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Straight Through Reporting with XBRL Web Services:

How U.S. Government
agencies can achieve an
efficient budgetary,
financial and performance
reporting environment



One of the biggest challenges burdening government agencies today is a manually intensive, error prone and inefficient environment for producing, analyzing and reporting budgetary, financial and performance information. In the midst of the 21st century information revolution, nearly all government agencies still consolidate information for reporting and analysis using processes in place for the last quarter of a century. These cumbersome processes make it increasingly difficult for decision makers inside and outside government to gather and analyze all of the information needed to assess the efficiency and effectiveness of government performance.

According to the Government Accountability Office (GAO), the problem of manual information processing, and its associated inefficiencies and costs, are widespread among government agencies. “Many federal agencies have continued to expend significant resources to use extensive ad hoc procedures and to make billions of dollars in adjustments to derive financial statements months after the end of a fiscal year.”¹ Timely, accurate and useful financial information is essential for making operating decisions day to day, managing the federal government’s operations more efficiently and effectively, meeting the goals of federal financial management reform legislation (such as the Chief Financial Officers (CFO) Act), supporting results-oriented management approaches and ensuring accountability on an ongoing basis.

Manually intensive reporting process: many federal agencies have continued to expend significant resources to use extensive ad hoc procedures and to make billions of dollars in adjustments to derive financial statements.

The time has come to modernize the information-production processes used to create the thousands of pages of government reporting each year and to make information instantly accessible and re-usable across the government’s reporting supply chain — from separate agencies, to oversight agencies, to Congress and to the public. Many of the software applications agencies are using to move towards integrating financial-management systems, including Enterprise Resource Planning (ERP) and Web-based technologies, already contain the basic tools for re-engineering their budgetary, financial and performance reporting processes: eXtensible Business Reporting Language (XBRL) and Web services protocols.

There is some urgency to achieving better integrated information sharing among agencies. According to recent accountability initiatives federal agencies are required to produce meaningful data from their financial management applications to increase performance, budgetary management and enable more strategic decision making. In order to achieve real-time data, federal agencies do not necessarily have to replace their current applications but simply make their data more intelligent and accessible. Federal agencies can enable a real-time reporting environment by leveraging current systems and Standards-Based Reporting via XBRL Web Services. XBRL and Web services Internet standards, provides a long-term solution in a matter of months. With Standards-Based Reporting, agencies can maintain instant access to and instant re-use of the information in internal and intergovernmental systems for analysis and decision making, even as systems and software change over time.



This paper:

- Describes the capabilities and benefits XBRL, with Web services standards, offers government agencies in terms of enhanced processing efficiency and communication of business information
- Discusses how existing E-Government initiatives leveraging Web services and XBRL's parent language, Extensible Markup Language (XML), can be broadened to meet critical government reporting needs for budgetary, financial and performance reports
- Explains how a “Straight Through Reporting” environment provides decision makers with a more robust information environment and stronger, proactive controls
- Suggests a useful starting point for creating a better reporting environment across the U.S. Government

XBRL and Web Services: Capabilities and Benefits

XBRL is the Internet's information format for describing financial and business reporting data in a way that all software can capture and process. It works with Web services, a group of standards that contain specifications for sending information safely over Internet technology platforms both within and between organizations. By tagging individual pieces of business information with common data definitions and providing the means of transporting the information over the Internet, these standards, which we'll call “XBRL Web services,” enable disparate software applications to transmit and share information directly with each other.

Leveraging Internet technologies as a means of collecting and disseminating information internally and externally is imperative for streamlining processes, cutting costs, increasing the speed and accuracy of information consolidation and, ultimately, improving the quality and timeliness of the business information used by program managers, Congress, the President, citizens and others for decision making. The inability of disparate systems and software to share information, rather than documents, has prevented the Internet from becoming a vehicle for reporting process improvements. These disparate systems generally cannot directly share the information in the documents outside closed, and, therefore, limited standards groupings.

Incompatibility among software has meant continued reliance on manual information gathering and consolidation — searching through sources, then “cutting and pasting” or re-keying — to get data from its various sources to the point at which it can be used for analysis, decision making and reporting.

Organizations can eliminate hand tinkering of data by adopting standards that enable all software to recognize and process information, regardless of which software sends or receives the data. This transforms manual information preparation into an automated process. Data can flow seamlessly, without manual intervention, between any software applications located anywhere across the information supply chain.

XBRL data standards essentially “bar code” business information, providing an identity and context for every piece of data. The data standards are published as “taxonomies,” which are like dictionaries of related business-data terms. For example, there is a published XBRL taxonomy for U.S. GAAP reporting and another for representing the data found in accounting systems, such as the general ledger and journal entries. Every single piece of business information has a business data term, or “tag,” attached to it, so that the data is identifiable in any enabled software.

