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XBRL US and XBRL International Response to Treasury RFI: Public Input on the Establishment of Financial Data Standards

Provided by XBRL US and XBRL International

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We appreciate the opportunity to reply to the US Treasury's Request for Comment regarding data standards. XBRL International and XBRL US support the effort underway within Treasury and the Office of Management and Budget (OMB) to establish government-wide, nonproprietary data standards for business reporting. Standards for government reporting will result in more reliable, consistent and timely data. As we know from our work, better, more timely data will allow agencies and the Administration to set policy more effectively, direct funds towards the most productive programs, and eliminate waste and fraud. Standards will help the American taxpayer understand how their dollars are spent, and agency decision makers to have greater visibility into financial and program performance.

What is XBRL?

The XBRL (eXtensible Business Reporting Language) standard for business reporting is both a framework for defining and reporting against performance, financial, risk and compliance terms *and* a highly developed standardized mechanism for representing the underlying transactional level details that go into every ERP and GL system.

The first mechanism ("XBRL for Reporting") is used by regulators, governments, enterprises and accountants to create reporting dictionaries, and related data quality rules in a system-independent, standardized manner. It is used around the world to modernize business reporting, improve data quality and consistency and reduce red tape.

The second mechanism ("XBRL Global Ledger") is used by governments, private, public and not-for-profit organizations to provide a vendor neutral mechanism for reporting from multiple systems, capturing transactional details and rolling up to summary reports, all the while providing an audit trail and a way to drill back to the source data.

Together, these XBRL frameworks provide a proven, seasoned and well supported open standard that the US Government can leverage to enhance transparency, support decision making and lower costs.

What is XBRL US?

XBRL US, the not-for-profit 501C6 standards organization for XBRL reporting in the United States, is a jurisdiction of XBRL International. XBRL US is a member-driven organization, with approximately 50 member organizations, including accounting firms, software companies, other nonprofits, data intermediaries and service providers. The XBRL US mission is to encourage the use of public business information in a standardized format, and of XBRL as a technology to improve reporting between business, government and the public. Our strategies to meet this mission are:

1. Facilitate the creation of clearly defined standards for XBRL reporting
2. Assist and support the creation of quality data
3. Encourage the ability to consume and connect data

XBRL US was awarded the contract to build out the original US GAAP Taxonomy that is currently being used by over 9,000 public companies to report their financial statement information to the U.S. Securities and Exchange Commission (SEC) every quarter. The SEC also awarded XBRL US contracts for taxonomies for mutual fund and credit rating agency reporting. A taxonomy is a digital dictionary of concepts with associated definitions, that reflect needed reporting terms for a specific situation such as US GAAP, corporate actions messaging or government program reporting. When a taxonomy is used, each reporting entity uses relevant concepts within the taxonomy to define their their own data so it conforms to these definitions with the relevant associated time period, units, etc. Examples could include annual financial statements, performance reporting for a specific government program, non-financial reports or data stored in reporting systems.

What is XBRL International?

XBRL International is the global, umbrella, not-for-profit standards organization that manages the development and maintenance of the XBRL business reporting standard itself. XBRL International is a community of professionals dedicated to improving reporting in the public interest, with members drawn from both the public and private sectors, collaborating on standards and adoption. The organization is responsible for maintaining the XBRL technical specification, and has over 600 member organizations located in 36 countries. XBRL International is equally responsible for the development and maintenance of the XBRL Global Ledger Taxonomy Framework (XBRL GL). XBRL GL, a Recommendation of XBRL International based on the XBRL Specification, is a generic, holistic, extensible and standardized framework for representing the underlying details of global ERP systems, serving as the foundation for a standardized audit trail from transactional data to reporting data.

See the Appendix at the end of this document for background information on XBRL US-led development initiatives.

An Analogy

Readers of this response should understand that the XBRL Standard is a framework standard. It has three layers: specifications, taxonomies and instances of data.

Specifications can be thought of as the grammar and alphabet that govern everything else. Just as in English, you can use the letters A-Z and the rules of grammar; in XBRL you need to follow the rules set out in the specifications.

Taxonomies are the dictionaries that define specific reporting concepts. They are flexible and can constrain the way that reporting is done to ensure internal consistency. An English Dictionary must use the letters A-Z and the rules of grammar, but there are many words for many situations defined in the dictionary. Over time new words can be added to the dictionary. XBRL taxonomies are very similar - there can be many definitions for many different situations and over time, new definitions can be added and old ones removed. At the same time, all the words in these XBRL dictionaries must conform to the rules laid out in the specifications.

Finally, instance, or data are individual stores of data such as a business report, a spreadsheet or a system database. English documents must be constructed from words in the dictionary (or if you have created your own word, you need to define it) and follow the rules of grammar. XBRL instances need to be made up from concepts contained in relevant taxonomies and follow the rules in the specifications. Instances of XBRL data can contain financial information, other numeric data, formatted text, or even graphics.

