THE COST OF STRUCTURED DATA: MYTH VS. REALITY

Mohini Singh, ACA

Director, Financial Reporting Standards

Regulatory authorities around the world have adopted rules requiring companies to provide financial information in an interactive, machine-readable (i.e., structured) format. One such format is eXtensible business reporting language (XBRL). The idea was that this format would enable investors—including CFA Institute members—to capture and analyze information more effectively as well as help companies automate their regulatory filings and business information processing, eventually reducing both preparer and investor costs.

However, XBRL has not achieved its true potential for either investors or companies. We addressed the challenges faced by users in our 2016 report "Data and Technology: Transforming the Financial Information Landscape." We continue to address these challenges in various forums, including our participation on the XBRL US Data Quality Committee.

But companies face impediments as well: they continue to see structured data as a compliance burden and a cost center. This paper examines—through case studies—the costs that companies, large and small, bear in preparing and filing their financial information in a structured format and what can be done to mitigate those costs so that all parties—preparers, regulators, and users—can avail themselves of the benefits of structured data.

EXECUTIVE SUMMARY

Our 2016 report "Data and Technology: Transforming the Financial Information Landscape" ("Data and Technology") examined the current financial reporting process from end to end and assessed

its inefficiencies.[1] The report studied the ways that structured data—and the use of data analytics and technology—can potentially improve or even transform that process so financial information can be more effectively consumed by investors, regulators, and other users.

So far, these potential benefits have not been realized, primarily because companies need to appreciate the benefits of structured data/reporting and implement it correctly instead of seeing it as a cost burden. Unless they do so, they—and other parties in the information supply chain—will be unable to avail themselves of all its benefits.

We begin this study by examining what companies are saying about the costs associated with their XBRL filings. We then go through several case studies to demonstrate how, with proper implementation, both large and small publicly listed companies—as well as nonprofits—can benefit from structured data.

We conclude that if companies focus on how they implement structured reporting—that is, by

- bringing it in-house instead of using outside vendors to prepare their regulatory filings,

- implementing inline XBRL (iXBRL), a form of XBRL that is both human and machine readable, and

- curtailing the use of company-specific tags, or "extensions"—

they can reduce costs, allowing both companies and users to benefit from structured reporting.

INTRODUCTION

Many regulatory authorities around the world have adopted rules requiring companies to provide financial information in an interactive, machine-readable format (i.e., an XBRL format). The vision was that this format would enable investors to capture and analyze information more quickly and at lower cost.

Our 2016 "Data and Technology" report illustrates the various benefits to investors—including CFA Institute members—of using structured data. It also outlines the various challenges that investors face in using structured data, including data quality and the excessive use of company-specific extensions that are not machine readable and thus hinder financial analysis. We continue to address these challenges in various forums, including our participation on the XBRL US Data Quality Committee.

The vision for structured data was expanded to include benefiting companies as well. It was thought that with structured data, companies could automate their manual processes for assembling and reviewing information to prepare financial reports, saving both time and money.

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[1]Mohini Singh and Sandra Peters, "Data and Technology: Transforming the Financial Information Landscape," CFA Institute Codes, Standards, and Position Papers, vol. 2016, no. 7 (June 2016): www.cfainstitute.org/learning/products/publications/ccb/Pages/ccb.v2016.n7.1.aspx.

Per the SEC, the mandate to adopt XBRL was introduced "not only to make financial information easier for investors to analyze, but also to assist in automating regulatory filings and business information processing. Interactive data has the potential to increase the speed, accuracy, and usability of financial disclosure, and eventually reduce costs."[2]

Yet despite being around for several years, XBRL has not achieved its full potential for either investors or companies. One of the primary reasons is that companies continue to see structured data as a compliance burden and a cost they must bear, and they have shared these views with regulators. Indeed, our discussions with regulators have often focused on the issue of cost, and we have been asked for our views on the subject.

This paper examines the costs that companies, large and small, bear in preparing and filing their financial information in a structured format and what can be done to mitigate those costs. CFA Institute, an investor organization, seeks to address this issue so that all parties—preparers, regulators, and users—can avail themselves of the various benefits of structured data.

