

Introducing XBRL for Financial Reporting & Beyond A Whitepaper from Fujitsu

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Abstract

This whitepaper provides an overview of the reasons why eXtensible Business Reporting Language (XBRL) is fast becoming a key technology in business, particularly in financial reporting.

For the uninitiated, this paper also outlines the role of XBRL in financial reporting and gives a brief summary of some of the key features of XBRL and how companies' financial reporting practices can benefit from using it. Guidelines are also provided on how XBRL can be integrated into the business and IT environments including examples of how non-XBRL financial data can be converted into XBRL.

Finally, the paper gives a brief outline of Fujitsu's XBRL capabilities, particularly focusing on its Interstage XWand product.

XBRL - What is it and What is its Role in Financial Reporting?

In technical terms, eXtensible Business Reporting Language (XBRL) is a form of eXtensible Markup Language (XML) which is used for the markup of financial and business reports.

In less technical terms, XBRL is a mechanism for allowing business reports to be marked or “tagged” in such a way that the meaning of each fact in the report becomes understandable and standardized. It allows regulators to stipulate what financial facts should be contained in a report, how these facts should be derived, how the facts are related, and what the facts are named, which is especially useful for multi-language reports.

XBRL was initially proposed in 1999. The XBRL Consortium¹ was later set up to manage the development and enhancement of the XBRL specification. The current version, XBRL 2.1, was released in December 2003² and has subsequently been updated to include support for concepts such as XBRL Dimensions³.

The two key concepts in XBRL are:

Taxonomies

Taxonomies describe the rules and format in which information is required. Taxonomies are created by regulators such as central banks, tax offices, and stock exchanges that require this information. Providers of financial information use the taxonomy to submit

the corresponding facts for their respective companies.

Instance Documents

These are the reports that contain the actual financial facts itself. They are prepared by report submitters such as listed companies and correspond to current financial documents such as Balance Sheets and Income Statements.

Taxonomies in Detail

An XBRL taxonomy is a set of rules that cover what data must be included in a report, what attributes each data item must conform with, and what rules should be used to calculate each value. It also allows the creator of an XBRL taxonomy to specify relationships between various items.

To define these rules, XBRL makes extensive use of XML features such as Schemas, Tuples, and Linkbases⁴.

Schemas

The basic definitions of the financial facts are contained in XML schemas. The definition of a fact requires the specification of whether the type of data (e.g., string, date, monetary) is mandatory or optional, and whether, by default, it is a credit or debit item, if it is a monetary item. To specify the type of data, specially defined XBRL types are used such as `xbrli:stringItem`, `xbrli:monetaryItem`, `xbrli:shareItem`, and `xbrli:dateTimeItem`.

For each fact, it is also necessary to specify an XBRL attribute referred to as the periodType. This will be the “duration” for which the fact is true - e.g., Gross Income for Current Year. Otherwise it will be defined as an “instant” to highlight that it is true on a specific date - e.g., Stock on Hand.

Tuples

Most XBRL facts are simple, single value facts that are referred to as elements - e.g., Gross Profit. XBRL also supports the concept of tuples which represents a logical group of facts that must be treated as a single fact. It can contain a number of elements, other tuples or a combination of both elements and tuples. An example of a Tuple is shown below (Figure 1).

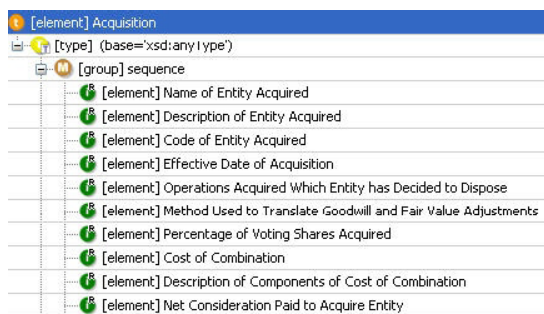


Figure 1. Tuple from the 2005 IFRS Taxonomy

In this example, we have a tuple called Acquisition which consists of a number of individual elements such as Name of Entity Acquired, Description of Entity Acquired, and Effective Date of Acquisition, as examples. Use of a tuple not only allows the grouping of related items but it also assists with multiple occurrences of the same financial fact. For instance, a company may have made multiple Acquisitions.

