

XBRL

Improving Business Reporting Through Standardization*

A Technology Forecast Publication



PRICEWATERHOUSECOOPERS 

*connectedthinking

■ Acknowledgements

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ABOUT PRICEWATERHOUSECOOPERS

PricewaterhouseCoopers (www.pwc.com) provides industry-focused assurance, tax, and advisory services for public and private clients. More than 120,000 people in 139 countries connect their thinking, experience, and solutions to build public trust and enhance value for clients and their stakeholders.

("PricewaterhouseCoopers" refers to the network of member firms of PricewaterhouseCoopers International Limited, each of which is a separate and independent legal entity.)

The PricewaterhouseCoopers Global Technology Centre (GTC), with offices in Silicon Valley, New York, London, and Frankfurt, provides leading-edge research and analysis of technology trends and their effects on companies, industries, and markets. The GTC comprises technology veterans who have extensive experience in advanced applications of existing technologies and knowledge of potential uses of emerging technologies. The GTC is widely known for its *Technology Forecast* publications and for delivering insightful briefings on technology trends to PricewaterhouseCoopers clients and industry leaders around the world. For additional information about the Global Technology Centre, please visit www.pwc.com/techcentre.

PricewaterhouseCoopers is a founding member of XBRL International, a consortium devoted to developing and promoting the XBRL standard. We are also at the forefront of efforts to bring XBRL into the marketplace, using our corporate-reporting process, information, and analysis expertise through a range of commercial solutions providing organizations with more reliable, accessible, and reusable information. We are currently working on XBRL and Web services deployments and evaluations at leading companies and regulatory and governmental agencies around the world.

To learn more about XBRL and Web services, and PricewaterhouseCoopers' Straight Through Reporting™ approach to streamlining how organizations collect, consolidate, and report information to management, investors, and regulators, please visit www.pwc.com/xbrl.



Business reporting is undergoing a fundamental transformation. Market demand and regulatory requirements for business information and transparency in the reporting process have increased significantly. The Internet has created a ubiquitous infrastructure for global, local, intraenterprise, and interenterprise connectivity. New data interchange standards have emerged that allow relevant information to be produced in an agreed-upon format and shared across organizational and geographical boundaries.

These three trends are converging to change the way in which both producers and consumers of business information create, disseminate, share, analyze, and use business data. At the heart of this shift is the increasing focus on market standards—for a business reporting model, data connectivity infrastructure, and data interchange format.

Historically, the adoption of market standards has proven to have a positive impact on all market participants. For example, the build-up of a national railroad infrastructure facilitated growth in a variety of industries because it provided a common way in which to transport raw materials and finished products. Generally, standards adoption brings such benefits as lower costs, improved productivity, and greater access to goods. Within the context of business reporting, market standards can provide greater efficiency, transparency, accuracy, and information reusability, among other benefits.

This white paper examines the role of the Extensible Business Reporting Language (XBRL), a business reporting standard that can overcome many limitations of existing business reporting practices.

■ The Current Situation

To understand the significance of XBRL, it is necessary to examine the way in which business reporting is conducted in 2004. Business information is created and consumed at many points in the enterprise that often are not connected to one another. The management and reporting of business information does not follow an agreed-upon vocabulary, and its dispersion limits an organization's ability to reuse and share information. All organizations are required to summarize, consolidate, prepare, analyze, and often share this information within and outside their boundaries. These activities are motivated by a number of factors, including the following:

- Managers' need to drill down into detail-level information stores to answer questions that might surface when reviewing summarized information.

- Requirements for regulatory compliance in areas such as taxation, regulation of depository institutions, and oversight of securities markets.
- Capital markets' increasing expectations of transparency in business reporting (certification of financial results by company executives or capital flight from nontransparent markets).
- Companies' need to communicate with business partners and stakeholders (including lenders, banks, customers and clients, media, employees, and investors) to support joint business activities.

The approach to business reporting that is practiced today is unlikely to meet these business needs without taking full advantage of important trends in technology, such as connectivity (via the Internet), shareability and reusability (by means of data interchange standards), that allow business information content to be generated and consolidated at substantially lower costs.

Today's practices are constrained by the mixed use of paper and electronic media; the incompatibility of formats among software programs (spreadsheets, text documents, Web formats); the need to repeat manual steps like report assembly and data entry; and the absence of a consistent, agreed-upon vocabulary for business reporting. In addition, the needed data is often physically dispersed among unconnected systems and databases across different organizations, even within a company or government unit. This problem is usually amplified when different organizations attempt to share data.

■ XBRL Fundamentals

XBRL is a standard designed to eliminate the constraints of incompatible formats and vocabularies and to use recent trends in technology to enhance business reporting. It is a freely licensed data description standard and framework especially designed for structuring and representing information in business reports for extraction and processing by software applications. XBRL is based on Extensible Markup Language (XML) and takes advantage of its ability to create self-describing data.

XBRL is being created, advanced, and promoted by a varied group of organizations. The membership of the non-profit consortium XBRL International includes regulators, services companies, software vendors, professional services providers, and accounting and trade organizations.

XBRL specifies data-formatting conventions and vocabularies for marking up and describing business reporting data. It enables the structuring and processing of business reporting fragments and documents, thus making possible the speedy creation, assembly, exchange, search, extraction, analysis, and publication of business information, such as data in financial statements and regulatory filings. Descriptive names (called tags) attached to items of business data describe them according to an agreed-upon vocabulary and structure. Applications can extract and process



For more information on the XBRL consortium, see the sidebar "The XBRL International Consortium," on page 20.

individual parts of documents on the basis of various tags. This standardization makes it easier for organizations to use and share business data and analyze it in ways that increase its value and usefulness.

XBRL simplifies the way business information is produced, consumed, and exchanged. Business information is created once in XBRL format; thereafter, many types of users can share and reuse the information.

For example, a revenue data item in XBRL format can reside in a database or be obtained from a Web site. A word processing application and a spreadsheet application can both obtain and use this data without any format conversions. The spreadsheet can incorporate the revenue item into a spreadsheet row, and the word processing application can place the revenue information into a press release.

XBRL enables the automation of the entire business reporting process, partly because it provides a common format and a classification of descriptive names that are usable and reusable by all participants in the process. Data can be shared within organizations and across their boundaries.

Because XBRL is independent of any hardware platform, software operating system, programming language, and accounting standard, it helps companies efficiently manage, move, and exchange internal business information that is used for operational and compliance decision-making. Applications based on XBRL can be public domain, open source, shareware, or proprietary, or they can be covered by other licensing policies determined by software developers.

The business information covered by the XBRL standard includes (but is not limited to) data that typically appears in business reports and regulatory filings such as:

- International Financial Reporting Standards (IFRS) Financial Reporting for Commercial and Industrial Entities;
- U.K. Inland Revenue Company Tax Return (CT600);
- U.S. Federal Financial Institutions Examination Council's Consolidated Reports of Condition and Income for Banks with Domestic Offices Only (FFIEC 041).

Other examples of business information that can be expressed in XBRL include press releases, annual reports, investor relations publications, management reports, auditor reports, charts of accounts, internal accounting reports, operational data, and decision-support data for management. XBRL is designed for processing financial data and business reports ranging from transaction-level data to aggregate ratio-oriented financial data, although it does not include protocols for executing business transactions. Other standards focus on capturing and processing transaction-level data, which can then be handed off to XBRL-enabled applications for XBRL-related processing.

***XBRL is
a standard
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reporting.***

INTERVIEW WITH MIKE WILLIS

Mike Willis, the founding chairman of XBRL International, is a PricewaterhouseCoopers partner.

Why is XBRL important for the CFO?

