

# EXHIBIT F

# The SEC's Increasingly Sophisticated Use of XBRL-Tagged Data

## Featured Interview

*An interview with Mike Willis, SEC, Office of Structured Disclosure*

*Mike Willis is Assistant Director of the SEC's Office of Structured Disclosure. He oversees the design and implementation of technological processes and tools that support the SEC's use of structured data, such as XBRL-tagged financial information. Mr. Willis moved to the SEC in 2015 after many years as a partner at PricewaterhouseCoopers, where he worked on process enhancements involving standards-based architectures, both within the firm and for clients. He has also held several positions at XBRL International, including founding chair, chair of its steering committee, and chair of its board of directors. Dimensions spoke with Mr. Willis on the SEC's growing use of the XBRL-tagged data submitted in corporate financial disclosures.*

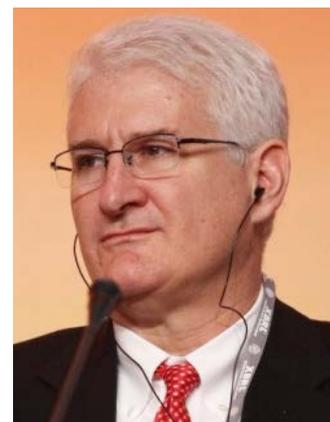
**Q Before you joined the SEC, you worked in the private sector as an expert in accounting and financial reporting, including XBRL. What led you to accept the position at the SEC?**

This is something I have wanted to do for a long time, as I am passionate about process enhancements enabled via supply-chain standards. This role provides opportunities: to work on policy matters that enhance the leverage of the Internet and structured data for analytical insights; to enhance the transparency of company disclosures so that the wave of Baby Boomer retirees – and I am in that boat – may more effectively make better informed investment decisions; and to apply my market experiences.

**Q You head one of the SEC's specialized offices, the Office of Structured Disclosure (OSD), within the Division of Economic and Risk Analysis (DERA). What does your role entail?**

OSD works with the divisions and offices within the Commission to assist in their respective roles and responsibilities. We listen closely to others to understand their needs and find related opportunities to leverage structured data for analytical purposes. OSD develops, implements, and enhances analytical capabilities. We also assist with rulemaking where structured information would enhance required disclosures and reuse of information for analytical purposes. We do risk assessments via proactive, persistent monitoring and *ad hoc* analysis.

This role provides a great opportunity to work with a very talented group of professionals: data scientists, CPAs, developers, economists, analysts and attorneys – a very diverse group of skills. We also engage market-standards bodies and consortia relevant to structured disclosure topics. Overall, we try to increase awareness of the benefits from the use of structured disclosure in the market.



Mike Willis  
Securities and Exchange Commission





## SEC's Increasingly Sophisticated Use of XBRL-Tagged Data

**Q You undoubtedly had an impression of the SEC before you joined it. Now that you are on the inside, how does the reality of the SEC differ from your prior impression? What has surprised you about the SEC?**

The first thing would be the commitment to structured disclosure. In the last 18 months, ten rules with structured data components have been proposed or adopted, which is a clear sign of momentum – and that was not previously obvious to me.

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**What has surprised you about the SEC?**  
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Second, I thought I would be answering the “why” question: Why structured data? I find that I am answering the “how” question: How can we use it? How can we leverage it?

Third, I also thought that no one was using XBRL. I was stunned at the level of use for a broad range of analytical purposes. Your readers are probably aware of the recent XBRL subscription service RFP and award. There are roughly 150 people in the Division of Economic and Risk Analysis, and many of them use the ‘as reported’ XBRL structured disclosures almost daily. Commission Staff recognize that data quality is an important issue. With increased use of XBRL, the awareness of data quality increases.

Moreover, I used to think that few in the Commission paid much attention to comment letters or e-mails, when in fact the exact opposite is true. Those items carry significant weight, and your readers are encouraged to make their opinions known. Rest assured that those letters are read.

**Q You use the term structured data instead of XBRL. Is that the term XBRL advocates should be using?**

Different information types may dictate different types of structure. XBRL is a language designed for business information, and sometimes that may not be specifically on point. For example, other types of standardized languages may be used for different information types:

based swap data. Broadly speaking, various standardized languages can enable structured disclosure; and thus, the more general term structured data.

