Jennifer Piorko Mitchell
Office of the Corporate Secretary
FINRA
1735 K Street, NW
Washington, DC 20006-1506

Dear Ms. Mitchell:

With this letter, Donnelley Financial Solutions responds to FINRA's Request for Comment on how innovations represented by fintech can provide protection for investors and market integrity. We support FINRA's Innovation Outreach Initiative to provide protection for investors initiated in June 2017. We agree that development of a taxonomy-based machine-readable rulebook will improve oversight and operational efficiencies. Donnelley Financial's 30-year experience in innovation – related to regulatory disclosure creation, filing and distribution – qualifies us to comment on data aggregation, and use of artificial intelligence for the digitization of rulebooks by making them "machine-readable". We encourage FINRA to support the development of the next generation rulebook, and a common taxonomy for regulatory reports so that a wide range of documents can be consistently produced following a common machine-readable rulebook.

FINRA's stated purpose for technology innovation in this Notice is to empower investors to make informed financial decisions. Specifically, FINRA is committed to develop a machine-readable rulebook with embedded taxonomies that transforms aggregated data through a tagging process. The process, using metadata, will result in streamlined searches based on areas such as business lines, activities and themes. This will expand accessibility of the FINRA rulebook to a wider audience including registered investment and insurance companies, private funds, regulators and service providers, and will improve consistency of regulations and speed of compliance. In the long-term, these taxonomy-based rulebooks should be standardized to meet needs of international financial markets. In the future, financial industry regulators across the globe should adopt standardized taxonomies for their rulebooks in order to examine increased volumes of cross-market transactions with greater efficiencies. This can be achieved using embedded taxonomies, like those already developed by Donnelley Financial.

Background on Donnelley Financial Solutions- With the right solutions in moments that matter, Donnelley Financial Solutions delivers risk and compliance solutions that fuse deep industry experience, unparalleled service, and elegant technologies to provide our clients with insights that power their decisions and shape global markets. The company has 3,100 employees in 59 locations across 17 countries, serving thousands of clients globally.

Donnelley Financial is the largest regulatory filer in the US, and has developed one of the largest industry customer bases for modern taxonomies for registered funds. We have learned that automation and data aggregation allows for significant gains in regulatory efficiency.

Lessons Donnelley Financial learned about Benefits of a Common Taxonomy for '40 Act Disclosure Documents- Automation of data mapping and data aggregation allows for reliable production of repeatable reporting processes for large volumes of data, and this is the foundation for developing the next generation FINRA rulebook. Donnelley Financial supports machine-readable data tagging using international standards that are designed to validate and improve data quality. [1]Artificial intelligence (AI) holds great potential for machine-readable capability, but accuracy of data that is managed by AI is dependent on how data is validated.

[1] DFIN White Paper "A New Approach to Data Quality" is attached.

Today, humans read drafts of reports and edit these manually because there is no common taxonomy. Integrating AI is critical to gain maximum efficiencies. The next step is to develop software that reads the common formats, and integrates with a standard AI interface that generates reports on exceptions, and then are examined and validated by humans. This process will avoid systematic errors and improve efficiency for both regulators and industry participants.

Once the next generation FINRA rulebook is in place, the next step to develop a single taxonomy could yield efficiencies across multiple regulators, as the wide range of investment instruments will inevitably grow. This future common taxonomy could create a consistent and cohesive data set for regulators, fund companies and service providers. We anticipate initial challenges in identifying overlap of regulations, and the need to establish common language and definitions. Once the common technology is in place, there should be little effort in maintaining and updating by regulators. Similarly, from the fund/service provider side, initial one-time efforts to consolidate data to apply the common taxonomy would be necessary. However, once these are in place, taxonomy maintenance would be necessary, and the effort would depend on level and frequency of changes from regulators.

