WHITE PAPER
FUJITSU Software Interstage XWand V13

Fujitsu Software Interstage XWand is a comprehensive suite of products that helps companies and regulatory bodies create, test, report, collect and analyze financial data in eXtensible Business Reporting Language (XBRL), a standard format that aids the disclosure of financial information quickly and accurately.

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INTRODUCTION

TRENDS, OPPORTUNTIES, CHALLENGES

The eXtensible Business Reporting Language (XBRL) is one of a family of XML languages which has become the standard means of exchanging financial information between corporations, regulatory organizations, and financial analysts.

XBRL is been developed by XBRL International Inc., an international non-profit consortium of 500+ major companies, international financial standards organizations, and government agencies. It is an open standard, free of license fees, freely available, and its adoption is growing rapidly around the world:

- In the United States, the Securities and Exchange Commission (SEC), since December 2008, has mandated the use of XBRL for listed companies reporting their financial reports.
- In the United Kingdom HM Revenue and Custom (HMRC) has mandated the use of XBRL for filing of UK company accounts and Corporation Tax Returns since 2011.
- In Japan, the Tokyo Stock Exchange used XBRL in its Timely Disclosure network (TDnet) to distribute financial information for 3000 registered companies toall press organizations simultaneously.
- The Committee of European Banking Supervisors (CEBS) has adopted XBRL for Banking Solvency Reporting (COREP) and Financial Reporting (FINREP)
- Holland and Australia have adopted XBRL for use within their Standard Business Reporting Programmes (SBR) for business to government reporting.
- Many other countries such as Korea, Chile and Spain have ongoing national projects already making use of XBRL technology.
- Other countries in Europe, Asia, and Latin America are preparing individually for worldwide XBRL implementation.

The adoption of XBRL assists with the automation of the reporting process for information preparers, regulators and information consumers. This automation reduces, or even removes, manual processes with consequent gains in terms of efficiency and accuracy. XBRL provides a clear (but extensible) format for the required data (the taxonomy) which leads to greater transparency in reporting and ease of reuse of data.

XBRL poses several challenges: For corporations, there is a need to adopt the technology internally, and to be able to produce external financial reports in a timely manner, complying with national regulatory mandates. As governments start imposing the use of XBRL, corporations rush to comply.

For regulatory organizations, the challenge is to be able to process the XBRL submissions in an efficient manner, such that there is minimal delay in its approval. The XBRL reports of listed companies become public information, and they can be processed further by third-party organizations, including the media, analysts, and investors.

XBRL IN BRIEF

XBRL is a mechanism that allows individual business concepts to be “tagged” with a well defined and commonly accepted name for that business concept. Having common naming for such concepts enables computer software to automatically process the concepts. This eliminates laborious and costly manual processes of re-entry and comparison of data. Computers treat XBRL data “intelligently” because it conveys information about its meaning, data types, presentation structure, calculation order, etc. Computers can select, analyze, and store XBRL data speedily, reducing the chance of error. They can automatically check the data for consistency and accuracy as well as fraud.

