

An Introduction to XBRL

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Abstract

XBRL, the eXtensible Business Reporting Language, is an open standards-based reporting system being built to accommodate the electronic preparation and exchange of business reports around the world. XBRL is all about the electronic tagging of data. It has been compared to the introduction of bar-coding and to the introduction of the ISBN number for books. While financial data is an obvious choice for electronic tagging, all data can be tagged. XBRL is an extension of XML, the eXtensible Markup Language. An extensible language means one that is designed to easily allow the addition of new features at a later date. As might be expected, the rules, or specifications, for these languages need to be managed so as to allow consistency in their development. The goal of XBRL is to develop a standard set of XML-type tags that can be used to create instance documents that can be then presented in a variety of formats. XBRL is not trying to set new accounting standards; it is attempting to standardise the XML-based tags that are used in business reporting so that the business reports prepared by organisations can be more easily compared and collated for regulatory and other purposes.

Key words: HTML- HyperText Markup Language; XML- eXtensible Markup Language; XBRL- eXtensible Business Reporting Language

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Introduction

XBRL, the eXtensible Business Reporting Language, is an open standards-based reporting system being built to accommodate the electronic preparation and exchange of business reports around the world. Overseeing the development of XBRL is XBRL International, a consortium initially created by the AICPA (USA) but now a separate entity in its own right. It all started back in 1999 with 12 organisations as the founding members. There are now in excess of 450 organisations worldwide in over 30 countries involved in its development.

XBRL is all about the electronic tagging of data. It has been compared to the introduction of bar-coding and to the introduction of the ISBN number for books. While financial data is an obvious choice for electronic tagging, all data can be tagged. XBRL is an extension of XML, the eXtensible Markup Language. An extensible language means one that is designed to easily allow the addition of new features at a later date. As might be expected, the rules, or specifications, for these languages need to be managed so as to allow consistency in their development. The XML specifications are developed by the World Wide Web Consortium (<http://www.w3c.org/XML>). The XML specifications provide a standard format for computerised documents that is flexible enough to be used for diverse needs such as websites, genealogy, real estate listings and voice mail systems, and more. XBRL International is responsible for over seeing the development of the XBRL Specification which sets out exactly how the data is going to be tagged for use in XBRL related projects.

There are two key items that are fundamental to understanding XBRL. The first item is what is called a taxonomy. The second item is called an instance document. A taxonomy may refer to either a hierarchical classification of things, such as plants, or the principles underlying the classification. Almost anything—animate objects, inanimate objects, places, and events—may be classified according to some taxonomic scheme. For example, in an accounting taxonomy, cash is a subset of current assets which itself is a subset of total assets. A taxonomy can also be described as an XML schema. Once the

taxonomy is agreed, the data is then mapped to the taxonomy and the result is called an instance document which contains the (XML) tagged data.

The goal of XBRL is to develop a standard set of XML-type tags that can be used to create instance documents that can be then presented in a variety of formats. XBRL is not trying to set new accounting standards; it is attempting to standardise the XML-based tags that are used in business reporting so that the business reports prepared by organisations can be more easily compared and collated for regulatory and other purposes.

The work to date has primarily been focused on external financial reporting (IFRS, US GAAP and BASEL II are examples), with the main effort being on the creation of the necessary taxonomies. However, a number of significant pilot projects and actual implementations have been completed around the world. XBRL International has also released the core components for XBRL for General Ledger (XBRL GL) that use XML tags when data are captured within an organisation's general ledger accounting system. Additional examples of current projects (including XBRL GL) are provided in Section 5 of this paper. The longer-term goals of XBRL include moving further back in the information supply chain to capture the XBRL requirements earlier in the business reporting process. The XBRL International website has a wealth of information on all aspects of this worldwide initiative: <http://www.xbrl.org>

In addition, each jurisdiction (recognised member country) will have its own web site. For example, the XBRL Australia web site can be found at <http://www.xbrl.org.au> and the Irish one is at <http://www.xbrl-ie.org>. For further information about other jurisdictions visit the XBRL web site (<http://www.xbrl.org/jurisdictions.aspx>).

The Current Reporting on the Web

For a variety of reasons, including low costs and international reach, the Internet and the World Wide Web ("the Web") have rapidly changed the manner by which corporations communicate their financial performance to stakeholders. Research clearly indicates the

ubiquity of Web sites for public companies. In a broad sense, the Web is a giant, loosely interlinked data warehouse that contains an unprecedented amount of information. Just as corporations use data mining techniques to extract or discover relationships in their internal data warehouses (Adriaans et al., 1996; Barquin and Edelstein, 1997; Berson and Smith, 1997), individuals can engage in "Web mining" (Etzioni, 1996, p. 65) to extract or discover relationships in the financial information and business performance data available on the Web (Debrecey and Gray, 2001). The problem is, as the Web grows, the difficulty of locating and navigating to specific information on the Web also grows (Ciolek, 1996; Berghel, 1997; Tenenbaum, 1998).