XBRL enables CFOs to tell their own story to investors and other market stakeholders, precisely and clearly, without concerns about their tale becoming distorted by a third-party storyteller. Often, distributors or aggregators normalize information, potentially distorting the message. The XBRL format enables information consumers in the marketplace to receive the full picture—every piece of information as CFOs have tagged it. Once tagged, the information becomes more useful. CFOs can tie information in XBRL reports to other useful resources, such as an analyst's report or a press release for external users, and to company policy or accounting guidance internally. XBRL also enhances the control environment for reporting by automating many of the manual processes involved in gathering and consolidating information. Inefficient, nonvalue-added, costly, and error-prone processes such as cutting and pasting or rekeying can be replaced by the XBRL tagging system which, in addition to reliability, provides information consumers with enhanced analytical capabilities on the data. Finally, reporting in the XBRL environment makes it a snap to measure any type of financial covenant or other objectively determined benchmark. In total, XBRL enables functionality that leads to better controls, and more informed decisions by both management and the investing public.

How does XBRL make a difference to financial reporting?

Today's corporate reporting standards are locked into geography: facts are presented in certain locations within documents. This means the facts about a business appear in a variety of locations and have to be searched out and pieced together, usually manually. Not so with documents in XBRL. Every piece of information in a report stands on its own as well as within a context with other information. So the facts about a business are quickly accessible no matter where they might appear in a report. Information consumers can then instantly access the facts they need without hunting them down. Here's an example of the difference between today's reports and XBRL-enabled reports: Many companies are revisiting how they report stock options for their employees and directors. The issue of expense versus disclosure only makes a difference if information in financial reports is locked into place on a piece of paper or in an electronic version of a paper report. With XBRL, it doesn't make any difference where a fact is disclosed—it is simply a business fact. Whether it's disclosed in the footnotes or in the profit and loss statement, it's instantly accessible to information consumers, who can pull it right into their software for analysis.

If XBRL had been in use, would it have helped avoid some of the corporate accounting scandals that have come to light in the last several years?

This is a complex question. Let me frame it in the context of information transparency. XBRL does not change accounting

principles, nor does it change the actual executives who are making financial or accounting decisions. What XBRL can do is make reported information exponentially more accessible and, therefore, relevant to investors, financial analysts, and all other information consumers. What does this mean? By allowing information consumers to access every piece of information contained within a report in just seconds, XBRL facilitates fast and efficient aggregation of all the facts related to a specific topic. Pulling specific information from a 100-page report in moments decreases the time and cost of consuming information, increases the number of facts that can be processed in an analysis, and expedites the assimilation of the facts without added cost. All of this leads to a better-informed consumer and, by extension, better decisions. So while XBRL will probably not directly change human behavior, it may very well help the public and regulators detect variances and anomalies in high-risk areas at an early stage.

How will XBRL change the way auditing is done?

It will provide both company management and auditors with more efficient access to company data and facilitate faster analysis of that data. Ultimately, I think XBRL will increase auditor efficiency by allowing auditors to spend more time on analysis and investigative work versus lower-value data shoveling. Over time, it may also increase the frequency of reporting. As the frequency of reporting increases, so, too, will the assurance work around business processes that are generating that information. And this sets the stage for eventually moving to real-time reporting. Real-time reporting will most likely initially involve only a small set of key value metrics or a subset of relevant items rather than entire financial statements as we think of them today.

How will this help the average retail investor who is more interested in summary information about how a company is doing?

Retail investors are the biggest winners of all with XBRL, because they're the ones who, right now, are stuck digging through the 100-page annual report to find the facts of interest to them. As with prehistoric humans' efforts to find food, data hunting and gathering is largely a manual, high-cost, low-value process that results in less-informed decisions. If the facts are presented in a way that allows investors to easily access and consume them, then consumption costs and time are significantly lower and more analysis on more facts can be performed. XBRL presents the facts in an instantly consumable, easily reusable manner. For investors, regulators, and all other stakeholders who are mostly concerned with facts, XBRL is a welcomed revolution.

How could the investor use that information?

Today, an analysis of five companies starts with accessing and assembling a few years' worth of information for each company. Investors have to either manually perform this task or pay for and use aggregated information assembled by others. The cost to the retail investor of simply collecting and assembling information, before they

can hope to analyze it, is extraordinarily high. With XBRL, the time it takes to accumulate information and begin analysis is measured in seconds. This enables investors to immediately use all reported information to assess key ratio compliance, metric assessments, and other forms of disclosure for analysis.

What is the relationship of XBRL to accounting standards like GAAP? Is XBRL taking information defined by GAAP and tagging it, or is XBRL extending GAAP?

Today, XBRL is not an extension of GAAP, but merely a representation of what companies report in accordance with GAAP. But, over time, I believe XBRL will have a significant and fundamental impact on the standard-setting process. I also think that standards will become less presentation format-oriented and more about the representation of facts. What I mean is that, rather than spending resources on the geographic location of the stock option information contained within a report, the attention will be focused on valuation of the stock options and other relevant considerations. As the standard setters, regulators, and others more fully understand the benefits of XBRL to the public investor, they will begin to incorporate it directly into their standards, likely enabling an even more relevant reporting model, driving benefits to the public investor and other information consumers.

If XBRL is essentially a representation of GAAP, then why do we need task forces working on XBRL standards for particular industries?

GAAP promulgates standards that are used by companies to describe their businesses. The difference in how companies from various industry sectors describe themselves is the primary reason there are industry-specific task forces. Industry members—most of them competitors—collaborate to agree on the language most relevant and useful to their specific industry sector.

What are these industry-specific groups doing?

First, they are addressing GAAP reporting considerations and providing clarity around data definitions of commonly used terms. Additionally, as outlined in the book *Building Public Trust*, coauthored by PricewaterhouseCoopers global chairman Sam DiPiazza and PricewaterhouseCoopers senior fellow Bob Eccles, the framework and definitions of Tier II reporting elements are also under consideration. Tier II reporting is about developing and maintaining industry-level standards that address primary value drivers for companies operating in a specific industry. An example, from the retail industry, is revenue per square foot, which would seem to be an unambiguous item. However, the way retailers decide which square footage to include in their calculations varies widely.

What is it going to take for companies to begin to report those additional metrics?

Many companies already do this today. Why? Because they want to tell their story to investors, be they retail investors or buy-side or

sell-side institutions. Once companies use this type of information for their management processes, it will likely be only a matter of time before they begin to share it with company owners. And as analysts begin to request more Tier II data via XBRL taxonomies, it will also facilitate this activity.

What has been the reaction of clients to XBRL? When do they expect to start using it? Do they see XBRL adoption as a technology issue or as a business issue?

Many people see this as only an IT topic; however, it's actually a business issue. Some clients have already started implementing XBRL as part of their internal controls. It provides for a more flexible, more auditable, more control-oriented reporting process. Some have also begun to use it for external reporting purposes, and many regulators have begun to mandate its use to simplify their own consumption efforts and lower operational costs and risks. I don't think there's going to be a single key driver pushing XBRL adoption, but I can foresee investors and regulators as the primary sources of demand. As the investment community becomes more aware of what XBRL means to them in terms of enhanced transparency of reported information and better insights as to what's going on at a company, they will begin to demand it as a reporting format.

When do you think XBRL will be in widespread use by organizations?

XBRL will be in widespread use when the primary consumers of business information—investors, analysts, regulators, and others—are achieving exponential efficiencies in access and analysis. I believe this will occur in the next three to five years. Companies will expand their adoption of XBRL initially for enhancing their internal corporate reporting processes and then for external reporting. Regulators have already begun their march toward e-government, and software application and tools vendors have already included XBRL features in their products, so XBRL's adoption will be more of a natural extension of existing applications than a radical change in what users need to do. So XBRL will be embedded as a feature of existing applications and thereby relatively easy to use, which is another reason why adoption will be widespread over the next three to five years. Early adopters will achieve XBRL's benefits all that much sooner—and being better positioned is an important competitive edge.

What do you think is the biggest misconception about XBRL?

That it's a technology. XBRL is about the core competency of business reporting, not technology. XBRL's number-one attribute is that it's an agreement of more than 250 of the world's leading corporate reporting supply chain participants to form a more efficient and effective reporting supply chain. ■

*The Federal
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to be filed in
XBRL format, the
agency will reduce
processing costs by
25 percent.*

■ XBRL Benefits

Much as HTML ushered in opportunities and business models associated with Web browsing, XBRL has the potential to enable new markets and business models related to business information and reporting. For example, when XBRL is used, business information can be packaged, priced, and distributed in myriad new ways.