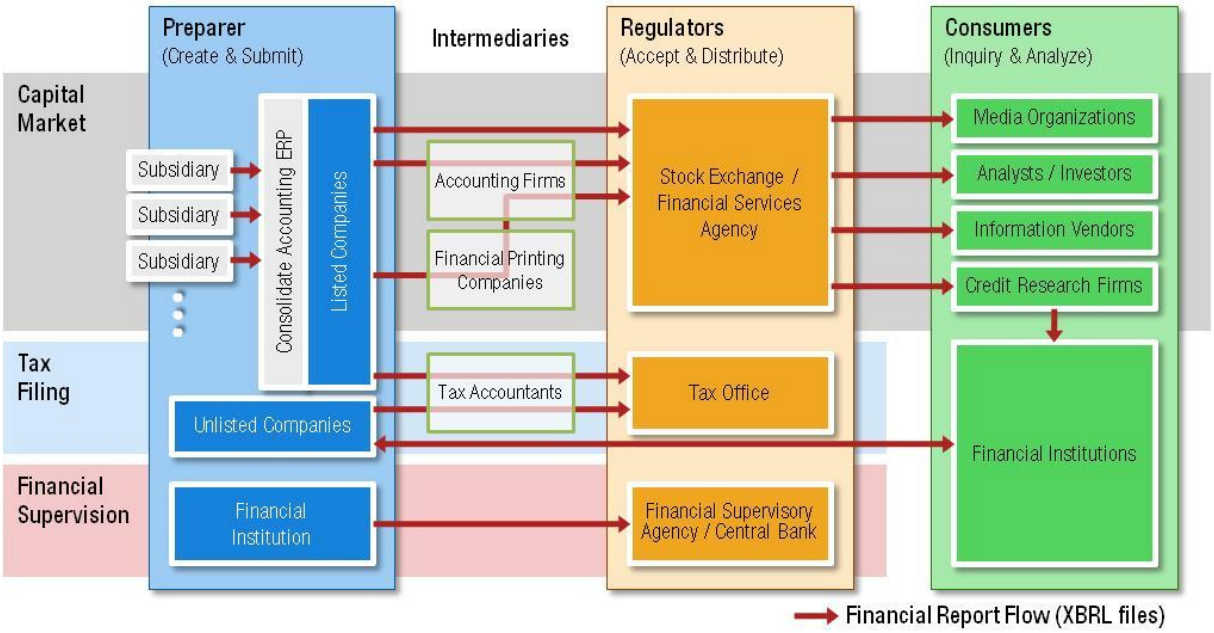
XBRL is normally organized into two groups of files:

- Taxonomies:
  In XBRL taxonomies define the business facts which need to be reported as well as their attributes and the relationships between these facts. The taxonomy consists of one (or more) schema files together with related “linkbase” files. The schema describes the facts which are required and their attributes (e.g. whether the fact being reported is a numeric, monetary or string data type). Linkbases allow the relationships between facts to be defined such as the suggested order for presentation of facts (presentation linkbase) and to group related facts (definition linkbase). Linkbases can also be used to provide multiple labels for a fact as well as point to the authoritative literature which outlines how the fact should be defined (e.g. relevant accounting standards). Taxonomies are normally created by regulatory organizations but can also be extended by the reporting party, to better suit the report to their individual needs.
- Instance documents:
  These contain the actual business facts for financial reports, including, when the information is valid (contexts), and for what currencies (units). Reporting corporations submit Instance documents to the regulatory organizations. Analysts and the media can use Instance documents to compare corporation performances within each of their industry categories.

While XBRL provides an extremely powerful technology for business reporting, the underlying taxonomy and instance documents can be complex to read, even for technically savvy professionals, without the use of XBRL tools such as Interstage XWand. For business users it becomes almost impossible.

To address this usability challenge, Interstage XWand provides a comprehensive suite of powerful and easy-to-use tools, including the Taxonomy Editor (to create and maintain taxonomies), Instance Editor (to create and maintain instance documents), XWand Viewer (to review instance documents before filing) and the Instance Dashboard (to compare multiple instance documents at the same time). XWand also provides a rich API and robust deployment platform which enables developers and IT professionals to fully integrate XBRL into their solutions and existing IT infrastructure.

XBRL IN PRACTICE
THE FINANCIAL REPORTING SUPPLY CHAIN



Financial Reporting Supply Chain

FINANCIAL SUPPLY CHAIN PLAYERS

There are three groups involved in any form of financial reporting and XBRL is no exception: Preparers, Regulators and Consumers.

Preparers are organizations responsible for providing the information. The Preparers are responsible for the accuracy of the data but usually require guidance on what facts should be reported. This is the role of the XBRL taxonomy which is normally provided by the organization to which the Preparer is reporting. In some cases this taxonomy may be extended by the Preparer to better suit its particular requirements. If the Preparers are a set of subsidiary companies, the parent company is required to report on consolidated information.

Regulators represent the group to which the Preparers submit their reports. Regulators could be government regulatory bodies such as Financial Service Agencies, Tax Offices or Central Banks. In XBRL based financial reporting, Regulators provide two roles. The first is the identification of reporting requirements followed by the creation and distribution of the XBRL taxonomy. The second role is the receipt and initial use of the reported data.