Corporations publish financial information in a number of different forms, including HTML, Excel, graphics files, Word documents, and Edgar filings in plain text. Several of these formats do not lend themselves to indexing by search engines or other automated analytic tools, upon which humans and intelligent agents rely. For example, many corporations publish their financial information in Adobe Acrobat format (PDF), effectively cutting off the contents from all search engines except Adobe own search engine. Other corporations use dynamic databases to present their Web content. Under most conditions, a search engine cannot reference information created dynamically from a corporate database (Debrecey and Gray, 2001).

Those Search engines, which rely on full text indexing of Web contents, have very low levels of precision in discovering desired information. The problem of finding information using search engines is compounded in the financial reporting context. This makes finding the authoritative disclosures additionally complex.

Given the scale of the Web, the limited semantic representation of HTML, and the consequently poor performance of search engines, an intelligent software agent would have to be very robust to complete an acceptable Web search for financial information. Consider the manual process that a person would follow to find annual report information for Company X:

1. Locate Company X's Web site,
2. Locate the appropriate link on the Company X's Web site to the annual report, and

3. Locate the appropriate place in the annual report that includes the desired financial information.

Although these three steps look straightforward in principle, the process is difficult in practice. As an example of the difficulty of locating required information on the Web, the seemingly simple task of finding a corporation's "official" Web site can be a major undertaking. The AltaVista search engine, for example, provided a list of 741000 Web pages in response to a request for "IBM" + "annual report". There are three specific underlying problems that contribute to the general Web-mining problem, including (Debreceeny and Gray, 2001):

1. There are no existing schemas that could be used to specifically locate financial and business performance information (the resource discovery problem). The problem of locating financial data on the Web is termed "resource discovery" (Bowman et al., 1994).
2. There are no schemas to classify data (the attribute recognition problem) on the Web that are either robust or well structured. The subsequent identification of financial attributes within Web financial statements is termed "attribute identification" (Salton et al., 1994; Maurer, 1998; Tenenbaum, 1998).
3. Financial reporting Web sites use existing schemas inconsistently, if at all (the standards problem).

Some XML and XBRL Basics

XML

The future widespread delivery of financial reporting will be in digital form; however, the question of which information exchange language will become the de-facto standard remains unanswered. Currently, most digital representations of financial information are coded in Hypertext Markup Language (HTML), which controls the way that information is displayed, in terms of appearance, size, shape, and color. HTML, however, does not recognize content, so its use generally is limited and is not effective for extracting data. The HTML format also does not allow for searching, analysis, or manipulation of

information without re-entering data to a spreadsheet or downloading some other software application that has analysis and manipulation capabilities (shin, 2003).

HTML has a number of problems that effectively preclude it from information delivery that conforms to a robust schema. As Bosak (1998) notes, HTML (1) is not extensible, as it does not allow the creation of new tags for specialized tasks; (2) provides limited semantic structure; and (3) cannot be validated so that the user or intelligent agent is unaware if the information provided does or does not conform (Debreceeny and Gray, 2001).

XML systems consist of two parts: concepts and schemas. A concept is the element of a proposition rather in the way that a word is the element of a sentence. A schema is a model. First, the *concepts* to be recorded are given a name and recorded in an XML *schema*. The schema file does not contain any data; it contains meta-data that describes the data. Second, this schema file can then be referenced by any number of documents that contain data. Each data item has a tag that is defined for a particular purpose by reference to concepts defined in the schema. The data contained in the documents referenced to the schema file must only use the element names stored in the schema file.

An important part of XML is to separate (i) data from concepts and (ii) presentation from concepts. This means that the data recorded in an instance document can be interpreted by both humans and computers. However, an XML (or XBRL) instance document is not a pretty sight. It needs to be transformed into human readable form using, for example extensible Style Language Transformation (XSLT) style sheets, or Cascading Style sheets (CSS). Both XSLT and CSS are just XML standards used for the presentation of data.

Meta tags

The inclusion of metadata information on a Web page significantly improves resource discovery. Berners-Lee (1997a) defines metadata as being "machine understandable information about Web resources or other things." Dempsey and Heery (1997) identify 23 different metadata formats. The most familiar of these formats is the Machine

Readable Catalogue Format (MARC format). There are many different formats of interoperable metadata. One of the most popular forms of Web metadata is the meta tags introduced with HTML 2.0. These meta tags are placed in the < HEAD> < /HEAD> section of Web pages. The browser does not display this information to the user, however, this information is used by some search engines to classify and categorize Web pages.