XBRL reduces the time and cost of producing, communicating, and accessing the information that business reports contain. By providing a standard mechanism for naming, classifying, producing, consuming, publishing, and exchanging business information, XBRL removes format-incompatibility barriers that prevent software products from being connected with each other at the data level. For example, in 2004, business information is stored and transmitted in plain text, HTML, document interchange formats, spreadsheets, and other formats that are often proprietary or are designed for the narrow purposes of a single program. Therefore, these formats do not enhance the interoperability of the data contained in a report as it is transmitted from producer to consumer.

XBRL eliminates the need for porting, translating, mapping, and creating interfaces to make the business data readable by various software packages. Eliminating these processes represents significant gains in the speed, quality, and reliability of processing business information at the enterprise and industry levels. These benefits translate into better systems of decision support for management and other users of business information.

Another compelling benefit of XBRL is the cost-savings achieved through its use. For example, in the U.S., the Federal Deposit Insurance Corporation (FDIC) estimates that by requiring reports to be filed in XBRL format, the agency will reduce processing costs by 25 percent. Another early adopter of XBRL, Germany-based Deutsche Bank has been reported as saying that it estimates saving 100,000 man-hours per year as a result of implementing XBRL.

Given a common way of exchanging business information, it is possible to access business reporting data from many locations and sources and to build software that analyzes this data in ways formerly not possible. For example, applications can transform and compare business reports or their fragments, presenting them in the most appropriate context and time for a specific audience. An application can monitor the changes in total debt information for a company and display this information in a continuously updated digital dashboard that is available to the appropriate company executives (such as the CFO) while making the same information available to appropriate individuals outside the company (such as a credit analyst in a bank).

The XBRL standard includes both specification of the format of individual items of business information and a common and flexible framework for structuring and naming business information. The collective and cumulative experiences of industry and domain experts are thus reflected in the standard as it is developed. This is an important benefit to organizations that adopt XBRL: They can focus on

the optimal use of their business information, employing an established business reporting framework. The data formats will be compatible among XBRL users, as will the context, organizing methods, and structures that use the data.

Because XBRL reduces the costs and barriers associated with obtaining and analyzing financial reports, smaller publicly traded companies may find it easier to attract analyst coverage for their securities. This increased coverage could create more liquidity for smaller companies.

For a variety of stakeholders, XBRL provides many advantages over current methods of business reporting. From the point of view of consumers of business information—including the general public, the capital markets, auditors, and regulators—these advantages can be summarized as major improvements in the timeliness, relevance, quality, and accessibility of business information.

All members of the corporate reporting supply chain (CRSC) stand to gain from widespread adoption of XBRL. In particular, companies that file regulatory reports, accountants who prepare business reports, and publishers that aggregate, analyze, and disseminate business reports gain the benefits of timeliness and accuracy associated with XBRL. There are opportunities for independent software vendors and consultants who will be needed to develop software and perform associated services necessary for XBRL adoption. Examples of such services include data integration, needs-analysis, design of XBRL adoption strategies, implementation, and analysis of XBRL data.



For more information, see “XBRL and the Corporate Reporting Supply Chain,” on page 9.

FACTORS MOTIVATING XBRL DEVELOPMENT AND ADOPTION

Development and adoption of XBRL are being spurred by the inefficiencies of today's primarily paper-based business reporting methods. Software tools may be used at certain points, but the process remains largely manual and focused on paper (or unstructured electronic documents that are representations of paper) as the end product.

Preparing business reports using paper or electronic equivalents is slow, not easily repeatable, and prone to errors, requiring duplicated efforts to present the same business information to different audiences. Likewise, the many business information items shared among regulatory filings, annual reports, and tax returns must be created anew for each recipient.

Furthermore, paper and its electronic equivalents are less easily shareable, searchable, and storable, and they are difficult to update. They lack the ease and capabilities XBRL offers for sharing, annotating, and distributing reports.

These limitations are obstacles to exchanging business information within and between enterprises. For example, it is difficult for a small company to exchange business information from its accounting system with a bank's systems. The company must transcribe business information, create multiple reports from the same data, or manually fill out forms to provide the bank with the business information

it needs. Electronic reports submitted to banks are often incompatible with the format the bank uses. With XBRL, companies can automatically share such information with business and trading partners, suppliers, and clients.

At best, these inefficiencies create a discontinuous flow of business information that affects both the preparers of business information and its users, interfering with consistency of the information and limiting the frequency and timeliness of reports, which for fast-moving industries, companies, and economies can make manually prepared business reports almost useless. XBRL solves these problems through its standard data format and through providing common vocabularies, making data transportable across enterprise boundaries and software applications.

XBRL enables the automation, standardization, and streamlining of business reporting processes, eliminating many intervening reports or paper-based activities, because application programs can process business information and exchange business data without manual intervention. Instead of performing long series of manual steps, the accounting department of a company can use an application that presents XBRL-encoded documents containing the accounting information for review by several users, such as auditors, analysts, and company managers.

XBRL's common vocabulary for business and financial information enables search and comparison of business data.



A taxonomy is a systematic method for classifying concepts into a hierarchy of ordered groups according to their natural relationships. For instance, each topic heading in a Yellow Pages directory of businesses is an example of a category in a taxonomy.

An important motivator for XBRL adoption is that fragments of reports can be extracted, shared, aggregated, or incorporated into other documents. News organizations can automatically incorporate important aspects of a company's business results into timely broadcasts, a feature also useful to financial analysts wishing to cite or include business and financial facts in their analyses and reports to investors. Regulators and other data consumers can process much more data and automate compliance with specified rules, actions that would be time-consuming to perform manually. Regulators can also publish their information requirements in the form of taxonomies and extensions of other, public taxonomies.

The fact that XBRL enables the availability and distribution of relevant business information provides capital markets with additional transparency and increases the public's confidence in the business information.

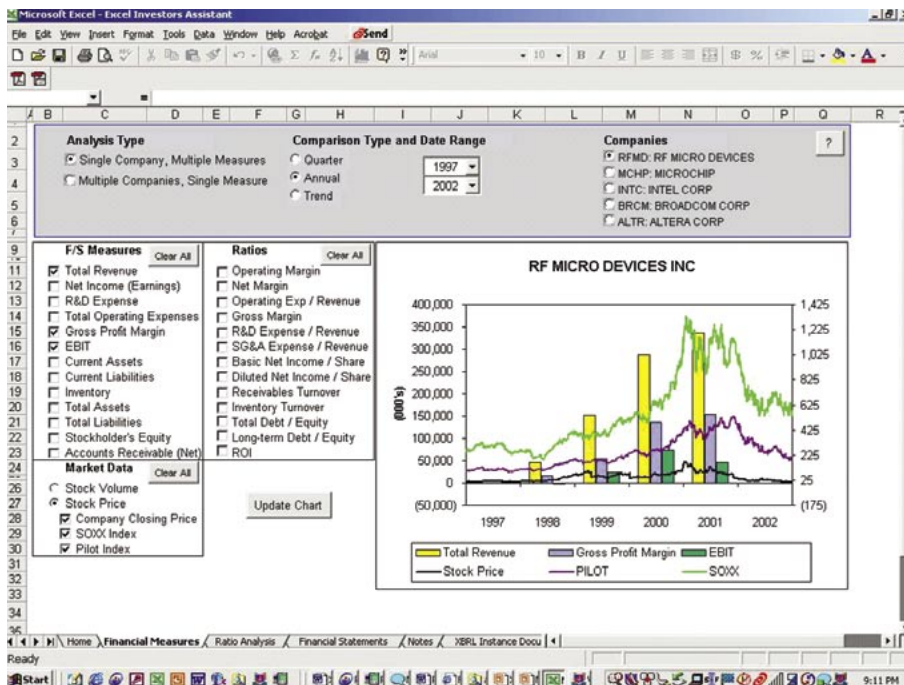
XBRL takes advantage of the XML Linking Language (XLink) to describe and maintain connections between items of business information or between taxonomic elements. This ability to contextually link relevant content, such as instructions, interpretations, regulatory guidance, standards, reporting guidance, and audit guidance, makes XBRL a significantly more useful reporting and consuming environment than would otherwise be the case.