Unlike solutions that require special purpose software and proprietary XML information standards to get disparate systems to share data, the XBRL information standards do not leave organizations dependent upon a single third-party for maintenance and adaptation as information needs evolve and grow. With XBRL Web services, there is also generally no need for costly special-purpose software. It can be deployed over existing systems and incorporated into software already in use. Unlike manual consolidation, human hands are a lot less involved in information discovery and aggregation, significantly reducing the likelihood of transposition errors and radically simplifying the task of information verification.

Leverage existing systems: with XBRL Web services, there is generally no need for costly special purpose software as it can be deployed over existing systems and incorporated into software already in use.

XBRL Web services benefits agencies from both an information-processing (or “consumption”) standpoint and a reporting (or “production”) standpoint. Users can:

- Reduce information collection and processing costs more immediately than is possible with systems integration and data warehousing alone
- Increase focus on analyzing and using information instead of preparing information for use
- Enhance access to information for improved risk assessments
- Improve accuracy of information transfer from reporting-entity submissions to consolidated analyses and reports
- Decrease turnaround time for providing information to other agencies, industry and the public
- Leverage other electronic data standards to reduce the cost of managing and maintaining their own, proprietary, information standards

XBRL Web services provides a framework for process change that can help agencies improve the accuracy, reliability and timeliness of their reports — using existing systems in many cases. It also helps agencies achieve process improvement in the context of the Administration’s criteria for that change.

Filling the Void for Efficient, Reliable Budgetary, Financial and Performance Reporting

Driven by such legislation as the CFO Act of 1990, the Government Performance and Results Act (GPRA) of 1993, the Government Management Reform Act (GMRA) of 1994 and the Clinger-Cohen Act of 1996, the ways in which government conducts business experienced significant change in the last decade. This transformation has continued under the Bush Administration, with the President's vision for government-wide improvement and the supporting components of his Management Agenda.²

The President's vision is for government to be (1) citizen-centered, not bureaucracy-centered, (2) results-oriented and (3) market-based. These three parameters, under which innovation is actively promoted rather than stifled, have already had a dramatic impact on the effectiveness and efficiency of government reporting. Progress across many agencies has been substantial. For example, there are already 24 "E-Government initiatives" underway that are enabled by XML and Web services. These projects are dramatically transforming the agencies' service delivery models from an "agency-centric" to a "citizen-centric" focus. Some of these initiatives include:

- GovBenefits.gov: Representing more than \$2 trillion in federal benefit dollars, GovBenefits.gov provides on-line access to all 419 known citizen-focused federal benefit programs and 48 state level benefit programs
- Grants.gov: With the recent completion of both the "Find Grant Opportunities" and the "Apply for Grants" features, Grants.gov has more than \$360 billion in annual grants from 26 federal agencies available on-line
- E-Rulemaking: Makes it quicker and easier for citizens and small businesses to participate in the federal rulemaking process via the Web. Regulations.gov allows the public to search, view, and comment on hundreds of proposed federal regulations from approximately 160 federal agencies. Launched in January 2003, Regulations.gov is estimated to save \$94 million over three years by consolidating redundant docket systems across agencies and reducing duplicative spending for these systems
- Federal Enterprise Architecture (FEA): The FEA facilitates cross-agency analysis and identification of duplicative investments, gaps, and opportunities for collaboration within and across federal agencies. To date, FEA budget analysis has aided OMB in targeting consolidation opportunities, yielding a potential savings of approximately \$3 billion

² Five Components of the President's Management Agenda: Strategic Human Capital, Strategic Sourcing, Improved Financial Management, Expanded Electronic Government, and Budget and Performance Integration

³ http://www.whitehouse.gov/omb/egov/downloads/e-gov_fact.pdf



Notably absent from the current list of E-Government initiatives are projects in three critical areas:

- Budget reporting
- Financial reporting
- Performance reporting

“... XML is being used to create a variety of “standard” markup languages for particular industries ... agencies may be able to use XBRL to format and develop financial statements in the future.”
— GAO Report, “Challenges to Effective Adoption of the Extensible Markup Language,” April 2002

The stumbling block has been the need for authoritative, broadly applicable XML — based data standards — a taxonomy⁴ — that can be leveraged by numerous agencies. In the absence of such agreed standards, there is a real threat that government agencies and businesses will develop individual, disparate data standards in the absence of any coordinating mechanisms. The likely result is a proliferation of standards, a situation that would end up inhibiting information exchange — the very problem the concept of data standards was supposed to resolve.