The problem with these HTML meta tags is that neither the tags themselves nor the parameters (e.g., keywords) used with the tags are standardized. Web developers are free to use any tags they want and use any content terms they believe appropriate. Further, few Web page developers are aware of the current incentives to use meta tags. Not all of the search engines provide added weight to meta tags,⁹ so that even if the use of the HTML meta tags increased, they would still fall short of the power of some of the alternative metadata formats that are either currently available or under development (Debreceeny and Gray, 2001).

Once a page or group of pages that include corporate information have been identified, finding pages with specific financial information by following hypertext links from the corporate home page can also be difficult. The terminology used for financial reports varies widely among corporations (Scholz et al., 2000). In addition, in many cases, the boundaries between the financial statements and the rest of the corporate pages are blurred (Debreceeny and Gray, 1999). Finally, HTML pages have only limited semantic power. HTML tags are essentially formatting tags that provide layout information to the browser, thereby limiting their usefulness in information retrieval (Tenenbaum, 1998).

XBRL is a subset of XML

Using XBRL terminology, the business concepts we need to report are defined in a *taxonomy* (schema) and the tagged data are stored in XBRL instance documents that are created by referring to the taxonomy.

A taxonomy simply includes the elements that are valid for an XBRL instance document. A taxonomy does not contain any data. A simplified example of an element recorded in a taxonomy is:

```
<element name="NetProfit"/>
```

The fact values are included in an XBRL instance document. An instance document contains the XBRL tags with the data recorded between the tags. Using the Net Profit example from before, an instance document based on that taxonomy would contain the following line:

```
<NetProfit>100000</NetProfit>
```

Of course there will be additional data in the instance document – contextual data and units of measurement - to tell the user the name of the organisation, the time period to which the instance document relates and many other necessary pieces of information to ensure that the recipient of that instance document is able to clearly understand what it is all about.

So why is a Standard Necessary?

In the XML world, it is possible for any company or any country to develop its own specification and taxonomies (schemas in XML terminology) for business reporting and other activities. However, the lower the level at which the development takes place, the fewer the benefits achieved from implementation. For example, the first implementation of XBRL was by the Australian Prudential Regulatory Authority (APRA). The taxonomy used by APRA is one that they have developed solely for their own needs.

Companies that report to APRA using the APRA designed taxonomy will most probably not be able to use the same taxonomy for reporting to the Australian Stock Exchange (ASX) and/or to the Australian Securities and Investments Commission (ASIC). However, it may be possible to find many common elements that all of these regulators require. Rather than have each regulator/supervisory body produce its own taxonomy, each can leverage off a single general purpose taxonomy and then simply add its own unique requirements. If organisations were obliged to prepare XBRL instance documents to meet the requirements of three different taxonomies, a new system

would be implemented, but only some of its benefits would be achieved.

Let's assume that APRA, the ASX and ASIC all require organisations to report net profit. If each developed its own taxonomy then we may end up with the following in the taxonomies:

APRA <element name="netprofit"/>

ASX <element name="netProfit"/>

ASIC <element name="NetIncome"/>

The first two examples are seen by XML/XBRL as different element names because names in XML/XBRL are case sensitive. Further, let's assume that all three require the same figure to be reported as they use a common definition of net profit. However, because they use different tags to define net profit, a company would need to tag its financial information with three sets of tags rather than one.

Australia has adopted many of the accounting standards published by the IASCF. If it were to go ahead and develop its own taxonomy for IAS/IFRS then it is unlikely that the exact same taxonomy would be developed by other countries that have adopted the same accounting standards. Different countries would be reporting the same data but using different tags to represent the same definition of an accounting concept. By co-operating at the international level, an international taxonomy can be created for IAS/IFRS that all countries agree to use. This may make it possible to achieve the benefits of cross-country comparisons where countries use the same standards.

Once the IFRS taxonomy has been created Australia then needs to add into its own extension taxonomy for whatever standards and reporting requirements unique to Australia. This may be because there is no equivalent IAS/IFRS or it has not adopted some of the IAS/IFRS core set of standards.

The XBRL Process

Diagram 1 showing the overall XBRL process is presented on the next page. Businesses are required to report to many users of business information, especially regulatory authorities. Much of this information is shared between the many users but each user may

require the data in a different format. Some users may also require additional information, but this example will only discuss the shared information.

