Abstract
Information politics: The story of an emerging metadata standard by Joan Starr
This is the story of how one commercial metadata standard — XBRL, or Extensible Business Reporting Language — has attracted the participation and support of some of the world’s most powerful public and private organizations. It begins with a look at the nature and use of financial information in today’s Internet-enabled environment and discusses three information use patterns: Transaction, retrieval, and reporting. While numerous, sometimes competing standards have been developed for transaction information, XBRL alone has emerged to address reporting formats. Today, the XBRL specification has wide support across the accounting, financial, and regulatory communities. This has come about largely through the efforts of the standards’ governing board, which has pursued a strategy of careful definition of market scope, deliberate courtship of important allies, and establishment of a culture of aggressive outreach for members. The results are impressive. Members of the organization are now positioned to take greatest advantage of a number of new entrepreneurial opportunities that have been created by the organization. Additionally, some participants are now representing the XBRL metadata standard as a key tool for the restoration of public confidence in the scandal-rocked accounting and investment industries. This may create a serious problem for researchers and investors as unaudited financial statements formatted in XBRL proliferate on the Web sites of corporations anxious to demonstrate a commitment to what some are calling "the new transparency."

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Introduction
To the uninitiated, the development of a metadata standard might appear to be a passionless occupation. Yet, some of the world’s most powerful public and private organizations are allocating significant amounts of time and expertise to directing just this activity. One metadata standard — XBRL, or Extensible Business Reporting Language — is a particularly good example of this pattern, attracting enormous attention both in the United States and elsewhere. Early partners in the XBRL standards organization have included leading software companies (e.g., Microsoft, Oracle), banks (e.g., Bank of America), auditors and accountants (e.g., PriceWaterhouseCoopers, Ernst & Young), information intermediaries (e.g., Reuters, EDGAROnline), and government agencies (e.g., Federal Deposit Insurance Corporation, Australian Prudential Regulation Authority). Their motivation has been remarkably clear. Microsoft’s Industry Marketing Manager for Accounting, Christy Reichhelm, said it this way: "This will be like a gold rush with the gold being the data transmitted by XBRL and the accountants helping out those who mine the gold" [1].

In a little less than three years, this high-powered group has steered the XBRL specification to a substantial position of strength as the acknowledged standard for financial reporting. Indeed, the standard’s governing organization has followed a careful and deliberate strategy, based upon a fundamental understanding of the financial services industry. To appreciate the hard work, determination and plain audacity that have gone into making XBRL the business reporting metadata standard, it is necessary to start with a look at the industry it serves.

Financial information basics
We begin, then, with the fact that the financial services industry is an information-centric business. It encompasses such disparate fields as mortgage lending, investment services, insurance, and commercial banking. Its "products" include financial advice, market research information, and information about money in all its various forms. These firms maintain information on deposit or asset management accounts, loan accounts, customer profiles, corporate investments, market research, and corporate accounting. Because of the wide range of content types and the sheer volume of data involved, financial services providers "have implemented almost every known data storage, middleware, and exchange technology that has been created since the 1950s" [2].

All of this data is used in one or more of three ways: To conduct a transaction, to support information retrieval, or to enable reporting. A transaction is information access in which content is changed. Retrieval is information access in which content is not changed. Reporting presents an intersection of transaction and retrieval. That is, with reporting, the individual content elements are not changed, but they may be recombined and manipulated in such a way as to create a completely new and additional information packet.

Most financial systems for information access must allow both retrieval and transaction activity, depending upon the identity or status of the individual seeking access. Reporting is critical to providing new compilations and combinations of data for presentation to shareholders and regulators. Note that there is virtually no point in what might be called the financial information "life cycle" that the sole purpose of information access is that of retrieval or finding.

The emergence of metadata standards

Despite these differences, financial information systems do face some of the same challenges as library and other information systems. In particular is the plain fact that information must be presented in a common format if it is to be shared in a cost-effective manner. Metadata standards afford this capability. Indeed, the desire to share information is typically a key motivator behind a metadata standards development or implementation project. In the financial services industry, a number of inter-related environmental factors have strengthened the argument for sharing, including industry consolidation, regulatory changes, and the impact of the World Wide Web.