**Q Do you think people understand the concept better if you say structured data?**

It is somewhat like asking your mom whether she likes using HTML. My mom would say: “No, I don’t know what HTML is, but the Internet is really great.” It is more important that we talk about the process implications rather than the technology. The process implications reflect benefits that are very useful, from a cost, transparency, analytical, timing, and quality perspective.

**Q Since joining the SEC, what new insights and perspectives have you acquired on the quality of XBRL data filed with the SEC?**

The most obvious is that the SEC Staff care about quality and that their interest increases along with their use of the data. One of my first tasks upon joining the Commission was to prepare an analysis using XBRL data for one of the Senior Officers in another division. About five minutes after I sent the analysis, an e-mail came back to me with a question: “Is this number correct?” I called him and said: “Yes, that number is exactly what the company reported. Of course, it cannot possibly be correct, but that is what the company reported.” The blunt insight for your readers: with increasing use of XBRL data comes increasing awareness of XBRL errors.

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My prior market experience has included first hand encounters with XBRL-data errors including: negative values; scaling problems, with companies reporting values in the quadrillions; company-specific extensions for basic concepts such as cash and cash equivalents; the lack of any structured disclosure where it is clearly required; the use of improper dates that do not align with the company’s reporting; the inappropriate use of axis extensions when suitable options



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The data quality issues can both inhibit use of the data and result in analytical errors. For example, there are vendor bots parsing real-time XBRL web-service feeds and dynamically publishing articles based on companies' structured disclosures. Some of those articles are either humorous or misleading, or both, when the bots produce stories based on incorrect data.

### Q What is the SEC doing to improve XBRL quality? Will the SEC continue to be proactive?

Let me first step back and provide a broad perspective. Data quality issues are a fact of life; even prior to any structuring of company disclosures, there were plenty of quality issues in company paper and ASCII formatted reports. Balance sheets that did not balance, missing disclosures, amounts that did not tie out, and many other basic quality issues that we still see today.

#### Steps being taken by the SEC to improve XBRL quality.

- 1 Focusing on data-driven regulation
- 2 Developing data quality tools
- 3 Working with the FASB on US GAAP Taxonomy enhancements

In general, there is a focus at the Commission on data-driven regulation, and the use of structured data will continue to increase as a result of that focus. And, as I noted before, as the use of data increases, so does the awareness of quality. In 2009, the SEC Staff started publishing its [observations on data quality topics](#) – negative values, unnecessary extensions, etc. Those topics are still problematic in company reports today. Your readers should “stay tuned” for more Staff Observations.

We are developing data quality tools, including some open-source tools that we think will be useful in helping preparers identify quality issues. We also continue to study and evaluate the use of company-specific extensions and their effect on the usability of structured disclosures. In 2014, the SEC Staff published an assessment that highlighted the [use of custom extensions](#) by filers of different sizes. Again, stay tuned for more on data quality topics.

We are also working closely with the FASB on enhancements to the US GAAP Taxonomy, in an effort to simplify and remove ambiguities in the taxonomy. Further, we recently updated the rendering engine and began publishing warning and error messages as part of the EDGAR filing process. While these are not 100% data quality validation rules, filers that encounter these errors or warnings would be wise to stop and check whether the disclosures in question are properly structured.

We welcome your readers to send comment letters or e-mails ([StructuredData@sec.gov](mailto:StructuredData@sec.gov)), or just call us on topics relevant to XBRL data quality (202-551-5494).

### Q Is the SEC Staff calling issuers about problems with the XBRL tagging in their filings?

The Staff may reach out to the company in cases where they become aware of material XBRL reporting errors. That may happen more frequently than some of your readers might perceive is the case.

### Q Is the Staff calling just about XBRL or about other things as well?

It depends on the situation, it can be both – and it can be just about XBRL.

### Q Does the Staff also include feedback on XBRL in comment letters to issuers?

Yes. How the Staff communicates will vary – letters, phone calls, office visits. Some of those may or may not be as public as others, but communication is ongoing. The company is responsible for the quality of its reports. It is not a great idea for a company to rely on comment letters from SEC Staff and/or third-party vendors to identify quality issues that may exist in the company's own structured reports.