We hope that this paper proves to be an educational resource for all parties in the information supply chain.

XBRL REPORTING COSTS

We begin our study by examining what companies are saying about the costs associated with their XBRL filings.

To find out how companies are handling SEC compliance and reporting in an XBRL format, the Financial Executives Research Foundation (FERF) has surveyed the members of Financial Executives International as well as various reporting companies.[3]

Consistent with prior years, the 2013 survey results show that companies' top concern about XBRL compliance continues to be the cost/benefit proposition of the XBRL mandate. Survey findings reveal that large accelerated filers spent, on average, $21,000 on outside services to prepare and review their XBRL filings. Consistent with the 2012 survey results, the most challenging aspects of XBRL continue to be the final review process/validation as well as using a taxonomy for tagging and mapping.[4]

Continuing a trend from prior surveys, companies have reduced the amount of outsourcing services used to create their XBRL filings, and they expect to further reduce outsourcing over the coming year. This

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[2]See 17 C.F.R. Parts 229, 230, 232, 239, 240, and 249; Final Rule on Interactive Data to Improve Financial Reporting (13 April 2009): www.sec.gov/rules/final/2009/33-9002.pdf.

[3]William M. Sinnett, "SEC Reporting and the Impact of XBRL: 2013 Survey," Financial Executives Research Foundation (www.secprofessionals.org/sites/default/files/2013%20FERF%20Final%20Report.pdf). The survey was conducted annually between 2011 and 2013. Executives from 442 unique companies responded to the 2013 survey.

[4]A taxonomy is essentially a dictionary of elements, or tags, that represent the concepts/fields of reporting that regulators require in financial statement filings.

trend suggests that larger filers are becoming more confident that they can be self-sufficient in the preparation and review of their XBRL reports, thus bringing this work in-house.

But we have also heard smaller companies say that creating XBRL filings requires additional software, skills, and knowledge—which, given their limited resources, is a burden for these smaller filers. Thus, they maintain, they must outsource the creation and filing process. Consistent with this assertion, the FERF survey found that smaller reporting companies expect to increase their use of full-service outsourcing. If this finding is a reflection of the smaller size of SEC-reporting teams and lower levels of XBRL competency reported by smaller companies, the question is, how can this be overcome?

To understand the costs of small companies' compliance with the SEC's mandate, in 2015, XBRL US and the American Institute of Certified Public Accountants surveyed 14 XBRL filing agents that provided XBRL tagging and filing services to 1,299 small public companies (32% of all small publicly listed companies).[5] For purposes of the survey, small companies were defined as having $75 million or less in market capitalization.

The survey showed that 69% of the companies paid $10,000 or less annually for fully outsourced creation and filing solutions for their XBRL filings. Some 18% of the companies paid annual costs of $10,000–$20,000 for full-service outsourced solutions. Only 8% of the companies paid more than $25,000 in annual costs, and no company's annual costs exceeded $50,000. Through discussions with vendors, it was learned that companies that paid higher annual fees did so because of complexities in their financial statements and rush charges imposed for the many last-minute changes to their filings. **Figure 1** depicts the annual fees that small companies have paid.

These results demonstrate that investments to standardize corporate disclosure data are not unduly burdensome for small companies. Yet companies continue to complain about the cost, because it is seen as a compliance exercise rather than as a useful tool. This paper will demonstrate that the costs associated with XBRL can be lowered through the proper implementation of the technology—which can also create efficiencies for companies.

IMPLEMENTATION: BRINGING IT IN-HOUSE REDUCES COSTS AND CREATES EFFICIENCIES

These costs are incurred when companies outsource the creation and filing process to vendors. We contend that the way a company implements XBRL reporting—that is, whether the work is outsourced or done in-house—directly affects its costs and that cost reductions can be achieved by bringing the structured reporting process in-house.

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[5]"XBRL Costs Study: Research Shows XBRL Filing Costs Lower Than Expected," American Institute of Certified Public Accountants and XBRL US (2015): www.aicpa.org/interestareas/frc/accountingfinancialreporting/xbrl/pages/xbrlcostsstudy. aspx.