Merger-mania

The 1990s saw an unprecedented level of mergers, acquisitions, and consolidations in the financial services industry. One source reported that, from 1985 to 1998, the number of U.S. commercial banks dropped by 35 percent (Schiffres and Barr, 1998). In Europe, eight of the top ten fastest-growing asset management companies in 1997 attributed their growth to acquisition activity (Wrighton, 1998). Analysts pointed to "unstoppable market forces" that altered the old industry formulas for success, and recommended that corporations take advantage of the high value of their stocks to purchase, rather than build, new businesses [3].

Government regulation changes in the United States

Adding fuel to the fire, in 1999, the United States Congress passed the Financial Services Modernization Act of 1999, commonly referred to as Gramm-Leach-Bliley. The Act repealed the 1933 Glass-Steagall Act, which created statutory separation between commercial and investment banking [4]. Gramm-Leach-Bliley authorizes the "certification of financial holding companies, the structure that looks to be the main vehicle for linking commercial banks with securities firms, insurance firms, and merchant banking" [5]. Financial services firms have "welcomed [the] withering away of unnecessary regulation around the world," as it has allowed the industry to assume a "near perfect freedom" to pursue market share [6].

This pursuit, largely accomplished through mergers and acquisitions, has two distinct implications for financial information systems: The newly combined corporate entities are handling even more kinds of information, and these entities must also combine, or at least reconcile, internal information from multiple pre-merger organizations.

The commercial Web

It is widely acknowledged that the Internet and the Web radically alter the commercial environment. In 2000, Gary Gensler, Undersecretary for Domestic Finance in the Clinton Administration, told a meeting of the Bank & Financial Analysts Association, "There may be no part of our economy more suited to delivery in electronic form than financial services ... The Internet creates a 24-hour marketplace for financial services" [7]. Today, not only do the consumers expect to see — and even manipulate — their account information on the Web, but also business partners seek to establish secure extranet relationships for data exchange. From an information systems perspective, two impacts stand out: On the one hand, the technology for any new information-based business is likely to be Web-based. Second, there is likely to be intense competition for control over information interaction...
Indeed, industry analysts suggest that more fallout in the standards field is inevitable. Zapthink, a consulting organization (Multex.com, 2002). Instead, in February of 2002, Multex announced support for the rival RIXML open standard for financial transactions will cause unnecessary headaches in the short term. Consolidation around ISO 15022 specification is expected” [8].

The care and feeding of a standard

The Birth of XBRL

XBRL joined this alphabet soup of standards in the late 1990s, when a certified public accountant (CPA) from Kirkland, Washington, became convinced that XML would provide accountants with a single, unified method for exchanging data. Charles Hoffman was familiar with several XML standards efforts proposed by consortia, such as the 1997 Microsoft-Intuit-Checkfree collaboration on OFX (Open Financial Exchange). With Microsoft’s dominance of the desktop operating system, the OFX specification quickly achieved status as the metadata standard for consumer electronic banking and payment systems. In fact, today, most people have OFX (and now IFX) enabled software on their personal computers, whether they are aware of it or not.

Hoffman saw the speed at which this development occurred and believed that accountants needed to act quickly and decisively to control the future of their profession in an electronic, networked world. Furthermore, he felt that accountants were ideally positioned to “facilitate rapid yet thoughtful standards for XML-based electronic transactions” (Hoffman, Kurt, and Koreto, 1999, The Next Step section). So, he collaborated with a software developer to create a prototype of an XML-formatted audit schedule. He then took the prototype to his professional association, the American Institute of CPAs (AICPA), and worked through AICPA’s High Tech Task Force to build a full set of financial statements using the prototype format.

From the beginning, the XBRL specification has been a remarkably open and flexible standard. It consists of a DTD for a core bundle of elements and attributes, as well as taxonomy syntax for creating new elements and attributes. Its most basic unit is the "item," which is a numeric or non-numeric fact with required attributes for a specific time period and a specific business entity, ensuring unique identification (Hamscher and Van Kannon, 2000).

With a structure this simple, and the potential for an almost unlimited range of financial service-related taxonomies, the AICPA recognized a special challenge. Their new standard was, in effect, too extensible. In other words, they risked competing with some of the world’s most powerful corporations, including Microsoft, if they allowed XBRL to address transaction information. Thus, in a standards market glutted with players, they mapped out an aggressive but careful strategy to promote XBRL. This strategy consisted of limiting XBRL’s scope, creating buy-in among the financial services industry’s major players, and engaging in a steady and fervent communications campaign.

