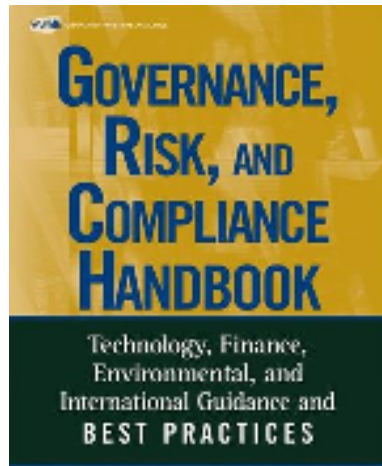




Where Information Meets Technology



How XBRL Will Dramatically Improve Reporting and Control Processes

By

Robert G. Eccles, Liv Watson and Mike Willis

Introduction

Investors who risk their hard-earned cash in equities need access to timely, relevant, and accurate financial and business information. Most of this information originates with the companies whose stocks they own. For the capital markets to operate most efficiently, information about public companies must be understandable, accessible, accurate and, most importantly, trusted by market participants. In the current state of information access, there are multiple problems in making this level of clarity, accuracy and public trust a reality.

One of the biggest roadblocks is that this information is provided in many different proprietary data formats, making it difficult to access, integrate and analyze this information in a timely, complete and accurate manner. The Internet and electronic

communication has ensured that information is more freely available than ever before and that the time it takes to deliver that information has sharply decreased. The key question now is: How reusable is that information? Even when you know exactly what you are looking for and roughly where to find it, extracting information from financial and business reports today generally involves a frustrating experience and a time-consuming and largely manual effort. The biggest problem is that the format and media on which financial and business reporting data are authored varies widely between paper, html, pdf, and other human readable forms or proprietary electronic formats tied to a specific software application. Each publishing format has its limitations and they can all only be interpreted by manual human processing.

To resolve the problem of providing reusable access to timely, relevant, and accurate financial and business reporting information on demand, a market-driven open-standard consortium has been organized to develop an information standard called **XBRL** short for **eXtensible Business Reporting Language**¹. This consortium powerfully connects members representing the entire financial and business reporting supply chain (see Figure 1 below) in the development of a standards-based solution for financial and business reporting information that is universally open, industry-driven, and internationally endorsed. In simple terms, XBRL is a technical supply chain standard for moving financial and business reporting information into an interactive intelligent information format.

The Financial and Business Reporting Supply Chain

Processes:



Participants:



Source: XBRL International

The worldwide development of XBRL is governed by XBRL International, a not-for-profit collaborative consortium comprised of over 600 organizations (including companies, institutional investors and government agencies) from 27 countries. The consortium is organized into national jurisdictions and operates via electronic collaboration tools, conferences and meetings. Members of the consortium are committed to collaborate in the development of the XBRL information standard, to promote and support its adoption, and to incorporate the consortium's work into their products and services

A Primer on XBRL

There are two main components to XBRL: the XBRL Specification and the XBRL Taxonomies, including the underlying linkbases.

XBRL Specification

The Specification provides the fundamental technical definition of how XBRL actually works. The documentation of the Specification is published by XBRL International and is available at <http://www.xbrl.org/Specifications/>. The XBRL Specification was developed from the beginning to satisfy three distinct kinds of requirements:

- Business requirements
- Technology requirements
- Political requirements

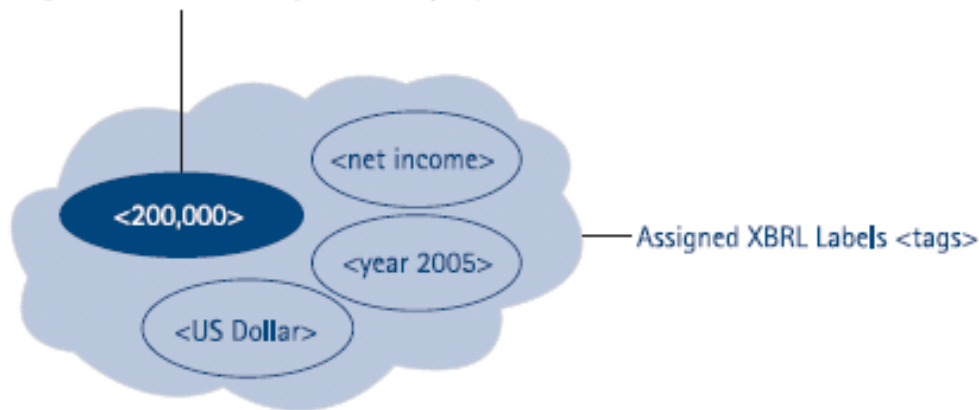
The documentation of the XBRL Specification is the primary building block for ensuring that XBRL exists as a non-proprietary and interoperable information format. The XBRL Specification Documentation sets out the technical guidelines for XBRL and is aimed primarily at software professionals who are seeking to build tools that will directly create or consume XBRL documents.

XBRL Taxonomies

The key to understanding the benefits of XBRL lays in the notion of "taxonomies" and it is probably time for all executives to add "XBRL Taxonomies" to their professional vocabulary. The word "taxonomy" is derived from the Greek words "taxis," meaning arrangement or division, and "nomos," meaning law. XBRL taxonomies are basically dictionaries of business terms and their corresponding tags. By separating content from presentation, the result is what Securities and Exchange Commission (SEC) Chairman Christopher Cox likes to call "interactive data." Once information is made interactive, it is much easier to reuse. Not only is the information instantly searchable and retrievable, but it can also be immediately loaded into spreadsheets and any number of software applications for analysis. Figure 2 shows a sample of an original data item with explanatory labels that enhance the user's understanding of a data element.

Standardized labels identify the meaning of every number

Original Data Item to Reported Company Data



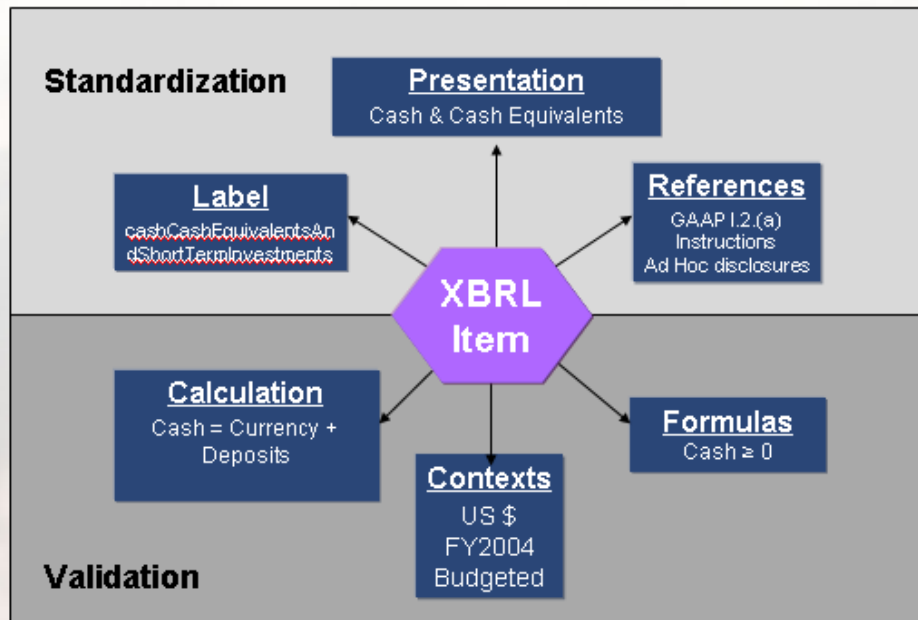
Here, the basic data point, <200,000>, is enriched by XBRL "tags" that fully explain the context of the number: it is net income from the year 2005 and it is reported in U.S. dollars. The labels form a relevant context or structure (such as a particular chart of accounts). Tagged data can be extracted for use in other reports, analytical software, and databases and still maintain its original, meaningful context. The labels are standardized regardless of company, industry, country or accounting regulations.