In the case of the Global Ledger, the analogy is slightly different. Rather than creating a taxonomy, XBRL GL instead provides a fixed vocabulary for mapping between source systems at a transactional level, and a single, consistent and global syntax. Importantly, in addition, XBRL GL allows mapping of specific types of transactions against one or more reporting terms (contained in an XBRL taxonomy) such that the data will roll up to summary level reports. XBRL GL contains information about where each transaction came from, and where relevant, and which organization the transaction was applicable to. Among other things, XBRL GL provides both an audit trail and a way to manage financial eliminations between related parties.

XBRL and the DATA Act

The XBRL standard and XBRL GL fit the requirements of the DATA Act as outlined in the rule :

DATA Act Requirements for the data standard chosen ¹	The XBRL Standard
<p><i>“(b) REQUIREMENTS - The data standards established under subsection (a) shall, to the extent reasonable and practicable -</i></p> <p><i>(1) incorporate widely accepted common data elements, such as those developed and maintained by --</i></p> <p><i>(A) an international voluntary consensus standards body;</i></p>	<p>XBRL is a technology standard, originally formed in 1999, that is managed by XBRL International, a global, voluntary, member-driven organization. The standard is in use today worldwide for reporting by government, securities, banking and other businesses.</p> <p>Standards development is carried out using best practices for consortia, with openness, fairness and consensus the underlying principles that govern this formal process.</p> <p>XBRL GL is a series of common data elements for accounting and operational information and a framework for customization in specialized reporting environments, all based on the XBRL Specification. It has been adopted for use by businesses, small and large, and by government for both business-to-government and government-to-government reporting.</p>
<p><i>“(B) Federal agencies with authority over contracting and financial assistance.”</i></p>	<p>The XBRL standard is used within the US for reporting to the FFIEC by bank institutions and to the SEC for US GAAP financial statements by public companies. Elements created for US GAAP reporting of financial statement data as well as reporting entity identifier data can be leveraged for use in government reporting as well, ensuring interoperability of data sets.</p>
<p><i>“(C) accounting standards organizations;</i></p>	<p>The XBRL standard for US GAAP reporting is maintained by the Financial Accounting Standards Board (FASB), the standard setter for US accounting practices. International accounting frameworks are developed by a wide range of authoritative bodies, including the International Accounting Standards Board (IASB) for the IFRS standards.</p> <p>XBRL GL has been developed by the XBRL International community, which includes accounting professional and standards organizations.</p>
<p><i>“(2) incorporate a widely accepted,</i></p>	<p>XBRL is an open, non-proprietary standard which makes data</p>

¹ Public Law 113-101, DIGITAL ACCOUNTABILITY AND TRANSPARENCY ACT OF 2014, May 9, 2014, pp. 4-5, <http://www.gpo.gov/fdsys/pkg/PLAW-113publ101/pdf/PLAW-113publ101.pdf>.

<p><i>nonproprietary, searchable, platform-independent computer-readable format;</i></p>	<p>computer-readable. XBRL is platform-independent and because of its widespread use in the US, has spawned a competitive marketplace of software tools for data creation, extraction, distribution and analysis, ensuring the lowest possible costs and easy access to all stakeholders.</p>
<p><i>“(3) include unique identifiers for Federal awards and entities receiving Federal awards that can be consistently applied Government-wide;</i></p>	<p>XBRL can leverage existing Federal identification schemes for both awards and entities that receive them. Where existing mechanisms are inadequate, XBRL can provide a single, consistent mechanism for managing this important metadata in a uniform manner.</p>
<p><i>“(4) be consistent with and implement applicable accounting principles;</i></p>	<p>XBRL is used in conjunction with other accepted, widely used data standards such as US GAAP, ISO 20022, and other GAAP standards throughout the world. In the US, the XBRL US GAAP Taxonomy is maintained by the Financial Accounting Standards Board (FASB), the standard-setter for US GAAP.</p> <p>XBRL GL was developed consistently with current accounting principles.</p>
<p><i>“(5) be capable of being continually upgraded as necessary;</i></p>	<p>The standard created for government reporting will be developed through the taxonomy (digital dictionary) of terms. The taxonomy can be revised to reflect the latest reporting requirements. Changing requirements will drive changes in a new release of the taxonomy and when published, the taxonomy itself is the most effective means to convey changes in accounting standards.</p>
<p><i>“(6) produce consistent and comparable data, including across program activities;</i></p>	<p>XBRL leverages the tagging capabilities of XML and adds structure specific to financial and performance data reporting such as a consistent method to convey financial tables and other structure inherent to this kind of data. This ensures that all XBRL-enabled software that is compliant with the XBRL specification will work with any XBRL taxonomy or XBRL instance document, driving a competitive marketplace for tools.</p>
<p><i>“(7) establish a standard method of conveying the reporting period, reporting entity, unit of measure, and other associated attributes;</i></p>	<p>To manage financial data, XBRL has definitive mechanisms to handle time period, reporting entity, units of measure, degrees of accuracy and other critical features of financial and performance data. This structure ensures that data can be consumed consistently and comparably. The XBRL specification enables the definition of additional attributes associated with any fact value.</p>

Treasury's Request for Comment - Questions Addressed

This section of the paper will address the specific questions asked in Treasury's Request for Comment.