Managing Scope

Charles Hoffman may have dreamed of a universal data exchange standard, but when the first XBRL specification was made available in July 2000, it reflected the AICPA’s effort to define a scope restricted to financial reporting. The specification describes discussions with other XML standards bodies in the financial services field, including OMG, FpML, finXML, OFX/IFX, and eXML, and the determination that XBRL’s “extensive detail in the representation and use of accounting conventions ... distinguishes it from these other efforts” [9]. This is a deliberate self-imposed limitation, because the “extensive detail” and "accounting conventions" are a matter of implementing specific taxonomies over others. XBRL International, the standard’s
governing body, maintains explicit control over taxonomies developed for XBRL by using a ranking system. At the present time, only one, the Journal Taxonomy, is in a "Recommended, Final" state. Others, in "Recommended, Public Working Draft" or "Approved," include the Global Common Document Taxonomy, the U.S. Financial Reporting Taxonomy, and several International Accounting Standards Board taxonomies (XBRL International, n.d., XBRL Resource Center). Notably absent from the list are any taxonomies that would have the effect of extending XBRL’s reach into the financial transaction space.

**Building Coalitions**

With XBRL’s scope restricted to reporting, the governing board proceeded to structure itself for maximum coverage of what it calls "the Financial Information Supply Chain," including "accountants, auditors, financial analysts, investors, creditors, (and) business and technology decision makers" (XBRL International, n.d., *What is XBRL: Benefits & Beneficiaries*). In addition to an International Steering Committee, reporting to a Board of Directors, there are six established "supply chain communities" (SCCs), including: Accounting, Analysts, Intermediaries, Investors/Creditors, Regulators, and Software and Service Providers. There are five additional SCCs that have provisional status: Academic, Exchanges, Private Preparers, Public Preparers, and Tax Agencies.

By the close of 2002, the membership of XBRL International had reached 170, and its governing groups included representatives from major accounting firms, such as Ernst & Young LLP, Morgan Stanley Dean Witter, and PriceWaterhouseCoopers, technology vendors such as Microsoft and Oracle, governmental and quasi-governmental agencies such as the United States’ Federal Depository Insurance Corporation (FDIC) and the United Kingdom’s Inland Revenue Service, and banks such as Bank of America, Deutsche Bank, and Bank of Tokyo Mitsubishi (XBRL International, n.d., *About XBRL*). XBRL International maintained a global vision as well, with ten established jurisdictions: Australia, Canada, Germany, Japan, Singapore, U.K., U.S., and the International Accounting Standards Board (IASB). There are four provisional jurisdiction groups in addition: Hong Kong, Ireland, Korea, and Spain.

The XBRL U.S. Domain Group chair and Microsoft executive, Rob Blake, has been quoted as saying, "The XBRL consortium is becoming more like a Who’s Who list of vendors, banks and accountants" [10]. Indeed, some of the consortium members represent organizations that are major participants in other metadata standards efforts. For example, both Microsoft and Bank of America have representatives on the IFX/OFX steering group. Oracle is involved with the OMG effort. Deutsche Bank, Bank of America, Morgan Stanley Dean Witter and PriceWaterhouseCoopers are all represented on the FpML governance group. And, Deutsche Bank and Morgan Stanley Dean Witter are also associated with the MDDL and FIXML initiatives.

Membership in XBRL International takes the form of joining or forming a specific jurisdiction, at a cost of US$5000 per year, payable in two installments. For this remuneration, members are promised the ability to participate in designing the XBRL specification, access to adoption assistance, networking alliances, and various marketing opportunities, including the display of member logos on the official XBRL Web site (XBRL International, n.d., *How to Join*). The drive to encourage membership has been so successful that it might be said to have achieved a kind of critical mass. There is now a certain cachet belonging to the standards organization, as the "who’s who" comment above seems to indicate. Because of this, longstanding XBRL critic Todd Boyle — another Kirkland, Washington, CPA — has expressed concern about the dominance of big corporate interests in the XBRL organization, warning that "a bunch of vendors got together and they’ve succeeded in capturing the financial reporting framework from the public, and now they’re going to be able to collect rent" [11].