Challenges and benefits for establishing a harmonized taxonomy- Reaching a consensus on a standard among US regulators, and subsequently with international regulators is not simple, but there are examples where standards could bring immediate efficiencies. Let's consider an example where standards among SEC rules might be achieved to yield efficiencies. Forms N-MFP, N-PORT and N-CEN all have tags for XML and each has a tag to disclose the registrant's LEI, yet all 3 forms are different.

Form N-PORT tag: regLei
From N-CEN tag: registrantLei
Form N-MFP tag: registrantLEIId

This is one example of where a common tag would work for all 3 forms. Keeping with this example, these 3 forms include a list of acceptable answers to questions; we propose the same list of answers with the same tags could be used in all 3 forms. For example, if you hold an Asset Backed Commercial Paper security, to disclose this in N-MFP, the current answer is "Asset Backed Commercial Paper" while in Form N-PORT, the current answer is "ABS-APCP." There are many other examples, but by taking a holistic view of tags across forms of multiple regulators and establishing a common taxonomy, FINRA could bring efficiency by establishing a machine-readable rulebook in the short term that ultimately integrates with a common taxonomy. Creating a cohesive collection of data tags would minimize mapping between agencies and regulators, and minimize errors due to participants' interpretation of the same regulation.

Benefits of the FINRA Machine-Readable Rulebook should be the first step- Even if development of a consistent, harmonized taxonomy across regulators was not feasible in the short term, FINRA's development of a machine-readable rulebook is valuable because it allows automated searchable capabilities for regulations as well as quicker time to find answers to basic questions such as how to calculate a swap in accordance with a specific regulation. A single-source rulebook would allow market participants to easily query and receive automated responses, and eliminate manual tracking of regulatory changes. This type of rulebook would be a first step towards eventually allowing participants to use artificial intelligence technology to comb through hundreds of pages of new regulations and decipher what elements are applicable.

Donnelley Financial has experience in developing and maintaining machine-readable taxonomies- We are currently developing future capabilities to make machine-readable content more efficient, and we are eager to participate in development of the FINRA machine-readable rulebook to improve searches and oversight that will make FINRA accessible to a wider audience. Donnelley Financial is also well positioned to work with FINRA in support of a standard taxonomy for US and potentially international regulators.

Automation is the future. We appreciate FINRA's commitment to work with industry participants about the feasibility and desirability of developing a new machine-readable rulebook through the creation of an embedded taxonomy to help market participants better process applicable requirements.

Thank you for the opportunity to comment, and we are eager to continue discussions about how Donnelley Financial's solutions can meet the FINRA's objective to leverage fintech to enhance protection for investors and market integrity for an improved investor experience.

Sincerely,

Eric J. Johnson

President, Global Invest Markets

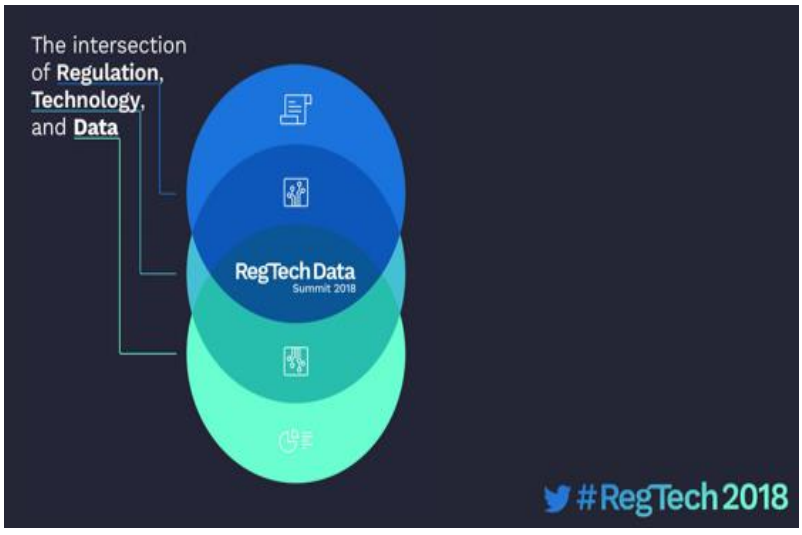
Donnelley Financial Solutions

A New Approach to Data Quality: How the SEC Can Prepare for a RegTech, SupTech and AI Future

As regulations, technology and data merge in surprising ways, global reporting and compliance are undergoing a complete transformation.