Using XBRL in managing business information within a company allows management to track and compare departmental and divisional performance. The same features of XBRL used to standardize the exchange of information with entities

outside an enterprise can also be used for exchange among business units within an enterprise. For example, XBRL can be used to consolidate reports from various internal operational units.

Finally, XBRL enables new software applications built on the premise of managing shareable, common-format business data and using that data to enhance the decision support process for all stakeholders in the CRSC.

FIGURE 1: EXAMPLE OF FINANCIAL ANALYSIS USING XBRL AND WEB SERVICES



The fact that XBRL enables the availability and distribution of relevant business information provides capital markets with additional transparency and increases the public's confidence in the business information.

An early pilot application created jointly by PricewaterhouseCoopers, the Nasdaq Stock Market, and Microsoft demonstrated the way XBRL can be combined with Web services. (See Figure 1 above.) The project demonstrated how—using XBRL as the data format, an Excel spreadsheet as the analysis tool, and a Web service that provided XBRL-formatted financial reports over the Internet—investors could access and analyze representative data from a selection of Nasdaq-listed companies in a matter of seconds. The business data for the companies was available for a five-year period and included sample data from the companies' 10-K and 10-Q filings. Analysis could be carried out using three categories of data: financial measures (such as net income and revenue); ratios (such as total debt/equity); and market data (such as stock volume and price). Without XBRL, manual assembly of data related to this task could take days. These data analysis functions can now be found in the Microsoft Office Tool for XBRL, which was in preliminary release as of mid-2004.

XBRL AND THE CORPORATE REPORTING SUPPLY CHAIN

To better understand the context in which XBRL is used, and its stakeholders, it is useful to consider the CRSC, as illustrated in Figure 2 on page 11.

*The power of XBRL
lies in its benefits
to each of the
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The CRSC is a framework for articulating the movement of business reporting data from generation through consumption and for specifying the communities that define, generate, or use such data.

A hypothetical commercial bank can be used as an example to show how XBRL enhances the effectiveness of the CRSC. As shown in the figure, three types of entities in the CRSC are affected by the use of XBRL: participants, processes, and touch points between processes.

- **Participants**—Software vendors and other entities with which the bank deals and with which it shares some level of business information, such as operational data, credit ratings, audit data, business press releases, and regulatory filings. The bank's investors, trading partners, and auditors are examples of participants.
- **Processes**—Areas of activity within the bank where participants generate and consume business information. Business operations, internal and external financial reporting, and investment and lending analysis all generate and use business information. For example, analyzing the status of the bank's loan portfolio, its reserves, and obligations is part of the investment and lending analysis process. Investors, auditors, and financial publishers are some of the participants in this process.
- **Touch points**—Areas where XBRL supplies the processes with the business information they need to operate and to connect to each other. In this example, XBRL is used in creating the bank's credit filings and regulatory filings, feeding external financial reports into the investment and lending analysis process.

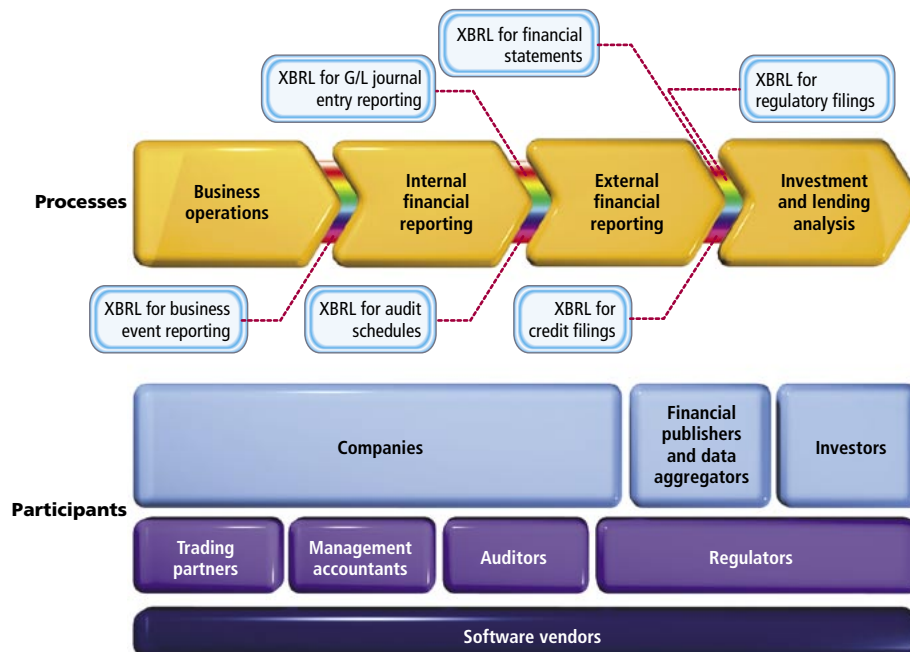
The two auxiliary concepts of producer and consumer aid in further understanding how the CRSC works. A producer is a participant who adds value by generating or modifying business information. A consumer is one who receives business information to use it in his or her own context.

It is not unusual for a participant in the chain to be both a consumer and a producer. This situation is enabled by the underlying common XBRL format throughout the chain. Distributors of business information (such as financial publishers), and aggregators (for example, financial analysts) are examples of entities that can be at once consumers and producers. Furthermore, software programs and individuals can also be producers and consumers.

XBRL strengthens the CRSC in many ways. For example:

- Any member(s) of the chain can more efficiently share business information with any other member(s) of the chain.
- Once information is created in XBRL, it can propagate through the chain while preserving its standard format. This situation obviates the effort of translating and reformatting the information at every link along the chain.
- New application software can be developed to address specific needs of each link of the chain or to address the needs of the chain as a whole.

FIGURE 2: CORPORATE REPORTING SUPPLY CHAIN



More information regarding the corporate reporting supply chain can be found in the book *Building Public Trust* by Samuel A. DiPiazza and Robert G. Eccles.

Existing applications can add XBRL compatibility to participate in exchanging information along the chain and to import or export at any link business data the applications find useful. The power of XBRL lies in its benefits to each of the participants in the CRSC and to the chain as a whole.

■ The XBRL Standard

The XBRL International consortium has developed the XBRL specification, a formal and detailed definition of XBRL designed for use by software developers. Major elements of XBRL include a mechanism for naming, describing, and structuring business information; specifications for the way data elements should be structured; and documents containing the business information. Software (such as a business reporting application) and Web services that process XBRL-compliant data are not part of the XBRL standard itself, although the use of XBRL requires them.

The XBRL standard enables software to unambiguously interpret the particular way business information is represented. (See Figure 3 on page 13.) For example, it would be difficult for a business reporting application to process a company balance sheet that was represented in a word-processing document: The software would need to know a great deal about a balance sheet (such as the fact that certain lines represent subtotals or totals of other lines) and about the way one is typically represented (for example, that there are columns of numbers, each of which describes the company's financial position at a given point in time). Even if a software program possessed this information, it would still have to accommodate the differences in the details of the way a balance sheet is represented: for example, one balance sheet might read "dollars in thousands," whereas another might read "000s omitted."



For more information, see the sidebar "XBRL and Web Services," on page 12.

Using XBRL, however, the business reporting application would be able to easily process the document because each element of information was identified with a tag when the word-processing document was created. The business reporting application uses XBRL's taxonomies, which are discussed below, to understand the relationship among the data elements in the balance sheet or other business report.

TAXONOMIES

The mechanism for describing, naming, and classifying items of business information in a document is a data structure called an XBRL taxonomy (or tag list). Through this mechanism, a common vocabulary is defined for terms that occur in XBRL-compatible documents.

Individual business concepts—such as cash flow, depreciation, and assets—are represented in the taxonomy. The taxonomy also specifies their interrelationship, definitions, manner of display, and other descriptive data. XBRL taxonomies facilitate both internal and external business reporting.