Consumers represent the groups which use the information - investors and financial analysts. Information reporting or collection for its own sake provides little real benefit. It is only when that information is analyzed and used for specific purposes that real benefit is accrued. Banking risk analysts can examine liquidity reports from banking organizations to ensure that risks are minimized - both for the banks and the depositors. Investors can make informed investment decisions based upon individual XBRL reports provided by stock exchanges, as well as comparing these to consolidated data created by analyzing multiple XBRL reports from similar investment opportunities.

Each of these groups does not just have a different role to play in the XBRL reporting process but is also involved in different steps of the evolution of a full XBRL reporting regime. They also have differing requirements in adoption of XBRL technology.

PHASES IN XBRL ADOPTION

The first step in XBRL adoption is creation of the taxonomy. This is usually a consultative phase with the Regulators taking the lead and being ultimately responsible for the taxonomy. Sometimes the taxonomy is based upon an existing, more general purpose, taxonomy such as the IFRS or the local GAAP taxonomy (e.g. US-GAAP). The Regulators will consult with stakeholders and derive a taxonomy specific to the required reporting purpose, e.g. COREP/FINREP for European Banking. Alternatively the Regulators may work together with the local XBRL consortium to create industry entry point taxonomies based on the local GAAP taxonomy, as is the case for the SEC in the U.S.

The next step in adoption is when the Preparers start to use the XBRL taxonomy to meet their reporting requirements. This often starts with a voluntary phase during which Preparers can also continue to provide reports in a more traditional form (e.g. PDF). In the longer term the submission in XBRL format may become mandatory. As broader adoption of XBRL can result lowering the cost of submission, Preparers may select this option without the need for any mandate.

Once sufficient Preparers submit in XBRL format, the Consumers will adopt XBRL for their analysis as it allows them to more easily compare data from a single Preparer over multiple time periods, as well as between multiple Preparers (to analyze trends, anomalies etc.).

INTERSTAGE XWAND
FUJITSU'S XBRL SOLUTION PLATFORM

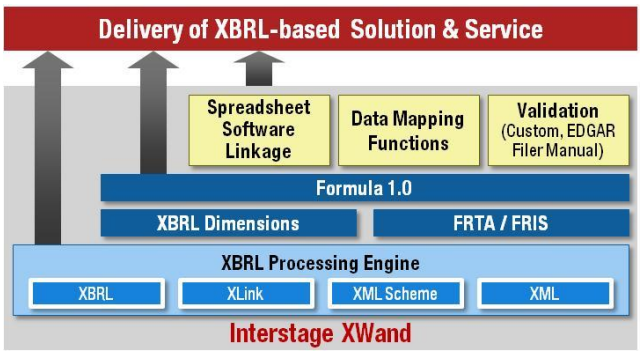
INTERSTAGE XWAND

Interstage XWand is Fujitsu's complete solution for the enablement of XBRL throughout the financial reporting supply chain. Interstage XWand satisfies the needs of regulatory organizations, software solution providers, filers and service providers, regulated companies and others by providing the tools and functions to assist in the adoption of XBRL. In addition to allowing organizations to XBRL enable their internal systems, it also allows solution providers to XBRL enable their financial reporting solutions.

Interstage XWand offers a comprehensive suite of integrated products with rich functionality that deliver on the needs of the various players in the financial supply chain.

INTERSTAGE XWAND PROCESSING ENGINE

The Interstage XWand processing engine is the heart and mind of Interstage XWand. The processing engine embodies the latest XBRL specification and forms the basis of the Interstage XWand offering. It provides the complete representation of all the various XBRL artifacts, including taxonomies, instances, facts, contexts, units, footnotes, dimensions, etc. It provides functions to construct and manipulate these artifacts in accordance with the rules of the XBRL specification. It forms the common building block upon which all of the tools within Interstage XWand are built. For regulators and solution providers, the processing engine forms the foundation for building the systems that will process XBRL documents whether for creation, validation and analysis - including slicing and dicing - of reported data.



To meet the varied environments within which these solutions may be developed, Interstage XWand offers the ideal set of components to facilitate the creation of customized XBRL applications through its Java and .NET Application Programming Interfaces (API). The API leverages the wide functionality provided by the Interstage XWand processing engine. The full power of this API is demonstrated by the variety of functions that are provided through the Interstage XWand tools (described below) that are all built using this API.