**Evangelism**

Charles Hoffman set the promotional tone for XBRL-related communication back at its beginnings, when he exhorted accountants to "rise above today’s methods and processes to see a vision of future capabilities" (Hoffman, Kurt, and Koreto, 1999. *The Next Step* section). Today, the standards organization provides explicit instructions on its Web site for "roadmaps" to adoption, consisting of these steps: Awareness building, business case analysis, launching a pilot or prototype project, establishing business-to-business partnerships based on XBRL, and, finally, "evangelism" (XBRL International, n.d., *What is XBRL: Roadmap to Adoption*). The recommendations unapologetically point out that "early adopters ... will realise their greatest benefit as XBRL becomes more widely accepted," promoting a kind of pyramid scheme approach in which "many compatible data sources and users ... ultimately reduce costs for all."

A number of the principal figures in the XBRL International organization have taken this advice to heart. For example, Neal Hannon, a member of the Academic SCC, is also Editor of *Strategic Finance*, a magazine aimed at information managers in the accounting and finance fields. In the 27 months between November 2000 and January 2003, Hannon devoted 17 of his regular monthly columns to XBRL progress reports. Apparently, in Hannon’s view, the news is always good, with an ever-expanding list of XBRL-ready software products, and continual advances in the XBRL specification. Several steering committee members have also published XBRL-related materials, including Zachary Coffin, a founding member of the XBRL consortium and past International Liaison Chair, Mark Schnitzer, the Analysts SCC chair, and Paul Penler, the Accountants/Preparers SCC chair (see Coffin, 2002; Penler and Schnitzer, 2001). Liv Watson, the Intermediaries SCC chair and Director of XBRL at EDGAR OnLine [12], has a new book coming out in June, 2003, called *Essentials of XBRL*, part of Wiley-VCH’s Financial Reporting in the 21st Century Essentials Series.

Still another avenue for building a sense of momentum and encouraging a broader adoption is the public chat group hosted by Yahoo at [http://groups.yahoo.com/group/xbrl-public](http://groups.yahoo.com/group/xbrl-public). As far back as April 2000, the leaders of the XBRL organization have monitored and participated in the ongoing discussions in this virtual community room. The tone of the discourse is largely comradely and conflict-adverse. The infrequent critics are quickly and decisively ostracized, as has been the case with Todd Boyle, who does not shy away from pointing out the logical gaps in the XBRL vision. In an online posting, for example, Luther Hampton, co-author of the version 2.0 XBRL specification, characterized Boyle’s postings as only "dark mutterings and conspiracy
To the victors go the spoils

Clearly, the members of XBRL International are working hard to promote this new standard. Recall that the commercial Web introduced an environment of intense competition for control over information interaction mechanisms. The fact that the XBRL community has done a good job of establishing such control can be demonstrated in three particular areas.

The right place at the right time

The deliberate restriction of XBRL to the reporting space has the effect of creating a programmatic gap between legacy financial service systems and the new XBRL-ready software for business reporting. Numerous financial services software vendors now provide add-on components to translate proprietary outputs into the XBRL format or completely new products, automating "all the processes required to integrate XBRL into financial reporting" [14]. Significantly, the vendors for these reporting products include Microsoft Corporation (via its Great Plains and Navision businesses), EDGAR Online, Inc., ACCPAC International, Inc., a subsidiary of Computer Associates International, Inc., and PriceWaterhouseCoopers, all members of XBRL International.

There is also a growing market for "straight through processing," or software that can take financial data from its inception in an individual transaction and fold the data into the accounting and reporting systems of the subject company. These products are a kind of universal adapter for the many data formats created by proprietary as well as open standards. Two key vendors in this area are Microsoft Corporation, with its BizTalk® server product (see Microsoft, 2002), and a newcomer to the field, UBMatrix, co-founded by none other than Charles Hoffman himself (see UBMatrix, 2002). Interestingly, UBMatrix’s four-member Board of Directors also includes two XBRL International Steering Committee members, Liv Watson and Roger Debreceny.