The diagram indicates some examples of the need for multiple reports based on the same data. A goal of XBRL is to reduce the manual rework that is usually required to meet the needs/requirements of each of the users. If all the needs can be met by simply transforming the same data into different formats using XML/XBRL technologies then many of the repetitive reporting processes can be eliminated.

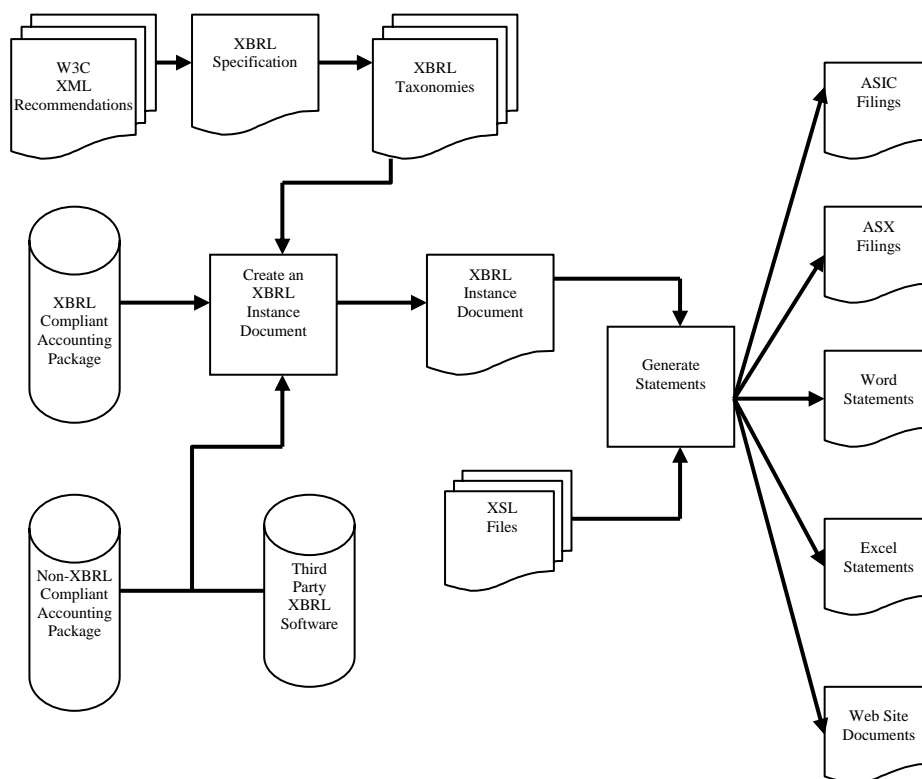


Diagram 1: An Overview of the XBRL Process

The remainder of this section of the paper is an explanation of the various stages in the process. For each stage, the role that accountants can play is outlined and the skills needed are also discussed. Wherever

possible, comparisons are made to existing practices in financial reporting.

XML Standards

The starting point of any XML language, of which XBRL is only one of many, starts with the recommendations created by the World Wide Web (W3C) consortium.

In the development of any W3C recommendation there are at least three stages

- Specification
- Working Draft
- Recommendation

Any particular W3C recommendation may go through these processes a number of times. Others never pass the first step, while others never make to it a final recommendation. XBRL currently uses the following W3C recommendations:

- XML
- XML Schema
- Xlink
- XML Namespace
- XPath
- XSLT

The XML recommendations are usually written by technical experts. It is unlikely that many accountants are involved at this point in the process.

The XBRL Specification

1. An Explanation of the XBRL Specification

The XBRL Specification describes the syntax and rules of the XBRL language. The Specification team determine which XML recommendations are appropriate for business reporting and how they should be used for business reporting. The specification facilitates software developers and coders in creating exchangeable digital documents. It also allows financial users to compare business reporting information from different entities, even if the information was originally in otherwise incompatible formats. The use of the

specifications is not limited to financial statements: It may be used for digital reporting and presentation of general ledger details through drill-down, regulatory filings, and non-financial information as well (shin, 2003).

The XBRL Specification is initially prepared by the Specification Working Group of XBRL International. Each version of the Specification goes through a number of stages:

- A number of drafts are usually produced within the Specification Working Group
- When Specification Working Group considers the specification at the appropriate stage, an internal working draft is distributed for comment within the wider XBRL community (XBRL member organisations only)
- The next step is a Public Working Draft that is distributed to the general business community.