FIGURE 1.   ANNUAL FEES THAT SMALL COMPANIES PAID FOR OUTSOURCED XBRL REPORTING
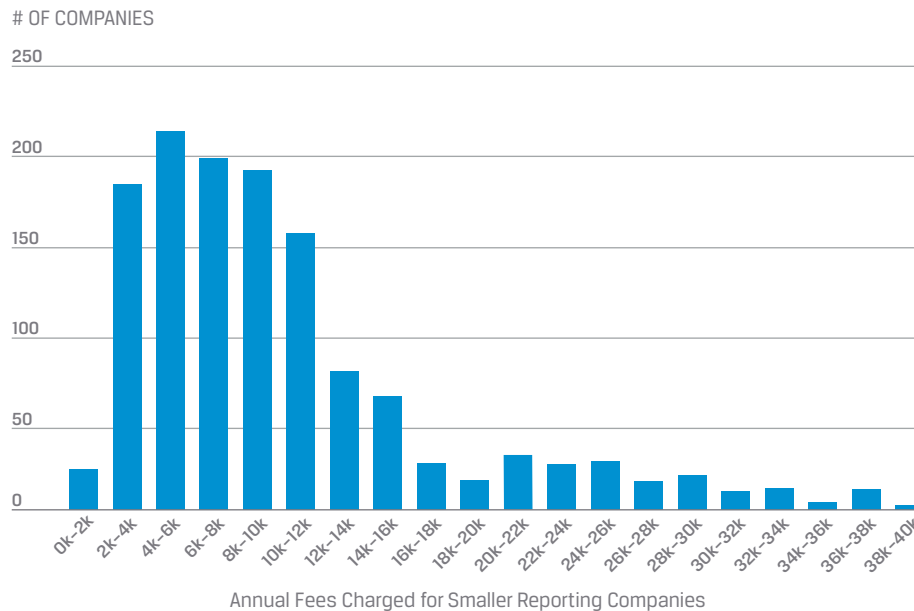
Source: Report on 2015 survey by XBRL US and the American Institute of Certified Public Accountants (www.aicpa.org/interestareas/frc/accountingfinancialreporting/xbrl/pages/xbrlcostsstudy.aspx).

The current manual processes used by companies to assemble and review reports require both time and money. These processes can be enhanced if companies standardize their data, which may be housed across disparate data sources in-house, early in the reporting process. When data are standardized, disclosure management applications can pull information from disparate data sources to write automated reports, enabling the streamlining of current labor-intensive processes. Such standardization not only saves companies time and resources but also reduces data errors because of less manual intervention.

However, companies continue to view structured reporting as a compliance exercise. As a result, most companies do not structure their data into a machine-readable format at the source—that is, early in the financial reporting process. Instead, they follow a two-tier process whereby filers outsource the tagging of their data as an additional step, after their financial statements have been prepared, simply to fulfill their regulatory filing requirements. Consequently, structuring is not producing the intended results—that is, (1) increasing the speed and frequency with which financial information is prepared, reported, analyzed, and used and (2) reducing costs.

Case Study 1: The Wacoal Corporation

The following case study about the Wacoal Corporation (Wacoal) illustrates the benefits of in-house implementation.[6] Wacoal, a Japanese women's apparel manufacturer with a market capitalization of almost US\$2 billion, faced a common problem. Through a series of mergers and acquisitions, it had grown into 36 subsidiaries with 32 disparate legacy accounting systems that did not communicate across platforms, hindering the consolidation process.

Various platforms—including mainframes, minicomputers, and PC servers—created data that were eventually transferred to the financial system. To increase efficiency, Wacoal decided to implement a consistent accounting information system across its subsidiaries by having the integration done through XBRL Global Ledger (GL) auto-journalizing software.[7] The software converted the data to XBRL GL. This platform-independent solution permitted Wacoal to concentrate on the data instead of on the operational systems and computer platforms that created it.

Wacoal now uses XBRL GL to tag financial data from multiple legacy systems and to transmit the tagged data for use in their new Oracle financial system.

The company's 2003 implementation was successful. XBRL GL has become the "backbone" of the consolidated financial reporting of Wacoal's 36 subsidiaries, improving the quality of managerial reporting through real-time cash management. Before the new system, reporting was done once a day. The XBRL GL solution has also reduced the end-of-cycle financial close by two days through the automation of information integration.