Open Data

Please describe or provide examples of data standards on data exchange that could ensure the data is "open." Open in this context means anyone can access, use, or re-use posted information, including the public, Federal agencies, local and state governments, academia, media, industry, standard-setting bodies, transparency groups, on a worldwide scale.

The XBRL standard is a free and open standard, therefore there are no licensing fees associated with the use of the technology standard. However, the availability of data or taxonomies produced in an XBRL format is dependent on the wishes of the party responsible for collecting the information. For example, the Securities and Exchange Commission (SEC) and Federal Financial Institutions Examination Council (FFIEC) collect financial data from the entities they regulate using the XBRL standard. All of the data produced under these two programs is freely available and allows redistribution and publication by any user of the data without restriction. XBRL International actively encourages the collectors of data to make the data collected and taxonomies produced freely available but this is not a condition of using the XBRL standard. Around the world there are many implementations of XBRL, some which do not publish the data collected and a number that do. Notable examples where XBRL data is freely and publicly available outside the United States include the UK Companies House, National Bank of Belgium, Danish Business Authority, Chilean Securities Regulator, Spanish Business Register, and the Japan Financial Services Agency.

XBRL taxonomies produced by XBRL US are publicly available, and place no restrictions on incorporation of the taxonomy into other documents, in whole or in part. Taxonomies published by XBRL US can be copied, published and distributed without restriction of any kind, provided that a copyright notice is included. The restrictions placed on a taxonomy are dependent on the creator of the taxonomy. As a Recommendation of XBRL International, XBRL GL is available under the same open policies as the XBRL Specification itself. The XBRL International taxonomy recognition process requires that any taxonomies *recognized by* (as opposed to developed by) XBRL International are provided without license fees or similar restrictions in accordance with the Intellectual Property policy of XBRL International².

An open standard and the availability of open data means that the data can be used in any XBRL-enabled software, which ensures that there is a competitive marketplace for creation, extraction, analysis and reporting tools. This competition encourages lower costs, innovation and improvements without sacrificing the underlying availability of data. As noted by the SEC in their final ruling requiring

² XBRL International Intellectual Property Policy <http://www.xbrl.org/Legal2/XBRL-IP-Policy-2003-04-25.pdf>

XBRL by all public companies, “...the availability of interactive data in Commission filings will allow investors to avoid additional costs associated with third party sources.”³

In recent years the XBRL standard has emphasized the use of XBRL not only as a mechanism to transmit XBRL in a document format like XML but as a data centric standard using the abstract model of XBRL. The abstract model allows the XBRL standard to be used for storing and transmitting data using any technology standard. An example of this would be with the European Insurance and Occupational Pensions Authority (EIOPA) ⁴which has switched from being a document centric system, to a database centric system. It is based on the abstract model of XBRL, and can interchange both at the database and at the document level. This further increases the availability and openness of XBRL data.

XBRL is currently used in the U.S. markets in two significant implementations. The first was established in 2005 by the FFIEC, which requires all banks to report financial data in an XBRL format. The second significant implementation is the public reporting of financial data to the SEC, which launched in 2009. Financial statement data from the FFIEC and SEC implementations is actively used by: journalists performing research; businesses to conduct peer analysis or in research for their own disclosures, and; by analysts and investors comparing companies or performing single company analysis for investment purposes. The data is also used by regulators including the FDIC, the Financial Accounting Standards Board (FASB), the Public Company Accounting Oversight Board (PCAOB) and the SEC. The fact that this data is openly available eliminates any uncertainty about the future availability of the data and encourages more widespread and effective use of the data.

Available

What are examples of data standards on data exchange that could ensure that “availability” goals are met? “Availability” in this context means free access to the data standard, both during development, at final stage, and for translations. Availability is assurance that core technologies can be implemented royalty-free.

The XBRL specification is an open standard that can be prepared, copied, published and distributed without restriction of any kind. It is an open public standard, supported by a dynamic user group and technologists worldwide. XBRL is also supported by open source and vendor provided software that is widely used, available to support both the document and database level of usage.