RegTech, which has been defined as the use of new technologies to solve regulatory and compliance requirements more effectively, and its cousin SupTech, which uses new technologies to tackle supervisory requirements, are two pillars of this transformation. The third pillar—AI, or artificial intelligence— is what allows companies to use machine learning (ML) and similar techniques so that computers can sort through and analyze copious amounts of data and even draw meaningful conclusions from that data.

The promise of RegTech and SupTech is being recognized by the regulators themselves. On May 3, 2018, Scott Bauguess, Deputy Chief Economist and Deputy Director, Division of Economic and Risk Analysis, for the SEC, delivered an SEC keynote address in Boston. In his address, titled "The Role of Machine Readability in an AI World," Bauguess specifically referenced both RegTech and SupTech for use in machine learning to "lessen the burden of either complying with or supervising a wide range of regulatory requirements in financial markets."



The Intersection among Regulation, Technology and Data provides for enhanced "usability" and "reliability" of data and promotes machine learning and artificial intelligence.

There is, however, a larger challenge necessary for driving the successful evolution and convergence of RegTech, SupTech and AI, and that is improving the "usefulness" of data. In his address, Bauguess explicitly dispels the myth that machine-readable reporting standards ensure high-quality data. The SEC is, for instance, facing the challenge that whenever individual companies create custom extensions to the SEC's US GAAP taxonomy when a standard reporting element should reasonably be used, then it becomes difficult for users to make meaningful comparisons between companies. Although "reliability" and "data quality" may not sound like exciting topics in and of themselves, they are the stepping stones so that AI can provide the insights RegTech and SupTech are designed to deliver.

Until there is true standardization and quality validation within structured reporting, achieving the original SEC vision of "*leveling the playing field between companies large and small*" for how information is presented and consumed by both institutional and retail investors will remain an elusive goal. For this reason, the SEC needs a plan to address the lack of comparability across its current XBRL-formatted financial statement submissions.

While full standardization of regulatory data has been acknowledged as the Holy Grail for quite some time now, the problem is that full standardization is impractical. In a reporting system with thousands of different companies submitting data, the data reported is bound to have inconsistencies.

If a lack of standardization is practically inevitable in reporting and disclosure systems, then the question becomes: How can we use artificial intelligence and machine learning to fill in the gaps in the validation rules so the final product *is* standardized? In other words, what's necessary is that a way be found for AI and ML to fill in the "interpretation gaps." Doing so requires that the machine-learning algorithms be carefully trained to spot inconsistencies—and to correct them.

In this paper, we will examine three areas of focus for achieving a framework in which AI can provide the insights RegTech and SupTech are looking to supply:

1. Comparability
2. Accounting semantics
3. Common meanings for improved semantic analysis.

Fundamental improvements in these areas will help the SEC achieve its vision of delivering truly machine-readable and user-friendly data to all investors, a vision aligned with the goals of the broader EDGAR re-design.

EDGAR Modernization

EDGAR re-design is well underway as demonstrated by changes in the SEC Office of Strategic Initiatives, or OSI. Under the direction of Mark Ambrose, the EDGAR business owner and the EDGAR program office are now aligned to better facilitate EDGAR rule coordination and support changes required during this major transformation.

Donnelley Financial is eager to help the SEC achieve its specific modernization requirements. Here are some features we provide that dovetail with your modernization goals:

- Business process transformation that streamlines current interfaces and functionality
- Support tools for SEC staff
- A plan to continue to leverage web-based, user-friendly technology that makes filing easier and dissemination cheaper, faster, and more secure.