In 2000 Specification 1.0 was released and the Australian Prudential Regulatory Authority (APRA) was the first organisation world-wide to implement a system based on XBRL Specification 1.0. Further Specification releases were made as follows:

Version 2.0 – December 2001

Version 2.0a – November 2002

Version 2.1 – December 2003

Versions 2.1 with corrections – December 2004

As XML develops, the XBRL Specification is updated to implement new XML standards if they are appropriate for use within XBRL. However, the XBRL International Steering Committee agreed in November 2004 that “the core XBRL specification will remain stable, at version 2.1 for a period of at least three years from its date of original recommendation, 31 December 2003” (ISC Minutes, 2004-11-19).

2. Skills Required for Developing the XBRL Specification

In order to be involved in writing/updating the XBRL specification it is important to understand the XML technologies behind the specification, how business reports are produced, and how they are used in the wider community. There is no point in producing a

specification that has no validity for or relevance to the users of business information.

Therefore, members involved in the development of the XBRL Specification need a combination of skills and/or the working group should consist of people with complementary skills. Some may be accountants who have a good understanding of the various XML recommendations used by XBRL. Others may have a basic accounting knowledge, but a detailed understanding of the XML recommendations.

The Specification is an ongoing task for XBRL International. The current version is Specification 2.1, which was released in December 2003. Discussions are still continuing on improvements and including new XML recommendations as they become available. Since December 2003, a number of errata have been corrected and a new release is expected to be approved at the November 2004 conference in Brussels. During 2004 a Conformance Suite was also developed so that XBRL software developers are able to test their software to ensure they are meeting the requirements of the Specification.

XBRL Taxonomies for Financial Reporting

1. An Explanation of XBRL Taxonomies

The next step in the process is to develop the taxonomies for business reports. The current emphasis on taxonomy development is for International Accounting Standards and US GAAP. Once this has been finalised other more specific taxonomies (called extension taxonomies) can be created at country (referred to as jurisdiction) and industry levels.

XBRL taxonomies are standard descriptions for presenting business information and accounting reports. With XBRL, financial information preparers link data elements stored in accounting databases, and use XBRL to code them in a standard manner based on the taxonomy. For example, a digital annual report would include management's discussion and analysis, financial statements, footnote disclosure, and the auditor's opinion, all coded in XBRL (shin, 2003).

2. Development of the IAS/IFRS Taxonomy as an Example

An International Accounting Standards Taxonomy for Primary Financial Statements (IAS-PFS) was developed according to Specification 2.0. The IAS-PFS taxonomy went through a number of releases. The final version was released in November 2002 along with the related taxonomy for explanatory disclosures and accounting policies (IAS-EDAP).

As more was learned about taxonomy development and the interrelationship between a taxonomy and its related instance documents, a decision was made to combine the IAS-PFS and IAS-EDAP taxonomies into a single taxonomy. The first combined taxonomy release was dated 15-07-2003. Details can be found at:

<http://www.xbrl.org/taxonomy/int/fr/ifrs/ci/2003-07-15/>

This taxonomy was based on an updated Specification 2.0a. The release of Specification 2.1 in December 2003 required further changes to be made to the IAS/IFRS taxonomy. A draft version was released in January 2004 based on the IAS Bound Volume for 2003. For this release, the name of the taxonomy file was changed from ifrs-ci (Commerce and Industry) to ifrs-gp (General Purpose). In addition, more updates in taxonomy design were included. A final change was that the files are now hosted on the IASB website. Previous versions were located on the XBRL International web site.

A further acknowledged release (September 2004) and candidate recommendation release (November 2004) have been issued based on the 2004 IAS Bound Volume. These two releases have included error fixes and added the requirements for the banking and similar financial institutions. Full details for the latest version can be found at:

<http://xbrl.iasb.org/int/fr/ifrs/gp/2004-11-15/>

In the same way that XML Standards go through various stages, so do XBRL taxonomies and other XBRL documents. These include:

- Internal working draft(s)
- Public working draft(s)
- Acknowledged
- Approved

A full discussion of each of these stages is beyond the scope of this document. For more information visit:

<http://www.xbrl.org/FRTaxonomies/>

3. Ways to Build an XBRL Taxonomy for Financial Reporting

There are a number of ways an XBRL taxonomy can be developed:

- Collect annual reports of various organisations and create elements based on the common items contained on those reports
- Use the Big 4 Sample Financial Statements and other financial report templates that are available and create elements based on the items listed
- Read the relevant accounting standards and create elements on the basis of what are listed as required disclosures found in reading the standards. Recommended disclosures may also need to be included.

No one method is perfect, so it is necessary to use a combination to ensure that all requirements are included in the taxonomies. More detailed (but not complete) information on how to build a taxonomy from a business report can be found in another working paper by the authors (Richards and Smith, 2004).

