Making the Case for Reporting Styles

by Charles Hoffman, CPA (Charles.Hoffman@me.com)

Last Revised – December 8, 2017

> "I skate to where the puck is going to be, not where it has been." Wayne Gretzky, legendary Canadian hockey star.

Executive summary:

- Reporting styles is an example of the type of metadata that will drive the digital age of accounting, reporting, and auditing.
- Financial reports are not forms, but they are not random either.
- The fragments that make up a financial report can be distilled down to high-level patterns.
- One example of such high-level patterns is the reporting styles of the primary financial statements of public companies.
- The high-level patterns offer leverage helpful in both the creation of financial reports and the querying of information the reports contain.
- Software leveraging these high-level patterns can be constructed which is easier to use than software which does not leverage the patterns.
- The exercise of creating reporting styles for 100% of all public companies helps discover and correct accounting errors made by public companies and ambiguity in US GAAP.
- The reporting styles of the primary financial statements is only an example of high-level patterns; patterns exist within every disclosure also.
- The campaign to improve disclosure quality will do for the rest of the financial report what the reporting styles and fundamental accounting concepts did for the primary financial statements.
- While these ideas have been proven using US GAAP based financial reporting which is probably the most complex business reporting use case; other financial reporting schemes such as IFRS can likely use these ideas as can other business reporting use cases.

Reporting Styles is an Example of Machine-readable Metadata

Reporting styles[1] is an example of the machine-readable metadata that will drive the digital age of accounting, reporting, and auditing. You might not believe that all financial reports can be distilled into a set of reporting styles that covers all public companies. This document shows that this is not only possible, but that it is already complete for 92% of all US public companies that report to the SEC using US GAAP and the scope and path for the other 8% is clear.

And while the reporting styles cover only a portion of the entire report[2], the same techniques can be used for every other disclosure[3] which makes up a financial report. All of this can be organized into a machine-readable reporting checklist[4]. A working prototype of 65 disclosures shows that 88%[5] of all public companies are already consistent with the existing machine-readable metadata and therefore the concept is quite feasible. One commercially available software application already leverages this metadata for after-the-fact financial report validation and another proof of concept has been created to test these ideas for financial report creation[6].

Finally, while such metadata is useful in verifying that a financial report is created correctly[7], this approach is even more useful when many, many reports are being created within a process such as the process used by filing agents[8].

Financial Reports are Not Forms

A form is uniformity. Financial statements are not forms. The Financial Accounting Standards Board (FASB) in their *Statement of Financial Accounting Concepts No. 8*[9] within their conceptual framework for financial reporting provides this explanation of comparability:

---

[1] *Reporting Styles Metadata (2016 Version)*, http://www.xbrlsite.com/2015/fro/us-gaap/html/ReportFrames/
[2] *Reporting Checklist*, http://www.xbrlsite.com/2015/fro/us-gaap/xbrl/ReportingChecklist/ReportingChecklist-General-us-gaap-strict-rules.html
[3] *Disclosures Metadata*, http://www.xbrlsite.com/2015/fro/us-gaap/xbrl/ReportingChecklist/PasteIntoBlogPost.html
[4] *Improved Financial Reporting Checklist, Natural Language Rules*, http://xbrl.squarespace.com/journal/2017/1/24/improved-financial-reporting-checklist-natural-language-rule.html
[5] *XBRL-based Public Company Reports to SEC are 88% Correct Per One Measurement*, http://xbrl.squarespace.com/journal/2017/8/10/xbrl-based-public-company-reports-to-sec-are-88-correct-per.html
[6] *Putting the Expertise into an XBRL-based Knowledge Based System for Creating Financial Reports*, http://pesseract.azurewebsites.net/PuttingTheExpertiseIntoKnowledgeBasedSystem.pdf
[7] *Blueprint for Creating Zero-Defect XBRL-based Digital Financial Reports*, http://xbrlsite.azurewebsites.net/2017/Library/BlueprintForZeroDefectDigitalFinancialReports.pdf
[8] *Process of Verifying Quality of an XBRL-based Financial Report*, http://xbrlsite.azurewebsites.net/2017/Library/ProcessForVerifyingQualityOfXBRLBasedReport.pdf

> "Comparability is not uniformity. For information to be comparable, like things must look alike and different things must look different. Comparability of financial information is not enhanced by making unlike things look alike any more than it is enhanced by making like things look different."

Many people think that financial statements need to be forms in order for there to be any sort of comparability. This is both untrue as I will walk you through in this document and contradictory to the fundamental principles of US GAAP based financial reporting.

US GAAP is an excellent financial reporting scheme because it strikes a good balance between the ability to compare and the ability to accurately report the financial condition and financial position of an economic entity.

While financial statements are not forms, they are likewise not random either. There is variability in how economic entities can report under US GAAP; but financial reporting is in no way random. As I will show, financial reports have patterns and those patterns can be leveraged. But first, let me explain how professional accountants think about comparability.