MISCONCEPTIONS ABOUT RESOURCE REQUIREMENTS

Case Study 2: United Technologies Corporation (UTC)

UTC is a US-based multinational conglomerate that researches, develops, and manufactures high-technology products in numerous areas, including aircraft engines, aerospace systems, elevators and escalators, building systems, and industrial products; it has a market capitalization of over US\$95 billion.

A study of the company's adoption of XBRL (by bringing it in-house) shows that one of the principal reasons the company had been tentative about the technology concerned misconceptions regarding the resources required, including cost and technical proficiency.[8]

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[6]M. Hasegawa, T. Sakata, N. Sambuichi, and N. Hannon, "Breathing New Life into Old Systems," *Strategic Finance* (March 2004): 46–51 (www.xbrl.org/business/companies/breathing-new-life-into-old-systems.pdf).

[7]The XBRL Global Ledger Taxonomy Framework (XBRL GL) is a holistic and generic XBRL-based representation of the detailed data that can be found in accounting and operational systems; it is meant to be the bridge from transactional standards to reporting standards, integrating the business reporting supply chain.

[8]J. Stantial, "ROI on XBRL: Interactive Data Cuts Reporting Costs Today," *Journal of Accountancy* (1 June 2007): www.journalofaccountancy.com/issues/2007/jun/roionxbrl.html.

According to the study:

> Not surprisingly, resistance to the adoption of XBRL often takes the form of cost or resource concerns; however, neither need be a valid obstacle. The only required out-of-pocket cost is for the tagging software, of which there are several options available and which cost as little as $1,000. . . . Each of these tools is designed with the layperson in mind, takes very little time to learn and does not require a technical knowledge of XBRL.

> Our initial effort at tagging and furnishing an XBRL document to the SEC consumed approximately 80 hours of an employee's time. But to adequately evaluate this commitment, it is necessary to understand the scope and context of the effort. The hours included not only the time to tag the underlying document, but also the time to learn how to use the tagging tool, understand the requirements for filing under the SEC's VFP [Voluntary Filing Program], create tags that did not exist in the standard taxonomy, and to build a process that would allow the ongoing tagging and filing of documents. Our current effort to tag and file an 8-K earnings release is down to approximately four hours now that the learning curve has been eliminated.

> Also important to evaluating the initial time commitment is the ongoing development of the tagging tools, the skills of the individuals involved and the extent of any custom tag development that may be required (known as "extensions" as they extend the existing standard taxonomy).

In the case of UTC, applying the technology and automating many of the manual assembly and review processes eliminated 150–200 hours of labor from the quarterly reporting process.

WHAT ABOUT SMALL NONPROFITS?
Case Study 3: Maryland Association of Certified Public Accountants (MACPA)

A 2011 case study of MACPA shows how it came to use software tools to transform internal accounting financial data into XBRL and then repurpose it in multiple formats for reporting, analysis, and publication—all in-house.[9]

Per the study:

> MACPA's CEO and Executive Director Tom Hood early on recognized the value of XBRL for reducing costs and driving efficiencies in large public companies and wondered if the benefits of XBRL would also extend to smaller, nonprofit organizations such as MACPA.

> Despite the potential, many organizations are concerned about the time and expense that will be required to convert all of their financial data into XBRL, a process that can be further

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[9]See the 2011 MACPA case study by Altova (www.altova.com/cust_macpa.html).

complicated when financial data is housed in multiple systems. These obstacles are felt even more acutely by nonprofits like MACPA and other privately held companies, who in the absence of a mandate are left to wonder whether translating their financial data into XBRL would deliver enough benefits to make up for the cost.

Hood and Director of Finance Skip Falatko set out to prove that with the right tools these obstacles are easily surmounted—and that the efficiencies and greater transparency resulting from the transformation to XBRL are more than worth the effort.

The project's first step was to map MACPA's financial data from its accounting system to the XBRL GL taxonomy, which provides a way to translate transaction data from the general ledger (including accounts and journal entries) into a format useful for reporting.