Many companies are likely to use XBRL to enhance their internal reporting system before they adopt it for external use. For business reporting within an organization, XBRL provides a taxonomy for representing operational and accounting details called XBRL GL, the Journal Taxonomy. XBRL GL can be used for the representation of data such as the chart of accounts, sub-ledger and general ledger postings,

XBRL AND WEB SERVICES

A Web service is a standardized mechanism for communication among applications over the Internet at the data or business process levels. Web services facilitate the sharing of information among applications and allow construction of elaborate services that can interact with many data sources and programs distributed over the Internet and inside company firewalls. Web services range in complexity from simple requests for data to interactions involving the business processes of a number of organizations to achieve a common business goal.

Web services provide a mechanism for the automatic location, retrieval, and processing of financial information formatted using XBRL. XBRL can take advantage of the service-related functionalities defined by the Web services standards; the XBRL standard restricts itself to issues related to business reporting data.

Web Services Standards and Payloads

Several standards play specific roles in providing a common, agreed-upon framework for creating, discovering, delivering, and managing Web services. XML is used to mark up and tag data to be shared or transported. Other Web services standards, such as Simple Object Access Protocol (SOAP), Web Services Description Language (WSDL), and Universal Description, Discovery, and Integration (UDDI) provide functions and frameworks that are needed to execute a Web service. These standards, however, do not specify the actual application data that Web services need or act upon: they do not define the subject

of a Web service. In contrast, XBRL provides an XML-based format that can be used as the payload or subject matter of Web services pertaining to business reporting.

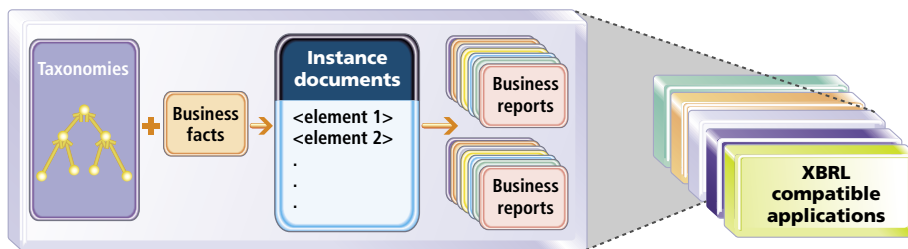
An XBRL-Based Web Service

A simple Web service can be designed to collect earnings-per-share information for all companies listed on the New York Stock Exchange with revenues greater than a given value. Web services standards provide a way to describe and execute such a service, and XBRL is a way to describe the earnings-per-share numbers that the Web service collects. Standards-compatible applications, data repositories, service directories, and Web sites can all collaborate to deliver such a service without the need for format conversions when crossing an organizational or application boundary.

The current approach to obtaining business information requires establishing individual connections with many entities one at a time to collect, collate, and organize pieces of business information. This process is often manual. For example, when investors research the performance and status of a company, they connect to many different Web sites with reports in various formats, and they add to their analysis what they have seen or heard in the media about the subject company. In conjunction with Web services, XBRL replaces the need for these bilateral connections and enables software to deposit, obtain, and collate business information from many sources in the same format. ■

historical transaction data, customer and vendor master files, accounts receivable and accounts payable status, and business performance metrics. An organization using XBRL GL will be able to easily move data between its disparate systems, facilitating its business and financial analysis, archiving, and auditing activities.

FIGURE 3: MAJOR COMPONENTS OF XBRL



Information about a particular company's business at a particular point in time is expressed in instance documents, which use XBRL tags defined in one or more taxonomies. XBRL-compatible applications are used to create and process instance documents and to generate business reports from them.

For external financial reporting, XBRL is used to represent financial information that has been prepared in accordance with accounting standards bodies such as the Financial Accounting Standards (FAS) Board in the United States and the International Accounting Standards (IAS) Board. Several sets of taxonomies are used to define XBRL documents that present financial reports in compliance with the accounting standards known as Generally Accepted Accounting Principles (GAAP). Figure 4 on page 15 shows the general structure of these sets of taxonomies (known as taxonomy frameworks). One set of taxonomies, shown toward the left side of the figure, defines the XBRL representations of general information needed in any financial report, such as the legal name of the company in question and the date of the report. Another set of taxonomies, shown in the center, defines the XBRL representations of the disclosures that accounting standards require, such as management's report on the company's financial performance; management's certification of the accuracy of the financial statements (required by U.S. Securities and Exchange Commission [SEC] rules); and the report of the company's independent auditor. A third set of taxonomies, shown toward the right side of the figure, specifies the XBRL representation of the financial statements themselves. The specific taxonomies in this framework define XBRL representations of general accounting concepts (such as assets), balance sheet concepts (such as total fixed assets), and income statement concepts (such as total revenue).

These three taxonomy frameworks specify the XBRL representations of accounting concepts (and related reporting information such as disclosures) that are generally applicable to all reporting jurisdictions and all industries. As shown in the bottom part of the diagram, other taxonomies are specific to individual jurisdictions (such as the United States or the United Kingdom) and to specific industries within a jurisdiction (such as banking or retail). These specific taxonomies define the way the XBRL representations of accounting concepts are supplemented or modified to account for the differences in accounting standards among jurisdictions and industries.



The International Accounting Standards Board is an independent accounting standards organization based in London that develops international accounting standards and works with national accounting standards boards to achieve global convergence in accounting standards.

Many companies are likely to use XBRL to enhance their internal business reporting system before they adopt it for external reporting.

An organization adopting XBRL for external reporting can start with the appropriate taxonomy frameworks for its reporting jurisdiction and industry and extend them on the basis of the organization's own conventions and practices. For example, a retail company in the United Kingdom could create a customized taxonomy for financial reports by extending an XBRL taxonomy used to represent accounting concepts that pertain to the retail industry, as defined by U.K. GAAP. Once the classification of accounting concepts and terms is described in the company's taxonomy, future reports can be prepared with that same taxonomy.

XBRL also provides the ability to define new taxonomies and new terms in taxonomies. This feature allows a company to express and specify terms in different accounting standards by creating a taxonomy for each standard. A company generally uses one accounting standard for reporting. If it uses more than one, its reports simply refer to each of the appropriate taxonomies.

INSTANCE DOCUMENTS

Individual documents that contain business information in XBRL format are called instance documents; they hold factual items corresponding to the terms and relationships described in a taxonomy. Taken as a whole or in part, the annual report of a company, a press release containing business information, and operational data from a business unit each represents an example of an instance document. Instance documents can be exchanged, published, analyzed, and otherwise processed by application programs.

For example, an instance document called Balance Sheet that conforms to the IAS taxonomy mentioned above could contain two IAS terms (Assets and Intangible Assets), along with corresponding values that indicate Assets to be €150 million, and Intangible Assets to be €50 million. Details associated with the 50 million figure, such as the company it refers to, the fact that it is expressed in euros, that it pertains to a particular date, and that it is accurate only to the nearest 100,000, are also expressed in the XBRL instance document.

XBRL ELEMENTS AND TAGS

The smallest units of an XBRL instance are called facts. Each fact describes a single item of business information, along with its value and other characteristics, although a few facts hold non-business information about the document or processing instructions for software programs. Elements hold the data in an instance document. Elements can conform to one or more taxonomies, or be assembled from one or more reports, or come from different companies. The actual tasks of aggregation, distribution, analysis, and similar processing are performed by software applications that are XBRL compatible. They recognize the elements, compare them with taxonomies, and make processing decisions that are based on the types of elements they encounter.