XBRL International maintains a clear policy on intellectual property (IP)⁵ that must be signed by all members of any working group. The policy states that members may freely submit their ideas to the working group and have the option of removing their own IP prior to final recommendation. However, once the final recommendation is made, any and all IP contributed by the working group becomes the property of XBRL International and is part of the free and open standard. This requirement ensures that

³ US Securities and Exchange Commission, *Interactive Data to Improve Financial Reporting*, p. 9, <http://www.sec.gov/rules/final/2009/33-9002.pdf>

⁴ EIOPA Solvency II Reporting Format, <https://eiopa.europa.eu/en/publications/solvency-ii-reporting-format/index.html>

⁵ *Id.*

any standards developed are free of any intellectual property claims so software developers can use the specification to build tools that are interoperable with no license fees. This removes barriers to entry and makes it significantly easier to build tools.

The availability of the XBRL specification and XBRL GL without restriction makes it particularly appealing to governments and regulators who want to collect and distribute information without incurring license fees or risking future increases in license fees. The use of proprietary standards in government reporting has many unforeseen circumstances affecting downstream users of government data as they often incur licensing fees to use the data.

Having the IP freely available helps to spur growth in applications that create, distribute or consume the data. Good examples of this are the Standard Business Reporting (SBR) programs in the Netherlands⁶ and in Australia⁷. These separate programs are designed to reduce red tape and costs in the reporting of data from government to government, government to the public and ultimately from business to government. To reach the goal of reducing costs, employing an open standard such as XBRL was an essential ingredient. XBRL-enabled software tools can be adapted to produce and consume data from any taxonomy built using the XBRL specification.

In Australia, all entities reporting to government agencies must do so in a standardized way. For example, the Australian Prudential Regulation Authority (APRA) requires XBRL for insurance, pension and bank financial data; XBRL is currently voluntary for tax reporting to the Australian Tax Office with an estimated 20-50% of submissions in XBRL today.

The SBR program in the Netherlands is similarly structured. For example, public and private businesses report financial statements in XBRL to the Chamber of Commerce on a voluntary basis; mandatory reporting will begin phasing in next year with a plan for all companies to report in XBRL by January 2017.

Because the IP is free and available to everyone, over 50 products are currently included in the SBR-enabled Products Registry,⁸ which was established by the Dutch government so that businesses and agencies could select from one of the many offerings available. The growing number of choices ensures that costs are driven down for all stakeholders in the SBR supply chain. In contrast, the use of a proprietary technology or application would likely mean that government agencies are restricted to working with a single or limited number of vendors.

Business Reach

What are examples of data standards on data exchange that could ensure the data provides efficient “business reach” to foster private sector innovation? “Business reach” refers to the global reach of the business community with either local or global integration opportunities. The end points of business

⁶ Standard Business Reporting, the Netherlands, <http://www.sbr-nl.nl/english/>

⁷ Standard Business Reporting, Australia, <http://www.sbr.gov.au/>

⁸ Standard Business Reporting, An Australian Government Initiative, How to Get SBR, <http://www.sbr.gov.au/business/how-to-get-sbr>

reach are *regional* (business integration remains a regional area of opportunity) or *international* (business integration has the potential for direct links to the international community).

A data standard chosen for government reporting must be able to connect with entities doing business with government both locally and globally. Interoperability is critical to ensure the cost-effective, efficient flow of information. XBRL is a standard widely used around the world by government agencies and by businesses. Once available online and in large collections, business and consumers can filter, search, export and consume XBRL-originated data. In the US, because of the SEC and FFIEC implementations referenced earlier, thousands of companies already use XBRL for filing purposes. The SEC developed its own internal systems to make their collected XBRL data available to consumers and similarly, the EIOPA Tool for Undertakings (T4U) project is designed to make their data available.⁹

Over 9,000 public companies in the US submit their financials today in XBRL format. Accounting teams within these companies are intimately familiar with XBRL submissions. Should the DATA Act requirements eventually include contractor data submissions to government, public companies will already be well up the learning curve with XBRL.

The objective of the DATA Act is to ensure that awards data is easily available to other agencies but also to the constituencies that want to analyze government performance such as corporations, watchdog groups and the American public. As a widely used standard, many XBRL tools are already available for extraction and analysis, ensuring that stakeholders and others interested in government data can easily access the data required without the need for additional software.

Because XBRL is a standard, businesses can then build other products on the data available or improve the efficiency of their existing business processes. A recent example of this is ING bank which will start to offer discounts on loan and credit applications for its Small and Medium sized Enterprise customers in the Netherlands that provide XBRL versions of financial statements through the Dutch SBR platform.¹⁰ Retail banks like ING can make use of these capabilities to become informed about their customer's financial profile in a more streamlined, less costly process.

XBRL GL provides potential business reach as well. XBRL GL is one of the two standardized supported formats of the American Institute of Certified Public Accountants (AICPA) Audit Data Standards¹¹. The Audit Data Standards are an emerging standardized format for organizations to share evidentiary data with their internal and external auditors. The Organization for Economic Cooperation and Development (OECD) has likewise encouraged tax administrators globally to consider XBRL and especially XBRL GL when considering the implementation of data standards for tax audit, as an open standard with the potential to minimize compliance burden for all parties involved¹².