4. Skills Required for Taxonomy Creation

To be involved in taxonomy creation at the International Accounting Standards level needs significant knowledge of International Accounting Standards and some knowledge of the current XBRL Specification. XBRL Australia Limited is actively represented on the working group developing the IAS taxonomy.

During the various phases of the development of the IFRS taxonomy, a document was created by XBRL International Domain Working Group (who oversee taxonomy development for XBRL International) to assist taxonomy developers and to try and achieve consistency between the various financial reporting taxonomies being developed in the USA and other countries. This document is called the Financial Reporting Taxonomies Architecture (Hamscher, 2004). It is commonly known as FRTA. It is essential that taxonomy developers are aware of the requirements of this document.

After a taxonomy has been created, it is essential that it be reviewed at a number of levels. Macdonald (2004) has suggested a number of ways a taxonomy could be reviewed:

- A global high-level review to ensure all major sections of the primary financial statements have been included
- A GAAP review involving a two-way check between the accounting standards and the XBRL Specification requirements
- An XBRL review to check that the taxonomy meets the requirements of the XBRL Specification and does not include items that are not in accordance with the XBRL Specification. A further check for Financial Reports (as distinct from business reports) is that the taxonomy meets all of the requirements of FRTA.

5. Extension Taxonomy Creation

Once the IFRS taxonomy is completed, there may be a need for countries that have adopted IFRS as the basis of their accounting standards to create a taxonomy for each country (eg. Australia). Countries that have officially joined XBRL International are referred to as jurisdictions.

For example, even though Australia is to adopt IFRS in 2005, there will still be items that are required for disclosure in Australia that are not required by IFRS. This may be caused by a number of reasons:

- The Australian Accounting Standards Board (AASB) has modified the relevant IAS/IFRS to add additional Australian-specific items
- The AASB has modified relevant IAS/IFRS to restrict options when alternatives are available, or
- There is an AASB standard with no equivalent IAS/IFRS.

This requires Australia to develop its own taxonomy elements for additional items that are not included in the IAS taxonomy, or to exclude items from the IAS taxonomy that are not applicable to Australian reporting requirements. As International harmonisation of accounting standards increases, then the number of elements in the Australian extension taxonomy will reduce.

The next level is to create taxonomies for a specific industry. For example, there may be items that are unique to the financial services sector and so another extension taxonomy needs to be created to meet their specific needs. Alternatively, there may be items in a particular industry that are reported differently for that particular industry grouping.

The next level down is where a particular organisation makes voluntary disclosures that are not in any other taxonomy. It will be necessary for that organisation to create its own extension taxonomy in accordance with the XBRL Specification and FRTA. Another reason an organisation may develop its own extension taxonomy is because it wants to use different labels in its reports from those provided in the more general taxonomy(ies).

Accountants can be involved in creating taxonomies at all levels. They can be involved at the international, national, industry or organisation level. It depends on the skill level and the interest of each individual in the overall development process.

At some stage, many accountants are going to be involved in taxonomy development. At the lowest level, they may need to be involved in developing a small taxonomy for items unique to their organisation. If they do not create the taxonomy themselves, they may work with a consultant who will be able to create the taxonomy for them.

In creating an XBRL instance document, one or more relevant taxonomies are referenced within the document and that document is validated against the taxonomies. This is to check that the instance document only contains elements that are included in the taxonomies on which it is based. The different taxonomies are referenced by what is termed an XML namespace. This ensures that a user is aware of the taxonomy in which the element in the instance document is defined.

XBRL Compliant Accounting Software

As XBRL is implemented, the various software development companies providing accounting software will update their software so that it is XBRL compliant. If you look at the various XBRL web sites you will see that many of the major accounting software developers are members of the XBRL consortium. This list of developers is growing so it is necessary to check the XBRL International website for the latest list of XBRL compatible software.

Accountants can be involved at this level by working with the software solution providers in developing new versions that are XBRL compliant. This will make it much easier to generate the XBRL

instance documents. This will require an understanding of the accounting package and the current details of XBRL.

Third-Party Software Developers

In the interim period (and also in the longer term), third-party software developers are creating various ways to extract data from existing accounting packages and enable users to create XBRL instance documents. Again, as a user of these tools, accountants will be able to work in partnership with software developers to create the sort of interface and features they prefer.

There are a number of international software developers currently involved in this process. For example, FRS (South Africa), Fujitsu (Japan), Hitachi (Japan), Semansys (Holland) and UBmatrix (USA) are examples of companies involved in creating third-party XBRL tools.