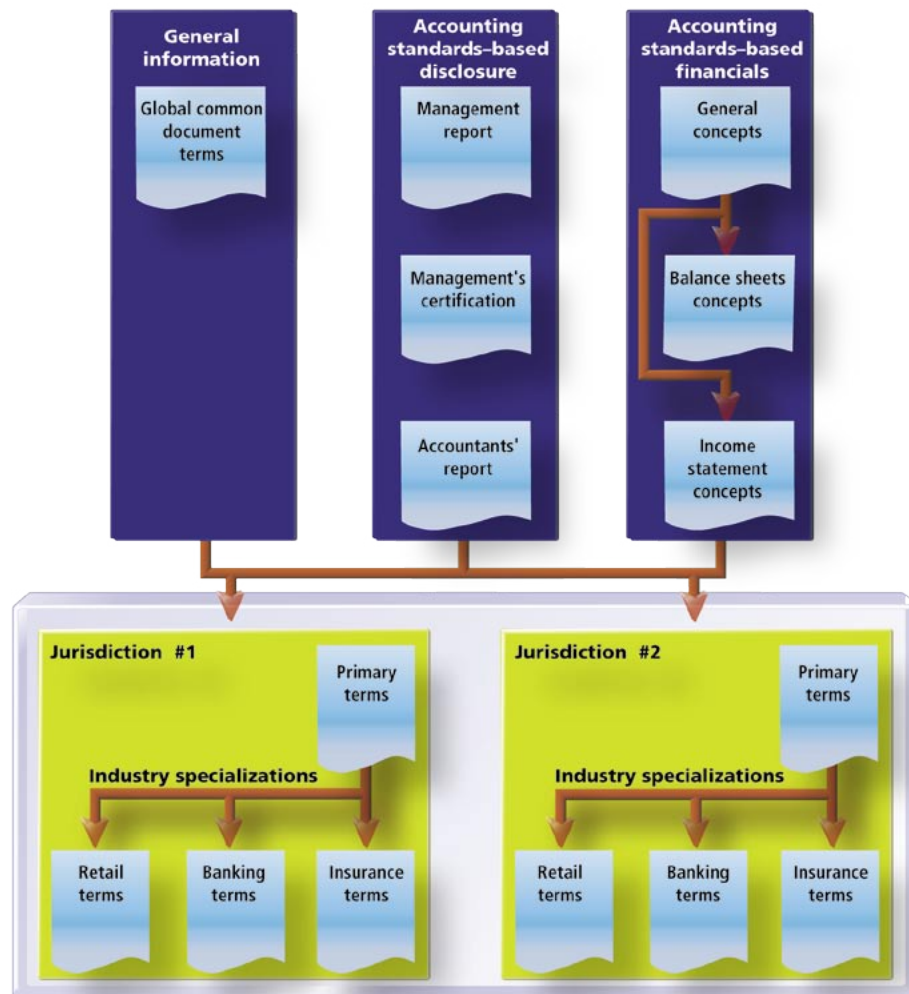
As part of standardizing business data, elements of a business report are marked at the time they are created with information that describes the type of data within an element. This is called tagging. Tagging means that an element such as earnings

per share (EPS) is marked so that it can be recognized as EPS by software programs wherever it appears. If EPS is \$100, the tagged EPS would look like this in generic XML:

```
<EPS> 100 </EPS>
```

In contrast, XBRL would include far more information with the tagged data, as illustrated on page 16.

FIGURE 4: XBRL TAXONOMY FRAMEWORK FOR GAAP-BASED REPORTING



Source: XBRL International, 2003

Graphical representation of the XBRL taxonomy framework for representing financial statements prepared in accordance with GAAP.

TAGGING XBRL DOCUMENTS

At the origin of the CRSC is the encoding and entry of business information by producers. This activity is performed in a standard way to conform to a taxonomy. An example is a regulatory filing, some elements of which could be drawn from the accounting system and rendered in XBRL format to create an instance document. Text, numeric data, and notes in business reports can all be identified using XBRL tags. XBRL also allows preservation of contextual information when the

information is created. There will also be a corresponding element in a taxonomy, with all the characteristics of the tagged element, except for specific values assigned. EPS in XBRL would look like this:

```
<ci:basicEarningsPerShare
  contextRef="N1101" unitRef="usdPerShr" decimals="2">0.19
</ci:basicEarningsPerShare>
```

In this example, `ci` is an abbreviation for the taxonomy being used (U.S. GAAP Commercial and Industrial), and `contextRef="N1101"` provides a reference to the context necessary for understanding the earnings per share financial fact expressed in XBRL. In this case, the context has been given the arbitrary designator "N1101". The `basicEarningsPerShare` based on the `ci` taxonomy, within the context "N1101", is 0.19. The text `decimals="2"` indicates here that the number is accurate to two decimal places.

In XBRL, the example above is called a fact, meaning it is a fact reported within a given period of time about a given business entity, and is expressed in an XBRL-compatible format.

The text `unitRef="usdPerShr"` in this fact indicates that the unit of measure is U.S. dollars per share, which is defined elsewhere in the XBRL instance as the ratio of the ISO standard designator for dollars (USD) with the XBRL designator for shares:

```
<unit id="usdPerSh">
  <divide>
    <measure>iso4217:USD</measure>
    <measure>xbrli:shares</measure>
  </divide>
</unit>
```

The `numericContext` designated "N1101" could then be defined in a subsequent set of XBRL statements, such as the following:

```
<context id="N1101">
  <entity>
    <identifier scheme="http://www.irs.gov/EIN">26-0009896</identifier>
  </entity>
  <period>
    <instant>2004-06-30</instant>
  </period>
</context>
```

In this case, the context indicates the time period that the `basicEarningsPerShare` pertained to (in this case, the accounting period ending June 30, 2004), and that the entity in question is identified as number 26-0009896 according to the Employer Identification Number scheme documented at the Web site www.irs.gov/EIN.

*For XBRL to
be widely
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benefits are
needed.*

XBRL-compatible applications tag the data when it is created. For example, when a user enters data into a business reporting application, it is XBRL-tagged at the time of creation. Alternatively, software applications could convert untagged data into tagged data after-the-fact; however, this is quite a complex and difficult undertaking because it involves making decisions about the meaning and context of untagged data. When neither choice is available, data could be tagged manually, although manual tagging is expected to disappear as more XBRL-compatible software becomes available.

■ Requirements for the Success of XBRL

Because XBRL is an enabling standard, the development of XBRL-enabled applications software and XBRL taxonomies is needed to help bring users the full value of XBRL and realize its potential. These developments are continuing around the world and in different industries at a rate that varies according to the dynamics of each region and industry.

AVAILABILITY OF XBRL-ENABLED APPLICATIONS SOFTWARE

For XBRL to be widely used, software applications that help realize its benefits are needed. Because there are numerous ways of processing, manipulating, and sharing XBRL-compatible business information, users are likely to see different combinations of tasks automated by software applications. XBRL does not specify the features of software packages, only the format of the data they will process.

In mid-2004, software applications that use various features of XBRL are becoming available as the features they support are evolving. Software can help expand the use of XBRL in at least three major ways:

- Implementing XBRL format compatibility in a software package enhances its interoperability with other XBRL-compatible packages. Importing and exporting data become simpler and automated. For example, an enterprise resource planning (ERP) package that outputs data in XBRL format can provide company financial reports that can be made available to disseminators of business information (such as news agencies).
- Creating new XBRL-specific software products is another path to expanding XBRL use. Creating a taxonomy development tool, an XBRL-based authoring tool for business reporting, or an XBRL-aware business-reporting browser are three possibilities for creating new kinds of software.
- Adding XBRL-specific capabilities to an existing software product expands the range and utility of a software application for the user community. An example of this type of software would be the addition of an XBRL-based search and analysis tool to an accounting package to enable more targeted and more refined searching.

Initially, the types of software incorporating XBRL are ERP packages, financial analysis programs, accounting and business reporting applications, management-decision support systems, executive dashboards, portfolio management software, and regulatory compliance applications. In addition, XBRL will be incorporated into widely used desktop software. For example, in May 2004 Microsoft made available



For more information on applications with XBRL capabilities see “XBRL-Enabled Software,” on page 22.

Development of taxonomies is a major catalyst in bringing XBRL into new communities of users.

a preliminary release of an XBRL tool that enhances the native XML capabilities of Office 2003 with additional functions supporting business reporting and analysis functions using XBRL.

DEVELOPMENT OF TAXONOMIES

Development of taxonomies is a major catalyst in bringing XBRL to new communities of users. Taxonomies can either be developed independently or developed collaboratively within the framework of the XBRL International consortium, where members form working groups in which they define, discuss, and agree upon what to include in a given taxonomy. Such taxonomies are developed with the advantage of the opportunity for public review and commentary. XBRL International and its subgroups are developing taxonomies for particular industries and jurisdictions.