The five major processes of the electronic filing lifecycle supported by EDGAR are also disciplines in which Donnelley Financial has proven experience and subject matter expertise.

1) **Preparation and submission by filing entity** – RegTech solutions best support the SEC's transformation from documents to data when they can demonstrate and quantify the benefits of new technologies aligned with regulatory and policy changes. An example of this is discussed in Donnelley Financial's white paper "Standard Business Reporting: Best Practices from Australia and the Netherlands

in the Race to 2020," where coordinated changes in regulation, technology and data converged for true RegTech transformation. Since implementing SBR, Australia has exceeded its cost-cutting goals. By June 30, 2016, the Australian government and the wider business community saw combined savings of $1.2 billion—with even higher levels of projected savings for the future.

2) **Receipt, validation and acceptance by SEC** –An efficient and effective disclosure receipt validation and acceptance method could significantly improve the quality of XBRL data collected and help minimize duplication across EDGAR systems and components. Whenever possible, re-design should provide more freedom to apply routine changes in validation and acceptance without relying on vendor assistance. Ideally, authorized SEC personnel will be capable of accomplishing changes via normal workstation functions. We outline a path forward at the SEC in our section below titled: "Support for Structured Data" enhancements at the SEC.

3) **Data Storage and Retrieval** – In response to the Open Government Initiative that requires each agency to identify and publish online, high-value data, the SEC makes available several structured data sets for public consumption. The proposed Financial Transparency Act of 2017 explains the framework for all nine government agencies to adopt searchable data collections. As the transformation from collecting documents to structured data continues, the SEC may need to view data storage and retrieval within a new paradigm designed to maximize benefits.

4) **Data dissemination to the public** – Until recently, assumptions about how users consumed financial statement data seemed beyond question: "Users read documents." In reality, most financial statement data today is consumed digitally. The SEC has

said that on any given day as many as 85 percent of the documents visited on the EDGAR filing system are visited by Internet bots.

In addition, advances in AI, robotic automation and business intelligence are transforming internal financial reporting so that material financial and non-financial elements can be identified and tagged at the source. In this 2018 report on AI trends set to transform business, government and society, PwC notes that 54 percent of executives say AI solutions implemented in their businesses have already increased productivity.

5) **Analysis and review by the SEC staff** – When it comes to SEC staff reviewing and analyzing data, there is still a missing piece. This missing piece is not the availability of the disclosure information, but rather the usability and quality of the data received. As structured data replaces document-based disclosures, better oversight of audit and quality is needed. Standardized data definitions applied at the creation of financial reporting should reflect the complete lifecycle of data from collection through dissemination. Audited, digital financial statements would facilitate analysis and could minimize errors as documents are transformed into data. With fewer errors, the usability and quality of the digital data under collection would be dramatically improved.

Recommendations for Future Enhancements at the SEC

As described above, the SEC is already taking a closer look at ways to significantly improve the usability of submitted filing data for broader analytical purposes. This section describes areas where improvements in defining or utilizing the semantics of XBRL filings could provide significant benefits towards achieving this goal.

Comparability

There is an ongoing issue with data comparability. The crux of this issue is that public companies, especially large accelerated filers, frequently design and use their own custom

axes and concepts even though there are approximately 300 existing axes available in US GAAP. When a company uses a custom tag or axis, the information reported cannot be compared with information from other companies because those companies are using different measurements. In other words, it is no longer possible to compare apples with apples.

Efforts to automate the semantic mapping of new elements across taxonomies have had poor results. One researcher undertook such an effort using natural language processing and machine learning to try and normalize custom tags to their nearest equivalent standard tags. Using SEC filings from 2016, the researcher encountered 285,102 unique tags. To compound the challenges, the language used in naming or describing extension elements can have specific meanings different from general English usage, or the language may even be intentionally vague. While data and period typing could reduce these problems, without more explicit guidance the results were poor.