A helping hand

Almost nothing works more effectively to generate revenue for software vendors and consultants than new government regulations. Preparing for this, XBRL International has sought participation by governmental representatives from the beginning. As Louis Matherne, President of XBRL International Inc., explained, "What we are looking for is for this to have a cascading effect," [15]. And, as early as 2000, the U.S. Federal Government’s Joint Financial Management Improvement Program (JFIMIP) began recommending that agencies consider purchase of commercial software that supports XML standards, including XBRL (Alderman, 2000). In early 2001, the largest regulator of financial institutions in the United States, the FDIC, joined XBRL International, and Phil Walenga, the FDIC’s XBRL Project Manager, began to serve on the Steering Committee.

Two years later, in the summer of 2002, the FDIC, under the umbrella of the Federal Financial Institutions Examination Council (FFIEC), issued a Request for Proposals for the development of a system to automate the submission of quarterly financial condition reports, using XBRL (Blackwell, 2002). The FFIEC is a consortium of the FDIC, Board of Governors of the Federal Reserve System (FRB), National Credit Union Administration (NCUA), Office of the Comptroller of the Currency (OCC), and Office of Thrift Supervision (OTS). On 17 June 2003, the FFIEC announced awarding the contract for building the XBRL-based Call Report to a consortium led by Unisys Corporation, with the participation of Microsoft, PriceWaterhouseCoopers, IDOM, EDGAR Online, UBMatrix, and V-Tech Solutions (Federal Reserve Board, 2003).

The new system is optimistically targeted for a 2004 implementation. At that point, reporting institutions will be required to submit data using a specified XBRL taxonomy. Financial institutions will have either to develop or purchase new (or upgraded) software in order to comply with reporting requirements.

Overseas, several countries have actually endorsed XBRL as national standards, or, at least, recommendations. These include Australia, Singapore, and the U.K. (Colman, 2002; Scheider, 2002). The U.K.’s Inland Revenue Department, its taxing authority, is currently conducting a pilot project to test the electronic submission of corporate tax forms using an XBRL taxonomy. At present, the expectation is for a full implementation by October of 2003 (Business Application Software Developers Association, 2002). The Australian Prudential Regulation Authority, the regulator of banks, insurance companies, credit unions, and savings societies, has developed an interim XBRL taxonomy for use until the official Australian taxonomies (based on the International Accounting Standards) are available (Australian Prudential Regulation Authority, n.d.).

Managing the message

In the wake of the many recent scandals involving accounting irregularities, the financial services industry has struggled to address a fundamental credibility loss. With widespread calls for new regulations and oversight, accounting firms, in particular, have fought back by proposing their own recovery plans to combat "the erosion of public trust" [16]. A key component of these plans, and the hottest new buzzword in the industry press, is "transparency." Two senior officials from PriceWaterhouseCoopers, for example, Samuel DiPiazza, Jr., and Robert G. Eccles, hastily published their model for Building Public Trust, urging, "every participant in the chain [to] embrace and practice a spirit of transparency, a culture of accountability and individual integrity." (PriceWaterhouseCoopers, 2002, Take Aways section). DiPiazza and Eccles enthusiastically endorsed XBRL as the technological enabler of this new information-rich world where investors and regulators alike are fully informed about a
company's financial condition at all times. Separately, another industry analyst declared, "Accounting scandals be damned ... XBRL could be the decisive factor in helping people get a handle on a company's true accounts" [17].

To illustrate the transparency argument, Reuters Group created and posted a number of example financial reports, exposing the XBRL coding (Reuter Group, 2001). Here is the code for cells in a table entitled, "Reuters Group Revenue Analysis — Third Quarter 2001."

In this example, both items are of the same type, an income category of operations revenue. In XBRL, every item has an associated time period. The first, 313, is being reported for the third quarter, ending 30 September 2001, and the second, 288, is being reported for the third quarter, ending 30 September 2000. Notice also the reference to an authority control, with the "unit" attribute pointing to ISO4217. This is the International Organization of Standards list of currency type abbreviations.

