

# Realizing the Full Potential of XBRL in Government: Case Studies of XBRL Implementation



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## FOREWORD

On behalf of the IBM Center for The Business of Government, we are pleased to present this report, "Realizing the Full Potential of XBRL in Government: Case Studies in XBRL Implementation," by Yu-Che Chen, Northern Illinois University.

During the early years of computing, the management of financial data was applied to technology for both individual and personal use. In those early days, governments used computers to process and manage financial filings and accounts. Intuit, one of the first consumer software companies, provided financial management tools for personal use. Yet in many ways, despite this early start, the world of computerized financial data has not yet progressed as far as have other computer applications.

This situation developed in part because of the lack of a single financial-data standard. Each software package contained its own proprietary data standard and methods of applying accounting rules. Consequently, in spite of expensive systems implementations, spreadsheets remain the most commonly used software in the offices of many chief financial officers. On top of that fact, government financial regulators have frequently added their own proprietary reporting standards.

The message of Professor Chen's report is that public executives can now take the series of problems presented by the need for financial-information interoperability and turn them into significant opportunities for increasing efficiency and transparency by using the eXtensible Business Reporting Language (XBRL). XBRL, simply stated, is an open-source language that can enable the standardization of vast quantities of financial and business data and make the data easier to collect, organize, compare across legal entities, and use in making more timely and meaningful strategic and tactical decisions.



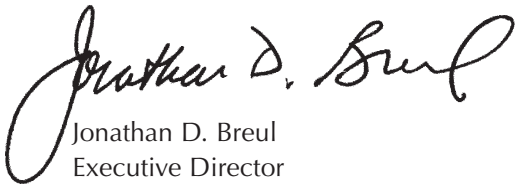
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Professor Chen examines six major XBRL implementation efforts in five countries and draws a number of important lessons to help executives realize the full potential of XBRL. Early XBRL implementations, driven principally by government financial regulators, have proven that the potential of XBRL is real. However, like most fundamental change of this scope, the transition to other government agencies will take time because of the complexities and cost involved.

We hope that the lessons learned in this report, by government organizations across the world that have undertaken XBRL initiatives, will ease the path forward for others that will follow in their footsteps.



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## EXECUTIVE SUMMARY

The lack of interoperability between financial information sources has created a significant problem for corporations and governments around the world. The proliferation of financial software applications developed with proprietary data formats limits the ability of a corporation or government agency to benefit from a more integrated view of its organization's financial evolutions. Moreover, the number of government regulatory agencies compounds the situation's complexity, especially, for example, in cases of multiple and varying definitions of a common financial term such as "income." Comparability of financial information submitted by a single business and filed with multiple government agencies becomes needlessly problematic. Moreover, the lack of interoperability further impedes financial transparency, which is a key factor for preventing and coping with financial crises.

By using the eXtensible Business Reporting Language (XBRL), public executives can take problems related to achieving financial information interoperability and turn them into significant opportunities for increasing efficiency and transparency. The first opportunity is that governments can provide to their citizenry unprecedented comparable business and financial information which can be used to enhance public policy making. The second opportunity is that governments can reduce the administrative burdens on reporting organizations while gathering more detailed and easier-to-use financial information. This change also has the potential for unlocking the power of business analytics for businesses and individual investors. Business analytics can be enhanced and the tracking of financial markets improved by the use of XBRL.

XBRL, simply stated, is a language that enables the standardization of vast quantities of financial and

business data and make this data easier to collect, organize, compare across legal entities, and use in making more timely and meaningful strategic and tactical decisions. Such standardization in tagging makes financial and business data machine-readable, as well as easy to analyze and disseminate. Furthermore, unlike other data standards, XBRL reflects the standard business rules for financial data and reports, thus promoting meaningful comparison and interoperability.

The objective of this report is to offer actionable advice that can help executives realize the full potential of XBRL. The report outlines the benefits of XBRL, presents case studies of major XBRL implementations, and offers lessons learned that can be used to improve the implementation of XBRL.

### Benefits of XBRL

XBRL implementation adds five major benefits to all sectors of the economy. The first three are relatively immediate benefits that XBRL implementation can quickly realize. The last two usually require more extensive effort and coordination.

- **Efficiency.** Reporting businesses can file regulatory reports more efficiently with XBRL. It takes the regulatory agency fewer staff resources to process financial and business data. Efficiency is also seen in the dissemination and use of information.
- **Data quality.** Automation of data collection and validation can greatly improve data quality. Reporting businesses have the opportunity to run the validation module and make necessary corrections before submission.
- **Timeliness.** Financial and business information can be submitted more quickly with online



submission. Timely quality assurance allows for quick dissemination.

- **Transparency.** Quick dissemination of comparable, organization-level financial and business information to the public (investors included) promotes transparency.
- **Analytics.** XBRL enables the development and use of enhanced business analytics. Such analytics can benefit individual corporations and organizations as well as enhance macro-economic policy making.

## Cases of Major XBRL Implementation

This report examines six major XBRL implementation efforts in five countries: the Netherlands, Australia, Spain, Singapore, and the United States. These cases of early XBRL implementation are diverse in geography, scope, and objective. The six case studies are:

- **The Netherlands.** Begun in 2004, the Dutch taxonomy project is considered one of the earliest major XBRL implementations in which XBRL was used to facilitate standardized business reporting for companies in all industries.
- **Australia.** Its standardized business reporting with XBRL implementation aimed to reduce the business reporting burden. Its scope extended across multiple government agencies and promised to reduce the reporting burden for more than 2 million businesses.
- **United States/Federal Deposit Insurance Corporation (FDIC).** The FDIC's implementation of XBRL in 2005 is considered the first large-scale use of XBRL for reporting bank information.
- **Spain.** The Bank of Spain's XBRL project is considered the first large-scale implementation of international financial data standards.
- **Singapore.** Singapore's XBRL project is one of the first implementations in Asia that covers all industries.
- **United States/Securities and Exchange Commission (SEC).** The SEC's implementation of XBRL will cover more than 12,000 businesses in the United States and around the globe. The effort is driven by the objective of providing financial transparency to investors.

## Lessons Learned

The following lessons learned are based on an analysis of the six XBRL implementation case studies.

- **Invest in understanding the business problems that conventional financial reporting entails and how to solve them.** Understanding the problems associated with conventional financial reporting is the critical first step. It becomes the basis for finding solutions and focusing on the core value gained with XBRL implementation.
- **Ride the wave of administrative reform and data modernization efforts.** To succeed, XBRL implementation needs to leverage political and managerial commitment, because it takes significant initial and sustained investment to realize the benefits. The level of support needs to match the scope of implementation.
- **Form strategic alliances with key stakeholders.** Identification of key stakeholders and their strategic relevance to XBRL implementation is critical. Understanding the maturity of these stakeholders and their ability to ingest new technologies is also critical. XBRL implementation is a collaborative enterprise. Government can be a catalyst in forming alliances. Strategic alliances can be strengthened by identifying the business case for a win-win agreement.
- **Address software development and trade-off issues.** XBRL implementation needs to create incentives to encourage software developers to build useful tools and to encourage businesses to report in the XBRL format. The trade-off between multi-agency and single-agency implementation should be clearly articulated and expectations managed.
- **Do a phase-in implementation that fits the organization.** Phase-in implementation has a rich menu of options derived from the six case studies. Organizations should choose the option that fits their context and addresses their core issues.
- **Demonstrate and communicate the benefits.** XBRL implementation is a multiyear undertaking. Creating and articulating its earned value to respective stakeholders is critical for sustaining the momentum of purposeful change.

# Understanding XBRL

## Introduction

In the wake of global financial crises and subsequent national and international economic recovery programs, countries around the world collectively have ushered in a new era of transparency and accountability. The opaqueness of financial instruments such as credit derivatives coupled with high-risk behavior left financial regulators—and, more importantly, the public—mired in a deep financial crisis. Even a successful government stimulus package has the consequence of medium-term job losses and long-term debt. Countries around the world see transparency of the financial sector as one of the cornerstones for the early detection and prevention of future global financial crises.<sup>1</sup> The United States has made the effort to bring transparency to the financial sector as well as to the economic recovery program.

Transparency in the financial sector at both the national and global levels is the first important step in stemming current and preventing future financial crises. However, introducing relevant transparency to the financial sector faces three challenges:

- **Challenge One.** The development of reporting requirements is falling behind that of new financial instruments, such as complex mortgage-backed securities. Therefore, the lack of relevant information is the first challenge.
- **Challenge Two.** Current systems are part of a now burdensome process of monitoring financial activities. For many financial regulators, existing processes do not allow for automated validation to verify regulatory compliance or the utilization of software programs for detecting irregular behavior.

## Uses of XBRL in Government

While banking, securities, and tax regulators are predominant among the early adopters, XBRL can be applied more broadly to other government financial data. For example, social services, education, labor, and health care regulators and managers in many countries require some form of financial reporting from companies and partners. A number of organizations are now exploring the value of XBRL for their agencies and stakeholders.

Additionally, much financial data is exchanged internally as government manages the budget planning process and execution across agencies and departments. Generally, each agency within each department will have financial systems that are not based upon a standard-making data exchange, which makes central government financial management difficult and costly. Countries looking to implement performance-based budgeting with robust financial management requirements will find that XBRL may provide the best solution for linking their disparate departmental financial systems.