However, a solution *does* exist. Were regulators to provide explicit guidance, then the number of custom tags could be dramatically reduced. And in fact, the US GAAP and IFRS taxonomies could adopt the concept anchoring model that will be part of the ESEF taxonomy from the European Securities and Markets Authority (ESMA). The ESEF taxonomy is derived from IFRS, but extensions are allowed only if filers define an anchor connection to one or more elements from the standard taxonomy. By enforcing the explicit identification of a custom tag with the standard taxonomy, regulators ensure that the resulting custom taxonomies will be much more amenable to the normalization necessary for comparisons across taxonomies.

Even if an anchoring model were voluntarily introduced, there would still be benefits to the individual filer that would suggest such anchoring is beneficial. For instance, the enhanced contextual information may make it easier for vendor software to propose alternatives (for example, dimensionalizing rather than creating a whole new extension).

However, there is one major impediment to supporting this model within the current framework: the SEC would need to introduce a new

role that matches the wider/narrower role in ESEF. Without this, vendors that want to offer the ability to anchor custom axes or concepts would be unable to include these relationships in their XBRL submissions without violating an EFM rule against custom arc roles. That said, allowing -- or requiring -- concept anchoring would create a more precise semantic context for the extension – and with that would come very attractive corresponding benefits in terms of data usability.

Accounting Semantics and Common Meanings

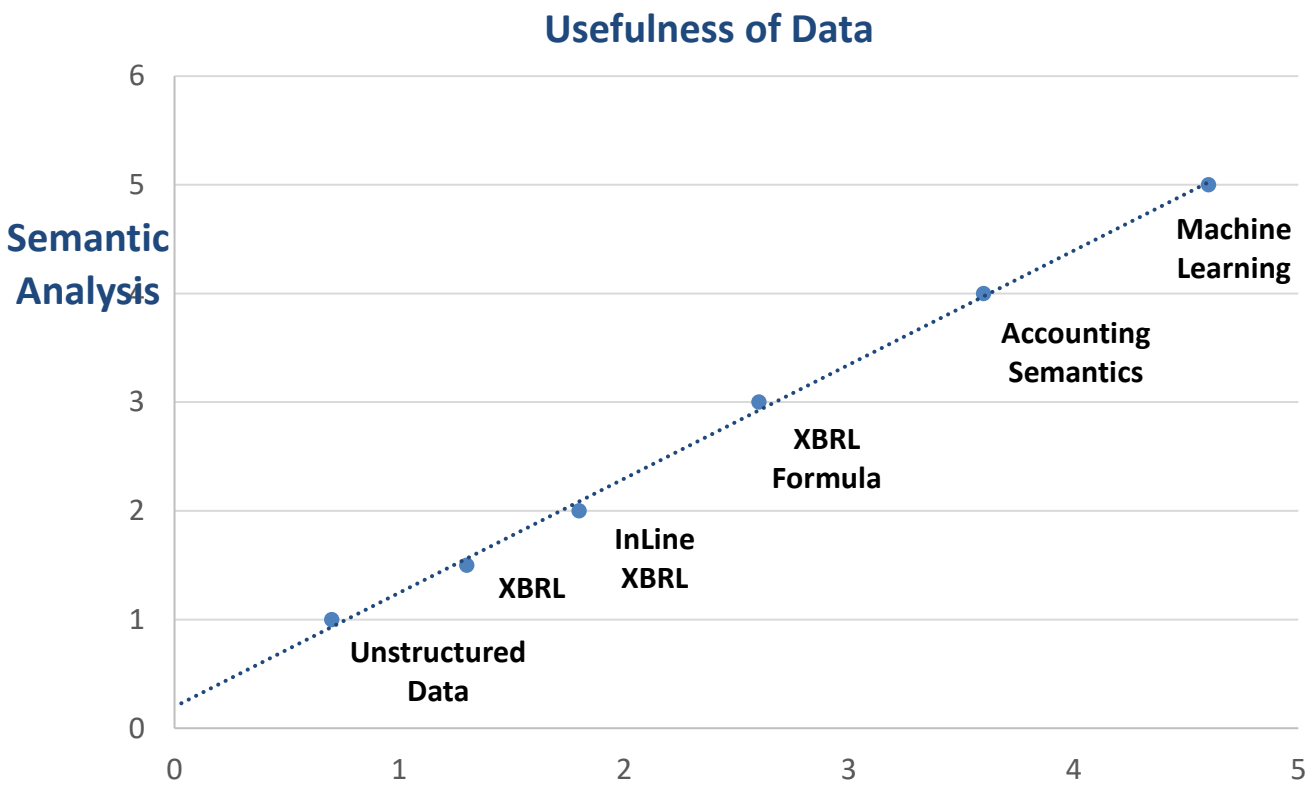
The SEC currently supports additional data models other than XBRL – such as, FpML and FIXML– and provides a common data model for those two standards to use. However, the fact remains that even with improvements to the intra-comparability of XBRL, comparing data across different models is not possible unless filers can convert representations into a common model that can serve as the basis for additional levels of reasoning and analysis. XBRL taxonomies like US GAAP provide a range of context information for elements, such as rollup hierarchies; data, period and balance types; and references to source accounting codification. However, in itself, this is often insufficient to perform semantic analyses that would:

- Help focus or automate selections of tags
- Aid in decisions regarding custom extensions
- Determine the consistency of documentation and naming of custom extensions.

Overall, numerous benefits would accrue from enhancing the semantic context of XBRL tags, whether they are standard or custom. Among these benefits are internal consistency; improved data quality; and simpler conversions of XBRL models to a common ontological model that could be used for broader analysis and comparison with other data (such as FpML and FIXML).

One such common model currently being considered is the Financial Industry Business Ontology (**FIBO**) standard developed by the Enterprise Data Management Council (EDM). This initiative draws together a number of connected ontologies implemented as RDF triples and represented using W3C Web Ontology Language (OWL). According

to EDM, FIBO currently consists of 11 core finance industry domains -- including securities and equities, loans, and more-- in 49 modules and more than 300 ontology files. Proponents of FIBO would like to see FIBO ontologies become the data reference point for an emerging intersection of structured data and AI, and there is certainly a case to be made for such an approach.



Financial Industry Business Ontology

The proposal here does not presume any particular ontological model. That said, any choice of common representation by the SEC should obviously be a non-proprietary standard that can be readily used by any vendor or consumer of SEC data.

What does need to be considered are some approaches by which the existing XBRL model could be better prepared for **automated** conversion to such a model, and thereby provide the following benefits:

- making XBRL data immediately available in a form that provides for enhanced analysis and inferencing,

- allow the common semantic representation to provide a more consistent and precise interpretation of elements.

Current approaches to conversion of XBRL to OWL/RDF models seem to have focused on simpler taxonomies, and typically have involved some manual steps to complete the mappings. While this may be acceptable for initial modeling of US GAAP and IFRS, it is not feasible for custom extensions that are the mainstay of SEC filings. Instead, we propose that the SEC investigate adding semantic context to the standard taxonomy in ways that would also work for custom extensions (and therefore be supported by vendors). This additional information could then be used either directly to support enhanced interaction with the model, or to facilitate unambiguous conversion to a common ontological model for broader analytical purposes.

One such approach would be to add more options for the reference linkbase (like FASB currently does for Change Notes). These options would allow for additional semantic characterization of any element, and would be available to filers to characterize their extensions. This would in turn permit filers to submit reference linkbases as part of their filing in order to allow the additional semantic information to be used in processing the filing to the common model.