Software applications can rapidly move from being simply XBRL-aware, to becoming fully XBRL-powered using this API. As XBRL is manipulated natively, it will easily fit into software designs that make data more transparent, hardware-independent, and application- agnostic. This will boost the level of automation throughout the entire financial reporting cycle.

INTERSTAGE XWAND V13

COMPREHENSIVE AND ROBUST PLATFORM FOR USE THROUGHOUT THE FINANCIAL SUPPLY CHAIN

Interstage XWand V13 builds on the capabilities of previous versions by providing more power to all users in the Financial Reporting Supply Chain - regulators, solution and service providers, enterprises providing the information, as well as analysts, auditors, investors and other consumers of that information.

Interstage XWand already provides complete support for the creation, extension, validation and conversion of XBRL taxonomies and instance documents. This capability is provided in standalone tools and can also be added to the user's own solutions.

In version 13, Interstage XWand brings additional power for validating and updating, as well as building both web-based and standalone applications. These new features include:

- Table Linkbase Specification
  By defining table structures according to the Table Linkbase specification, users can convert XBRL data into table format without any additional programming, thereby simplifying the application development process. In addition, to create XBRL input forms in Microsoft Excel format, the new software streamlines this process and enables input forms to be generated automatically.

- Performance Improvement for large-scale XBRL data
  Through further optimization of the engine, this version delivers a enables a 60% reduction, compared to previous Fujitsu products, in memory consumption when reading needed to read large-scale XBRL data and perform validating them using Formula specification validation. Through the use of a proprietary acceleration algorithm and the support of parallel processing, the software is able to perform validation processing at speeds up to 300x that of previous Fujitsu products.

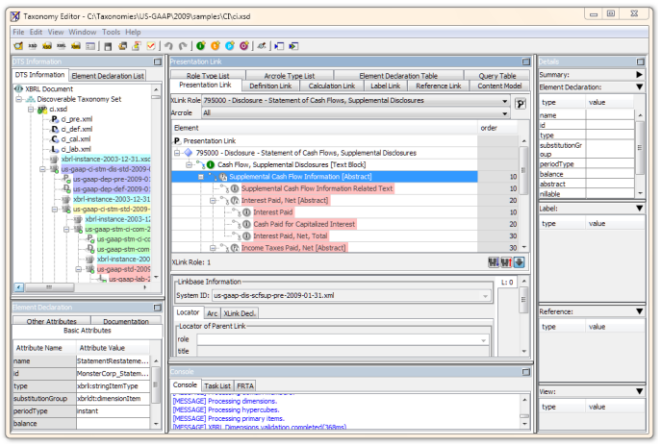
- Global Filing Manual
  Over 200 rules are outlined in the Global Filling Manual, and Interstage XWand V13 provides automatic validation functionality for about 120 of these rules

With support for all of the XBRL artifacts, including taxonomies, instances, dimensions as well as formulae, the Interstage XWand API provides access to the complete power of XBRL and facilitates the creation, traversal, and validation of taxonomies and instances through programmatic means, enabling creation of full-featured, industrial strength XBRL applications.

TAXONOMY EDITOR

As a first step in the XBRL adoption cycle, the creation of XBRL taxonomies is by far the most critical task to achieve success. Either by regulators or by filing companies, the creation of the taxonomy and its extensions needs the use of a taxonomy creation tool. The Taxonomy Editor in Interstage XWand provides the full range of functions required to create, extend and validate XBRL 2.1 compliant taxonomies. Interstage XWand has been used by various national projects to build their taxonomies.

Interstage XWand's Taxonomy Editor supports the full range of tasks associated with the creation and editing of taxonomies. It represents the taxonomy structure graphically 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 to validate XBRL conformance and alignment with best practices, such as FRTA.



Taxonomy Editor

Working with the Taxonomy Editor is very easy. Users can create XBRL element definitions, items or tuples, specify their intended data types (monetary or string, etc) and periodType (for duration or instant). The Content Model view allows the composition of complex data types, and facilitates the definition of constraints, (referred to as facets), such as enumerations, regular expression patterns, maximum length, etc.