- **Challenge Three.** There is only limited reporting of financial information for public scrutiny. This is due primarily to countries neglecting to make financial information readily available and useful to the public.

Moreover, accountability means that transparency needs to be brought to government agencies and to the recipients of financial stimulus money. This opportunity to make government more accountable and transparent presents public executives with an unprecedented challenge—gathering and reporting meaningful, timely, and quality performance data from a myriad of organizations with varying reporting

## XBRL Has Benefited the Private Sector

Financial regulatory agencies have clearly driven the early implementations of XBRL. As a result, some private sector companies initially reacted to the move as a burdensome government mandate. However, XBRL clearly also has benefits for companies. Publicizing these benefits can help to sell the XBRL implementation to stakeholders.

The benefits can be illustrated by the experience of two companies:

- United Technologies Corporation (UTC):** UTC is a technology company with many varied organizational entities. While taking the steps necessary to comply with the SEC requirement for financial filings using XBRL, the chief financial officer recognized the potential value of XBRL for UTC. The company found the data tagging to be relatively inexpensive—and achieved a 20 percent reduction in the cost of complying with filing requirements. Additionally, the company found that XBRL can improve its cost accounting, performance management, and decision making.

*Source: Reported in the Journal of Accountancy, June 2007, "ROI on XBRL"*

- Wacoal:** Wacoal is a multinational apparel manufacturer headquartered in Japan. Wacoal had 32 independent legacy systems, with little communication between business and financial systems. While exploring how to improve decision making and financial management, the company had two options: a total systems replacement with an enterprise resource planning (ERP) solution, or replacement of only the financial systems, with XBRL used to build connectivity with business systems. The firm chose the latter option and realized the benefits in one-sixth of the time and at a third of the cost of the full ERP option.

*Source: Published in Strategic Finance, March 2004*

capacities. For instance, in the United States, the American Recovery and Reinvestment Act of 2009 requires a recipient of the stimulus money to report on its basic organization information and how the funds received are being spent, as well as performance information (i.e., number of jobs created). This recipient-level data need to be organized to reflect the program level and agency-specific activities. Reports are available on [Recovery.gov](http://Recovery.gov).<sup>2</sup> Without data standards, any aggregation and comparison of perfor-

mance information from the recipient organizations will be problematic.

There is an “enabler” to solve many of these challenges: the eXtensible Business Reporting Language (XBRL), a platform for the interoperability of national and international financial and business information. XBRL is an open-sourced data standard for financial and business information. When reporting organizations follow a shared data dictionary such as that found in a XBRL taxonomy, then business and performance information will become meaningful and comparable. There are now XBRL taxonomies that map financial reporting and accounting rules such as International Financial Reporting Standards (IFRS) and Generally Accepted Accounting Principles (GAAP). Thus, the business information reported from all over the world can now be compared as long as all of it is using the XBRL taxonomy for IFRS.

In addition to the above benefits, reporting in XBRL will also help automate data collection, validation, and reporting. Tools for such automation are now readily available. XBRL makes business and financial information machine readable. This increases efficiency in gathering and organizing financial information, which formerly would have required manual extraction from financial reports. Automatic validation is a significant advantage of XBRL over other data standards; business rules can be embedded for machine-processing.

Financial data reporting will also be enhanced by XBRL's ability to preserve the meaning of data via tagging. This allows for interactive data analysis and thus better understanding and public scrutiny. For instance, individual investors can analyze the financial performance of publicly traded companies, and citizens can track which public-service area funded by stimulus money is seeing the most job creation and the state in which it is located.

The benefits of XBRL extend far beyond a single industry or a single financial sector. In the United States, the Securities and Exchange Commission's (SEC's) interactive data project using XBRL will bring both transparency and increased potential for analytics and better economic policy making for the entire economy. Such information will appeal to investors researching business performance data on publicly traded securities. This will help address

cross-agency accounting and control issues that have been identified by the U.S. Government Accountability Office.<sup>3</sup>

Australia’s standardized business reporting program coordinates all government financial reporting requirements. This helps realize one-stop reporting for business in all industries in Australia’s economy. The savings are estimated to be \$800 million per year when fully implemented.<sup>4</sup> There have been discussions about using XBRL to bring efficiency and transparency to reporting in other sectors of the Australian economy, such as health and environmental protection.

## Definition of XBRL

The unique advantage of XBRL is its ability to embed and enforce business rules that are essential for improving the quality of data and increasing the efficiency of ensuring regulatory compliance. For example, an XBRL taxonomy can specify accounting rules expressed in mathematical terms, e.g., where “Current Assets” is equal to the sum of “Cash,” “Receivables,” and other concepts included in the definition of “Current Assets.” The software program can be designed to enforce such rules. The FDIC was able to improve the quality of data coming from banks by having them use automatic features of business-rule validation before submission. Clearly, this is a significant efficiency gain in regulatory compliance. This feature extends beyond a single agency or a single country; XBRL can be used as an information-interoperability standard, for example, by the Committee of European Banking Supervisors, a group of the central banks in Europe.

At the most basic level, XBRL is a data dictionary (taxonomy) that provides a standardized way to capture the meaning of financial and business information. It is done by using a tag. For example, the figure “10,000” can be tagged to indicate that it refers to first quarter profits in US dollars for ABC Bank in 2009. The advantage of such tagging is that it makes data machine readable, and this makes information extraction easy, especially when vast data elements are distributed across a large number of reporting organizations. The Federal Deposit Insurance Company’s (FDIC’s) collection of information from call reports is an example of such a substantial extraction. The FDIC receives call reports

## XBRL Organizations

### XBRL International

XBRL International is a not-for-profit consortium whose mission is to build the XBRL language and promote its adoption. The organizational members of XBRL International include approximately 550 government agencies, associations, and companies around the world. These members have produced through collaboration open-source taxonomies and specifications for the XBRL language since 1998. The decision-making body of the consortium is its International Steering Committee, which has representatives from jurisdictions/countries (such as United States, Sweden, and South Korea) and organizations/companies (such as AICPA and KPMG). XBRL International consists of local jurisdictions that are responsible for the progress of XBRL in their region.

*Source:* [www.XBRL.org](http://www.XBRL.org)

### Examples of Local Jurisdictions: XBRL U.S. and XBRL Spain

Both XBRL U.S. and XBRL Spain are local jurisdictions under XBRL International. Both are not-for-profit organizations focused on developing and promoting open-source XBRL taxonomies and standards for their respective regions/countries. XBRL U.S. became an independent nonprofit organization (501c6) in 2006 after operating as a committee under AICPA. XBRL U.S. is instrumental in the development of the taxonomies (i.e. U.S. GAAP) relevant for U.S. public and private sectors.

XBRL Spain is a professional association that develops and implements XBRL in Spain and abroad. The president of the association is a government official in the Ministry of Industry. XBRL Spain has been playing a leading role in the development of the XBRL taxonomies for Spain in particular and for Europe in general. Moreover, XBRL Spain, in partnership with the University of Bucaramanga, has created and hosted a repository of XBRL projects around the world (see: [www.wikixbrl.org](http://www.wikixbrl.org)).

from more than 5,000 banks, and each bank has an average of 1,000 financial elements to report.<sup>5</sup> Making such information machine readable versus inputting it manually clearly would improve both efficiency and data quality.

Many benefits flow from organizations speaking the same financial and business language. The immediate benefit is comparability. As illustrated in Figure 1,



it is possible to compare the annual incomes of two companies side-by-side with both first-quarter and second-quarter information. One can then make inferences about which company has more income and by how much. This example of two companies only touches the surface of the potential of XBRL.

As more and more banks in the United States, as well as around the world, come to speak this same language, XBRL will increase in power and utility. Moreover, the potential power and utility would increase multifold if this same language were to be adopted by all types of organizations across the financial sector.

XBRL is an open standard that does not entail licensing fees—which would be the case for a