⁹ EIOPA, Tool for Undertakings, <http://www.solvencywire.com/eiopa-xbrl-tool-undertakings/1581919>

¹⁰ ING Loan Applications in XBRL

https://www.ing.nl/nieuws/nieuws_en_persberichten/2014/10/Digitaal_aanleveren_jaarcijfers_mkb_ook_bi_j_ing_de_norm.aspx?first_visit=true

¹¹ <http://www.aicpa.org/interestareas/frc/assuranceadvisoryservices/pages/auditdatastandardworkinggroup.aspx>

¹² <http://www.oecd.org/tax/administration/45045602.pdf>

Validation

Please describe or provide examples of data standards on data exchange that could ensure the implementation of appropriate “validation” processes. “Validation” in this context means an ongoing process for validation and integration. Validation has spectrum end points that are rules-based or document-based. Rules-based refers to business rules of the data standard which are interwoven into the fabric of the standard output and standard governance body. Document-based end points are business rules separately stored and not entirely contained within the standard output or standard governance body.

Standards enable checking and validating of data which is critical to ensuring that requirements are satisfied, data produced is consistent and that the creation process is efficient. Rules can be created to test for syntactical problems that are “Rules based” within the filing or to test the business domain logic of the data that is “Document-based” once it has been reported.

The General Accounting Office (GAO), in their study on Data Transparency¹³ published June 2014, found that the most significant issues in government awards data in USASpending.gov were inconsistencies, inaccuracies and time delays. Validation rules can be used to reduce inconsistencies and inaccuracies by giving the reporting entity the tools to catch errors and make corrections before submission to Treasury and OMB.

For example, if the data is submitted in XBRL format, agencies can check that it is syntactically correct. This means that the data is appropriately formed and complies with the rules of the XBRL standard, e.g., fields used are permitted by the standard, values comply with those defined by the standard (a date reported is an actual date, monetary concepts do not contain text). Any data collection effort must ensure that these basic validation routines are in place and that the data submitted complies with the standard.

The second layer of validation that XBRL supports is validating that the semantics “Document-based” of the data reported are correct. The logic that is used to perform this type of automated checking is often referred to as a rule. These rules are synonymous with edit checks in traditional data collection systems but can perform differently depending on the data entered and are often tailored to the domain of the information being reported. These rules will usually be included with a specific taxonomy or can be developed independently of the the XBRL taxonomy. These rules ensure that the data makes sense. XBRL provides standardized rule sets such as XBRL formula¹⁴ or proprietary XBRL rules languages can also be developed in programming languages like Java and Python. These languages can define semantic and syntactical rules in such a way that they can be run against an XBRL document to highlight any issues. In addition, syntax validation is included as part of the XBRL standard to ensure that syntax

¹³ <http://www.gao.gov/assets/670/664536.pdf>

¹⁴ Details of the XBRL formula syntax are available at <http://specifications.xbrl.org/spec-group-index-formula.html>

problems in the filing are addressed.¹⁵ These rules languages can be used to check for conditions such as:

- values given the wrong sign, positive or negative
- values that are mandatory reporting requirements but are missing
- values that must be reported if another value is reported
- values that do not maintain a required mathematical relationship with other reported values
- incorrect reporting periods
- mutually exclusive values that are reported together
- use of elements that have been deprecated and are no longer supported
- large variances in values between reporting periods
- use of invalid agency identifiers

Developing these rulesets requires an understanding of the underlying data being reported and the technology standard used to report it. Rules created by the Treasury Office should be shared among individual agencies and other submitters of data so that all reporting entities are working off the same standardized set of rules. Rules specific to an individual agency can be added to reflect unique reporting needs. Once the final agreed-upon rule set is established, it can be deployed to a rules engine which can take a data submission and identify any problems in the agency submission. The agency submitting the data then has an opportunity to correct errors prior to final submission. The rules can also be used to analyze agency data submitted to determine if inconsistencies are being transmitted. This data can be analyzed and potentially used to make adjustments to the taxonomy and to the guidance and training provided to reporting agencies.

Validation rules are used today for SEC XBRL reporting in US GAAP. Public companies have three different forms of automated validation that they can use. The two most commonly used are called “SEC Validation” and “XBRL Technical Validation”. The former checks that the XBRL document for a specific reporting situation, e.g., ABC Company’s 10-K report, follows syntactical rules established by the SEC¹⁶ both for the data inside the report and for the document itself. The latter was referenced earlier as the syntax “rules-based” validation that is part of the XBRL technical specification; this checks inside the XBRL document to ensure that it is following the current XBRL technical specification. Both rulesets are typically incorporated into most services and tools for XBRL creation and therefore, are very easy to run to determine if any mistakes have been made. In addition to these validations a number of third parties have developed additional validation rules that identify situations where the XBRL document created does not adhere to the structure, definitions and intent of the US GAAP Taxonomy.

