	0-4	5-8	9-10
Gen. Operation	0-7	8-17	18-24
Guidance	0-3	4-8	9-16
Total	0-24	25-63	64-100

Table-1. Evaluation Point Guide

In the next section, the value of the ITEM rubric will be tested by evaluating the SEC's Interactive Financial Report Viewer.

7. APPLICATION OF ITEM TO SEC'S VIEWER

The focus of software development companies has been on developing XBRL tools to produce and verify XBRL instance documents. Software to consume the instance documents has been developed to help verify the accuracy of the instance documents. The needs of other users of the information contained in XBRL documents have not been addressed directly. Of the twenty-two companies listed on the XBRL International website as being involved in the "creation and validation" of XBRL documents, only nine were listed as also providing XBRL viewers, mostly as components to XBRL authoring application suites. There were no companies listed as only providing XBRL viewer tools (XBRL International, 2008). In this section, we apply the rubric to the SEC viewer and present the evaluation results.

SEC Interactive Financial Report Viewer

Because the SEC has been a strong proponent of the XBRL initiative, their tool was used to evaluate the ITEM rubric. The SEC's web-based viewer was developed for the SEC's 2005 Voluntary Financial Reporting Program to introduce XBRL and interactive data (SEC, 2007). The current version of the viewer was introduced in June 2009 and can be used to view filings submitted to the SEC as soon as they are filed.

To analyze the ITEM rubric, the SEC Interactive Viewer was examined in greater detail. Because this viewer was provided by the SEC, it was used to evaluate the model. The following section describes the scoring results for the individual variables for the SEC viewer.

Interactivity

Although the SEC has pushed for interactive data, its own viewer had very little interactivity (rating of 17 points) to demonstrate. A user could print one or all of the financial statements and the entire filing could be exported to an Excel file format, however, the viewer did not export to any other formats.

The XBRL context of each item was available in a pop-up box when a user's pointer hovered over a line item, but the viewer did not provide a way to look at the taxonomy used for the filing. There was no search capability or any way to compare data between reporting periods or with other companies.

General Operations

General Operations received a score of 20 out of 24 points. The display of statements was clean and uncluttered. Alternating blue and white formatted bands made the statement easy to read. No XBRL terminology was used and investors should find it easy to navigate between statements, print out statements, or export the data in an Excel file format to be read by compatible software.

While looking at a specific filing, filings from other periods or companies could not be viewed without exiting the viewer and returning to the "company search" page. This was a negative change from the previous version of the viewer which had a listing of available filings on the left side of the window.

The filing list on the SEC site did not show the XBRL filings submitted under the voluntary filing program. To find XBRL documents that were submitted before May 2009, an investor had to find the voluntary filing viewer webpage.

Viewing notes to the statements was another problem. If the company submitted notes in HTML format, the viewer would show the entire HTML markup. The markup made the note almost impossible to read since the note was shown as an unformatted text file with the HTML and note text in one big block of text and the tables unformatted.

Analysis Functions and Guidance

The SEC did not provide any help option in the viewer, nor did it have any instructions or tutorial for using the viewer on its website. Thus, the ITEM scoring rubric gave the SEC viewer a score of "0" for both Analysis Functions

and Guidance. There was general information about EDGAR, the filing procedure, and types of documents that were filed, but there were no instructions for the viewer. Although the viewer was generally self-explanatory and easy to use without instructions, a little information might be helpful to investors who will be using the viewer for the first time.

Observation from Evaluation Results

When focusing on the individual investor, it was clear that the current version of the SEC's XBRL tool did not meet users' needs nor embody the vision of interactive data that XBRL proponents have advocated. The SEC's free web-based tool provided a non-threatening interface which was simple to navigate and required the users to know little to nothing about XBRL terminology. The viewer provided an easy means for displaying the financial information in traditional financial statement format and for transferring the data into spreadsheet programs. The one drawback of the software was that the user had to navigate through the SEC website first in order to find the tool and filing.