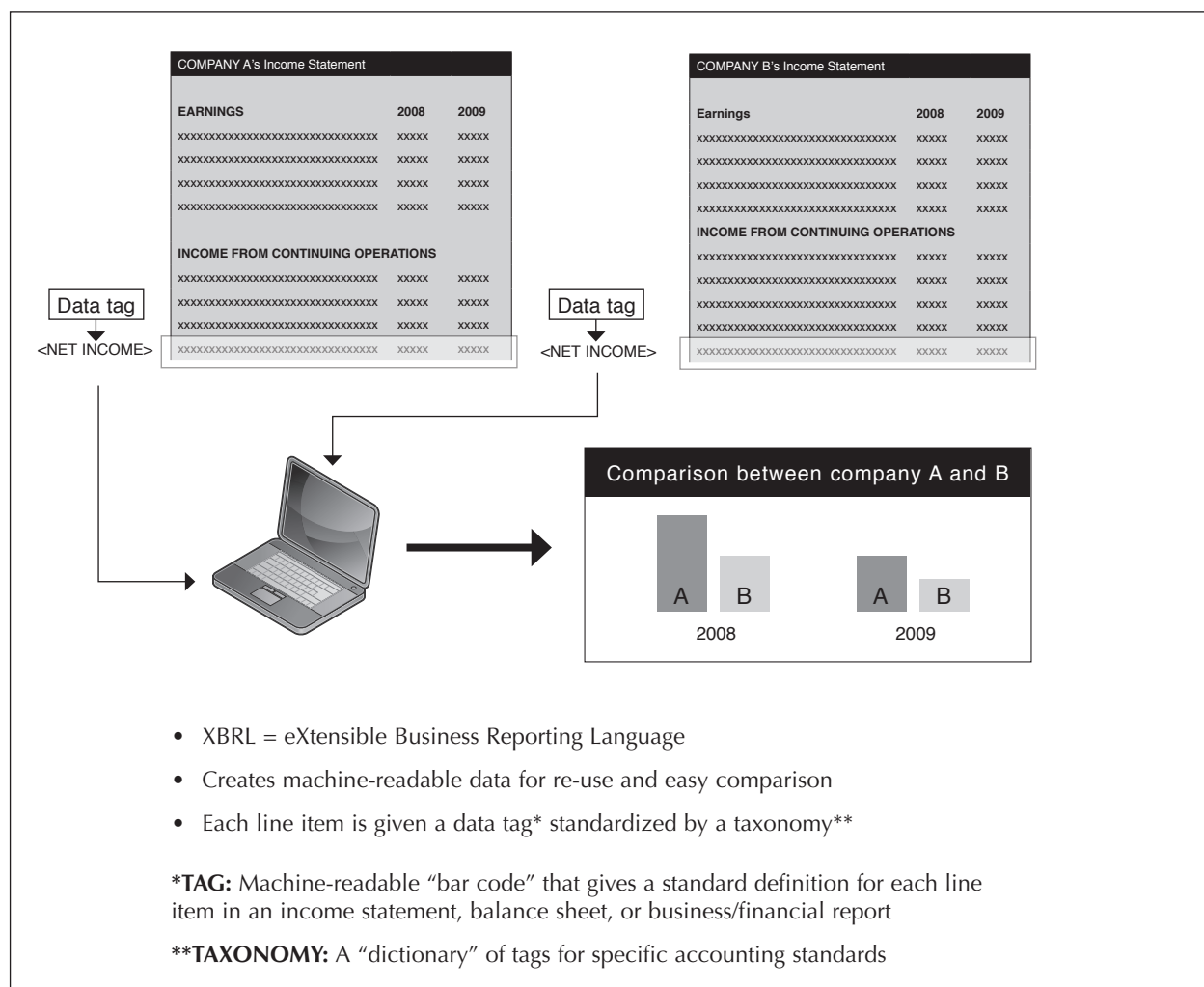
proprietary standard. XBRL is supported by a large network of more than 550 organizational members from around the world.<sup>6</sup> It also has jurisdictions representing various countries such as XBRL U.S. This network of support and standard-building capacity is unmatched by any other open source language for business and financial data. (See *XBRL Organizations* on page 11.)

## Benefits Created by XBRL Implementation

The implementation of XBRL realizes five benefits:

- **Efficiency.** Reporting businesses can file regulatory reports more efficiently with XBRL. It takes the regulatory agency fewer staff resources to process financial and business data. Efficiency

Figure 1: An Illustration of XBRL



Source: Adapted from Truzzolino, John, and Kevin Timson. “RR Donnelley EZ Start XBRL Solution.” RR Donnelley Global Capital Markets. p. 3.

is also seen in the dissemination and use of information. Efficiency is gained for regulatory agencies in the process of gathering, validating, analyzing, and reporting financial information. Regulatory agencies can transmit the financial information electronically. Automatic validation can be performed by the reporting companies using XBRL tools to ensure data quality.

The FDIC's Central Data Repository Project is a case in point (for a more detailed discussion of the FDIC implementation, see pages 21–22). Efficiency can be seen in the faster data inflow; call reports are now received in less than one day after the calendar quarter ends, rather than in weeks, as was the case in the old process. Data quality has improved; banks meeting report requirements rose from two-thirds to more than 95 percent. Timeliness in public data access can be seen when agencies are able to publish data almost immediately.<sup>7</sup>

- **Data quality.** Automation of data collection and validation can greatly improve data quality. Reporting businesses have the opportunity to run the validation module and make necessary corrections before submission.
- **Timeliness.** Financial and business information can be submitted more quickly with online submission. Timely quality assurance allows for quick dissemination.

By using XBRL, there is no need for validation and a lengthy process of enforcement. Thus, timeliness is another key benefit; regulatory agencies can swiftly run analysis and reporting with machine-readable data that are independent of financial management applications.

- **Transparency.** Quick dissemination of comparable, organization-level financial and business information to the public (investors included) promotes transparency. Transparency means that financial and business information could be made available for the sake of the public interest.

In the case of the SEC in the United States, transparency means making the financial and business information of all publicly traded companies available to both institutional and individual investors. As a result, an investor can compare similar companies—e.g., Eli Lilly and Pfizer—and the XBRL taxonomy would be able

to provide a common set of definitions and the ability to present additional details.

Another dimension of transparency is cross-agency in nature; the information a company or organization submits to one government agency [e.g., the U.S. Internal Revenue Service (IRS)] is consistent with the information it submits to another government agency (e.g., SEC). Consequently, the regulatory compliance behavior would be transparent across the entire government.

Such transparency requires the commitment of government and business leaders; both parties must decide which data element should be made available for what level of aggregation. XBRL implementation does not necessitate making reported corporate and financial information electronically available. Government transparency is critical for the financial health of the entire economy, for transparency allows for monitoring and managing financial risks. When risk is difficult to gauge due to a lack of transparency, then advanced detection is hindered, as was the case of the financial crises that began in late 2008.

- **Analytics.** XBRL enables the development and use of enhanced business analytics that can benefit individual corporations and organizations as well as enhance macroeconomic policy making.

Analytics are beneficial to organizations of all sizes, from a small corporation to a multitrillion-dollar national economy. This is considered to be a higher-order value due to its early stage of development and use of business analytics tools. For a corporation, XBRL-formatted financial and business information first promotes the interoperability of financial information stored in multiple business and financial applications. In this case, the XBRL taxonomy acts as a common dictionary and common information model, thus promoting a common understanding of the meaning of data across the enterprise. Once the information is assembled for the entire enterprise, XBRL-enabled analytics can facilitate operational and strategic analysis.<sup>8</sup>

For government, analytics can be performed on financial and business information about a particular sector for regulatory and planning purposes. For instance, the FDIC can monitor and

manage the risks of the banking industry in the United States. The SEC is currently considering proposals to make XBRL the standard for reporting financial information on mortgage-backed securities (MBS). With the right business analytics, the SEC is positioned to monitor and manage the risks of MBS, which, it should be noted, were a major factor in the recent economic crisis.

One aspect of analytics is the ability to monitor compliance. A unique value-add of XBRL comes from the potential to leverage the semantic Web (also known as Web 3.0) and the possibility of using the crowdsourcing business model to monitor regulatory compliance and management of financial risks—i.e., the market becomes self-regulating. This is possible with the advent of the semantic Web, wherein XBRL is likely to become one of the most influential metadata standards.

XBRL's interoperability has the potential to turn organizations and individuals into engines for knowledge creation and innovation. Financial and business information previously embedded in financial reports will become readily accessible online, and easily available for analysis.

## Realizing the Benefits of XBRL

To realize the values of XBRL, public executives need to undertake two fundamental tasks:

- Develop a taxonomy for standardizing financial and business data, and
- Build processes and tools for extracting, analyzing, and disseminating data.

The primary role of public executives is to provide leadership and/or incentives for the completion of these two tasks. Taxonomy can be industry-specific, and it can be for a single purpose, such as regulatory compliance (e.g., the taxonomy for call reports compliance required by the FDIC). In the case of the FDIC's XBRL implementation, a taxonomy was developed by mapping all required business rules and data definitions. This was done with help from Infosys, which won the contract for the data modernization project.

An example of a taxonomy with a broad scope is the Dutch taxonomy project that brought standardization to all financial and business data. The Dutch

government required the private sector to report all such data. Its taxonomy office was charged with reviewing more than 200,000 data elements and business rules governing the compilation and reporting of these data elements. One benefit of such standardization was that it brought the data elements down to about 5,000 in number, a reduction of more than 90 percent.<sup>9</sup>

Government must take the lead in innovating the processes and tools for utilizing XBRL-enabled financial and business information. Government plays a key role in being the catalyst for such innovation and development. For various tools needed for reporting and analysis, government can provide a regulatory push that can drive up demand for applications using the XBRL format. Shifting from voluntary to mandatory XBRL reporting, as begun by the SEC at the end of 2008, is an example of a regulatory push which can create the network effect necessary for the development of tools.

In Australia, the standardized business reporting (SBR) implementation was an effort to educate the accounting profession on the benefits of standardization enabled by XBRL. In the case of SBR using XBRL, government can invest in the development of a single sign-on for businesses to use to authenticate themselves, validate data for quality assurance, and submit a complete set of data to meet all regulatory reporting requirements.

# Case Studies of XBRL Implementation

This report examines six XBRL implementation cases in five countries: the Netherlands, Australia, Spain, Singapore, and the United States. These cases of early XBRL implementation demonstrate a wide range of scope, purposes, and settings.

The Dutch taxonomy project began in 2004, and is considered one of the earliest major XBRL implementations in which XBRL is used to facilitate standardized business reporting (SBR) for companies in all industries. The U.S. government’s Federal Deposit Insurance Corporation’s (FDIC’s) implementation of XBRL in 2005 is considered the first large-scale use of XBRL for reporting bank information.