Taxonomies can be categorized in a three-tier hierarchy based on accounting standards, a categorization scheme introduced in the PricewaterhouseCoopers publication *Building Public Trust*. This hierarchy goes from the most general accounting standards to the most specific: Tier I contains global GAAP, Tier II contains industry-based standards, and Tier III contains company-specific information. Using this three-tier approach, a company can incorporate global standards, issues related to its own industry, and particulars of its own company. This hierarchy allows each tier to build upon work already done in the previous tier instead of developing taxonomies from scratch. Of course, XBRL does not define these accounting standards but allows for their expression in a standardized computing format.

Industry-Specific Taxonomies

Industry-specific taxonomies accelerate the uptake of XBRL for members of a given industry, who will typically have to make only minor modifications to the industry taxonomy to make it useful for their particular company. These adjustments allow a company to create a taxonomy describing its business once and then enable them to reuse it for all XBRL-related applications. Examples of industry sectors that are early candidates for taxonomy development are banking, insurance, industrial products, and retail.

Jurisdiction-Specific Taxonomies

For XBRL to be usable globally and for business data to be exchangeable in the XBRL format inside jurisdictional boundaries and across them (for example, between the United States and Canada), taxonomies must be developed that are compatible with the accounting principles of each jurisdiction within which XBRL is to be used. For example, taxonomies have been developed for both U.S. GAAP and IFRS.

Other Business-Reporting Taxonomies

The development of XBRL taxonomies for business-reporting activities that are outside the scope of GAAP financial statements is another important area of development. In this context, taxonomies are used to describe information within an organization's annual reports and/or regulatory filings. For example, XBRL can be used to structure and describe information such as the Management Discussion and Analysis (MD&A) or Operating and Financial Review (OFR) sections of corporate annual reports.

The development of such taxonomies facilitates adoption of more structured reporting in these areas, an outcome that has been desired by regulators and stakeholders alike. PricewaterhouseCoopers is collaborating with other leading market organizations in the development of an independent Enhanced Business Reporting Consortium whose purpose is the development of a reporting framework, promotion of guidelines and definition development, and voluntary adoption. XBRL is an enabler for this initiative, as it will allow for the aggregation, consolidation, and reuse of the enhanced reporting content that will result from the consortium's efforts. More information on the Enhanced Business Reporting Consortium will be available at its Web site, www.ebrconsortium.org.

PROVISIONS FOR SECURITY, INTEGRITY, AND AUTHENTICATION

Ensuring the authenticity and integrity of XBRL instance documents is essential, particularly because these documents may be obtained from sources other than the originating company, such as public Web sites, thus creating the potential for their alteration by third parties. The consequences of incorrect or inauthentic business information distributed over the Web have already been seen in several cases involving conventional reporting formats (such as faked press releases or news stories): it can be damaging to a company's reputation, to its stock price, and to the investors that use the information to make trading decisions. In addition, erroneous reports to regulators expose a company to the risks of noncompliance with securities and other legislation. XBRL has the potential to provide a higher degree of security than do conventional reporting formats, because it can take advantage of more advanced functionality of XML digital signature standards. This functionality can ensure the authenticity and integrity of the XBRL documents, thus guaranteeing that the information they contain came from the ostensible source and that the document has not been modified.

Solutions for document security will be used to make XBRL data more secure. However, security is not part of the XBRL standard itself; XBRL data is designed as a payload to be carried by other protocols that provide security and authentication.

■ XBRL Adoption Considerations

XBRL has enjoyed an impressive adoption rate compared with the rate with which the business community has embraced business reporting and accounting standards in the past. During 2003 and the first half of 2004, XBRL continued to be adopted by a variety of organizations. National regulatory bodies including the U.K. Financial Services Authority (FSA) have also embraced XBRL. Increased adoption will create larger markets for software and therefore the possibility of more XBRL-based tools having more features.

During the next two years, XBRL adoption is expected to grow, owing to a number of factors. Taxonomies are being developed in joint efforts. More software will be available that facilitates creation of data and taxonomies in XBRL. Pilot efforts to use XBRL have been initiated by sectors such as banks and creditors. The XBRL International organization has been growing rapidly (from 13 founding members in 1999 to more

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The New Basel Capital Accord (often called Basel II) developed by the Basel Committee on Banking Supervision specifies new risk-based minimum capital requirements for banks.

than 250 in 2004) and is adding features to the standard that are applicable to an ever-widening circle of producers and consumers of business information. It is probable that the adoption of XBRL will follow a course similar to that of XML and HTML: the standard is adopted by a small percentage of companies at first, then adoption grows quickly to include an overwhelming majority of companies.

As an example of XBRL reusability, the same data that banks receive from clients for credit-risk analysis can be aggregated and reused for Basel II (New Basel Capital Accord) compliance purposes. An XBRL International working group has developed a draft taxonomy for Basel II reporting; more information is available from the consortium's Website, www.xbrl.org.

Regulators are increasingly announcing XBRL initiatives, which will result in incentives or requirements for their filers to file in XBRL. Connectivity of XBRL with other synergistic e-commerce standards is expected to influence adoption by the constituencies of those standards.

XBRL EARLY ADOPTERS

Early adopters of XBRL are usually organizations that process large volumes of financial reports. Some notable examples are governmental tax and regulatory agencies and financial services companies.

Government Agencies

Regulators play an important role in the adoption and use of XBRL, because they can require their constituencies to use XBRL for regulatory filings, which will be economical to both the regulators and the companies filing with them. The automated process that XBRL enables allows regulators to focus on regulating, rather than preparing and consolidating information.

THE XBRL INTERNATIONAL CONSORTIUM

The XBRL standard is developed, specified, and expanded by XBRL International, a nonprofit consortium established in 1999 that now comprises more than 250 organizations, companies, and regulatory agencies worldwide. Members collaborate to create various aspects of the standard, such as taxonomies and specifications, and to expand the adoption of XBRL. Members share best practices and experience related to XBRL.

PricewaterhouseCoopers is a founding member of XBRL International and is a leader and major contributor in the consortium. Most of the consortium's development is done by working groups that have specific charters and members from many national jurisdictions. In mid-2004, there are several working groups, whose missions illustrate the current focus of XBRL International activities:

- Domain—Creates new taxonomies and coordinates the standard body's taxonomy development efforts.

- Credit Risk Assessment Services (CRAS)—Collaboration on taxonomies for exchange of credit risk information such as corporate identity, affiliates, and industry statistics.
- Specification—Develops the formal technical description of XBRL, its framework, specification and associated methodologies.
- General Ledger—Develops specifications for the XBRL-compatible representation of financial and nonfinancial facts that originate in operations and transactions.
- Marketing and Communications—Coordinates conferences, approves consortium white papers, maintains the XBRL Web site and produces other communication vehicles.

More information about XBRL International is available at www.xbrl.org. ■

The U.K. Inland Revenue office has established an e-filing initiative that gives companies the option of using XBRL-formatted data in filing their corporate tax returns, beginning in the fourth quarter of 2004; use of XBRL is expected to become mandatory sometime between 2005 and 2008.

The FSA has announced that its Integrated Regulatory Return program, scheduled to launch in the second quarter of 2005, will mandate the use of XBRL for all electronic filings for its regulated entities.

The Australian Tax Office announced in 2003, the adoption of XBRL as its preferred data format for the submission of company information. Earlier, the Australian Prudential Regulation Authority (APRA) had created a program to collect regulatory data from hundreds of financial institutions in XBRL. APRA is also planning to provide XBRL-compatible benchmarking data to its clients when they make their filings. This data will quickly provide a comparative view of where a company stands within its peer group.

In mid-2004, the National Tax Agency of Japan has begun to accept XBRL-formatted electronic tax filings. Likewise, the Financial Services Authority of Japan will begin accepting XBRL-formatted financials from foreign companies listing on Japan's markets.

The Dutch Tax Authority is leading a government-wide project in digital reporting that will result in a comprehensive Dutch taxonomy to encompass reporting needs for corporate tax reporting, social security regulation, and financial markets regulation.