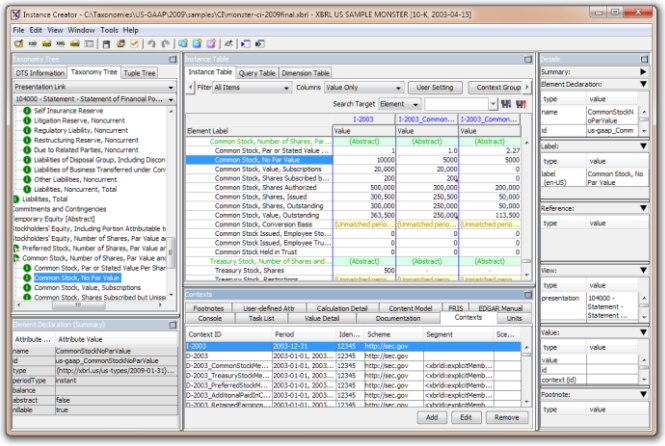
Creating and maintaining linkbase files is equally easy. By just dragging and dropping elements in a hierarchical tree-view, you can easily define presentation and calculation linkbases. Dimensionsional relationships can be defined using built in functions to create hypercubes, dimensions and possible domain values.

Once the taxonomy is completed (or modified) it can be validated for conformance to the XBRL 2.1 standard (including dimensional validation) as well as best practices - FRTA. Finally an HTML report can also be created to display the taxonomies attributes and structure.

INSTANCE CREATOR

As regulated corporations, both private and public, intend to comply with the national regulations in a timely manner, they require software tools to create XBRL Instance document representations of their external financial reports. To accomplish this task Interstage XWand offers two sets of tools: Instance Creator and the Excel to XBRL Conversion Tool:

Interstage XWand's Instance Creator is a graphical editor that permits the insertion of data into an XBRL instance document. Like the Taxonomy Editor, it uses an intuitive user interface and fully supports the XBRL 2.1 specification as well as the Dimensions 1.0 specification. It provides very powerful functions to validate the conformance of XBRL instances to the XBRL specification including calculations and dimensions.



Instance Creator

With the Instance Creator users start by specifying the taxonomy from which they want to create an instance. Instance Creator then displays an entry form, based on the reports defined in the taxonomy. After the relevant contexts, including dimensional contexts, and units have been created, values can be assigned to the facts within the relevant contexts. Instance Creator provides powerful filter capabilities to sift through and manage any number of contexts within the instance document. The result is saved as an XBRL instance document. The Instance Creator also facilitates the creation of HTML reports of XBRL Instance documents, convenient for user-friendly visualization or for use in the review process without the use of XBRL tools.

The Instance Creator provides a Dimensional Table view for when data is being entered into a dimensional taxonomy. It has a specialized Dimension Context wizard, which facilitates the automatic creation of multiple contexts, resulting from the cross-product of dimensional domains. Additionally, the dimensional table view allows the interactive manipulation and viewing of dimensional data, by dragging domain groups from columns to rows, in and out of their hierarchical groupings. This functionality is convenient for business intelligence and to provide a better understanding of the data at hand.

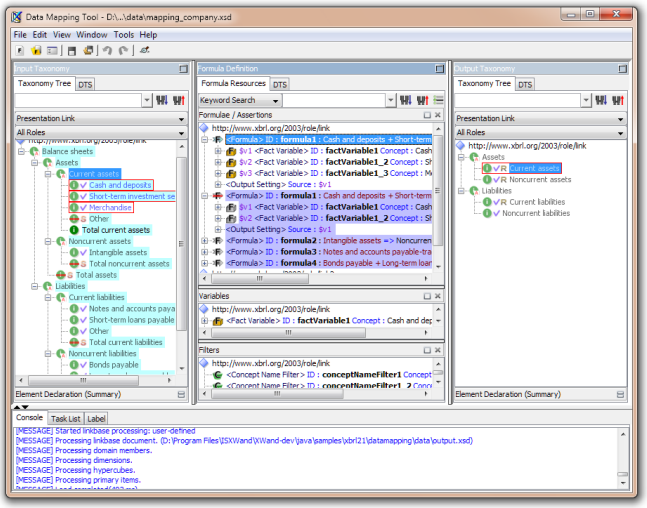
EXCEL TO XBRL CONVERSION TOOL

For those corporations with external reports in Microsoft Excel spreadsheets, Interstage XWand includes a specialized tool that facilitates the "mapping" of spreadsheet data into the corresponding XBRL taxonomy elements. Once mapped, it will automate the conversion in subsequent uses.

