# XBRL: Beyond Basic XML

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## Introduction

An examination of recent programming and database textbooks reveals at least some coverage of EXtensible Markup Language (XML). XML is a plain text-based document that contains data and a description of the data. Since it is text-based it is readable by humans, but more importantly by using the extensible tags it is readable by computer-based systems (PC Magazine, 2008; W3C, 2008; Webopedia, 2008). XML can be widely used because it is one of the many open standards available to describe data for storage and transfer that doesn't require paying any licensing fees or royalties.

Coverage of XML should be included in most of the courses shown in the IS 2002 Model Curriculum. Coverage in the foundation and theory courses would be on the awareness of XML and its uses. XML should also be covered in operating system and networking courses since most configuration files are now in XML format. The detailed coverage of XML would be in programming and database courses (IS 2002, 2002).

Along with covering XML we should also cover some of the extensions. The Securities and Exchange Commission (SEC) has approved a proposal to require "all U.S. Companies to report their financial results using eXtensible Business Reporting Language" (Henschen, 2008; WebCPA, 2008). XBRL is an extension of XML that is specifically designed for business information reporting (XBRL International, 2008a). The approved taxonomies provide standardized tags for assets, liabilities, equities, revenues, costs, and net income. The tagging of the financial information including net income, earnings per share and the footnotes makes it readable with software (Bolgiano, 2008). Since the form of financial reporting is changing our accounting, finance, and information systems majors will need to be aware of the change and also the new processing requirements. Accounting, finance, and information systems majors might be required to create XBRL templates and mapping of financial data. We could cover XML and XBRL in IS 2002.2 – Electronic Business Strategy, Architecture and Design and in IS 2002.3 – Information Systems Theory and Practice (IS 2002, 2002; XBRL International, 2008a). Coverage in the information systems theory and practice course is important since it will most likely to taken by all business majors.

## *What is XML?*

First of all XML is a text-based document. We have text that is tagged with an extensible set of tags, meaning that we can create new ones to meet our specific needs. XML is used to transport data from Web services to Web applications, used in Web server configuration files, and also the storage of data in files or in databases (W3C, 2008; W3Schools, 2008). XML is not a replacement for hypertext markup language (HTML). As mentioned earlier XML is for transport and storage of data where HTML is used to specify how the data is formatted and displayed (W3Schools, 2008). XML is extensible and HTML is not. The extensibility of XML allows us to create XBRL and other extensions to meet our needs.

In 1998, Charlie Hoffman, CPA came up with the idea of using XML to create a standardized "XML-based language for digitizing business reports" (XBRL International, 2008b). Mr. Hoffman was able to convince the American Institute of Certified Public Accountants (AICPA) to create prototypes and later gained the interest of the SEC and the formation of XBRL International (XBRL International, 2008b).

## *Current Financial Reporting Requirements*

In release 33-8924 Interactive Data to Improve Financial Reporting; dated May 30, 2008, the SEC proposed requiring companies to provide financial statement information using XBRL (SEC, 2008). The XBRL financial statements would be submitted to the SEC and be available at the company's Web site.

The proposed rules are intended not only to make financial information easier for investors to analyze, but also to assist in automating regulatory filings and business information processing. Interactive data has the potential to increase the speed, accuracy, and usability of financial disclosure, and eventually reduce costs (SEC, 2008).

The SEC (2008) has required electronic filing on the Electronic Data Gathering, Analysis and Retrieval System (EDGAR) since 1993. However, the required electronic filing

accepts ASCII, HTML, or XML primary documents. If you include graphics in your HTML document, then you must also include the .jpg and .gif files that contain your graphics. Two other document formats can be used as unofficial copies: PDF and XBRL (EDGAR® Filer Manual, 2008, p. 2-1 - 2-2).

The change to XBRL will "transform financial disclosure from a 1930's form-based system to a truly 21$^{st}$ century model that taps the power of technology" (Henschen, 2008).