Once the mapping was complete, the XBRL GL instance document was created with MACPA's financial data. MACPA used the instance document to populate its financial key performance indicator (KPI) system. Because MACPA reduced both the time and the effort required to prepare the KPI documents, it can now run the system more often.
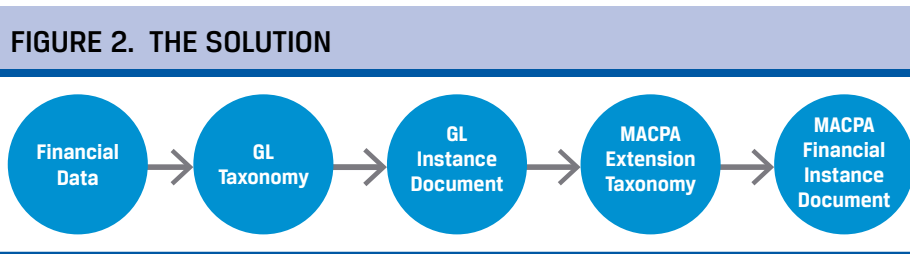
MACPA then turned its attention toward mapping its financial data to the US GAAP (generally accepted accounting principles) taxonomy and then extended the base taxonomy to include entries specific to the organization—that is, MACPA created custom extensions.

Once the US GAAP taxonomy had been extended, the GL taxonomy was mapped to the extended taxonomy using MapForce. XBRL files generated from MapForce can be the foundation of various reporting purposes—for example, to publish the audited financial statements using XBRL, which eliminates the manual assembly and review processes, thus saving time and money and reducing the risk of errors due to manual intervention. **Figure 2** depicts a flow chart of the solution.

Nonprofits could also use XBRL to file their Form 990, Return of Organization Exempt from Income Tax. Doing so via XBRL would turn a lengthy filing process into a very quick one.

The study maintains,

With almost 1.5 million exempt organizations in the US filing hundreds of thousands of Form 990s each year, the efficiencies afforded by the use of XBRL data for this purpose alone make it a technology worthy of serious consideration.

FIGURE 2. THE SOLUTION

Financial Data → GL Taxonomy → GL Instance Document → MACPA Extension Taxonomy → MACPA Financial Instance Document

As previously noted, small companies have complained about having inadequate resources and the inability to learn and apply the technology. MACPA was able to keep project costs low by hiring an intern (an accounting student with an extensive technology background) and taking XBRL in-house. As Tom Hood notes, "If we can implement XBRL as a state-based nonprofit association working with a college intern, you can do it too—implementing XBRL in-house is easy with the right tools."

INLINE XBRL AND CURTAILING USE OF EXTENSIONS: REDUCING COMPLEXITY AND COSTS

In the United Kingdom, about 3 million companies file tax returns in XBRL each year. The 2015 XBRL UK white paper "Company Reporting in the UK—An XBRL Success Story" deems the UK approach a success because it enables efficient reporting in XBRL.[10] It is based on the use of the inline XBRL (iXBRL) reporting format and more flexible taxonomies that have led to reduced complexity and costs.

iXBRL

Under iXBRL, all XBRL data are contained in ordinary, human-readable files. Because a single iXBRL report can be viewed on a screen and analyzed by software, no viewer is required to convert an XBRL filing into a human-readable form—resulting in cost savings.[11]

Curtailing Use of Extensions

The UK program also has flexibility built into its taxonomies to cover predictable variations in company reporting—for example, through "analysis items"[12] and "generic dimensions"[13]—rather than permitting companies to create their own effort-consuming XBRL extensions.

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[10]See www.xbrl.org.uk/resources/whitepapers/UKcompanyReporting-XBRL-v1.pdf.

[11]Inline XBRL is widely used in other markets as well. For example, the European Securities and Markets Authority (ESMA) has adopted iXBRL as the digital format that issuers in the EU must use to report their company information beginning 1 January 2020. The ESMA mandate requires all IFRS filers to provide iXBRL filings to their national regulator or stock exchange. In Japan, the Japanese Financial Services Authority and the Tokyo Stock Exchange use inline XBRL.