While various solutions should be considered, the principal consideration is how additional semantic information can be added to existing XBRL models in a way that would not disrupt current tooling and workflows. With this additional semantic context, the SEC would be able to automate conversion to other formats, and other consumers of XBRL data could take advantage of the enhanced semantics available.

SEC Rules: Increase Transparency and Coverage to Improve Data Quality

As is clear from the SEC's own statements in the past and the direction of proposed legislation (i.e., the Financial Transparency Act of 2017), improving data quality is critical to the success of the SEC's mandate to provide regulatory oversight and digital financial accounting information to the investing community.

While the previous two recommendations focused on new functionality, this section identifies ways in which the current capabilities of XBRL are not being exploited to maximize quality in filing data. The key instrument available to the SEC to enforce digital data standards is the validation rules defined by the SEC and implemented using a reference validation engine.

There are two significant limitations to the current validation model used by the SEC that negatively affect data quality:

- Limited coverage due to reliance on XBRL calculation. Reliance on XBRL calculation means many key financial relationships in an XBRL filing cannot be evaluated since the relationships do not conform to the restrictions of the XBRL calculation specification.
- Lack of rule transparency, which hinders development and acceptance of new rules. Currently, EFM rules are expressed in English and implemented as custom code in an approved validation engine. Rules expressed in a natural language will always be susceptible to ambiguity and a lack of precision, while custom code implementations cannot reasonably be reviewed by domain experts. What's more, the use of custom code creates potentially unwanted dependencies on particular types of software, and also makes it more difficult for domain experts to adequately review the implementation.

Having a concise rule statement in an unambiguous format would help all parties-- vendors, regulators, and even consumers-- understand the scope and expectations of a particular rule. It's not necessary to have a single model of rule development, but the SEC could provide the opportunity to access any rule in a canonical form that can be read by a domain expert, and also in a machine-readable format (XBRL formula) that can be evaluated by multiple vendors.

For example, new rules to enhance quality being created by the **Data Quality Committee** of XBRL.us are also being developed in custom code, which then requires vendors to use a single reference validation engine rather than their own XBRL-compliant validators. Overall, this process of rule development hinders the

creation and deployment of new rules to provide additional coverage.

Proposed Solution

Donnelley Financial proposes that the SEC use the XBRL formula model to express data quality rules. For instance, were machine-learning technology to be taught how to leverage data quality rules, the end result would be of considerable value.

Of course, if the machine-learning rules are written in English or in proprietary languages, then it would be much more difficult and expensive to continuously feed the ML engine. It is therefore critical that data be converted to non-proprietary, unambiguous machine-readable formats, such as XBRL or iXBRL, so that machine-learning technologies and AI can be leveraged to improve quality and usability.

Finally, machine learning can only be fed the proper algorithms to standardize data if there is a marketplace of validation rules that can inform the relationships among data and content beyond the current definitions in the XBRL taxonomy.

The proposal here is for the SEC to support XBRL formula usage to provide (or at least **express**) rules for the following:

- **EFM interactive data rules.** This can include EFM *should* rules, but set to a warning level so violations are not disqualifying.
- **Additional key relationships not supported by XBRL calculation**. This would include calculation categories, such as cross-period, earnings per share, and can also include roll-forward calculations.

The SEC would need to provide a way to express rules using the XBRL formula model in a way that domain experts could understand but that also allows for generation of formula implementations that could be run by any compliant processor, including Arelle. The Data Quality Committee had originally tried to specify its rules using a language called Sphinx, but only Arelle supported that; in addition, these rules essentially worked by converting Sphinx rules internally into XBRL formula.

Donnelley Financial confronted a similar problem converting internal quality rules, and therefore created a rule language supported by XPE that is closely modelled on the XBRL

formula approach. This new language allowed rule developers to work in a language closer to the domain. In addition, the language was much simpler to maintain, while still generating complex XBRL formula that could be run by any processor. Having the rule development environment hosted in XPE also shortened the development cycle by allowing rule developers to load XBRL instances and verify the evaluations interactively.