¹⁵ Validation is included as a component of the XBRL specification
<http://www.xbrl.org/specification/formula/rec-2009-06-22/formula-rec-2009-06-22.html>

¹⁶ US Securities and Exchange Commission, EDGAR Filer Manual, Volume II, Section 6
,<http://www.sec.gov/info/edgar/edgarfm-vol2-v28.pdf>

Validations of these forms can be successfully employed for government reporting implementations as well and can be an important tool to help reporting entities submit consistent, comparable data, efficiently and effectively.

Extensibility

Please describe or provide examples of data standards on data exchange that could ensure appropriate “extensibility.” “Extensibility” in this context is defined as functionality for flexibility (maintenance) of future modification to the data standard. The end points of the spectrum for these criteria are *flexible* and *rigid*. *Flexible* references extensibility and implementation ease whereas *rigid* relates to the pliability of the construction and rules integration.

The “X” in XBRL stands for extensible. XBRL at its heart is intended to be extensible for both an XBRL taxonomy and data reported using XBRL. This extensibility is intended to serve two requirements: 1) to allow for the continuing growth and change necessitated by changes in reporting requirements, and 2) to allow individual reporting entities to report information that is unique to their organization and that has not been included in the standard set of concepts/terms available to use in the standard.

The former comes into play during the support and maintenance program which occurs when a new release of the taxonomy must be revised to reflect changes in reporting needs. The XBRL standard differs from a traditional XML structure in that all concepts defined in an XBRL taxonomy are not ordered in a tree in the schema. This means XBRL concepts do not derive any meaning from their position in an XML structure. However relationships between concepts are still defined in XBRL. The collection of relationships between these concepts is defined in a graph¹⁷ which in XBRL is called a linkbase. The relationships between concepts can be redefined by adding new relationships or removing outdated relationships. This means the same taxonomy can be used by many different users by changing the relationships between concepts.

For example the presentation of the concepts reported can be changed by extending the relationships in the presentation graph or linkbase. This means for a particular user of the taxonomy there may be a presentation graph that is specific to grant recipients. Grant recipients, in the process of creating XBRL-formatted data about their grant, would then only see those concepts in the taxonomy that are specific to them. A contractor may have their own graph which means they only see the concepts in the taxonomy that are specific to them. In this way the different linkbases can be used like a filter to show only the relevant concepts contained in the underlying taxonomy. A taxonomy creator or downstream user of the taxonomy can extend the taxonomy by adding their own relationships to the graph without changing the meaning of data that has already been submitted or the underlying concepts. In the SEC filing program for example the FASB provides different presentation linkbases for different industries so users only see those concepts that are specific to their industry. In addition, companies filing with the SEC file their own graphs or linkbases which show only the relevant presentation and calculation relationships between the relevant concepts they are reporting.

¹⁷ A **graph** is a representation of a set of objects where some pairs of objects are connected by links, Wikipedia, [http://en.wikipedia.org/wiki/Graph_\(mathematics\)](http://en.wikipedia.org/wiki/Graph_(mathematics))

In another example of extensibility, the taxonomy created for corporate actions messages includes “sets” of data requirements for over 50 separate corporate actions, e.g., dividend announcement, merger, stock split. When a reporting entity accesses the taxonomy, they select from a list of corporate actions and are presented with only the data items relevant to that corporate action. For a dividend announcement, they may be presented with 10 concepts; a merger may require many more. Thus, the taxonomy author can update the taxonomy with revised requirements and is assured that the reporting entity will see the concepts they need to report.

This extensibility means the view of the taxonomy can change without impacting backward compatibility of data and allows users to easily switch from one taxonomy release to another without the need to perform re-mapping exercises every time the taxonomy changes. The US GAAP taxonomy has been updated six times since the SEC program began and over 6,000 public companies have switched from one taxonomy to another at least three times. All of these companies have been able to switch to new taxonomies with a minimum of effort.

In the SEC filing program each publication release of the taxonomy is a separate taxonomy but the concept names remain constant from version to version. Because the meaning of each concept remains constant over time, users can analyze time series data that has been prepared using various taxonomies.

In addition to extending linkbases, reporters of data can be permitted to define new concepts that are either unique to them or that were not contemplated in the standard taxonomy. This allows this information to be captured and to indicate that the extended concept is not included in the standard. If implemented correctly the ability to create extensions allows the administrator of the data collection program to use extensions as a feedback loop. The FASB for example looks at extensions made by filers to determine if the taxonomy is complete or if defined concepts need clarification so that they are used instead of an extension. Given that these extended concepts can be linked to other concepts through a linkbase, a user of the data can analyze data that would not have been available otherwise. Without extensions reporters will often put unique data into uncategorized categories like “Other”.