Linkbases

Relationships and additional attributes are expressed using additional files referred to as linkbases. Linkbases are based on the XLink standard.

Presentation Linkbase

The presentation linkbase is used to define how elements should be grouped and ordered when they are presented. Usually these correspond to an existing financial document such as a Balance Sheet or an Income Statement. It should be noted that the presentation does not specify formatting criteria such as the position on a page or the font type or size. It only specifies the hierarchical and positional relationships.

For example, it may show that Total Assets consists of Current Assets and Non Current Assets. In turn, Current Assets consist of Inventory, Hedging Assets, Cash and Cash Equivalents.

Calculation Linkbase

The calculation linkbase allows for the definition of simple summations (additions and subtractions). For example: Net Profit = Gross Profit – Expenses, Total Income = Salary + Interest Earned. This lets report-receiving bodies define a uniform mechanism for provider companies to do rollups of financial facts in their reports.

Label Linkbase

The label linkbase allows elements to be assigned meaningful names. Included in the definition of the label is

the language in which it is written. This feature of XBRL is particularly useful as it allows people to read XBRL instance documents in the language of their choice, provided labels in that language have been included in the label linkbase.

Reference Linkbase

Preparing financial reports require that the person preparing the report refers to authoritative literature. This could be the local Generally Accepted Accounting Principles (GAAP) or to a localization of the International Financial Reporting Standards (IFRS). The reference linkbase allows for a regulator to specify which rules should be used to calculate, and report on, each individual financial fact in a report.

Instance Documents in Detail

Instance documents are prepared by the organizations reporting to the regulator. They must conform to the rules specified in the XBRL taxonomy and so they normally require the use of XBRL software for their creation. An instance document contains the actual financial facts (e.g., the Gross Profit, Company Address) for the period being reported on.

In order to determine the relevancy of the actual financial data, it is necessary to define at least one context for each instance document. A context defines the dates for which the financial facts are true. As most financial documents contain data in both periodTypes (duration and instant - see above for definitions), most instance documents

contain at least two contexts.

A duration context is defined using two dates - the start date and the end date - which correspond to the period for which the financial fact is true. An instant context is defined using a single date - the date that the fact was true which is typically the end date for the financial period. Elements and tuples within the instance document are assigned to the contexts depending upon their periodType.

It should be noted that it is common practice in financial documents, and particularly with annual reports, to show more than one financial report within the same document. XBRL fully supports this by allowing multiple contexts of the same type within one instance document. For example, one instance document could contain a duration context for the current year as well as the previous year.

Interstage XWand - Fujitsu's XBRL Product Offering

Fujitsu is one of the select few companies to provide XBRL-based products. The Interstage XWand family of products provides software that XBRL-enables regulators, aggregators, financial printers as well as enterprises. Interstage XWand provides an API as well as XBRL processing tools to support all of the models described above for enabling the use of XBRL. Fujitsu also has extensive experience with designing and implementing XBRL-based solutions and so is well placed to provide XBRL services and

consultancy. The following section outlines some of Fujitsu's XBRL capabilities.

XBRL Software

In terms of XBRL-centered software products, Fujitsu currently provides a family of three XBRL products -

- Interstage XWand Personal Runtime
- Interstage XWand Developer
- Interstage XWand Server Runtime

Interstage XWand Personal Runtime is designed to assist users with creating, modifying, and testing taxonomies and instances. It provides a Taxonomy Editor, an Instance Creator, and a Taxonomy Difference tool.

This product is designed for people or organizations responsible for the creation and extension of XBRL taxonomies. Typically, it is used by regulators to create the taxonomies that define the data to be provided by regulated organizations.

The Taxonomy Editor supports the creation and editing of taxonomies compliant with the XBRL 2.1 specification. It graphically represents taxonomy structures and provides functions to separately manage the five different linkbases (presentation, calculation, definition, label, and reference). It supports dimensional taxonomies and is useful not only as an editor but also as a taxonomy browser. It also helps validate XBRL conformance and alignment with best practices such as FRTA.

The following screen-shot (Figure 2) shows the Taxonomy Editor displaying the latest IFRS taxonomy in the Presentation Linkbase view.