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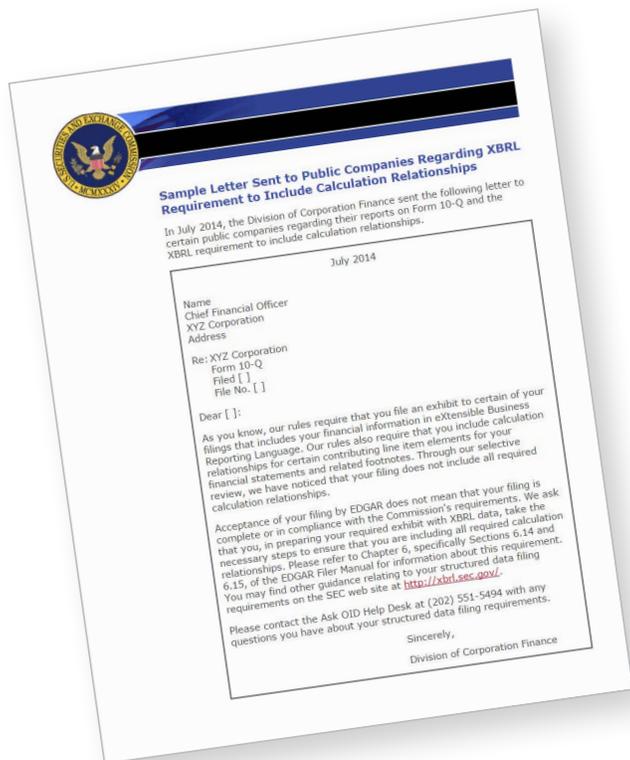
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## SEC's Increasingly Sophisticated Use of XBRL-Tagged Data

**Q In the recent past, the SEC has broadly issued staff observations, updates to filer practices, and even “Dear CFO” letters on XBRL quality and usability. There have not been any of these in the past year or so, but will there be more in 2016?**

I cannot confirm or deny any future “Dear CFO” letters. I would encourage your readers to stay tuned.



**Q How is the SEC using XBRL data internally?**

While the word on the street may be that the SEC is not using XBRL, that is simply not true.

One way the SEC uses XBRL data is for economic analysis. When an analysis is looking across all SEC companies – and I repeat that: all companies, from the largest to the smallest – that is when the XBRL data is very useful. Some data aggregators may focus on the largest filers. When we need an answer that covers all companies, XBRL data is the only game in town for assessing information from the entire set of corporate filers.

Text analytics and sentiment analysis also use XBRL structured disclosures. The reason is that textual-analytical engines are wildly more effective at analyzing structured disclosures when they know what they are looking at versus attempting to consume and analyze an entire unstructured report.

In general, given the focus on data-driven regulation at the Commission, the use of structured data continues to grow. That is a useful backdrop as to why the Commission is looking to enhance analytical capabilities.

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**Q Are your analytical tools now using XBRL data?**

Yes. Our analytical applications and dashboards use various sources of data, including XBRL, to paint a complete and clear picture. Our analytical platforms have evolving features and capabilities as we continue to find new ways to leverage XBRL structured disclosures in support of the Commission’s mission by listening to the needs of the Staff.

**Q Does the SEC’s Division of Enforcement use XBRL data? Could XBRL-tagging errors ever be egregious enough to involve the Division of Enforcement?**

I am aware of individuals in Enforcement who do use XBRL structured disclosures to inform their activities, but I cannot comment on what Enforcement may or may not do. If I were a preparer, I would not want to be a case study based on a structured data error that might mislead any potential user.

**Q What is the arrangement that the SEC now has with Calcbench to use its XBRL data tool? How do the different SEC divisions use that tool?**

The arrangement was to procure an XBRL subscription service that enables the SEC staff to use XBRL data in its regulatory work. I cannot comment on what Commission Staff in various divisions do with this XBRL subscription service; but your readers should know that it is being used.

**Q Does the SEC plan to replace more of the information that it now purchases from third-party vendors with tools that consume and analyze XBRL data?**

Again, I cannot comment on our future use of data aggregators and data feeds. I have heard representatives

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