The enormous advantage of universally accepted taxonomies is that they allow for a systematic way of naming and organizing financial and business information into groups that share similar characteristics, thereby enriching the user experience and streamlining the preparation processes. The idea behind this is simple. Instead of treating information as a block of text, an XBRL taxonomy provides an identifying tag for each individual item. These tags are standardized regardless of company, industry, country or accounting regulation. Business information reported in XBRL can be easily extracted for reuse in other reports, analytical software, and databases and retain its original, meaningful context.

In XBRL information is both humanly and machine readable. In the example above, the basic data point, <200,000>, is enriched by XBRL "tags" that fully explain the context of the number: <200,000> is net income from the year 2005 and it is reported in U.S. dollars. These lists of specific labels — as developed by the consortium of market participants— are the "XBRL Taxonomy Framework" and can be extended (i.e., modified) by individual companies to customize the "business dictionary of definitions" to reflect their unique reporting needs.

One of the greatest benefits of XBRL is that it allows for additional attributes to travel with a data item throughout its life cycle. XBRL refers to these additional attributes as "linkbases." These linkbases are similar to hyperlinks on the Internet, except that rather than being "physical" point-to-point linkages, they provide a reusable contextual relationship between concepts that can be applied to the elements regardless of where they physically reside. Currently the XBRL Specification allows for six different types of linkbases as outlined in Figure 3:

Figure 3:
XBRL Linkbases



Label. This is a list of common accounting terms that is used in general purpose financial statements.

Presentation. This allows the user to click on a link and see the information in different views, such as different languages.

Reference. This allows for data items to be linked directly to items in authoritative literature such as US GAAP standards.

Formula. This allows one to set triggers that could give early warning signals for accounts that are in trouble with one click of the mouse.

Context. This gives the XBRL tagged item more information about the data item, such as it is a budget number in US dollars for fiscal year 2004.

Calculation. This explains from what calculation the number derives, for example ensuring that Cash equals Currency plus deposits.

Who Is Using XBRL Today?

Today the use of XBRL is primarily being driven by regulators and government agencies around the world. For example, every Chinese public company is required to report their financial statements in XBRL to the Shanghai and Shenzhen stock exchanges. XBRL projects also exist in Belgium, Denmark, Dubai, India, Japan, Spain, Sweden, the U.K. and the U.S., to name a few. This raises the question: "Can any capital market afford to not bring dynamic, interactive, and intelligent financial and business information to the marketplace?" Those markets which increase transparency through XBRL will benefit from greater liquidity and a lower cost of capital. Those which do not will be losers in the global competition for capital.

One of the most publicized initiatives regarding XBRL is the U.S. SEC's announcement of a \$50 million contract to upgrade its EDGAR electronic filing system for XBRL compatibility. The SEC has provided an additional grant of \$5.5 million to XBRL U.S., Inc. to complete the US GAAP XBRL Taxonomy. To signal the importance of this initiative, SEC Chairman Cox has been promoting the benefits of XBRL in public speeches and in testimony before Congress.