This tool is particularly useful for the "mapping" process, which occurs early in a corporation's adoption of XBRL technology. The tool works by matching taxonomy elements to cells in the spreadsheet, in a drag and drop fashion. After identifying the elements in the external financial reports, and matching them against the corresponding elements in the required taxonomy, the tool facilitates the automated extraction and conversion of the facts into the desired XBRL instance. Once the mapping process is completed, it can be applied any number of subsequent matching spreadsheets to automatically create XBRL instance documents.

DATA MAPPING

Interstage XWand includes an additional tool to convert XBRL instance documents into CSV files. This function is convenient for data analysts, to facilitate transferring XBRL data into other systems. The external systems can be databases, business intelligence tools, graphing and charting tools, etc.

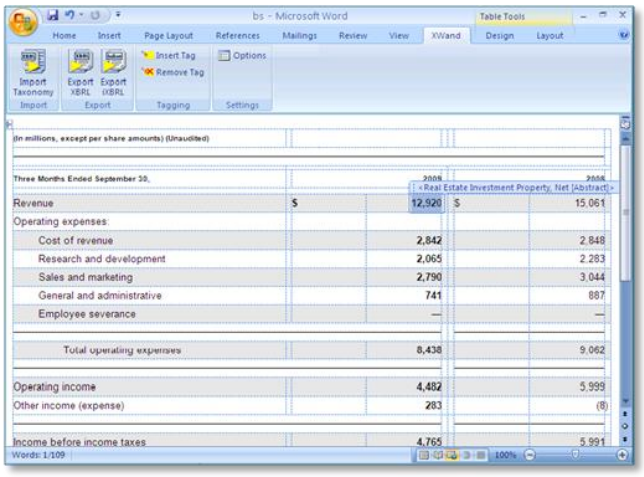


Data-Mapping Tool

The data mapping tool allows users to define which financial facts should be extracted and any rules which should be applied to them, including adding multiple extracted fields to create new facts and applying formulae to facts to create computed values. It leverages the Formula specification to develop the rules for extraction allowing full transparency and reusability.

XBRL ADD-IN FOR MICROSOFT WORD

Many corporations produce their external financial reports using Microsoft Word. Interstage XWand includes a special add-in to Microsoft Word 2007 that facilitates the "tagging" of facts in Word documents with the corresponding XBRL taxonomy concepts.



Revenue	$ 12,920	$ 15,061
Operating expenses:		
Cost of revenue	2,842	2,848
Research and development	2,065	2,283
Sales and marketing	2,790	3,044
General and administrative	741	887
Employee severance	—	—
Total operating expenses	8,438	9,062
Operating income	4,482	5,999
Other income (expense)	283	(8)
Income before income taxes	4,765	5,991

XBRL Add-in for MS Word

In a few simple steps, the report in the document can be made ready for tagging. The add-in provides the ability to automatically tag multiple facts in multiple time periods. A single push of a button then exports the facts and the tags into a complete XBR instance document.

Interstage XWand also provides support for inline XBRL whereby the document's format information is carried forward to the (inline XBRL) instance document. This tool makes it easy for anyone to tag Word data with XBRL tags, requiring no training in XBRL or Interstage XWand.