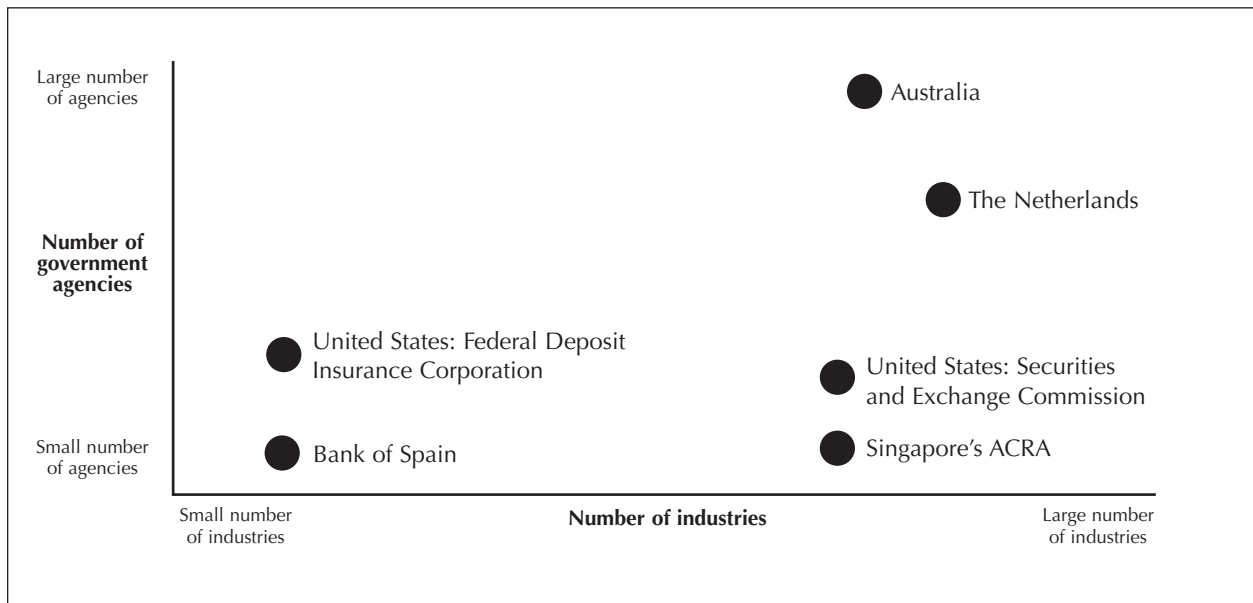
The scopes of these projects vary according to two dimensions that reflect degrees of coordination and complexity. One dimension is seen in the number of

government agencies involved and the other in the number of industries involved. Both dimensions are shown in Figure 2.

Moving out on the industry axis, we can see a larger number of industries involved in the use of XBRL. A higher position along the government-agency axis indicates more government agencies involved in the implementation. In the upper-right corner, Australia’s SBR includes all major government agencies receiving business information from the many industries that are involved. In contrast, the Bank of the Spain has only one government agency involved.

The U.S. Securities and Exchange Commission (SEC) is shown on the lower right corner of Figure 2. Here, we see that only one agency—the SEC—is involved and that the implementation covers all

**Figure 2: A Map of Six XBRL Implementation Cases**





industries that have publicly traded companies. The involvement of more industries indicates a higher level of complexity in the development of a taxonomy and the validation of business rules. Similarly, a higher level of coordination and leadership is needed as the number of government agencies participating in the XBRL implementation increases.

The goals of XBRL implementation mainly fall into two categories. Understanding them provides the basis for evaluating the success of implementation. The two goals are:

- **Goal One.** To reduce the administrative burden on businesses when they report financial information to government for regulatory compliance. The SBR projects in the Netherlands and Australia are prime examples. Achieving this goal requires reducing duplication and inconsistency in business information reported to various government agencies—thus, a national taxonomy becomes a necessity.
- **Goal Two.** To achieve regulatory compliance to accomplish the mission of the government agency. The Bank of Spain and the FDIC were mandated to monitor the financial conditions of the regulated banks to provide needed information for formulating macroeconomic policies. The SEC's primary mission is to provide business and financial information to investors for better transparency rather than to reduce the administrative costs of reporting businesses.

The settings of the case studies presented here are diverse. The six cases cover two European countries (the Netherlands and Spain), two Asia-Pacific ones (Singapore and Australia), and two U.S. cases. The United States and Australia resemble each other in their federalist administrative structures. Spain and the Netherlands are members of the European Union. The SEC views transparency as a policy priority. The lessons learned from these cases will help public executives around the world successfully launch and implement an XBRL project.

## Standardized Business Reporting with XBRL

### The Netherlands

In 2004, the Netherlands began its national XBRL implementation with a comprehensive national

taxonomy project. The primary motivation was to reduce the administrative costs incurred by businesses when they interact with government. This intent was clearly seen in the joint statement made by the Irish, Dutch, Luxembourg, British, Austrian, and Finnish presidencies of the European Union.<sup>10</sup> The focus of the Netherlands project was reducing the burden of providing financial and business information reports to the government.

Reducing the burden of business reporting entailed providing a standard taxonomy to Dutch businesses for use in all financial and business reporting to the various government agencies. The goal was to have “cheaper, easier, and high-quality regulatory reporting for business.”<sup>11</sup> It was part of the cabinet's objectives to reduce the administrative burden on businesses, and was the genesis of the Dutch Taxonomy Project.

In 2004, the Ministries of Finance and Justice joined forces in initiating the project and provided the necessary resources.<sup>12</sup> The project office was housed in the Ministry of Finance. Since the Ministry of Justice held responsibility for business reporting compliance issues, it was a major partner in the effort.

The Dutch Taxonomy Project mainly focused on the data that businesses report to the government, including, annual accounts, tax returns, and statistical reports. The default taxonomy is XBRL, and was the choice of the standard due to its open nature. Businesses and governments do not need to pay any fees associated with the use of such standards. Moreover, XBRL has an active international community and national jurisdiction in the Netherlands and other countries, and provides leadership and technical assistance for the development of a taxonomy.

The national scope of this project illustrates its extensive length and breadth and also its relevancy to stakeholders. On the government side, the Ministries of Justice and Finance were joined by the Ministry of Economic Affairs, the Tax and Customs Administration, the Chamber of Commerce, Statistics Netherlands, and the Advisory Board for Administrative Burden.<sup>13</sup> The organizational players on the business side belonged to three main groups:

- **Reporting businesses and their trade associations**, notably the Confederation of Netherlands Industry and Employers and the Royal Association MKB Netherlands.<sup>14</sup>

- **Intermediaries that handled the reporting**, including the Dutch Federation of Accountants.
- **The software developer industry** that held the keys to translating the taxonomy into software code. Overall, approximately 1.5 million businesses will be affected on the reporting side, 30,000 accountants will serve as intermediaries, and 180 software developers will work on XBRL solutions.<sup>15</sup>

The first four years of implementation, from 2005 to the end of 2008, focused on building the XBRL-based taxonomy.<sup>16</sup> It narrowed standards and harmonized data elements; there was a distillation of approximately 200,000 data elements down to 4,500 elements, an approximately 97% reduction.<sup>17</sup> The taxonomy was recognized by the Dutch government for filing business and financial information. Moreover, it established a process infrastructure guiding businesses in their communication with the government as a whole.<sup>18</sup>

The year 2009 marked a new developmental stage for the Dutch Taxonomy Project when it re-branded itself as the Standardized Business Reporting program. This SBR program was assigned to the Central Government Reform Program.<sup>19</sup> The approach reflected an international trend, seen also in Australia and New Zealand. This trend focused on reducing the business-reporting burden across an entire economy.

The implementation was characterized as an open and collaborative enterprise, one that leveraged the knowledge and expertise of government, business, and the XBRL community. The approach was prominent in the development of the Dutch taxonomy. Another key feature was the voluntary nature of reporting using the XBRL-based taxonomy: Businesses large and small are not required or mandated to use the XBRL-based taxonomy for reporting purposes. The Dutch XBRL taxonomy was made available in 2007 for reporting purposes, with a small number of companies using the taxonomy in 2007 and 2008 and the most recent estimate in 2009 remaining flat.

### **Challenges Facing Dutch Implementation**

As the first SBR project using XBRL, the Dutch experience illustrates the challenges facing an XBRL implementation. One challenge associated with the

development of the Dutch XBRL taxonomy (more recently SBR) entailed prioritizing the project among the many other competing objectives of any given government agency. For example, Statistics Netherlands found itself already bogged down with daily operations, with a cross-agency collaborative project thus viewed as a low priority, especially with other urgent, agency-specific, reporting businesses competing for resources. Such a situation required significant coordination and persuasion; individual government agencies were busy with other priorities and the benefit of XBRL took a few years to realize.

Another challenge was getting the software industry to develop accounting software that was XBRL-ready.<sup>20</sup> The lack of accounting software with XBRL capability significantly hampered XBRL adoption; business reporting was usually done through an intermediary such as an accountant. The first year of reporting with XBRL saw only a few businesses participating.<sup>21</sup>

This software challenge reflects the larger “chicken and egg” dilemma; the software industry is waiting for strong business demand to justify its development investment and reporting businesses meanwhile are taking a wait-and-see approach to adoption. This less-than-desirable take-up rate provides valuable lessons. Government must understand the nature of the problem and its own role. It needs to serve as a catalyst to address the problem by encouraging a critical mass of businesses to actively want XBRL solutions.