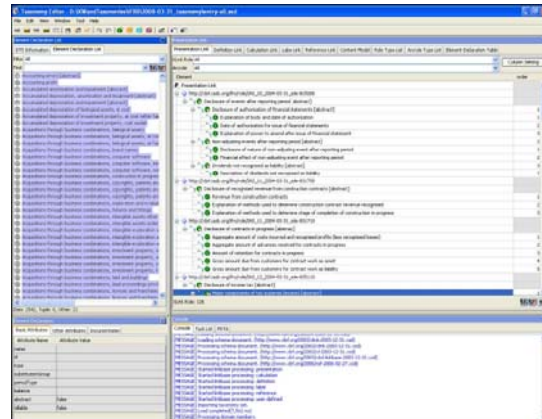


Figure 2. IFRS Taxonomy in Presentation Linkbase View

The Instance Creator allows users to test the taxonomies created using the Taxonomy Editor by creating and viewing XBRL instance documents. Data can be easily inserted into a new instance document. Like the Taxonomy Editor, it uses an intuitive user interface and fully supports the XBRL Dimensional Specification. It provides very powerful functions to validate the conformance of XBRL instances with best practices such as FRIS.

The following screen-shot (Figure 3) shows an example of an instance

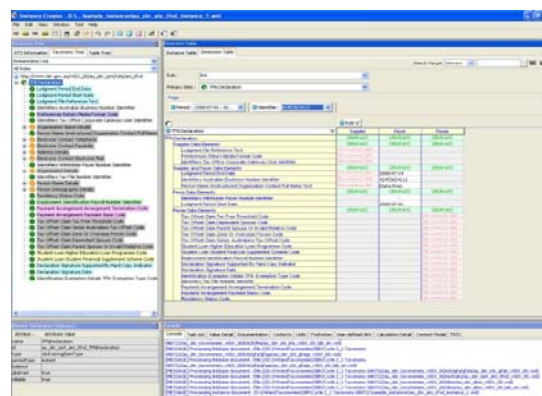


Figure 3. Instance Document in Australian SBR Project

document created for the Australian SBR project's draft Tax File Number (TFN) taxonomy.

Interstage XWand provides support for the XBRL Formula Specification⁶, a standard extension to the XBRL language. Interstage XWand's Formula Editor, allows the creation of Business Rules for performing automated tests on the consistency, and quality of the data entered.

This is an excellent tool to allow companies and regulators to detect and minimize errors, reducing delays, rework, and retransmissions, and smoothing and accelerating the flow of business reporting information.

A general use-case for an XBRL Formula specification is the externalization and publication of a set of business rules that will be applied by a consuming application, such as a bank evaluating loan applications or checking loan covenants, or a tax authority accepting electronic tax filings.

The Formula Editor (Figure 4) allows the creation of these formulas and assertions by dragging-and-dropping XBRL items, which become variables and filters, into the formula editor. For example, values could be checked for certain tolerance of variation. Once the formulas are defined, they can be applied automatically.

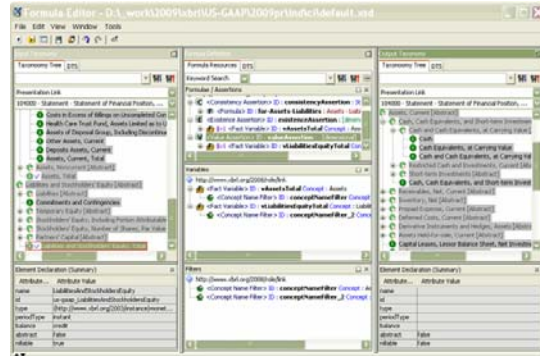


Figure 4. Formula Editor

Realizing that accountants commonly do financial consolidation using MS-Excel spreadsheets before creating the company's Financial Reports, Interstage XWand includes an important set of new tools to facilitate the creation of XBRL reports directly from data contained in Excel spreadsheets, thus eliminating the error-prone need for manual reentry. The Sheet Mapping Designer, Manifest Editor, and Sheet Instance Creator tools work together to automate the mapping of spreadsheet data into XBRL instance documents.