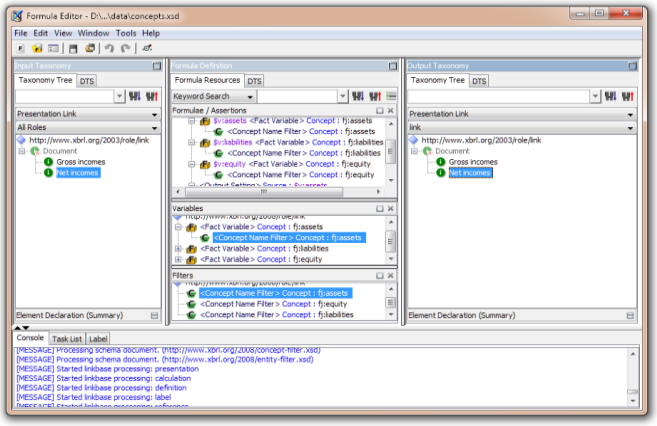
INLINE XBRL

The latest addition to the XBRL specification is inline XBRL, or iXBRL. It is a new data format that stores XBRL data embedded within browser presentable (HTML) format. The XBRL data resides inside of HTML documents permitting the use of a standard HTML browser to display the XBRL instance, and hence making it easy for people to read the financial data without the need for additional XBRL tools or technologies. At the same time, the same file can be processed by an XBRL processor, because it contains XBRL tags internally.

Reporting in inline XBRL format is compulsory in the UK (from 2011).

FORMULA EDITOR

Interstage XWand's Formula Editor helps automate checking the correctness of XBRL Instance documents by making use of the latest XBRL Formula specification to produce formulae and assertions that trigger alerts when certain inconsistent or unexpected conditions occur. These can typically be used to automate the validation and ensure the consistency of the data contained in XBRL Instance documents.



Formula Editor

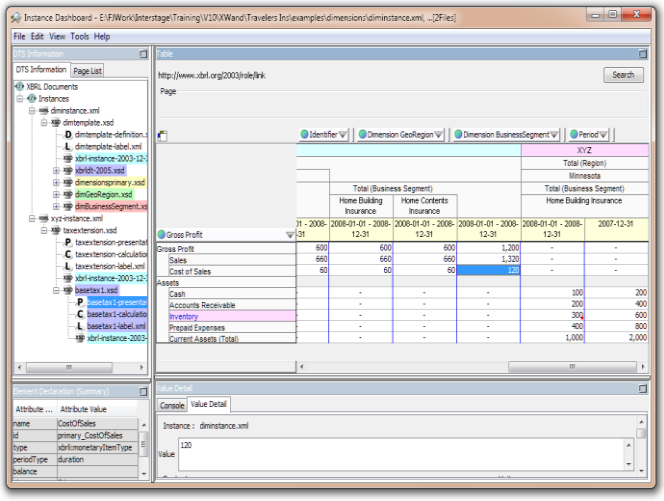
The Formula specification was ratified by June 2009 and thanks to Fujitsu's close involvement with the XBRL Consortium, Interstage XWand was the first XBRL product to introduce its support. The formula specification will prove very useful for corporations, as well as for regulatory bodies in the future.

Regulatory organizations can design a set of checks (assertions) against which reporting corporations would have to validate their instances, before they submit their financial reports for review. This can minimize costly and time-consuming back and forth exchange of corrections and amendments later on. Assertions may be used to flag conditions when certain values are outside the expected value range, or when values that should be reported, are missing, etc

Additionally, formulas can be used to perform complex calculations and/or convert instances from one taxonomy to another; for example, from one detailed taxonomy, to a summarized taxonomy or from the reporting taxonomy to an analysis taxonomy, etc

INSTANCE DASHBOARD

Financial Analysts, the media, and investors, can make use of Interstage XWand's Instance Dashboard tool, to compare XBRL Instance documents from several companies, in the same or different industries.



Instance Dashboard

The tool allows several instance documents to be loaded and compared side by side. The tool provides several filters to compare documents across one or more periods and one or more dimensions. Simple drag and drop operations allow manipulation of the dimensions while each type of difference in the values and the underlying taxonomies are clearly highlighted.