The government is already well aware of this danger. In its April 2002 report, “Challenges to Effective Adoption of the Extensible Markup Language,” the GAO recognized the importance of common information standards. “XML’s greatest benefits accrue when organizations, such as government agencies, use standard data exchange procedures and agree on standard data definitions and structures” and that asserted that “...to the extent that these business standards [such as XBRL] address government needs as they are developed, government agencies will likely have less of a need to develop their own nonstandard data vocabularies and structures.”

To fill the present void in facilitating budgetary, financial and performance-reporting initiatives, agencies can leverage XBRL data standards, which are specifically designed for business reporting. XBRL data standards are open, royalty free and collaboratively developed and maintained by XBRL International (www.xbrl.org), a consortium of government agencies, leading corporations, software makers and professional services providers.

Most software makers have already, or soon will, incorporate XBRL Web services capabilities into the latest versions of their software. For example, the latest version of Microsoft Excel, an engine of financial analysis and reporting, has XBRL capabilities available via an add-in. Thus the ability for anyone using Excel to produce and consume XBRL formatted information is becoming not just widespread, but ubiquitous.

The purpose of E-Government initiatives is not simply about turning paper reports into electronic reports; it is about lowering costs and enhancing analytical and reporting capabilities. Since almost any software can be XBRL Web services enabled, regulators, for example, gain the benefits of instant information access and re-use upon receipt of a filer’s XBRL enabled electronic reporting form without necessarily waiting for changes to the technology environment, such as data warehouses. The technology can remain in place

⁴ XBRL taxonomy defines a set of concepts that are rendered in reports such as Balance Sheet, Statement of Net Cost, and Statement of Budgetary Resources. Rules are embedded in taxonomies that are used to programmatically validate instance documents

largely because XBRL has changed the data standards —making any software capable of recognizing the definition and context for each piece of reported data.

While a number of U.S. federal entities have begun exploring XBRL’s potential to lower costs, enhance performance and increase responsiveness to information constituents, the FFIEC is the first one to act, joining a growing list of entities around the world that are deploying XBRL and Web services.

The goals of most agencies across the world are similar to those of U.S. agencies:

- Streamline their own reporting by making information processing more automated and provide standards that others in the supply chain can leverage
- Automating information exchange among systems and software within an organization, which is the initial goal of most agencies

Straight Through Reporting: Enhancing Agency Analysis, Decision Making and Reporting Power

In a Straight Through Reporting environment, common data standards mean that data is born “live” at the source, instantly accessible and ready for re-use in any analysis or report. Data is tapped from its source every time it is used, increasing the accuracy and consistency of information even as it used for diverse purposes. The direct information flow from source to analytical or reporting software without human intervention also means that data is quickly traceable back to its origin at any aggregation level.

Tighter controls environment: Straight Through Reporting enables appropriate information to flow directly into monitoring tools, for a tighter controls environment at all levels.

Straight Through Reporting changes the nature of intra-agency information sharing from one of a collection of “silos” to a more integrated information network. Once this occurs, it becomes far less complicated — and less expensive — to “drill down” from a high level summation (e.g. the Financial Report of the U.S. Government) to source information and to tap information for reconciliation purposes. It is also possible to enable appropriate information to flow directly into monitoring tools, providing a tighter control environment at all levels.

As examples of the immediate benefits, consider first that Straight Through Reporting enables linking of the financial, budgetary and performance information agencies produce in their Performance and Accountability Reports (PARs) so that they can be produced in moments at any time. Reducing manual work and facilitating the immediate accessibility of information upon publication in any system or software also permits reports to include more updated and, therefore, more relevant information by which agencies can demonstrate their accomplishments.

Automated reconciliation: reconciliation itself is much faster because the process becomes automated.

As another illustration, automated reconciliation streamlines the process of verifying that budgetary information reported in the Statement of Budgetary Resource (SBR) is consistent with information in both the Report on Budget Execution and Budgetary Resources (SF 133) and the Budget of the U.S. Government. The same information is used for all three of these reports yet the data is produced and maintained in three separate places — a duplicative effort that adds expense but no value to the reports themselves. Reconciliation among these reports required by the Federal Accounting Standards Advisory Board (FASAB) is therefore excruciating and error prone. In a Straight Through Reporting environment, all of the data for these reports can move from publishing sources to the various reports, thereby promoting consistency and eliminating redundant data entry and maintenance.

Information for decision making: when diverse systems and software can share information instantly and directly, decision makers gain access to more of the information resident in agency systems.