Whatever approach is taken to strengthen rule development, the key recommendation is that there is a canonical form available for each rule (XBRL formula) that all stakeholders can use as an unambiguous and verifiable declaration of the rule. The IFRS 2017 Formula Linkbase and IFRS Guidance serve as a model of this approach.

Support for Structured Data Validation

As mentioned above, the XBRL calculation model is limited in scope to facts belonging to a common extended link that have the same aspect values. A formula-based approach to validation has the advantage of performing ad hoc validations of the supplied data that can transcend links, and even instances (multi-instance formula).

If structured data can be formulated as an XBRL package, then XBRL formula allows for the defining of a wide range of validations that can operate over the XBRL-structured data provided. Depending on the data sources, the number of facts in an instance may be many millions, and the number of assertions to be applied can number in the thousands (depending on how many extended links are used and how complex they are).

Conclusion

Donnelley Financial can provide expertise and proven tools to assist the SEC Modernization program, beginning with the expanded use of XBRL formula to provide significant improvements in data quality from existing filings. XPE is currently in use with European and other international regulators, validating instance documents that are greater than one gigabyte in size, with over seven million facts and 8,000 assertions.

Donnelley Financial also has an important role to play in using ML and AI to fill in the gaps in what companies have reported so that the

data that users see is truly standardized. Once this standardization has been achieved, then RegTech and SupTech could begin to realize their incredible promise without insisting that users meet standardization criteria that they have never historically met.

In conclusion, here are several options to help drive adoption of RegTech, SupTech and AI:

- **Make "quality" of data the highest goal.** Unless the data provided is reliable, users will be reluctant to take advantage of the data generated.
- **Continue to utilize global standards and open architecture.** Global standards and open architecture are necessary if standardization is to be achieved.
- **Provide explicit guidance to reduce the number of custom tags.** To do so, consider a concept anchoring model, such as ESEF.
- **Use the XBRL formula model to express data quality rules.** These rules could then be embedded in machine-learning algorithms.
- **Take steps to enhance the semantic context of XBRL tags.** One model for doing so is FIBO. Another is adding additional options for the reference linkbase.
- **Furnish concise rule statements in an unambiguous format.** This would help all parties understand the scope and expectations of a particular rule.
- **Use AI and machine learning to standardize data.** When machine learning and AI are used to fill in the gaps in what companies have reported, users benefit from more standardized data.
- **Encourage vendors that are using ML and AI to create algorithms that standardize data.** In the end, standardization will be achieved by programs that can harmonize data most effectively.
- **Consider using XPE.** Currently in use with European and other international regulators, XPE can validate instance documents that are greater than one gigabyte in size, with over seven million facts and 8,000 assertions.

About Donnelley Financial Solutions

Donnelley Financial Solutions (NYSE: DFIN) provides software and services that enable clients to communicate with confidence in a complex regulatory environment. Our products and solutions are used on five continents and in 24 countries, supporting the evolution toward structured data collection. Our experience and understanding of global reporting nuances – and the complexities of big data and AI -- uniquely position us as a leading provider of insight and guidance.

In support of the mission to standardize data and provide data of the highest quality, Donnelley Financial partnered with The Data Coalition on the first-ever RegTech Data Summit. Our DFS white paper "How Data Will Determine the Future of RegTech" presents the benefits of adopting structured data to help facilitate innovative RegTech solutions that pave the way for:

- Automation of regulatory reporting
- Greater insights and analysis that can be derived from regulatory information
- Information sharing on complex markets and products.

Donnelley Financial supports the coming RegTech and SupTech transformation as a way of creating greater transparency. When regulation, technology and data converge, we believe that the approach is disruptive as it rests on a few key themes: efficiency, risk minimization, and data quality improvement.