TAXONOMY DIFF

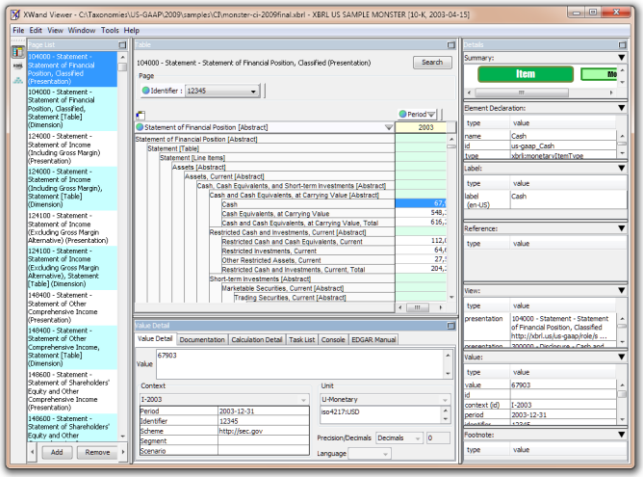
The Taxonomy Diff tool permits the comparison of two taxonomies, side-by-side, to highlight similarities and/or differences. This tool is invaluable for taxonomy creators, and also for corporations intending to extend the national, or regional, taxonomy.

When comparing the company's extensions against a peer's extension, insights can be drawn on the validity or correctness or standardization can be fostered in the development of the new extensions.

XWAND VIEWER

During an internal and/or external audit, the financial reports of a regulated corporation need to be checked and validated against the requirements of the XBRL specifications, specific rules set forth by the regulatory body as well as the corporation's own business rules.

All of the above actions can be performed using XWand Viewer. This is a light-weight tool that facilitates the viewing, comparison, and validation of XBRL instance documents and their associated taxonomies.



XWand Viewer

The tool facilitates the reviewing of XBRL instances, showing you presentation views, allowing you to explore element declarations, reference definition, values, labels, calculation details, footnotes, etc, all in one place.

In the US, this tool can be particularly useful for financial auditors, as it can perform validations according to the EDGAR Filer Manual as well as provide a preview of how the document will be presented after being filed with the SEC. Various reports can be created to capture the validation results as well as usage of the various elements in the instance document that can be reported into a Mictosoft-Excel file. This kind of validation can reduce costly and timely filing cycles. Two instance documents can also be compared to check for differences in structure and content

CONCLUSION

STAYING AHEAD OF THE GAME

Fujitsu has been part of the XBRL Consortium right from its origin. Fujitsu employees have served as chairs and board members of the different XBRL workgroups at various times. Members of the Fujitsu team are active participants in the various working groups involved with building the enhancements to the XBRL specification. This commitment and close involvement to the governing body means that Interstage XWand is a product that will incorporate the latest changes to the XBRL specifications, as soon as they are ratified.

In the past, Interstage XWand implemented the XBRL Dimensions and the inline XBRL (iXBRL) specifications as soon as they were approved. In the same way, Interstage XWand now implements the latest extensions of the Formula specification and the candidate recommendation of XBRL Versioning (as of October 2011).

Fujitsu is a company that prides itself in being at the fore-front of innovation. Our relentless pursuit for excellence in quality is reflected in all of our products.

CASE STUDIES

Interstage XWand has been successfully used by several international regulatory organizations, central banks, solution providers and enterprises worldwide to power their XBRL implementations and filings. Interstage XWand has also been used extensively during the building of most of national and international taxonomies in jurisdictions all around the world. Some of these institutions are listed below along with their usage:

- Tokyo Stock Exchange. For implementing the TDnet timely disclosure information transmission system, based on XBRL.
- Central Bank of Spain. In the development and implementation of the financial supervision report system.
- Fujitsu (self). For revamping Fujitsu's in-house accounting system, using XBRL. This is a corporate wide system being built following service-oriented architecture (SOA) principles.
- Several Financial Printers. For creating the necessary filings on behalf of the regulated companies.
- Several Enterprises around the world. For preparing their external financial reports, as part of their efforts to comply with local regulations.

UNRIVALLED PRODUCT RANGE

Interstage XWand is available in three different packages:

- Interstage XWand Application Developer
  Includes the XBRL processing engines, together with the API (Java and .NET) and their documentation. Intended for developers to incorporate XBRL into their applications and solutions.

- Interstage XWand Toolkit
  The complete range of Interstage XWand tools used for XBRL data creation and definition from which to pick and choose the required tools. Intended for persons working with XBRL data creation and taxonomy definition or extension.

- Interstage XWand Runtime
  Includes the XBRL processing engine for applications developed using Interstage XWand Application Developer. It runs in a multi-user, server environment, and facilitates the access to the server by multiple XBRL client applications.

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