The level of XBRL extensibility used depends on the objectives of the data collection administrator. For this reason significant time needs to be spent evaluating the nature of the data reported, the structure of the proposed taxonomy, the frequency of data collection, the frequency of taxonomy change and the sophistication of the reporting community. The adoption of the XBRL standard across the world has various implementations which range from no extensions being permitted to unlimited extensions allowed.

When reporting requirements change, these changes can be easily conveyed to reporting agencies by making adjustments to the taxonomy. Any taxonomy changes are then automatically reflected in the software employed to collect and submit data. For example, the US GAAP Taxonomy for public company financial reporting is updated each year with a new release containing the latest elements. The SEC specifies which taxonomy release is allowed and public companies report based on the current approved version.

While there are other standardized data points for accounting and audit, XBRL GL is unique both in leveraging the extensibility mechanisms inherent in the XBRL Specification, and also in formalizing the mechanisms of customizing XBRL GL for specialized environments, as documented in the *Global Ledger Taxonomy Framework Technical Architecture*¹⁸. As such, adopters can use existing XBRL GL concepts appropriate to their environment while being able to augment XBRL GL with specialized concepts in a more controlled and standardized fashion.

Ease of Implementation

Please describe or provide examples of data standards on data exchange that could ensure Ease of Implementation. Ease of Implementation refers to integration and interoperability within a given environment. The related end points are *simple* (easily integrates into environment) or *difficult* (integration into environment necessitates extra steps).

The selection of a standard for a given reporting requirement needs to take into account the ease of implementation at the time of adoption and the ongoing ease of use over the period of data collection. The ease of implementation must consider what data is being reported, how that data is currently structured, how frequently reporting requirements change, and how the data will be consumed. In many cases a standard may be easy to implement initially but be very expensive to maintain over time or make the consumption of the resulting output difficult. Alternatively a standard that is easy to maintain over time may be more difficult and expensive to implement initially.

For example, XML is a widely used standard that allows individual items to be “tagged” and its flexibility makes it initially relatively easy to implement. XML is very flexible, but by itself lacks the standardized components needed to report financial data. When XBRL was first conceived, the tagging capabilities of XML were identified as an important feature needed to establish a standard for financial and business reporting. XBRL was developed by taking XML and adding standard features of financial statement such as tables, time periods, units and accuracy, e.g., thousands, millions etc. Without these standard features, creators of business and financial statement data would have a significant degree of flexibility defining time periods, currencies used, degree of accuracy, etc., which would result in inconsistent and unusable data. Although initially easy to implement, the cost savings get pushed onto the final consumer of the data who will then need to interpret non-standardized time periods, units, etc. Because XBRL takes XML and adds this additional structure required for financial reporting data the ability to consume the data is significantly easier.

XBRL GL provides the ability to leverage common data points and modeling, common off-the-shelf mapping, transformation and workflow tooling, and integrate disparate systems.¹⁹ For example the Maryland Society of CPAs (MACPA), a not-for-profit, provides a good example of a successful implementation of XBRL GL. MACPA was able to “free its data”, save costs, enhance its decision making

¹⁸ XBRL International, XBRL Global Ledger Taxonomy Framework, July 2014, <http://www.xbrl.org/int/gl/2014-07-16/gl-framework-PWD-2014-07-16.html>

¹⁹ Altova, MACPA Case Study, http://www.altova.com/cust_macpa.html and http://www.altova.com/cust_macpa_followup.html

and gain new efficiencies by leveraging common data points and modeling, using common off-the-shelf mapping, transformation and workflow tools and integrating disparate systems.

Ease of implementation refers not only to the start of a standards program but to the need for ongoing revisions. The SEC program provides a good example of maintenance scalability across more than 9,000 companies filing in XBRL. These companies have been able to transition their quarterly reporting from one version of the taxonomy to another in a cost efficient and timely manner at least once every two years. The ability to make changes to the standard and the ability of software to automatically adapt to these changes is an important feature of XBRL. This is possible because changes in the taxonomy automatically flow into downstream XBRL-enabled software that is responsible for data collection.

The same is also true for databases that collect the XBRL data. For example XBRL US collects, stores and publishes all the data filed by SEC registrants. Even though the taxonomy is updated on an annual basis the consumption software used does not have to be changed or updated for new releases of the taxonomy. This is a big advantage because in many traditional systems changes in the core data dictionary require simultaneous changes in all the software across the reporting ecosystem.

Benefits

How would the data standards examples or descriptions on data exchange you provided in A-F above, if implemented, benefit or add value to your constituent group or pertinent stakeholders?