8. APPLICATIONS TO OTHER VIEWERS

In the previous section, we presented an elaborate evaluation for the application of the SEC viewer. In order to illustrate the use of the rubric, we chose four lesser known viewers. We present the summary results only (for want of space) for these viewers in this section.

In choosing the other viewers for this study, an "elimination by aspects" (EBA) decision model (Anderson, 1990) was used. EBA was easy to use and provided a quick elimination determination when the minimum criteria were not met. The minimum criteria used for this research project were: 1) easy to find using Google or Yahoo! search engines, 2) free or free trial period, and 3) the online tool worked or the desktop-based tool downloaded and installed. Some online tools that were at the top of the search results were found to be fee-only services without free-trial periods.

Several other tools were found to be components of XBRL software suites and not available separately. Then, there were the tools that were online, but didn't work or were desktop-based but the software download did not work. Four XBRL tools made it past the EBA and were chosen for this study: SEC Viewer, Bowne Viewer, Dragon View, and Xinba 2.0. The total point scores for all four viewers fell far from garnering the full number of points possible with each receiving 37, 46, 23, and 19 respectively. The point breakdown for each of the viewers can be examined in Appendix B.

9. CONCLUSION

In this paper, XBRL was described as well as its potential use by individual investors. The authors then developed an evaluation rubric (ITEM) patterned after the Revised Richards-Brown CD-ROM Software Evaluation Model (RRBM) to examine XBRL viewer software. ITEM was then used to evaluate four XBRL viewers that were freely available for individual investors to download and use. The SEC's XBRL viewer was then used to more closely evaluate the rubric.

The XBRL-enabled tool (SEC Interactive Viewer), examined in detail in this paper, serves its users for information display and a conduit for transferring financial information from XBRL instance documents to spreadsheet applications so investors can perform their financial analyses. Providing support for analysis functions within the XBRL tool itself could replace use of spreadsheets and lead to other creative ways of analyzing financial data.

The one attribute not addressed by the model was the handling of notes to financial statements. Notes are an important part of financial statements in that they often contain obscured disclosures of important information which corporate management wishes would go unnoticed. XBRL tools with search capabilities will help bring the obscured information in notes to light so that financial wrongdoings, such as those by Enron and Worldcom, may be harder to bury in the future. ITEM will need to be refined to include note handling once the standards for tagging notes are finally approved by XBRL International.

The promises of XBRL promoters that interactive data will revolutionize financial analysis and narrow the information asymmetry between individual investors and professionals are, at this time, still promises. Attention needs to be paid to the consumption of XBRL data and bringing the promises of XBRL to life. In developing the ITEM rubric, we first identified what individual investors needed in order to benefit from the revolution in financial analysis that XBRL proponents have promised. The point allocation worked well to draw attention to the important constructs while still taking into consideration the more mundane user interface issues.

We concluded that XBRL-enabled tools for investors are undoubtedly in their infancy. XBRL-enabled tools will become more sophisticated as software developers turn their resources away from the maturing area of report tagging and focus more upon how XBRL tagged information can be used. ITEM has the flexibility to evolve along with the changes in XBRL-enabled tools. We intend to refine this rubric and apply it to evaluate other XBRL –enabled tools.

In this paper we did not discuss the development of a tool for using the rubric. As demonstrated in the Appendices, we can use simple spreadsheets. However, once the rubric is perfected, it is worth developing an interactive tool for the application of the rubric.

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This paper was selected for inclusion in the journal as the CONISAR 2010 Best Paper The acceptance rate is typically 2% for this category of paper based on blind reviews from six or more peers including three or more former best papers authors who did not submit a paper in 2010.