### **Lessons from Dutch Implementation**

The Dutch experience clearly showed the need for executive support. In the Netherlands, this support was provided from the prime minister’s office in the form of making SBR/XBRL a policy priority and providing the resources needed for implementation. Moreover, it illustrates the need for working with the software industry to provide cost-effective solutions.

### **Australia**

The SBR concept began in 2006 and received broad-based support from government; at the time, it was viewed as part of a broad-based administrative reform. The Council of Australian Governments foresaw benefits for an entire economy if regulatory reform could be implemented through standardizing business reporting. The primary reason that XBRL was

chosen as Australia’s SBR was because it could minimize the regulatory reporting burden on businesses while maximizing the protection of public and private interests via regulation. The cost of regulatory compliance can be as large as 25 percent of the cost of senior management’s time. Such a cost arises from inconsistencies and complicated regulations foisted on businesses. For example, an analysis of these regulations reveals that an Australian Business Number, one of the most basic data elements for regulatory reporting, has been associated with nine different names for the same business identification number used across participating government agencies.<sup>22</sup>

The Australian Treasury led the SBR initiative. Starting in August 2006, the Treasury worked and consulted with key stakeholders (see Figure 3), including all levels of government and all main stakeholders in the business community. The map of

stakeholders illustrates the diversity and number of participating organizations in both the public and private sectors. The goal was to examine the business case of SBR and its possible introduction. The SBR program was officially launched in August 2007 and was housed within the Treasury. The SBR program has received both political and financial resources since its inception, with the Australian government commitments totaling about \$243 million over four years.<sup>23</sup> This program continues to receive broad-based support, and was incorporated into the Council of Australian Governments’ (COAGs’) new regulation reform agenda in 2008.

The defining feature of such an implementation is the maintenance of open collaboration among key stakeholder groups throughout the entire process:

- On the government side, the SBR program office in the Treasury works with the Australian

**Figure 3: Stakeholders in Australian SBR/XBRL Project**



Prudential Regulation Authority, the Australian Securities and Investment Commission, the Australian Taxation Office, the Australian Bureau of Statistics, and State and Territory revenue offices.<sup>24</sup>

- On the business side, the program works closely with members of the SBR Business Advisory Forum (see Figure 3 for a membership list) as well as entities from the accounting profession, such as the Institute of Certified Bookkeepers and CPA Australia.

The SBR implementation deals with two fundamental tasks related to the standardization of business reporting as seen in any XBRL project: developing a taxonomy, and building processes and tools for such standardization.

The Australian SBR program released its first cycle of the SBR taxonomy in March 2008. In July 2008, the program began building the processes and tools by approving the contract for the design and development of a single sign-on solution and a set of core services. Taxonomy was developed via multiple iterations. This allowed for stakeholder comments, improvement, and extension.

By September 2008, the Cycle 2 taxonomy was completed, and 20 forms in scope could be supported. The growing maturity of the taxonomy allowed for ongoing discussions with software developers as they provided input on the components of a software developer kit. With the release of the Cycle 3 taxonomy in March 2009, all 86 forms in the SBR's scope were covered.<sup>25</sup> Software development was under way by August 2009; by year end, it was well on its way to allowing businesses and their intermediaries to register for single sign-on services and begin the SBR reporting in July 2010.

### ***Challenges Facing Australian Implementation***

A fundamental challenge associated with the SBR program implementation was a resistance to change. The program represented a paradigm shift for both government and the accounting profession.<sup>26</sup>

Government agencies have other priorities that are competing with the SBR project, and these priorities, of course, bring benefits to the entire government and are diffuse in nature. For individual agencies, a pre-

liminary cost/benefit analysis may weigh more on the side of cost, especially considering the cost associated with changing business processes and the resultant retooling of staff. Thus, it was necessary to make a business case not only to the entire government as a whole, but also to individual agencies. Education and outreach tailored to the individual agencies are necessary to provide a catalyst for change.

Another dimension of the paradigm shift on the government side is the perspective of an interoperable e-government. An SBR/XBRL program office needs to facilitate the transition from agency-based thinking and operation to the fostering of a sense of citizen/business-centric service orientation. This can serve as the basis for collaboration, but an incentive structure needs to be in place to initiate such a shift.

On the business side, the change facing accountants and bookkeepers is proving to be a significant challenge.<sup>27</sup> The willingness of accountants and bookkeepers to assist in the voluntary reporting of financial and business information in XBRL format is critical for the success of SBR/XBRL. This is because most businesses depend on accountants and bookkeepers for meeting government reporting requirements. The automated, machine-readable way of handling the reporting of financial and business information as exemplified by SBR using XBRL challenges the traditional paper-based methods that have been the source of billable hours for accountants and bookkeepers for several decades. For them, complicated and inconsistent reporting regulations formulated by government can actually create more business opportunities and revenue streams. An added barrier is the cost entailed in switching from the existing format to that of XBRL. Accountants and bookkeepers see the purchase of the XBRL module as a cost item rather than as a profit opportunity.

### ***Lessons Learned from the Australian Experience***

Managing stakeholder relationships via a central agency was crucial to Australia's SBR effort in order to induce the needed change both in government and the private sectors. The successful development of a national taxonomy can be attributed to active stakeholder relationship management, with benefits demonstrated to key stakeholders.

A key lesson learned is that a central agency provides the needed coordination and leadership when



participation is voluntary and each stakeholder group has its own competing priorities—helping the collaboration stay on track. In this way, the policy objective of reducing the regulatory burden on businesses is kept in sight, and the active engagement of these stakeholders for SBR implementation is a defining feature of this program. Such a level of engagement is the result of purposeful action, which is required if the program is to be seen through the entire process of planning, designing, building, and testing various components of SBR.<sup>28</sup>

An example of stakeholder engagement can be seen in the tactic of working with small business trade groups to understand the challenges they may face in adopting SBR. A clear understanding of their barriers to adoption has guided the effort in developing a targeted business case. Benefit articulation and realization was done via the publication of fact sheets, in the business case, and through a developer toolkit posted on the SBR website. A phase-in implementation can be seen in the development of the taxonomy: three cycles of development, moving from an initial 20 forms and concluding with the final 86 forms.

The dynamism and momentum of Australia's SBR/XBRL program are impressive. However, a future challenge lies in the actual take-up of such services; the experience of the Netherlands provides a cautionary tale. Australia's intensive learning from the Netherlands' experience and its continuous effort to remove barriers to adoption via outreach, feedback, and providing resources may ultimately yield success.

## Implementation of XBRL in the Banking Industry

### Bank of Spain

The Bank of Spain sought to modernize its collection and dissemination of monthly financial data from more than 400 banks, which constituted approximately 90 percent of the country's financial sector. The legacy process received electronic data files in proprietary formats. No automatic data validation system was in place to ensure data quality before transmission to the Bank of Spain. Validation was labor-intensive and resulted in poor data quality. The Bank of Spain's objective was to find a way to increase the efficiency of the process and enhance data quality, making the regulation of the

Spanish banking industry more effective, as well as providing the European Central Bank with needed information.

The Bank of Spain was the lead agency in the effort, cooperating with XBRL International and XBRL Spain. The collaboration allowed the Bank of Spain to leverage the XBRL community to develop the taxonomy, and in 2003, the Bank of Spain began with a pilot project to test whether a business case for XBRL adoption could be formulated. Implementation began in 2004 with a small and well-defined set of financial information (bank public financial statements). The data requirements were already articulated in banking regulations that were using a standard form.

The Bank of Spain was actively involved in developing and extending the International Financial Reporting Standards (IFRS) general purpose taxonomy. The bank added some 500 Spanish-specific elements. At the time of implementation, it was the first major international, real-time use of an international accounting standards taxonomy. To build the process and tools of XBRL implementation, the Bank of Spain's information technology (IT) department developed its Financial Information Interchange System (SIIF) during 2004 and 2005. It was a logical choice, as its IT department supported all business systems at the Bank and was well positioned to develop a common infrastructure.

The lack of XBRL software at the time of implementation favored an in-house solution. The new software program makes it easy to convert data from plain text to an XBRL format. Moreover, the bank also developed validation tools to enable credit entities to check the accuracy of data before submission.<sup>29</sup> The Bank of Spain provided funding for all technical development and infrastructure.

In June 2005, seven of Spain's largest banks began using SIIF for filing in the XBRL format. Other large and medium-sized banks followed suit shortly thereafter, growing in number to more than 400. By May 2006, only a few small banks were not using the XBRL reporting system. For the Bank of Spain, phase-in implementation by means of a graduated increase in the scope of financial information covered and number of banks reporting served as important features of the overall XBRL implementation.

### ***Challenges Facing the Bank of Spain Implementation***

In 2009, there were plans to expand the development of a taxonomy to incorporate investment entities as well as to provide for validation formulas that can work with the taxonomy. The first project involved translating 3,400 business rules into 400 XBRL formulas for validation.<sup>30</sup> Moving forward, a significant challenge entails developing a taxonomy that would include other investment entities and other government agencies. Another challenge related to expansion required encouraging software developers to offer XBRL solutions to meet a variety of financial-industry needs.

The Bank of Spain shouldered the responsibility of XBRL solution development for the banking industry. This was sensible, given the lack of mature solutions at the time. However, a quick expansion needs to capitalize on the software developer industry in order to serve a larger number and variety of financial institutions and businesses.