Finally, Straight Through Reporting offers solutions for achieving online analytical processing and expanding the scope of data mining techniques. When diverse systems and software can share information instantly and directly, decision makers gain access to more of the information resident in agency systems. This makes it possible for any analysis to include more data points at little or no incremental cost, including data that is impractical or impossible to gather using today's manual processes.

In fact, XBRL Web services can be applied to textual as well as numeric data, greatly simplifying the task of tracking non-numeric information for key measurements like value drivers. Greater information availability also expands the potential scope and breadth of data inquiries. The benefit of having more information readily accessible for analysis and the potential to expand knowledge through new types of inquiries is better, more informed decisions.

Another critically important benefit of Straight Through Reporting is that accessing data at its source enables controls monitoring to occur at earlier stages than it does today. Data monitoring can begin at the point of data publication, instead of at a consolidated level, which is where most current controls can be found. The earlier controls can be implemented, the lower the potential for errors and omissions at consolidated levels; anomalies and other triggers for further inquiry can be examined sooner, before they impact the integrity of consolidated analyses and reports.





Proactive Controls: Emphasizing Auditability and Accountability

The use of recovery auditing sends out all the wrong messages about an agency's efficiency and could undermine the credibility that the agency otherwise may have gained by streamlining its budgetary, financial and performance reporting. In addition to expenditures for what may be viewed as "bounty hunting," it is also difficult to pinpoint the cause of the problem in the first place. This lack of accountability is a direct result of the backward-looking nature of recovery auditing. Preventing the problems from arising in the first place is a more cost effective answer.

Internal controls at the source: Straight Through Reporting changes the controls equation from an exercise in deciphering recent history to a proactive and forward-looking process.

In a Straight Through Reporting environment, in which information can move, upon publication, from its sources to monitoring tools, agencies can establish a continuous controls environment. This enables situations such as overpayments or undelivered products and services already paid for to be caught and rectified sooner, thereby reducing, or eliminating the need for recovery auditing.

In addition, since data remains at its source, those responsible for data publication and, therefore, data integrity, can quickly be pinpointed. That level of accountability will reinforce the obligation to ensure information accuracy and integrity to those responsible for data entry and maintenance. Straight Through Reporting changes the controls equation from an exercise in deciphering recent history to a proactive and forward-looking process in which the potential for misallocation of funds is minimized relative to today.

Call to Action

Agencies have a clear mandate to streamline their reporting processes. While several initiatives have moved the regulatory community forward, there are as yet no initiatives for reporting budgetary, financial and performance information in a more automated manner. XBRL Web services promotes a Straight Through Reporting environment, in which all systems can share and process information via common data standards. The result is instant accessibility to more of the information resident in agencies' systems for more robust analysis and better-informed decisions. It also provides an ability to aggregate information for any reporting or analytical purpose almost instantly and offers the benefit of tighter, more proactive controls.

Recognizing the need to leverage open, collaboratively developed standards, such as XBRL and Web services, is especially important for agencies. If open standards are available and can be used for reporting, then there is little justification for an agency to obligate taxpayer money to create its own, special technical solution. Furthermore, while

proprietary taxonomies created by agencies may move into the industry information supply chain by mandate, neither reporting entities nor other agencies are likely to leverage a single agency's own taxonomy, developed for its own purposes. The solution clearly is to use open, collaborative standards that have been developed with industry input and in response to the needs of the entire supply chain, not just a single member of that supply chain. Collaboration is a critical ingredient to a more effective reporting environment whether within an agency or across multiple agencies.

A significant portion of the data used for budgetary, financial and performance reporting is common to many government reports. To facilitate the automation of this reporting, the first step is to develop authoritative XBRL taxonomies for budgetary, financial and financial reporting that all agencies can leverage. The oversight of the taxonomies development process by the OMB will help to promote an automated information-sharing environment within the government and between its various agencies and external constituencies.

Agencies should explore an XBRL Web services enabled solution as a part of their process of:

- Implementing an “Integrated Financial Management Systems” environment
- Integrating back-office operations, for example, back office financial-systems integration with Grants.gov
- Modernizing systems
- Implementing new financial systems, for example, ERP systems
- Implementing Enterprise-level architectures
- Enhancing existing systems

Recognition of XBRL Web services as the emerging reporting standard for agencies goes as far back as November 2001, when the JFMIP recommended XBRL as a value added standard: “To meet JFMIP interoperability requirements, the core financial system should support emerging XML based specifications for the exchange of financial data such as Extensible Business Reporting Language (XBRL).”

With the demand for high quality and timely decisions from useful budgetary, financial and performance reporting, XBRL is no longer just a value added standard. Rather, it is clear that XBRL offers a commercially-viable, cost-effective way for agencies to facilitate internal and interagency reporting in compliance with applicable laws and regulations.