Even with enterprise reporting systems (ERPs) the financial reporting process appears to be inefficient. Large and small corporations use a great deal of manual effort and processing to complete the required reports. Currently most ERP systems do not automatically generate the information in the format that can be submitted to the SEC. An example is given where data is manually extracted from an ERP and then entered into a word processing document. Other supplemental data is again manually extracted from other systems and added to the word processing document. The document is e-mailed to appropriate company and legal authorities for review. Feedback and suggested modifications are entered manually in the word processing document. When the review process is complete the word processing document is then formatted as HTML or other SEC approved document and sent to their filing agent to be submitted to the SEC (Stantial, 2007).

With the current state of technology this level of manual processing is unacceptable. Manually taking data from one computer system and entering it into another system is wasteful, costly, and error prone! After every step the extracted data must be reconciled with the original data source to verify it accuracy and completeness. ERP companies like SAP are already incorporating XBRL into their systems (Henschen, 2008). XBRL is looked at as just another step in providing traceability from the original transaction source to the electronic supplied report. The SAP system allows the loading of SEC Taxonomies and the mapping of the organization's data to the taxonomy. Additional information can be added and financial reports can be generated from the XBRL tagged data (Business Objects, 2008).

*XBRL Details*

XBRL data is uniquely tagged, which allows computer software to recognize the data and to treat it appropriately. Computer processing of the XBRL data limits the manual re-entry and processing of financial data making the process more efficient and less prone to errors (XBRL International, 2008a). Not only is it more efficient for the producers of the financial reports, but also for the regulatory agencies to review and for financial analysts to download the XBRL tagged information and use computer software to analyze the reported data and to compare it with XBRL data from competitor companies (XBRL International, 2008a). "XBRL provides a computer-readable way to tag more than 2,000 financial data points, such as cost, assets, net profit and other values. Because it's standardized, XBRL enables fast, automated analysis not only by regulators, but also by companies examining competitors and entire industry sectors" (Henschen, 2008). In the past analysis and comparison of competing companies required a great deal of manual effort to download, convert or reenter data, and the creation of custom software to process and analyze the data.

*What Should IS Majors Know*

First, IS majors need to know how to read and to create XML documents. The next step would be how to extend XML to create XBRL and other extensions to the language. XBRL examples should be examined to understand how they were created and how they are mapped from the individual accounting items to the financial reports. Numerous examples of XBRL are available for downloading and colleges can use either open source or trial software to tag and process the tagged data files. An example of XBRL tagged data can be found at http://www.xbrl.org/Example1/. A link on the previous page shows the conversion of the XBRL tagged data to a financial report format.

IS majors should also examine the standard setting process that is used by the SEC, AICPA, and XBRL International. A case study example could be used where an organization identified the need for a new tag to better report their financial results. The students could then follow XBRL International's documented process for formal recognition of new or modified taxonomies (XBRL International, 2008c). This would allow the student to understand that even though the language allows extensions one needs to follow a specified process to gain approval of extensions.

IS majors should also examine the software that is available to create and process XBRL files. First how is software used to tag elements from the ERP systems to create the instance document? What other software tools are used to create the internal and external reports and to analyze the financial data? Besides the software tools the IS majors need to examine the taxonomies that were created and the process that is used to create the taxonomies.

## Conclusions

IS majors need to familiarize themselves with XML and XBRL across several dimensions. First, IS majors need to be able to use and extend XML for programming and database courses and understand the use of XML to create extensions like XBRL. Second, IS majors need to understand the standard setting process that is used with XBRL to create SEC approved taxonomies. Third, IS majors also need to know how to create, use, and modify the software that is used to create XBRL tagged documents. Fourth, they also need to be able to understand and write software to process the XBRL tagged documents to create reports and to perform analysis of the tagged data. XBRL will be used in all public corporations within the next couple of years and the accounting and finance professionals will need properly trained IS professionals to be available for technical assistance.

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