### ***Lessons Learned from the Bank of Spain Implementation***

The success of Spain's XBRL implementation lies mainly in its ability to leverage the XBRL and academic communities for taxonomy development. The latter community participated in the main committees for taxonomy development. The Bank of Spain's XBRL project was also instrumental in leveraging XBRL International's technical and organizational knowledge. The strategic alliance between the Bank of Spain and XBRL Spain also helped align Spain's effort with those of the rest of the European Union and the larger international community.

Moreover, Spain's pragmatic phase-in implementation strategy was instrumental to the successful implementation. Starting with a manageable list of financial information and a small number of banks with resources has proven to be a productive avenue. A phase-in strategy was particularly useful, as significant learning was required to be the first major implementer of IFRS taxonomy with a country-specific extension. This strategy gave the Bank of Spain the time needed to overcome the barrier of limited experience with Web services and limited technologies available at the time.

### **United States: Federal Deposit Insurance Corporation (FDIC)**

The Central Data Repository (CDR) project by FDIC was the first large-scale XBRL implementation in the United States and the largest use of the XBRL standard worldwide. The primary motivation was to modernize the collection and validation of quarterly call reports from all FDIC-insured commercial banks and all FDIC-supervised savings banks. The old process involved reports filed in multiple formats. Data validation against data standards and business rules was a labor-intensive and time-consuming process.<sup>31</sup> Such modernization was intended to add value to the efficiency, data quality, and timeliness of financial reporting.

The Federal Financial Institutions Examination Council (FFIEC) was the coordinating lead agency that brought together the FDIC, the Federal Reserve System (FRS), and the Office of the Comptroller of the Currency (OCC) for the CDR project.<sup>32</sup> The FDIC was the agency taking the lead in the XBRL implementation.

The FDIC, FRS, OCC, and CDR were the main stakeholders on the government side. The process began in 2003; the fourth quarter of 2005 saw its full implementation. The project involved the development and ongoing updates of XBRL taxonomy files that bring standards to the definition, structuring, and reporting of financial information from FDIC-insured banks. On the business side, FDIC-insured banks and thrifts are the stakeholders, along with software developers who specialize in banking system financial reporting.

The scope of implementation is seen in the amount of information that the CDR project tackled. The preparation of the XBRL taxonomy call reports took 429 pages of instruction in narrative to detail reporting requirements, including approximately 2,000 validation criteria and approximately 1,200 different financial concepts. In terms of the information collected by the CDR, each of the more than 5,000 FDIC-insured banks (more than half of the institutions in the U.S. banking system) reported more than 1,000 financial concepts each quarter.<sup>33</sup> The CDR is designed to provide a common set of instructions, business rules, and quality standards from the three main agencies overseeing these banks. A contract was awarded to develop and operate the CDR

as the integrated metadata repository.<sup>34</sup> The CDR also guided a handful of software developers, helping them provide products and services to banks in preparing call reports and in validating data to achieve consistency and the interoperability of financial data.

The main benefits to the FDIC implementation are consistent with the value-added nature of XBRL. After the implementation of the CDR, the percentage of clean call reports rose from 66 percent to 95 percent, which clearly is a major improvement in data quality. Productivity of agency analysts increased from 10 percent to 30 percent. The FDIC now has more timely access to data and, in terms of transparency, call report information goes out three weeks earlier than was the case for the old process.<sup>35</sup>

### ***Challenges Facing the FDIC Implementation***

Not surprisingly, the fundamental challenge seen in the CDR project was the resistance to change. The FDIC minimized the amount of changes needed for the banks by taking on the task of developing the taxonomy as well as the software program needed for implementation. For the most part, banks prepared their reports in the same way as they had done before.

As the first large-scale U.S. XBRL project, the FDIC can be seen as the early leader in XBRL implementation. It has taken several initiatives to share the knowledge and benefits gained from XBRL implementation. A community of practice was formed by the FDIC to include the SEC, the Internal Revenue Service, and the U.S. Treasury Department. The SEC's implementation of XBRL can be attributed to the successful implementation of the CDR project.<sup>36</sup> This highlights the benefit of shared learning among government agencies in the United States.

Compared with the Bank of Spain project, the United State's FDIC's project is larger in scope and more advanced in data validation against business rules. More than 5,000 FDIC-insured banks are involved, compared to the 400 banks in the Spain project. The U.S. project also involved more financial concepts than those used by FDIC-insured banks. Nevertheless, the CDR project took full advantage of XBRL's ability to automate the validation of business rules for regulatory compliance. It provided an example for other countries on how to

fully realize the potential of XBRL.

### ***Lessons Learned from the FDIC Implementation***

The important lesson here is that the FDIC's XBRL implementation produced tangible benefits. These included efficiency in data validation, improvements in data quality, and improvements in the timeliness in information dissemination.

A second lesson is that FDIC's successful XBRL implementation benefited from a close collaboration between FDIC, the intermediaries, and the software industry. This active stakeholder engagement helped remove barriers to providing regulatory agencies with XBRL-formatted financial information.

## **Implementation of XBRL in Multiple Industries**

### **Singapore**

Singapore's Accounting and Corporate Regulatory Agency (ACRA) led the XBRL implementation, which began with a feasibility study in 2003. With positive findings, ACRA proceeded with awarding the implementation project contract in February 2006. ACRA regulates all registered businesses in Singapore. The scope of this implementation can be characterized as "one agency, multiple (all) industries." Approximately 30,000 listed companies in Singapore in all industries were included in this implementation effort.<sup>37</sup> Most of these companies were small- and medium-sized enterprises (SMEs).

The primary motivation for Singapore's adoption of XBRL underscores the core value propositions of XBRL. The adoption of XBRL improves the efficiency and accuracy of financial and business information reporting, and the efficiency lies in the implementation of a one-stop portal for businesses. Such an implementation enhances the transparency of financial activities in Singapore. Thus, the public and the business communities—both domestic and international—benefit from the enhanced availability and quality of business and financial information. Such transparency promotes a conducive business environment that is vital to Singapore's economy. XBRL was the standard of choice due to its open nature and strong supporting development community. The decision to choose XBRL went through a deliberative

process, during which key stakeholders were interviewed to understand the value and feasibility of XBRL.<sup>38</sup>

From the outset, ACRA engaged the main stakeholder groups and worked diligently to address their concerns. More specifically, ACRA worked closely with the Institute of Certified Public Accountants of Singapore (ICPAS), which represents accountants doing most of the reporting for small and medium-sized businesses.<sup>39</sup> ACRA actively sought feedback from ICPAS and representatives from the accounting and auditing professions. One major concern was the cost associated with reporting financial statements in XBRL. ACRA addressed that concern directly by providing a free, web-based tool called FS Manager for companies to prepare their financial statements online. The development of ACRA taxonomy also aimed to eliminate the need for reporting companies to acquire taxonomy-building software and/or to understand the technical aspects of an XBRL taxonomy.

A phase-in implementation coupled with actively seeking input from the user community was a defining characteristic of ACRA's XBRL implementation. In 2006, the FS Manager software underwent prototype usability testing at the hands of the user community. In spring 2007, focus group research was conducted to generate feedback on both FS Manager's functionalities as well as the taxonomy supporting it. This was followed by extensive outreach and training via the ICPAS, the Singapore Association of the Institute of Chartered Secretaries and Administrators, the Singapore Academy of Law, and other relevant professional bodies. After incorporating feedback on technical feasibility, the final version of the FS Manager software went live for filing in November 2007.<sup>40</sup>

Filing is supported by user guides, an interactive online inquiry system, and an extensive frequently asked questions (FAQ) list. The current filing function also allows companies to provide feedback and comments. The phase-in implementation allowed for the mandatory reporting of the essential financial information first (partial XBRL) and voluntary reporting of other financial information (full XBRL). This incremental approach allows for the maximum return of resource investment through a focus on high-value

financial data. At the same time, this approach gives companies the time and opportunity to learn and transition later to full-report implementation.<sup>41</sup>

The first year of implementation, from November 2007 to October 2008, saw approximately 40,000 companies using FS Manager. Around one-quarter of these reports used the full report version. Future years are likely to see stronger performance.<sup>42</sup>

### ***Challenges Facing the Singapore Implementation***

Moving forward, future challenges may be seen in sustaining the release of new and innovative software programs available for the next version of FS Manager. ACRA's initial decision to develop and provide the XBRL reporting software solution online shows the trade-off that may be necessary when there is a lack of incentives for the software industry to develop competing solutions. Expanding a XBRL taxonomy to include a one-stop filing portal that can encompass other government agencies—as is the case in Singapore—will introduce more complexity to the coordination of taxonomy development and implementation.

### ***Lessons Learned from the Singapore Implementation***

The relatively smooth and fast development and implementation of XBRL for financial reporting provides additional evidence of the importance of active stakeholder involvement at all stages in the design and implementation of XBRL.<sup>43</sup> It allowed ACRA to focus on the need of the SMEs that constitute the majority of reporting businesses. ACRA provided free online software solutions as well as technical assistance. The significant voluntary adoption of the full report version also speaks to the success of ACRA's implementation. This provides insights that may be applicable to other national implementation programs aiming to increase adoption.

The phase-in implementation, with the partial reporting option, shows a creative solution to managing change. In doing so, ACRA was able to focus on the core financial data for all reporting companies and then expand it to include other financial data. At the same time, this phased approach gave companies time to learn how to use the FS Manager software for reporting.