Appendix A

	Available Points	SEC Viewer
Interactivity	**50**	**17**
Searching	**12**	**0**
Able to search on current statement	1-3	0
Able to search entire filing for specific item	6-9	0
Exporting data	**20**	**13**
Export or save each statement to .xls file format	1-6	5
Export or save entire SEC filing to .xls file in one step	3-6	6
Print statements	1-2	2
Export statements to PDF	1-2	0
Export statements to HTML file	1-2	0
Export statements to RTF	1-2	0
Comparing data	**14**	**0**
Compare different periods/filings of same company	1-4	0
Able to compare two or more companies	1-5	0
Able to compare current company to industry	1-5	0
Context	2	**2**
Can expand item to see context	1-2	2
Taxonomy	**2**	**2**
Can see taxonomy	1-2	2
Analysis Functions	**10**	**0**
Liquidity, profitability, and other common investment ratios	5	**0**
Common ratios calculated and displayed	1-5	0
User defined calculations	**3**	**0**
User is able to enter own calculations and see them displayed	1-3	0
Charting	**2**	**0**
Makes charts of data selected by user	1	0
Has pre-defined charts	1	0
General Operation	**24**	**20**
Ease of Installation	**3**	**3**
Web-based – no installation	0-3	3
Spreadsheet program add-in	0-3	
Download and installs per normal operation protocol	0-3	
Terminology	**4**	**4**
Extensive use of XBRL terminology	0	
Mixed use of XBRL terminology and "plain English"	1-2	
Use of traditional investment analysis terminology	2-4	4
Design of the interface	**7**	**4**
User can see all or most of individual statements without scrolling	1-2	1
Screen layout of statements is consistent	1-2	2
Use of color makes displays clear	1	1
Accessibility for users with disabilities	1	0
Open company filing	**10**	**9**
Viewer will locate and download the filing on EDGAR	1-5	4
User must locate and download the related files	0	0
Viewer automatically opens instance document	1-5	5
User has to initiate opening instance document	0	0
Guidance	**16**	**0**
Help	**6**	**0**
Searchable help function	2-6	0
User manual or tutorials	**10**	**0**
Available within the tool	1-5	0
Instruction document comes with the software	1-3	0
Available online from company website	1-2	0
Total Points	**100**	**37**

Appendix B

	SEC Viewer	Bowne Viewer	Dragon View	Xinba 2.o
Interactivity				
Searching				
Able to search on current statement	0	0	3	0
Able to search entire filing for specific item	0	0	0	0
Exporting data				
Export or save each statement to .xls file format	5	5	4	4
Export or save entire SEC filing to .xls file in one step	6	6	0	0
Print statements	2	2	2	2
Export statements to PDF	0	2	0	2
Export statements to HTML file	0	2	0	0
Export statements to RTF	0	0	0	0
Comparing data				
Compare different periods/filings of same company	0	0	0	0
Able to compare two or more companies	0	0	0	0
Able to compare current company to industry	0	0	0	0
Context				
Can expand item to see context	2	2	2	0
Taxonomy				
Can see taxonomy	2	2	0	0
Analysis Functions				
Liquidity, profitability, and other common investment ratios				
Common ratios calculated and displayed	0	0	0	0
User defined calculations				
User is able to enter own calculations and see them displayed	0	0	0	1
Charting				
Makes charts of data selected by user	0	1	0	0
Has pre-defined charts	0	0	0	0
General Operation				
Ease of Installation				
Web-based – no installation	3	3		3
Spreadsheet program add-in			2	
Download and installs per normal operation protocol				
Terminology				
Extensive use of XBRL terminology				
Mixed use of XBRL terminology and "plain English"			2	2
Use of traditional investment analysis terminology	4	4		
Design of the interface				
User can see all or most of individual statements without scrolling	1	2	2	2
Screen layout of statements is consistent	2	2	2	2

Use of color makes displays clear	1	1	1	1
Accessibility for users with disabilities	0	0	0	0
Open company filing				
Viewer will locate and download the filing on EDGAR	4	5	0	0
User must locate and download the related files	5	5		
Viewer automatically opens instance document			0	0
User has to initiate opening instance document				
Guidance				
Help				
Searchable help function	0	0	0	0
User manual or tutorials				
Available within the tool	0	0	0	0
Instruction document comes with the software	0	0	3	0
Available online from company website	0	2	0	0
TOTAL	**37**	**46**	**23**	**19**