As XBRL matures and becomes more part of the normal business reporting process, existing accounting software and other business reporting software will have XBRL features incorporated into future releases. A current example of this is the CaseWare Working Papers software. This now contains an XBRL module that allows the user to add XBRL tags to their existing CaseWare data and create an XBRL instance document. At the time of writing this working paper, this functionality was only available for version 2.0a of the XBRL Specification. For the FDIC project that was developed by a consortium of 5 firms at a cost of \$US39 million (that includes management of the project for 10 years) software has been developed to create taxonomies, create newer/updated taxonomies (versioning of taxonomies), and create business rules to check the data as it is submitted to the FDIC, etc. For more details of this project see:

http://www.ubmatrix.com/solutions/FDIC_Case%20Study.pdf

Creating XSLT Files to Create Various Outputs

One of the many advantages claimed by the developers of XBRL is that you create an instance document once but can easily render it many times in different formats. The diagram provided earlier shows an organisation that needs to make ASIC and ASX filings, create a word document of its statements (possibly for transmission to its

printer for inclusion in its annual report), create an Excel spreadsheet to perform some analysis of its performance, and display its financial statements on the organisation's web site. By using an XBRL instance document and a variety of XML-based XSLT style sheets it is possible to create all of the documents electronically. The unique tagging system used by the XBRL taxonomies allows this to occur.

Under current reporting methods, creating the various documents may be a manual process or a process of cutting and pasting from other documents to produce the necessary variety of documents. Whilst there may be similarities between the documents, there are unique aspects to each document that are not contained in the others.

Creating XSLT style sheets to produce the various documents in some ways mirrors the use of report writers to create non-standard reports from existing accounting systems. The requirement is the same, but the tools will be different and will allow accountants to produce various reports quicker and cheaper.

For example, many accounting firms in Australia use Solution6 as their package for undertaking client accounting. It comes with a number of standard Freeform reports. Provided the Chart of Accounts used meets the necessary rules, the accounting firms can simply use the standard reports provided by Solution6. If additional reports are needed, they create their own Freeform reports by learning the appropriate underlying language. The same applies to many accounting packages that use Crystal Report writer as their reporting language. In the past, accountants will have learned how to use Crystal Reports in order to generate specific reports.

The same needs to be done with XBRL, but accountants will use XML-based tools to complete the task. Tools to assist in this process will be developed as XML becomes more integrated into business systems.

XSLT is just one of several ways that instance documents can be rendered into outputs in different formats. Java, Javascript, C++, Visual Basic or any other programming languages are other options. In the long-term, it is expected that XML tools will be developed to make this process simpler. If there is a market for tools to create the

XSLT style sheets required to make this possible, then software developers will provide the solution.

Generating Instance Documents and Reports

Once all of the above has been completed, it is a simple exercise to create the various reports. You simply to match an XBRL instance document with an XSLT sheet and the required output will be created. XBRL instance documents are used to represent financial data with tags from one or several taxonomies. For example, an instance document could include a company's annual report, the earnings release, and general ledger details.

Instance documents make digital financial information for external or internal reporting and regulatory filing user-friendly because XBRL facilitates data to be read directly by computer programs, manipulated by end-users, and generates output in various forms. Instance documents may also include style sheets, which allow presentation quality documents to be printed from a Web browser or an Adobe Acrobat file (shin, 2003).

An example from Financial Reporting Systems in South Africa is the Virtual Chartered Accountant (VCA) system which was developed for Pension Fund reporting in South Africa. Data is exported from the Pension Fund management software and imported into VCA. Some pre-tagging was completed, but when the data is imported, if a new "account" has been added to the Trial Balance, functionality is provided to allow the account to be associated with a specific XBRL tag from the taxonomy developed for the pension fund industry and regulator. Once the tagging of the data is complete, each pension funds annual report can be output as a Word document, as an XBRL instance document to be emailed to the regulator, or as a web page.

Guidance on the contents and format for instance documents has been developed by the XBRL International Domain Working Group (see Goodhand and Hamscher, 2004). This document has been developed to enhance consistency and comparability between XBRL instance documents.

XBRL Instance Document Recipients

The benefits for XBRL are not only for preparers of financial reports, but also the receivers of those reports. The initial catch cry for XBRL was “better, cheaper, faster”. All of these apply to external parties who are interested in the financial performance of your firm or your clients’ firms.

For example, stockbrokers will be able to import the XBRL instance documents directly into XML compatible spreadsheets rather than having to re-key the data into their spreadsheets. Microsoft developed an Excel add-in based on Specification 2.0a as a proof of concept that such functionality could be developed. Edgar Online also have a sample system that can be downloaded and data for a selected set of companies can be accessed via Excel and various analyses can be performed.