## United States: Securities and Exchange Commission (SEC)

The SEC's primary mission is to provide timely and quality financial information to investors. In this way, institutional and individual investors can make the financial market more efficient in allocating resources. The motivation for the SEC to leverage XBRL lies in the objective of bringing efficiency to the gathering of financial data and improving data quality. More importantly, with this project, the SEC aimed to provide timely and quality information in a standard format conducive to meaningful and timely analysis. The SEC's XBRL Interactive Data Initiative is fully aligned with the SEC's own strategic IT objectives as articulated in its fiscal year 2007 *E-Government Act Report*.

The scope of this initiative will be the largest in the world when fully implemented and when measured by the extent of financial activities and information reported. Since the SEC regulates publicly traded companies, such as those listed on the NYSE and NASDAQ and securities brokerage firms, its regulatory powers cover all industries.

One difference between the Singapore ACRA and SEC projects is the size of corporations involved. The SEC project focuses on publicly traded companies; the amount of financial information that the Interactive Data Initiative will be covering includes around 3,000 data elements for each of approximately 12,000 publicly traded companies.<sup>44</sup> Another layer of complexity stems from the multiplicity of industries involved. The SEC XBRL implementation calls for complex extension and variations to address industry-specific financial information. The SEC project is also unique in its inclusion of a complex web of stakeholders including investors, issuers, auditors, analysts, technology professionals, regulators, and an entire spectrum of organizations and individuals who file and use financial data.<sup>45</sup>

Via its Interactive Data Initiative, the SEC took a collaborative approach to working with its stakeholders to leverage the power of XBRL. The SEC actively made information about the Interactive Data Initiative and the development of the taxonomy available to all stakeholders via routine press releases, public statements, and speeches. It also sought stakeholder input through roundtables and test groups.<sup>46</sup> As the SEC formulated its rules governing the mandatory

requirement of business reporting in XBRL format, its engagement with stakeholder groups was highly structured. This level of input and the highly structured format make the SEC's project the first of its kind in the implementation of XBRL.

The SEC adopted a phase-in implementation strategy. The phase-in included a gradual shifting from voluntary to mandatory adoption, and a gradual shifting from large to medium- and small-sized companies.

The voluntary program started in April 2005. By June 2009, about 2 percent of the companies covered by SEC rules—mostly large ones—participated in the voluntary program.<sup>47</sup> In mid-2008, the SEC considered a proposed mandatory rule, then made the final decision to transition to the mandatory approach in December 2008. The company-size transition was designed such that year one would require the participation of only the largest organizations with a market capitalization in excess of \$5 billion, with year two requiring all other large accelerated filers, and year three pulling in all remaining filers.<sup>48</sup>

The management of stakeholder relationships and a phase-in implementation centered on the core of the SEC's mission: to provide investors with timely and quality financial information. The primary rationale for shifting to a mandatory approach was because of the network effect needed to give investors the benefits of having financial information for all SEC-regulated companies in an XBRL format to ensure transparency and analysis.<sup>49</sup> As a government agency, the SEC also has obligations to assist small-sized companies as stakeholders. The phase-in approach incorporating a shift from large to small-sized companies is the SEC's way of lowering costs for relatively small companies while allowing the software to mature and its cost to decrease.

### **Challenges Facing the SEC Implementation**

By June 2011, all remaining filers will be required to use the U.S. Generally Accepted Accounting Principles (GAAP). The benefits of the Interactive Data Initiative are likely to accumulate as more companies participate in XBRL reporting and as more analytical tools are developed to take advantage of XBRL financial information. Future challenges lie in the speed of the maturation of the software market. The actual use of the interactive

data will speak to the performance of this project, with a broader impact of its XBRL format likely to provide impetus for the development of business analytics that can revolutionize financial analysis in the era of the semantic Web (Web 3.0).

### ***Lessons Learned from the SEC Implementation***

The salience of leadership is evident in the Interactive Data Initiative project. Christopher Cox, SEC Chairman during the second term of the George W. Bush Administration, provided the leadership for change management during the early years of XBRL implementation. Chairman Cox used every opportunity to articulate the value of XBRL in achieving the SEC's mission.<sup>50</sup> This level of education and outreach, coupled with top management support, was necessary for the change sought.

Another lesson can be seen in the power of combining a clear vision of core values, a practical phase-in implementation strategy, and active stakeholder relationship management. The three-year experiment with the voluntary program also offers lessons for other XBRL implementation. The adopters were usually large and more innovative firms that saw the benefits of business analytics and efficient reporting. The reduction in time required for reporting suggested a learning effect.<sup>51</sup>

2009 marked the first year of SEC implementation of mandatory XBRL reporting with companies of \$5 billion or more of market capitalization. 2010 will bring in other large accelerated filers using U.S. GAAP.

# Lessons Learned About Implementing XBRL

The lessons learned are drawn from the experiences of six case studies of implementations of XBRL around the world presented in this report. Lessons include the identification of strategies that are associated with the successful realization of XBRL values, including efficiency, data quality, timeliness, transparency, and analytics. Moreover, the variety of settings and industries covered offers a rich set of options and opportunities.

## **Lesson One: Invest in understanding the business problems that conventional financial reporting entails and how to solve them**

Public executives need to invest time in understanding the business problems associated with conventional financial reporting, in which financial data reported to government agencies are stored in an electronic file. The primary problem lies in the extent of manual labor involved in checking the embedded information for accuracy and compliance with business rules. The manual process is prone to high error rates, slow validation and dissemination, limited auditing, and poor data quality. Clearly, poor data quality compromises the effort to make financial information available to the public for transparency and accountability. The labor-intensive process also limits the kind and amount of financial data made available to the public, which misses the opportunity to allow the public to monitor the financial sector along with the government.

The problems for government multiply as more government agencies maintain the conventional method of financial reporting. At the same time, reporting businesses will be burdened with a myriad of reporting requirements from multiple public agencies with different definitions. An earlier analysis of

the use of the Australian Business Number revealed that it had nine different names for the same business identification number used across participating government agencies. In an era of pushing for more accountability and transparency in the financial and business sectors, governments around the world are requiring more businesses to report more detailed information about their activities.

Understanding the nature of the business problems at hand can help identify the best solution. An open-sourced XBRL solution addresses all of these business problems by providing five benefits: efficiency, data quality, timeliness, transparency, and analytics.

The filing of financial information based on an XBRL taxonomy makes pieces of the information embedded in a long financial report machine readable. The standards behind the taxonomy can also assure the comparability of data as well as their validation against business rules. All of this can be done with a software program. The Federal Deposit Insurance Corporation (FDIC), as well as the Bank of Spain, experienced the benefits of an XBRL solution in efficiency, data quality, and timeliness.

XBRL-enabled financial and business information lies at the core of the effort to increase transparency and accountability. Agencies such as the Securities and Exchange Commission (SEC) or Singapore's Accounting and Corporate Regulatory Agency (ACRA) can achieve a priority such as transparency by making the financial information gathered in XBRL format available on their websites. Increasing transparency helps public executives gain public trust. XBRL-formatted data also enable the development and application of business analytics tools. Such analytical

capability can help regulatory agencies monitor the entire financial sector that otherwise would be too prohibitive when using a manual process.

As a practical matter, public executives can leverage the knowledge of their trusted information technology (IT) experts to acquire value-added elements for their own agency or for the entire government. In the United States, the SEC's XBRL effort began with its IT staff learning about the potential of XBRL as a solution to modernize the SEC's data collection and dissemination process. Technical expertise at XBRL U.S. was a valuable resource, with experts to help public executives understand the basics and value of XBRL. XBRL International offers implementation insights from around the world. In addition, country-specific jurisdictions such as XBRL Spain offer XBRL advice for a particular country.

### **Lesson Two: Ride the wave of administrative reform and data modernization efforts**

National XBRL implementation is itself an administrative reform which aims to promote efficiency and transparency. For example, Australia's Standardized Business Reporting/XBRL implementation is essentially an administrative reform effort to reduce the business burden of report compliance. The SEC's effort is also an improvement of its administrative process, with a focus on modernizing its data collection and disclosure.

Resistance to change, however, accompanies all reform efforts. Resistance comes from government agencies that need to transition to the new business process and that need to move from an agency-centric compliance model to a citizen-centric coordinated effort. The accounting and business communities also resist change; they hesitate in the face of the perceived costs of switching to XBRL. Therefore, a successful implementation to realize the value and potential of XBRL requires enough political will and senior management commitment to proceed through the change management process.

Public executives can broaden the political and management support needed to successfully implement their XBRL projects if they can "ride the wave" of administrative reform and data modernization. For a long-term SBR project, three to five years will likely be necessary before benefits are realized. Thus, it is important for senior public managers to

provide appropriate leadership to seize the opportunity for reform despite that time frame. In the SBR/XBRL implementations in the Netherlands and Australia, public executives rode on larger government-wide administrative reform efforts. Public executives need the public support, resource commitment, and collaboration of many stakeholders. National XBRL implementation is more effective when enacted as a part of a larger reform movement.

Public executives can also now use the new era of transparency and accountability to seize the opportunities provided by XBRL. Public executives can articulate the value of XBRL in improving efficiency and transparency in order to gain the broad support needed. XBRL implementation can help government agencies address the problem of administrative burdens incurred by reporting. In addition, XBRL will help increase transparency by providing financial and business data which the public can use to leverage individual and organizational innovations as promoted by Web 2.0 and Web 3.0.