Because XBRL is uniquely suited to business and financial information, and can report both numeric and text data, it would also be well suited to reporting government awards information. Data in XBRL format becomes computer-readable and therefore more timely and functional. A proper implementation of XBRL requires all stakeholders to be involved and to reach a consensus on the definitions and attributes of data reported. For government reporting, that includes contractors, agencies, information intermediaries and consumers of the data (agencies, watchdog groups, the American taxpayer, the media, policy makers). Establishing that initial agreed-upon set of terms, following the appropriate implementation as noted in the prior question, ensures that all parties to the process are aware of the definitions and literally “speak the same language” in data reported. Providing proper ongoing training, clear and unambiguous guidance and validation for data, further ensures that each stakeholder benefits:

- Reporting entities can streamline their reporting process, reducing workload and costs
- Data intermediaries have a clear roadmap on how to extract and database the content and can work with any one of a number of XBRL-enabled software tools/apps that can be adapted to this taxonomy. The ultimate benefit is cost and time savings because data will be computer-readable
- Data consumers (American public, watchdog groups, government agencies, businesses, policy makers) will be able to extract data directly from the government web site using XBRL-enabled applications or can access commercially available government databases; either method will result in data that is significantly more timely and less costly

Use Cases

What use cases would you anticipate or envision for information with data structured in accordance with established data standards on data exchange?

Any reporting needs that are handled today with current systems and processes can be handled on a more timely basis and with greater granularity (detail) in data reported. Virtual “real-time tracking” of programs would be made possible with XBRL because data is extractable by any tool or software within minutes of submission by the reporting entity. Data standards can enable much easier searching for cost and progress data on specific programs, identifying expenditures made by agencies or tracking awards and the performance of individual contractors. Examples of possible use cases include:

- Determining the aggregate amount of contracts or awards the Federal government has paid to a specific sub- or prime contractor and then determining that breakdown across agencies
- Identifying the aggregate amount the Federal Government has paid for specific product classes by agency and by grant recipient
- Determining the aggregate amount of spending by the Federal Government by class, such as R&D and then identifying the breakdown by agency, region and award recipient
- Comparing the aggregate amount of dollars spent on a specific contractor as a comparison against

XBRL is used in numerous reporting domains today around the world – analysts conduct time series analysis and company comparisons using XBRL data; the FDIC extracts banking institution financial data; governments collect tax information and banks review XBRL-formatted credit information.

Impact

What impact would established and implemented data standards on data exchange have on you, your business, constituent group or pertinent stakeholders, and investments?

Implementing the XBRL standard in government reporting will enable the availability of more timely, functional, cheaper and potentially more accurate government data for American taxpayers, government agencies, watchdog groups, Congress and the administration. Many members of XBRL US are software and tool providers that have XBRL-enabled applications that can be adapted to a government reporting taxonomy to provide agency data. Improved government data will facilitate greater competition for government contracts, reduce costs and streamline processes for government agencies and ultimately for those working with them.

The use of the XBRL standard by the Federal Government will create a greater pool of users, software vendors and data consumers. We anticipate that this will increase the availability of skilled technicians and data, all of which will help to drive down costs not only for the Federal Government but for state and local government as well as the private sector. This will benefit anyone with a need to process and analyze data of all kinds which will benefit the economy as a whole.

Other Criteria

What other criteria should be considered by Treasury and OMB in establishing the data standards on data exchange?

Developing the standard is important but just as critical is the guidance provided to reporting entities and ongoing oversight of the program through active, regular review of data produced and feedback to agencies reporting. Without oversight and monitoring, combined with clear training and guidance, no standards implementation can be successful. This was clearly identified in the GAO study referenced earlier where agencies did not have guidance and no one was actively monitoring the data provided.

Conclusion

XBRL International and XBRL US strongly support the DATA Act and we are appreciative of the thoughtful, comprehensive approach that US Treasury is taking as they develop the implementation plan. Soliciting input from the standards and software communities as well as from the agencies themselves, is a good way to collect lessons learned and to improve the success rate for the program. As noted earlier, given our experience and expertise in standards implementations, we are happy to help in your efforts in whatever capacity makes sense.

Please contact either XBRL US or XBRL International with any questions or for clarification on the points above.

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Appendix - XBRL US and XBRL International

We believe that XBRL and XBRL GL are the appropriate standards for the DATA Act. Should they be chosen, XBRL US, as the US jurisdiction of XBRL International, has the experience and expertise to provide assistance to US Treasury and OMB in their development efforts. Since XBRL US was initially established in 2006, the consortium has managed several large and small taxonomy development programs including the following:

- Under contract with the U.S. Securities and Exchange Commission:
 - Developed the initial XBRL US GAAP Taxonomy which initially included approximately 13,000 elements, covering US GAAP face financials, disclosures, document entity information and industry-specific terms. We developed the 2008 and the 2009 releases and worked to transition the support and maintenance program over to the FASB for 2010 going forward.
 - Developed the Record for Credit Ratings Taxonomy in 2009
 - Developed the US Mutual Fund Risk Return Taxonomy in 2008
- Working with an industry-led consortium (SWIFT, DTCC (The Depository Trust & Clearing Corporation)), developed the 2011 and 2012 releases of the Corporate Actions Taxonomy, which is aligned with the ISO 20022 standard.