Here are some other noteworthy initiatives regarding XBRL

- U.S. Securities and Exchange Commission - At an open commission meeting on Jan. 31, 2007, the Commission voted unanimously to issue a proposed rule for allowing mutual funds to report the risk/return portion of a mutual fund prospectus under the voluntary XBRL program.
- Federal Financial Institutions Examination Council's (FFIEC)² - In October of 2005, U.S. banking regulators mandated that all U.S. banks must file their periodic call reports in XBRL as part of a dramatic regulatory process improvement effort. The result was a reduction in the time to analyze the call reports from 45 days to two, dramatic reduction in error rates from 68% to under 5% and significant automation of previously mundane and highly manual process steps resulting in the redeployment of approximately 800 employees.
- The Netherlands³ - In 2005, the Dutch Government began an XBRL-enabled compliance process re-engineering effort driven by the collaboration of all Ministry of Finance and Ministry of Justice agencies. The stated goal of the project is to reduce the compliance burden on companies by 25%. This program was implemented on January 1, 2007 and provides Dutch companies with the ability to significantly streamline all of their government-related compliance filings.
- Banco de Espana⁴ - The Central Bank of Spain implemented XBRL-enabled compliance processes in 2005 and expanded their program in 2006 to cover more of the required filings. This high profile E.U. Central Bank has played a leading role in the development of the BASEL II XBRL Taxonomies now being implemented across E.U. Central Banks.

Perhaps one of the most important global initiatives over the next few years regarding XBRL is in Europe. It could potentially affect over 50 million European companies. At the second XBRL Conference of the European Companies Register Forum hosted by Bolagsverket (Swedish Companies House) in January 2007 several European regulatory agencies committed to mandatory use of XBRL in their national filing process in the next few years. The European Companies Register Forum is made up of Companies Register Authorities (“Companies House”) from all European countries and other Commonwealth countries as well such as Australia, Hong Kong and Singapore.

The purpose of the one and a half day meeting was to provide a status update on what is going on in the different member countries. Several of the speakers confirmed they plan to go for a mandatory use of XBRL in their national filing process. For example, a speech by Ireland’s Department of Enterprise, Trade and Employment⁵ stated that they are working together with the CRO (Companies Register Office⁶), and they are committed to make XBRL be used by every single Irish company. From the U.K., Ross James from Companies House confirmed their commitment to XBRL as the best solution for them to face their challenges: 2.3 million new limited companies in 2006 (a rate of 120 new ones every hour) with 40 documents being filed every second. Bolagsverket itself confirmed that it is receiving e-filings in XBRL⁷ since July 1, 2006 and that they plan making it mandatory.

These initiatives show that market adoption of XBRL is accelerating around the world. The XBRL Consortium provides periodic updates on market activities⁸ and there is a Wikipedia⁹ site available for collaborating on current market efforts. These efforts taken together will result in the use of XBRL in some fashion by over 50 million companies at the end of 2007.

The Business Case for Improving Business Reporting Transparency

The accelerating adoption rate of XBRL within the regulatory community has had some very positive benefits such as the building of taxonomies, increased training and the development of software. However, the fact that most of the application of XBRL has been in the regulatory realm has also created some skepticism and concern by companies. Management teams commonly view XBRL as a technology that has to be implemented when mandated by regulatory agencies. As a result, many are taking a “wait and see” approach to internal adoption and implementation.

This approach is reasonable; however, it reflects a narrow view of XBRL and the process enhancements this information standard makes available. The pervasive problems within the business reporting supply chain don’t exist only at the reporting and regulatory end of the supply chain. They exist within the companies themselves and between companies and their trading partners. When assessing adoption of XBRL and other supply chain standards, management teams should consider the typical economic consequences of standardization:

- Lower costs

- Improved accuracy
- Higher volumes of information are available for analysis
- Accelerated frequencies of availability
- Improved resource allocation
- More efficient processes

Current Constraints

Before discussing the process enhancements enabled by XBRL, it is useful to clearly understand the pervasive problems that XBRL is specifically designed to address. Below is a list of some of the primary constraints on reporting and compliance processes as they exist today:

- **Proprietary software formats inhibit reuse** - Business information contained within a proprietary software format (e.g., .doc, .pdf, .xls, etc.) is not reusable by other proprietary software applications in a cost effective manner. The information can be “exported” to another application, but in this transfer process virtually all contextual information relevant to processing the information is lost. This simple problem results in manual, costly, slow, time-consuming and complex compliance and analytical processes as data are transferred from one application to another. Additionally, the related compliance controls and completeness assessments are also often manual.
- **Business information concepts are application specific** - Many companies have “Standard General Ledger” and/or “Corporate Entity” concepts; however, these internal accounting and reporting standards are typically applied within a single software application, global data warehouse or other proprietary application. Although these concepts are valid across the full range of company-wide disparate software applications, the proprietary nature of these applications makes it impossible to share data and analysis across them. "Systems Integration" is only a partial solution but does not provide a cost effective adaptable and sustainable solution. The pervasive problem here is the need for information to carry with it across disparate applications its full contextual structure.
- **Analytical formulas are physically defined** - Analytical formulas embedded in spreadsheet and other proprietary software applications are described based upon the physical location of the data within the specific application. This is true with large ERP tables, data cubes and even spreadsheets (e.g. "D10/G10"). As a result, analytical formulas are opaque, not sharable across applications and costly to manage. Accountants spend significant resources rebuilding common analytical formulas across common spreadsheet applications and disparate software applications just because the information is physically located in different positions in each application.
- **Controls are embedded within applications** - Similar to the limitations of physically-defined analytical formulas, automated controls are applied to data contained within specific software applications. Enterprise environments that have disparate applications containing operational and reporting data—and all do—require either the redundant application of controls across the full range of

disparate applications and/or the migration of data to specific software applications (e.g. the global data warehouse) for application of controls.

- **Relationships are implicit** - Relationships between business information concepts and the relevant company policies, reporting standards, auditing standards, instructions, regulation, etc. are all implicit. Experienced management accountants, CPA's, and managers have developed their understanding of company-specific policies, GAAP standards, regulation, laws and GAAS requirements related to specific reporting issues based upon their years of experience. Inexperienced accountants, managers, investors, creditors and other users with limited knowledge of these policies, standards, laws and regulations may be unaware of or confused about these implicit relationships.
- **Opaque validation and business rules** - In today's business reporting and compliance processes, validation and business rules are opaque and not sharable between software applications. This results in compliance processes wherein validation and analysis typically become the user's problem. This situation results in redundant cyclical information exchanges between users and preparers as the cycle of error identification/error correction and analysis/question/answer continues until an acceptable solution is found.
- **"Spreadsheet Hell"** – The incredible flexibility of electronic spreadsheets has solved many business reporting problems; this flexibility has also created many new problems. Spreadsheets enable data aggregation and analysis for many business processes. Spreadsheets can also be used to eliminate a lot of re-keying and re-calculating, but they are also often difficult to control and manage in highly dynamic processes where the input processes are manual. Also, linking models together is not sustainable in a dynamic process. Adding one row or one column "breaks" the relationships between relevant data and the physically defined analytics.

In sum, internal and external reporting processes are severely affected by these constraints, all of which stem from the inability to reuse information across a wide range of disparate software applications. The XBRL standard was specifically designed to address these constraints and improve reporting processes and their associated controls.

What XBRL Delivers

Leveraging the XBRL standard, companies can more cost effectively create efficient and flexible internal and external reporting processes that are not subject to the constraints discussed above. By harnessing the power of standardization, XBRL provides a way to describe:

- Business information for external reporting purposes
- Business information for internal reporting purposes at the general ledger, sub-ledger and transaction ledger levels
- Validation, analytical and other business rules
- Entity definitions and relationships between entities

- Relationships between business information and other relevant resources (e.g. company policies, reporting standards, regulations, references, and many other resources)
- Presentation and labeling alternatives

As a consequence of these attributes, XBRL creates an information processing environment that has the following benefits:

- **Universal information reuse** - Business information represented in XBRL is easily reusable across compliant software applications. Information can be moved from one application to another in a seamless manner. This enables the minimization of pervasive manual, costly, untimely and complex compliance and analysis processes currently used as information is transferred from one application to another.
- **Interoperable business information concepts** - Company standardized general ledger and corporate entity concepts are applied across the full range of disparate software applications within the enterprise and even across the company's entire supply chain. The universal interoperability of these concepts dramatically increases the breadth, depth and timeliness of information available for management decision making and the efficiency of the processes that rely upon this critical information.
- **Universal and transparent analytical rules and formulas** - Analytical and validation rules and formulas are articulated in a universal and transparent manner and executable across a wide range of software applications. This enables consumers to not only articulate their information needs but also their validation and analytical rules in a manner that is transparent and executable by preparers. This enables consumers to not only access the information in a more complete, accurate, timely and cost effective manner, but also enables them to share their analytical modelling concepts (e.g. macros) with other analysts, thereby providing a more relevant and richer analytical environment.
- **Centrally managed controls** - Managers should anticipate that controls articulated in a universally reusable manner can be centrally and transparently managed and executed across all the disparate applications in the enterprise. This provides a dramatically more adaptable control environment, as well as one that is both more structured and transparent thereby enabling more automation in its architectural constructs and assessments.
- **Explicit Relationships** - Relationships between business information concepts and the relevant company policies, reporting and auditing standards, instructions, regulations, company policies, etc. are all explicit and executable by disparate software applications. Any user and consumer of business information can transparently access contextually relevant policies, standards, instructions, regulations, expertise, etc.
- **Transparent validation and business rules** - Validation and business rules are transparent, sharable and executable across disparate software applications. This enables streamlined compliance and risk management processes wherein validation and analytical rules are developed by users and shared with and

executed by preparers. Higher data quality and analysis result from the preparer providing the requested information in accordance with the specifications of the user's request. Manual data correction and analysis requests are minimized by the preparer's ability to provide the requested information the first time, thereby eliminating the cycles of error identification/error correction and analysis/question/answer between users and consumers.

- **"Spreadsheet Heaven"** – Electronic spreadsheets leveraging the capabilities described above will behave more like self-populating modelling and visualization platforms than manual worksheets. Spreadsheets using these features can share analytical formulas, controls and data from across a very diverse set of information sources. Additionally, not only can these spreadsheets receive exports from any ERP warehouse, they can also provide analysis and calculation functions where the results, after review, are automatically uploaded back into the proper ERP platform. This will provide a more controlled and documented audit trail along the way.

Additional Benefits from XBRL

The standardized internal reporting process environment creates additional advantages and capabilities:

- **Leverage existing ERP systems** – A somewhat ironic fact of ERP today is that many enterprises have multiple enterprise planning systems for a wide variety of reasons. This can include different versions of an ERP system from the same vendor. The traditional approach to integrating multiple ERPs to have a “true ERP” is to add layers of ERP software on top of what already exists. XBRL makes it possible to achieve the same level of “integration” in a much quicker and cheaper way. For example, the Japanese apparel manufacturer with operations in 23 countries Wacoal leveraged XBRL in 2003 to breathe new life into 32 old and disparate ERP systems by creating a “virtual warehouse” in about 16% of the cost and 33% of the time that would have been required to create an actual global warehouse.
- **Reduce costs of future ERP investments** - Standardization at the information layer rather than the software layer provides greater flexibility in changes to and lowers future investments in the underlying software applications.
- **Lower reporting and compliance costs** - Standardized information, processes and rules drives significantly lower internal and external reporting and compliance costs. On December 11, 2006 at the AICPA SEC and PCAOB Update Conference held in Washington D.C., John Stantial, Director of Financial Reporting at United Technologies Corporation, outlined his plans to reduce reporting time and costs by 20% via XBRL enabled-process enhancements. And this from a company with one of the largest and most successful Hyperion installations in the world.
- **Improve decision making** – Standardized processes enable greater degrees of automation and information flow, thereby significantly increasing the timeliness, accuracy and completeness of information available for management decision making. Additionally, the scope of information from outside the company is

dramatically expanded as any internal or external information source exposed via a Web service and published in the XBRL standard can be immediately included in management's analysis.