[12]*Analysis items* handle uncommon or unexpected breakdowns of information not covered by ordinary line item tags. Each analysis item tag is specific to the section in which it appears. It is defined as representing a component of the total monetary or numeric value of the section. If necessary, it may be used repeatedly to tag multiple entries in the section for which no line item tag exists. The purpose of analysis items is to support complete tagging of the section in which they appear, thus enabling summation and other automated analyses of the data in the section.

[13]*Generic dimension tags* are used for classes of data whose individual members are company specific and cannot be fully identified in advance. Examples include entity officers and directors, subsidiaries, associated companies, and the like. Generic dimension tags represent such classes by numbered tags. For example, individual subsidiaries are represented by the tags "Subsidiary 1," "Subsidiary 2," and so on. The taxonomies contain a sufficient number of these tags in each class to cover all likely tagging requirements.

Many companies create extensions to ensure that their printed and interactive reports look alike. The use of iXBRL means that reports are being presented as the company desires. Avoiding extensions thus saves companies both cost and effort.

The 2015 XBRL UK white paper states:

> Accounts production software for smaller companies with less complex accounts will create iXBRL reports automatically.
>
> Some larger companies with more complex accounts have set up iXBRL production in-house, while others have used their accounting firms or other third party organisations to convert accounts to iXBRL. Costs of third party services vary with the size and number of accounts being handled. However, they are a small fraction of the typical costs in comparable programmes elsewhere which require company extension taxonomies.

Initially, the tax authorities had a "minimum tagging set" that required companies to mark up and disclose only those concepts—that is, an approximately 1,200-concept subset of the 5,000-concept taxonomy. If there was a concept in the taxonomy that was not in the minimum tagging set that a company used in its financial statements, the company did not need to mark it up. As of 2017, there is no minimum tagging set, so companies need to tag every part of their disclosures that appears in the taxonomy. If something *is not* in the taxonomy, however, companies do not need to provide an extension and have no obligation to tag it.

Although this approach may be appropriate for tax reporting, we think greater flexibility is required for financial reporting purposes. CFA Institute believes that regulators should curtail the current excessive use of extensions, which hampers investment analysis. However, investors also need information that is entity specific in order for it to be meaningful to their financial analysis. We thus believe that it is necessary to allow for the use of company-specific extensions within a framework that restricts their use to rare circumstances. In "eXtensible Business Reporting Language: A Guide for Investors," CFA Institute maintains,

> Individual extensions should be limited to those rare situations in which an item unique to that firm exists and the information about it does not fit into any of the concepts within the standard taxonomy or extension. We strongly encourage reporting companies to look first for the appropriate tag within the existing taxonomy before turning to a custom extension. If such a tag does not exist, we believe an extension should be allowed but within a well-defined framework so that no extension corrupts other financial statement relationships. Simply put, the automated relationships required by the computer remain: When a custom tag is inserted, the relationships remain intact and the numbers continue to sum up correctly.

The Need for More Comprehensive Tagging of Disclosures

For financial reporting purposes, we believe there is a need for more comprehensive tagging than is currently required by the UK tax regime. Our "Data and Technology" report puts it best:

Regulators need to require structured reporting beyond just the financial statements and allow investors a deeper look into annual reports and other reports by applying structuring to all reports in their entirety. For example, in Europe, it has been suggested that only the face of the annual financial statements needs to be structured. However, simply tagging the values on the face of the financial statements is insufficient. It also should be required to separately tag the values in the notes to the financial statements because this information is extremely valuable to investors.

Furthermore, text block tagging should be required for the management commentary, each note to the financial statements, and each significant accounting policy. The user can then perform text analysis using the text block tagged information rather than having to resort to the paper report, increasing ways to use unstructured data.

Such changes would bring greater transparency to users.

CONCLUSION

Case studies from different jurisdictions demonstrate that the proper implementation of structured reporting benefits all sorts of companies—large and small publicly listed companies as well as nonprofits—by reducing costs and creating efficiencies. The use of structured reporting results in greater transparency for regulators, investors, and other users.

I would like to thank Vincent Papa, CPA, CFA, Interim Head, Financial Reporting Standards, for contributing to this piece.