The Australian Prudential Regulatory Authority (APRA) was the first organisation in the world to incorporate XBRL technologies into its systems. Clients of APRA now enter the necessary data into APRA provided software (Direct2APRA) rather than complete a paper-based form. The output from the program can then be emailed directly to APRA. Once APRA receive the data, they know that it has already been validated during data input. The time to aggregate the data that it transfers to the Bureau of Statistics and the Reserve Bank has been significantly reduced. This means APRA staff can now spend more time on their regulatory role rather than simply acting as a data entry and aggregator organisation.

In the UK, it was announced in February 2002 that from 2004-2005 the entire tax filing system, including the supporting statutory accounts, can be submitted in XBRL format.

Many other pilot projects and full projects have been undertaken around the world in the last few years. XBRL International has recently developed an XBRL Showcase for their website (<http://www.xbrl.org/showcase/>) and details of various projects are listed there. Some of the 25 projects from 9 countries include:

- The Federal Financial Institutions Examination Council (FFIEC) is adopting XBRL for call reporting by US banks.

- The UK Financial Services Authority (FSA), which is responsible for regulating all financial services companies in the country, is adopting XBRL for all regulatory reporting.

- A KOSDAQ Stock Market pilot project has led to the creation of an innovative web service through which investors and others can analyse the performance of companies listed on KOSDAQ.

- New Zealand Stock Exchange Project First Step

A recently publicly announced project was the Korean Stock Exchange (see <http://www.kse.or.kr> for more details on KIND). There is an English version of the site available.

There are opportunities for accountants who are familiar with XBRL to be involved as consultants to various organisations that receive financial data to assist in the implementation of XBRL in their client organisations.

Future Developments of XBRL

As was shown earlier, the specification and taxonomies that have been developed or are under development relate to financial reporting. The biggest benefits of XBRL will occur as we move further back in the financial information supply chain. The taxonomy for XBRL General Ledger Version 1.0 was released as a draft in April 2002. The most recent release occurred in September 2003 when Version 1.1 was released.

The release of the core components is only the start. Accounting software developers need to begin the process of modifying their software to make them compatible with the XBRL GL specification so that accountants in particular can achieve the benefits of this new technology. They will then be able to automate many of the processes that are currently completed manually. This is particularly true where an organisation consists of a group of organisations that need to prepare consolidated accounts. XBRL and XBRL GL in particular will allow this process to become more automated. For an example of XBRL GL in action see Haseqawa, Sakata, Sambuichi, and Hannon (2004).

As XML develops, XBRL and its derivatives will also develop to include new XML recommendations. We have already seen this when

you compare Specification 1.0, Specification 2.0 and Specification 2.1. Many of the new features introduced in Specification 2.0 (XLink, XML Schema, XPath for example) are XML recommendations that were finalised between the two releases of the XBRL specification.

Current discussions on the specification involve how to include formulas. One option is to add to the specification the type of formulas that can be permitted on the data. Another option is to refer to another XML recommendation regarding calculations – MathML.

Analysts and investors need accurate and dependable financial information delivered swiftly to help them make informed financial decisions. XBRL meets these needs and is particularly important in delivering financial information via the Internet. XBRL leverages efficiencies of the Internet as today's primary source of financial information by making Web browser searches more accurate and relevant for all users of financial information. Soon every public company will have a Web site where they will make their financial information available to interested parties.

In Australia, the ASX is currently investigating the possibilities of accepting company reports in XBRL format. Following the announcement by the UK IRS, it can be anticipated that the ATO will at some stage follow the same path.

XBRL International is also working in conjunction with other business related XML developments. Probably the most closely linked is ebXML, which is being developed by another independent group. ebXML is being developed for the electronic business market to record all the various types of transactions that occur within an organisation and between organisations. In the long-term the two technologies will merge.

XBRL International is liaising with a number of these groups to ensure that information and developments are not being duplicated. For example, XBRL is very much aware of what is happening with ebXML (electronic business XML) and are making sure that the two technologies co-operate rather than compete with one another. Another project is being undertaken on Balanced Scorecard reporting. This group is also regularly monitored by XBRL members.

Key Web Sites

It is always dangerous to list web sites in a published document. By the time the document is published there is a very good chance that at least one, and probably more, addresses have changed.

XBRL.org	http://www.xbrl.org
W3C.org	http://www.w3c.org
XBRL Australia	http://www.xbrl.org.au
XBRL Education	http://web.bryant.edu/~xbrl/index.html
XML.org	http://www.xml.org
IASB	http://www.iasb.org/xbrl

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