Proponents of XBRL regularly cite the Reuters and other samples, arguing that XBRL will make possible a consistent, clear presentation of financial statements, enabling more comprehensive and more frequent (automated) oversight (see Hannon, 2002b). However, the obvious problem with assigning a presumed level of integrity for tagged information is that there is no guarantee that the data is factual. This is an aspect of metadata that is unfamiliar to most library and information metadata projects, where the organization of information rests upon the concept that the surrogate — that is, the information system record — is a true and accurate reflector of the item to which it refers. Indeed, it is difficult to imagine a cataloging librarian or archivist describing resources in such a way as to mislead others regarding the extent or condition of holdings, for that approach would impede retrieval.

In the business world, however, there are substantial financial incentives for unscrupulous behavior. The list of wrongdoers from just the past year is long, and some critics have charged that the very practice of posting unaudited XBRL-formatted financial statement samples has created a dangerous environment for investors and economic researchers (Evers, 2002). The concern has grown as more companies demonstrate "transparency" by providing such samples.

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In 2002, Microsoft, PriceWaterhouseCoopers, and the NASDAQ stock market created a demonstration project called Excel® Investors Assistant, which provides a number of actual, historical financial statements for several companies formatted with XBRL along with the Microsoft Excel® tools to create various sample reports (see NASDAQ, n.d.). Some observers warned that the project, and Microsoft’s expected release of an XBRL-enabled version of its widely used spreadsheet product, will make investors and researchers especially vulnerable to misinformation. One accounting software executive speculated, "Interfering with uncontrolled XBRL publishing might seem an easier way to influence share prices than ... setting up special purpose vehicles" [18].

In the end, the burden of establishing information validity falls upon financial auditors who apply accounting rules. To their credit, virtually the same parties promoting XBRL as an antidote to accounting malfeasance are also heavily involved with the establishment of an internationally accepted set of accounting practices, the so-called Global GAAP. As noted earlier, a Global GAAP taxonomy for XBRL is in a Working Draft status at the present time, edited by Charles Hoffman, Roger Debrecceny, and Josef Macdonald, of Ernst and Young, New Zealand (see Debreceny, Hoffman, and Macdonald, 2002). Serious industry insiders know that the real work for restoring public confidence in financial reports will require the diligent application of these international accounting standards, ensuring the integrity of the data that XBRL can present so transparently.

Conclusion

A scant three years since the introduction of its first specification, XBRL is clearly positioned as the international metadata standard for business reporting. The sponsoring organization, XBRL International, has worked very hard to achieve this goal. They have done a masterful job of defining and limiting the standard’s scope to exclude transactions, building coalitions and expanding membership to include the extended industry’s biggest players, and, continuously providing a positive public information campaign. Today, in an environment of many overlapping metadata standards for financial transactions, XBRL has no competition. As a result, a number of the coalition members have benefited very directly in terms of increased business. And, the organization has created opportunities to shape public discourse about challenges facing the financial services industry.

For library and information science professionals, this is both instructive and cautionary. On the one hand, those who would promote a new metadata standard might certainly learn a strategy or two from these skillful operators. Attention to tactical
alliances, courtship of powerful players, and even the invitation to software vendor participation, are ideas worth consideration. The XBRL International Web site is a veritable roadmap for the advancement of a complex proposal.

On the other hand, from the researcher’s perspective, it is critical to understand that XBRL comes from a different world than the library or academia, a world where information retrieval is not the primary driver. A recent issue of the Information Advisor, a newsletter for business researchers, suggested, “XBRL may … eventually facilitate real-time, online financial reporting” [19]. This is the shaky ground, that of mistaking a structure — however well formed and convenient — for a guarantee of data integrity. As XBRL-formatted financial reports proliferate, researchers will have to become very critical consumers. Following XBRL International’s example, it is not too soon to advocate for what researchers need: a clear distinction between audited and unaudited XBRL-formatted statements.

About the Author

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Notes

1. Quoted in Covaleski, 2000, para. 2.
12. EDGAR Online is a proprietary online tool that is widely used to gain easy access to the information reported to the Securities Exchange Commission’s Electronic Data Gathering, Analysis, and Retrieval system, or "EDGAR."

References


E.C. Cuneo, 2002. "XBRL: Still a Ways Away from Saving the Day; But the standard is seen as an important part of restoring consumer confidence in Big Business," InformationWeek (17 December), in Expanded Academic ASAP database, accessed 8 March 2003.


**Appendix**
Table 1: Metadata standards in the financial services industry.

<table>
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