The Sheet Mapping Designer (Figure 5) creates association maps between Excel data and taxonomy elements, through a simple drag-and-drop action where taxonomy elements are matched to spreadsheet cells. The Manifest Editor identifies the files to be used, and the Sheet Instance Creator automates the mapping process, generating an XBRL instance document.

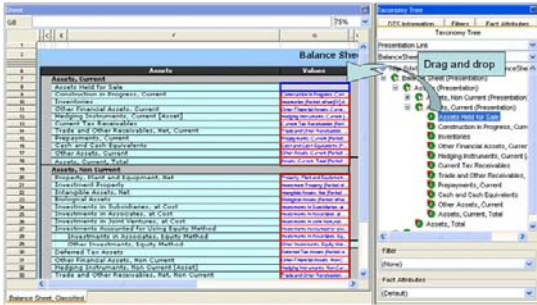


Figure 5. Sheet Mapping Designer

Interstage XWand also supports the use of XBRL Dimensions², and facilitates the display and manipulation of dimensional data. This feature is useful for Financial Analysts trying to research a company's financial data from different viewpoints. The multi-dimensional hyper-cube defined by the XBRL data can be viewed in a two-dimensional arrangement which may be manipulated to offer several views.

The Data Mapping function of Interstage XWand supports the automated extraction of data from XBRL instance documents as CSV data, which can then be easily imported into existing databases. This function allows users to nominate which data should be extracted and also supports the use of the formula linkbase to modify and combine data during the extraction process. A full set of modeling tools is provided to select which data should be extracted and what (if any) operations should be performed on this data, prior to creation of the CSV file. For example, a number of elements from the instance document can be added together to provide a single total in the output document.

In addition to the tools mentioned above,

Interstage XWand Developer provides a powerful Application Programming Interface (API) which abstracts the XBRL interface and greatly simplifies the creation of XBRL applications. Instead of worrying about the complexities of XML, schemas, and XLink processing, developers can focus on the business logic leading to dramatically reduced development times. Interstage XWand Developer allows software developers to create applications for all aspects of the XBRL lifecycle such as the automatic creation of XBRL report instances and the analysis of XBRL data.

The Interstage XWand Developer API supports both Java and .NET (both COM and C# support) to provide a full range of development options.

Interstage XWand Server Runtime provides the run-time environment to deploy applications developed using Interstage XWand Developer. It contains a powerful XBRL Processor which allows software applications to access all features and functions of XBRL data. Interstage XWand Server can either be embedded in solutions (for OEM software) or provide multi-user access to XBRL data via server based applications.

It is currently available for both the Windows and Solaris operating systems.

XBRL Consulting and Services

Fujitsu has been assisting its customers in the introduction of XBRL from its inception. This has enabled it to develop

a wide range of skills that it can offer to current and prospective customers.

Some examples of these skills include:

- Design of XBRL taxonomy architectures
- Creation of XBRL taxonomies, in conjunction with financial consultants
- Design or re-design of the IT infrastructure to suit the introduction of XBRL
- Software development - e.g., applications to extract XBRL data from legacy applications, transformation of data to/from XBRL

XBRL Consortium Leadership

Fujitsu provides technology and thought leadership at the consortium. Fujitsu is championing the development and adoption of the XBRL standard worldwide. With Interstage XWand users spread over twenty countries, Fujitsu's XBRL team is in tune with global XBRL developments.

Summary

XBRL is fast becoming a key technology in streamlining and enhancing business and financial reporting. It is assisting with increased financial transparency as well as reducing the costs of reporting.

Over the next few years, the uptake of XBRL will increase as more businesses start to see the benefits that current XBRL implementers are achieving from their investment in this technology.

However, it is also important to remember that XBRL itself is just part of the solution to the current challenges in financial reporting. Achieving the full benefits of financial reporting reform will also require improvements in the processes around reporting as well as the implementation of emerging procedures and standards (such as IFRS and BASEL II).

References

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3. <http://www.xbrl.org/Specification/XDT-REC-2006-09-18.rtf>
4. <http://www.w3c.org> for more details on these technologies
5. <http://www.fujitsu.com/global/services/software/interstage/xwand/>
6. <http://www.xbrl.org/Specification/formula/CR-2008-12-31/formula-CR-2008-12-31.html>

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