The experiences of the SEC and the Federal Financial Institutions Examination Council illustrate the utility of leveraging the large e-government implementation agenda, and they have modernized financial data gathering, analysis, and dissemination. Recent interest in accountability and transparency in financial sectors around the world can be leveraged by public executives to gain the political support needed to implement XBRL.

### **Lesson Three: Form strategic alliances with key stakeholders**

The scope of national XBRL implementation requires forming strategic alliances with key stakeholders, which the XBRL implementation cases examined all underscores. Forming strategic alliances requires the identification of key stakeholders and the articulation of a win-win arrangement. Key stakeholders on the government side include regulatory agencies that are within the scope of XBRL implementation. A project may incorporate only one agency, as seen in the case of the SEC, or it may incorporate an entire complex ecosystem of many agencies, as in the case of the SBR/XBRL project in Australia. Stakeholders outside government include reporting businesses, accounting and auditing associations (intermediaries), software developers, XBRL communities, investors, among others.

The degree of participation of key stakeholders in strategic alliances depends on the phase of XBRL implementation. At the stage of developing a taxonomy, the accounting profession, other intermediaries, and the XBRL community constitute the main nongovernmental partners. Since the taxonomy is usually based on accounting standards such as the U.S. Generally Accepted Accounting Principles (GAAP) or International Financial Reporting Standards, the accounting profession is well positioned to provide assistance. The XBRL community is knowledgeable about technical issues related to taxonomy. During the stage of building XBRL processes and tools, public executives can work closely with the software developer industry and representatives from reporting businesses of all sizes.

The overarching strategy seen in the cases studies was one of centrally coordinated open collaboration with articulation of win-win value propositions. A centrally coordinated effort is critical for any standardization effort. The Australian and Dutch SBR/XBRL experiences emphasized the need for a central coordinating agency in developing a national taxonomy across government agencies and all industries. Alliances were formed with a central coordinating agency which can handle various implementation efforts that are aligned with core project goals.

Open collaboration helps public executives understand the needs of various stakeholders and also helps them to develop a win-win arrangement. Moreover, such openness allows government to leverage trade groups and professional associations for outreach and education about the XBRL implementation. This collaborative approach paid dividends in Australia's and Singapore's efforts to understand the barriers to XBRL implementation and to remedy them with appropriate solutions. Collaboration and alliances can take shape in the form of advisory groups, roundtables, formalized comments, and task forces for designing and testing prototypes, among many other options.

Creating a successful strategic alliance requires a win-win approach. For XBRL implementation, the business case for reporting businesses must be clearly and convincingly articulated. In an SBR/XBRL implementation, the reduction of regulatory compliance via a national taxonomy for financial and business reporting is the value added. In a single-

agency XBRL implementation, interoperability of financial information across business systems is the value added for reporting businesses. For example, United Technologies took on voluntary XBRL reporting and turned it into an opportunity to promote standardization and the interoperability of financial information across its entire company for regulatory compliance and business intelligence.

#### **Lesson Four: Address software development and trade-off issues**

Public executives need to actively address two central issues of implementation to ensure success:

- **Software development.** Often called the “chicken and egg” dilemma, which has at its core the problem of developing low-cost software tools for XBRL and ensuring the business purchase of these tools. Australia's experience illustrates this dilemma. Small- and medium-sized businesses were waiting for the cost of XBRL reporting tools to drop, while software developers were waiting for significant purchase orders to materialize before investing in development and production. At a minimum, it is clear that this dilemma is a fundamental implementation issue that senior public managers need to actively address and manage.

A significant initial public investment in direct development of the software program or provision of incentives can help solve the dilemma. For example, the FDIC implementation provided the initial investment in the XBRL module to modernize its financial-information gathering and monitoring of banks. The Bank of Spain's initial investment in software development also helped pushed the XBRL tools. The provision of incentives was particularly evident in the SEC's effort to move from voluntary to mandatory reporting using XBRL. The creation of a network effect by means of a mandatory requirement can create enough market demand and predictability that some software developers will begin to develop XBRL solutions.

- **Trade-off dilemmas.** The second central issue is the trade-off between SBR and single-agency approaches to national XBRL implementation. The key for public executives is to manage the expectations accordingly. SBR/XBRL, as opposed to a single-agency approach, has a real potential



to reduce the administrative burden that government imposes on businesses. The efficiency gain can be realized across the entire economy, especially if businesses regulated by various government agencies are aggregated.

In the process of standardizing and harmonizing data elements gathered throughout the entire government, an SBR program implementation can take several years and significant amounts of political capital. Such an approach may not be feasible for any national government that has not yet made a government-wide commitment to regulatory reform with XBRL as the core of its strategy. In such a case, an agency-based approach with later expansion is more feasible. Nonetheless, it should be noted that the single-agency approach could later create multiple taxonomies and this may ultimately require more time and resources to harmonize.

### Lesson Five: Do a phase-in implementation that fits the organization

This examination of XBRL implementation experiences from around the world generates a rich menu of phase-in implementation options that can serve as tools in the public executive's XBRL implementation toolkit. The phase-in approach can take one or a combination of the following variations:

- **Variation One.** Applies an experimental approach, in which participation is voluntary and is designed for learning purposes. After this, a mandatory phase-in can lead to wider adoption. This is similar to the approach seen in the SEC case study.
- **Variation Two.** Features graduated inclusion: begin with large financial institutions, then slowly include smaller ones. This approach lessens the impact on medium- and small-sized businesses, and lets large businesses, which have more resources and technical capacity, to begin to implement XBRL first. Both the Bank of Spain and the SEC adopted this approach.
- **Variation Three.** Involves a voluntary move from partial to full reporting as part of a phase-in approach. Singapore's ACRA let businesses learn and adapt as they moved closer to full reporting.
- **Variation Four.** Involves a phase-in strategy first including domestic businesses, then enlarging the reach to include international ones. An example of this is the SEC's plan to first stipulate mandatory reporting among all businesses reporting under U.S. GAAP, and later to include foreign companies.

The main selection criterion is the best fit for the organization. Senior public managers must determine the fit in terms of:

- Whether an implementation strategy is consistent with the overarching approach of implementation, and
- Whether a certain strategy can actually realize the benefits of XBRL implementation.

In the case of Australia, its SBR may preclude shifting to a mandatory approach because its program seems so entrenched in the voluntary approach. A viable option under the voluntary framework can feature a gradual phase-in, beginning with a core set of financial information then advancing to full reporting—such an approach is seen in the case of Singapore. The SEC's ability to move from the voluntary to mandatory approach supports its core mission of serving investors and the public. The cost of regulatory compliance by reporting businesses is bearable, given the far-reaching benefits of serving institutional and individual investors.

The use of prototypes for proofs of concept, cost-benefit analysis, and business cases should be essential components of any phase-in strategy. All six implementation case studies point to the importance of beginning with a proof of concept, which was used to explore the costs and benefits of XBRL implementation. The SEC conducted such an exploration by means of the phased-in voluntary adoption approach. The ACRA in Singapore followed a rigorous project management methodology, and it began its large IT project with a prototype and analysis.

The prototype approach is particularly useful for software development, which was seen in the case of ACRA's FS Manager. Australia's SBR/XBRL conducted extensive business cases for all main stakeholder groups, ranging from accountants and bookkeepers to small reporting businesses.

### **Lesson Six: Demonstrate and communicate the benefits**

National XBRL implementation is a significant departure from certain legacy reporting practices, entrenched methods in the accounting professions, and outdated practices of government agencies. Thus, resistance to change can pose a significant obstacle. For individual government agencies or businesses, the business case for using XBRL is often ignored or poorly understood. Public executives can sustain the implementation momentum by the timely articulation and realization of the five benefits of XBRL, addressing how they impact individual organizations, each stakeholder group, and the entire economy against major milestones.

For example, reporting businesses need to understand the business case that makes XBRL compelling, which is the combination of ease of reporting and business intelligence. Ease of reporting for regulatory compliance will come first, and the benefit of business intelligence can be realized after several years. Naturally, the accounting profession is leery of any changes to its revenue model which may result from implementing XBRL. Yet, rather than refusing to relinquish manual validation, which would ultimately be replaced by XBRL, the accounting profession needs to understand the long-term benefits of developing more profitable service products designed for the new XBRL environment.

Public executives can help software developers recognize the significant potential of XBRL for business reporting and business analytics. Government is best positioned to provide the initial investment outlay; it should do so by formulating and making business cases, and conducting educational and outreach programs to facilitate the realization of XBRL value.

The ultimate success of XBRL implementation depends on sustaining the momentum of implementation through the several years the project may require to come to completion. A broader application of the Earned Value Management (EVM) approach—which was first introduced by the U.S. Office of Management and Budget several decades ago—is critical for sustaining implementation momentum. An EVM approach provides a systematic and timely way of monitoring project performance according to the value earned as measured

against allocated resources. The primary benefit of this approach is that it can identify in a timely fashion the project risks and benefits from the viewpoints of stakeholders.

Applying the EVM approach to XBRL implementation allows for the articulation of both tangible and intangible values associated with budgeted resources. Examples of tangible resources include efficiency gains measured by cost savings, productivity increases of analysts, and timeliness as measured by the duration required to complete quality assurance for financial data. Intangible resources can include transparency and accountability, which, of course, constitute the core public service values that XBRL is able to create. Thus, the stakeholder's willingness to support an XBRL implementation depends largely on the benefits that can be gained. The clear demonstration of earned values can help each group of stakeholders rally its members through the entire implementation process.

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