XBRL is now sufficiently developed that companies can use it today for internal purposes. For example, the XBRL Global Ledger Taxonomy provides a powerful platform on which to create a standard chart of accounts. A diverse range of tools are also available, with more being introduced to the market every month¹⁰. Furthermore, numerous implementation case studies are available on the XBRL Website¹¹ discussing the application of standardization to eliminating the constraints discussed above that are occurring at virtually every segment of the business reporting supply chain.

The additional benefits of XBRL outlined here are only the beginning of how a large number of stakeholders can take advantage of this powerful new information standard. Analysts and investors will be able to perform much more sophisticated benchmarking analyses comparing companies' financial and market performance. Executives will be able to do the same with their performance vis a vis their major competitors.

Internal and external audit processes will be greatly enhanced and the accounting profession is already exploring the implications of XBRL for audit methodologies. Importantly this includes being able to do a better job of detecting accounting anomalies and unusual and other types of inappropriate transactions and ledger activities.

XBRL also has an important contribution to make to the acquisition and analysis of contextual information, such as provided in the U.S. 10K and the IASB's Management Commentary, and the growing interest in non-financial information. The latter includes both industry-specific key performance indicators (KPIs) upon which future performance depends, and Corporate Social Responsibility or "triple bottom line" reporting that takes more explicit account of the information needs of stakeholders in addition to shareholders. Obviously their information needs substantially overlap and all can benefit from the application of XBRL to this type of information. A notable initiative here is that of the Enhanced Business Reporting Consortium (www.ebr360.org) that is working to create market-based collaborative working groups to develop a broad reporting framework for taxonomies of contextual information, KPIs, and other information of relevance to stakeholders. Executives are increasingly using this type of information for their own decision making purposes and so it stands to reason that this information is of interest to external users as well.

Finally, XBRL has a key role to play in helping companies with a governance, risk and compliance issue that is rapidly rising to the top of management and the board's agenda: the management of reputational risk. Explicit interest in this topic emerged with the global accounting scandals and business failures some five or six years ago. This interest is growing rapidly as witnessed by a recent article in the Harvard Business Review.¹

¹ "Reputation and Its Risks," by Robert G. Eccles, Scott C. Newquist and Roland Schatz, Harvard Business Review, February 2007: 104-114.

The current state of practice for measuring and managing reputational risk is at a similar stage to where operating risk was 15 to 20 years ago. It is increasingly being recognized as a risk category in its own right and must be managed as such. Doing so requires the analysis and integration of a wide range of information, both internal and external, including financial, operating, market and even textual information found in the news media including blogs. NewsML¹², XBRL, RIXML¹³ and other taxonomies can be useful for all of these types of information and will help facilitate the development of analytical tools for managing this important risk.

The list of benefits and applications could go on. For now, suffice it to say that all senior executives and board members have a fiduciary responsibility to learn about XBRL and how this powerful new information standard can be used to improve governance, risk and compliance processes.

¹ <http://www.xbrl.org>

² <http://www.xbrl.org/us/us/FFIEC%20White%20Paper%2002Feb2006.pdf>

³ <http://www.xbrl-ntp.nl/english>

⁴ <http://www.corep.info/>

⁵ <http://www.entemp.ie/>

⁶ <http://www.cro.ie/>

⁷ http://www.bolagsverket.se/in_english/news/2007/digital_filing_070122.html

⁸ <http://www.xbrl.org/LatestNews/>

⁹ Projects: <http://serverlab.unab.edu.co:8080/mediawiki/index.php/XBRL> A general page here:

<http://en.wikipedia.org/wiki/XBRL>

¹⁰ <http://www.xbrl.org/tools/> and <http://www.xbrl.org/productsandservices/>

¹¹ <http://www.xbrl.org/XBRLandBusiness/>

¹² <http://www.newsml.org/pages/index.php>

¹³ <http://www.rixml.org/>