In the United States, the FDIC is leading an interagency effort in which all five agencies of the Federal Financial Institutions Examination Council will use XBRL to make their Internet-based data collection processes more efficient. They will begin XBRL filings in the fourth quarter of 2004.

In addition, as of mid-2004, the following government agencies have publicly announced adoption of XBRL: Banco de España, Chinese Securities Regulation Commission, Danish Commerce and Companies Agency, Deutsche Bundesbank, Dutch Water Authority, Eurostat, E.U. Commission, Irish Revenue, and Swedish Patent and Registration Office.

Commercial Financial Services Organizations

Many organizations (such as securities exchanges, securities analysts, credit analysts, and banks) from different parts of the CRSC have taken the initiative to both adopt XBRL as well as to encourage its adoption.

- **Tokyo Stock Exchange**—Beginning in the second quarter of 2003, companies listed on the Tokyo Stock Exchange (TSE) began to use the Timely Disclosure Network (TDNet) to submit, in XBRL, numerical data such as Earning Digests and Corrections. The numerical data are stored in TSE's databases as XBRL. When the companies use TSE's own software for this task, both XBRL data and a rendered Adobe Acrobat file are produced. As the TSE accumulates this data, it will then be made available to the public later in 2004.

Many organizations from different parts of the corporate reporting supply chain have taken the initiative to both adopt XBRL as well as to encourage its adoption.

Use of XBRL is not limited to financial institutions. Organizations can use it for exchanging business data among their internal reporting and business systems.

- **Sumitomo Mitsui Banking Corporation**—Using XBRL in a system to exchange letters of credit for international trade.
- **Moody's Risk Management Services**—Created tool kits to enable the electronic credit data that banks capture to be fed into Moody's Financial Analyst (MFA) software, for credit analysis. Moody's plans to release an XBRL version of MFA.
- **KOSDAQ (Korean exchange), TSX Group (Toronto Stock Exchange), Shenzhen Exchange, Deutsche Börse, New Zealand Exchange, Luxembourg Stock Exchange**—As of mid-2004, these exchanges have publicly announced adoption or are actively piloting the use of XBRL as either a company submission format, or as a means to deliver listing information efficiently to markets worldwide. KOSDAQ, for example, has documented evidence of a proportional increase in foreign investment in the first 15 companies whose information was distributed using XBRL.
- **Others**—Such as Bowne, Microsoft, Morgan Stanley, Reuters, and SunTrust are using XBRL as part of their external business reporting. They have made their business results available in XBRL format. Individuals and application programs from outside these companies can now retrieve, process, and analyze the business data the companies post.

Use of XBRL is not limited to financial institutions. For example, Wacoal, a global maker of intimate apparel, is using XBRL for exchanging business data among its internal reporting and business systems, including purchasing, payroll, sales management, and inventory management.

XBRL-ENABLED SOFTWARE

Software applications and tools play an important role in the use of XBRL and in strengthening the CRSC. As a data interchange format, XBRL is itself platform independent and programming-language independent.

Software applications using XBRL fall into one or more of three categories—taxonomy-related, instance document-related, and CRSC-related—which are based on the type of structures the application focuses on.

Because XBRL is an emerging standard, the list of its software providers is expected to grow and change often. Following are but a few examples of applications focus areas and capabilities announced by software vendors.

- **Blast Radius**—The company offers an XBRL Integration Pack for its XMetal XML content authoring tool for the creation and validation of XBRL instance documents.
- **CaseWare International**—This creator of assurance, reporting, and analysis tools has announced the implementation of XBRL in its products. These products import XBRL-compatible general ledger files and produce XBRL-compatible business reports according to XBRL specifications. IFRS taxonomies can be used with these products. PricewaterhouseCoopers' ValueFinancials product, a set of best practices financial reporting templates

based on CaseWare's platform, have been XBRL-enabled since early 2003 and have been used in XBRL pilots.

- **Creative Solutions**—This Thomson subsidiary, a provider of accounting software, tags financial documents using XBRL in its products, enabling users to share this financial data with other XBRL-compatible applications. For example, Creative Solutions has partnered with Sageworks, a provider of e-business applications that interpret financial data, to connect their products using XBRL. An XBRL export from the Creative Solutions accounting software to Sageworks' ProfitCents product enables users to convert financial statement data into narrative text reports.
- **Hyperion Solutions**—This vendor provides capabilities for XBRL taxonomy management, data mapping, and text entry in its products. Taxonomy importing, customization, and creation of XBRL output files are other product features.
- **Microsoft Navision**—The Attain enterprise application suite is compatible with the XBRL specification. It enhances integration of subsidiaries with ERP systems in parent offices. It allows the import, export, viewing, printing, and distribution of XBRL document files. The software can map the chart of accounts to taxonomies. Companies can import multiple taxonomies and export financials in XBRL.
- **MYOB**—This company uses XBRL as an integration format for its financial-reporting and intelligent profitability analysis products, enabling interoperability with similar products.
- **Oracle**—Oracle 11i comes with a free download for its business reporting engine, which allows mapping of Oracle data to XBRL taxonomies and the ability to export data as XBRL.
- **PeopleSoft**—This company uses XBRL functionality in its Investor Portal products. Prebuilt functions allow users to rapidly transmit reports to regulatory agencies and investors.
- **SAP**—The company provides XBRL functionality in its Strategic Enterprise Management software to collect business information and convert it into XBRL. Data can be converted and collected from various points within the enterprise and outside it and in various formats, from spreadsheets, ERP systems, and so forth. Elements of XBRL taxonomies can be mapped into specific items in a business report. This approach allows accounting information such as business-unit or business-group statements to be converted into XBRL instance documents that can be published and distributed in different formats.
- **Semansys Technologies**—The company has released XBRL Suite. Its XBRL Composer enables production and maintenance of taxonomies, management of the reporting process, and creation of XBRL reports. The Semansys XBRL Integrator validates the correctness of an XBRL report and generates a Semansys business analyzer application for analysis of XBRL data. Semansys and Software AG have connected their products using XBRL. Software AG's database product functions as the core database that stores the XBRL files used by Semansys applications. This is another example of

The more companies that adopt XBRL, the easier it is to share XBRL data with larger user populations, and the more XBRL data becomes available for searching and analysis.

Organizations can benefit from XBRL's use in business and financial decision support, regulatory compliance, investor and employee relations, and interaction with business partners.

XBRL's usefulness in connecting different applications to create a better flow of business information.

- **Software AG**—The company's Suite for XBRL provides a framework and software tools for implementing XBRL. Software AG has also established its XML/XBRL Competence Center focused on offering support for and building knowledge of XML and XBRL.
- **Universal Business Matrix**—The company develops XBRL-specific software tools. Its flagship product, UBmatrix Automator, allows creation and modification of taxonomies as well as XBRL instances, and has sophisticated mapping functions to ease integration with legacy systems.

■ Realizing the Benefits of XBRL

As a data interchange standard, XBRL grows in utility and power in proportion to the number and size of the organizations that implement it. The more companies that adopt XBRL, the easier it is to share XBRL data with larger user populations, and the more XBRL data becomes available for searching and analysis. Analysis then becomes more accurate as the statistical sample size of XBRL-based data grows.

Organizations wanting to realize the benefits of XBRL should consider implementing the following practices:

- Exploring the use of XBRL in individual activities where business information is produced, consumed, or disseminated and identifying the many areas where XBRL can help improve the timeliness, accuracy, accessibility, and distribution of information related to a given business reporting activity.
- Exploring the use of XBRL in improving, recasting, or streamlining the entire process of business reporting within and outside of an organization. Business and financial decision support, regulatory compliance, investor and employee relations, and interaction with business partners such as lenders and banks are some of the many areas for initial consideration.
- Exploring XBRL and the benefits of active participation in the XBRL International consortium (www.xbrl.org), where the standard is developed and industry experience is shared.
- Creating an XBRL pilot project.
- Creating an XBRL adoption team.
- Consulting advisers in the above areas for the strategy, planning, and specific applicability of XBRL to the organization.