Comparability (Including Consistency)

It is worth reading through *Statement of Financial Accounting Concepts No. 8*[10] where the conceptual framework of financial reporting discusses comparability. Here is that section:

- **QC20**. Users' decisions involve choosing between alternatives, for example, selling or holding an investment, or investing in one reporting entity or another. Consequently, information about a reporting entity is more useful if it can be compared with similar information about other entities and with similar information about the same entity for another period or another date.
- **QC21**. Comparability is the qualitative characteristic that enables users to identify and understand similarities in, and differences among, items. Unlike the other qualitative characteristics, comparability does not relate to a single item. A comparison requires at least two items.
- **QC22**. Consistency, although related to comparability, is not the same. Consistency refers to the use of the same methods for the same items, either from period to period

---

[9] Financial Accounting Standards Board, *Statement of Financial Accounting Concepts No. 8*, page 19, section QC23, http://www.fasb.org/cs/BlobServer?blobcol=urldata&blobtable=MungoBlobs&blobkey=id&blobwhere=1175822892635&blobheader=application/pdf

[10] Financial Accounting Standards Board, *Statement of Financial Accounting Concepts No. 8*, pages 19 - 20, http://www.fasb.org/cs/BlobServer?blobcol=urldata&blobtable=MungoBlobs&blobkey=id&blobwhere=1175822892635&blobheader=application/pdf

within a reporting entity or in a single period across entities. Comparability is the goal; consistency helps to achieve that goal.

- **QC23**. Comparability is not uniformity. For information to be comparable, like things must look alike and different things must look different. Comparability of financial information is not enhanced by making unlike things look alike any more than it is enhanced by making like things look different.
- **QC24**. Some degree of comparability is likely to be attained by satisfying the fundamental qualitative characteristics. A faithful representation of a relevant economic phenomenon should naturally possess some degree of comparability with a faithful representation of a similar relevant economic phenomenon by another reporting entity.
- **QC25**. Although a single economic phenomenon can be faithfully represented in multiple ways, permitting alternative accounting methods for the same economic phenomenon diminishes comparability.

Relevant Economic Phenomenon

A general purpose financial report captures the information about relevant economic phenomenon of an economic entity and summarizes that information in a manner such that the financial position and financial condition can be understood by someone interested in that information. The primary financial statements summarize the financial position and financial condition and the disclosure notes provide additional details and other quantitative and qualitative information that helps a reader understand that information. There is variability in how this can be achieved by economic entities that report.

Accounting Activities

Economic activities have unique aspects and the relevant economic phenomenon is not identical for each economic entity. One specific difference is what accountants call the accounting activities of an economic entity. For example, you can imagine that a bank and a software company might account for different relevant economic phenomenon and would therefore report different information in their financial reports. A bank uses a different accounting activity, commonly referred to as interest-based revenues, while a software company does not. There are a handful of different accounting activities.

Reporting Styles

While economic entities have unique aspects and while they have different accounting activities that lead to different relevant information as to the financial position and financial condition of an economic entity; economic entities also have similarities. In fact, they have many similarities.

As part of my endeavor to figure out how to get XBRL-based digital financial reports to work I have been measuring the quality of the XBRL-based financial statements of public companies that submit information to the SEC[11].

In doing those measurements, I began to recognize patterns. I call one of these patterns the reporting style of an economic entity[12]. I gave each reporting style a name in the form of a code that helps explain the reporting style. One reporting style is called "COMID-BSC-CF1-ISM-IEMIB-OILY-SPEC6". The code basically indicates that the economic entity is a commercial and industrial company with a classified balance sheet, a cash flow statement that reports exchange gains as part of net cash flow, the income statement is multi-step which reports gross profit and operating income (loss).

Reporting styles relate to the balance sheet, income statement, and cash flow statement. I will explain reporting styles focusing on the income statement; but the balance sheets and cash flow statements work the same way. Here is the income statement format of the COMID-BSC-CF1-ISM-IEMIB-OILY-SPEC6[13] reporting style:

Income Statement [Line Items]	Value
Revenues	12,279,979
Cost of Revenue	12,709,678
Gross Profit	(429,699)
Operating Expenses	10,958,148
Operating Income (Loss)	(11,387,847)
Nonoperating Income (Expenses)	(193,583)
Income (Loss) from Continuing Operations Before Tax	(11,581,430)
Income Tax Expense (Benefit)	0
Income (Loss) from Continuing Operations After Tax	(11,581,430)
Income (Loss) from Discontinued Operations, Net of Tax	0
Net Income (Loss)	(11,581,430)

The income statement format does not show all of the detailed line items that are reported, it only shows the groups of the detailed line items. So, for example, the actual income statement might provide four detailed items for the single item "Nonoperating Income (Expenses)" and might or might not include the total explicitly.

[11] See my latest measurement, *Quarterly XBRL-based Public Company Financial Report Quality Measurement (Nov 2017)*, http://xbrl.squarespace.com/journal/2017/12/1/quarterly-xbrl-based-public-company-financial-report-quality.html

[12] Summary of Reporting Styles for latest measurement, http://xbrlsite.azurewebsites.net/2017/Library/2017-11-30_SummaryInformation_ReportingStyles.zip

[13] COMID-BSC-CF1-ISM-IEMIB-OILY-SPEC6 reporting style, http://www.xbrlsite.com/2015/fro/us-gaap/html/ReportFrames/COMID-BSC-CF1-ISM-IEMIB-OILY-SPEC6/index.html

There are 1,911[14] economic entities out of the total of 5,938 public companies analyzed that use the COMID-BSC-CF1-ISM-IEMIB-OILY-SPEC6 reporting style. There are 9 other reporting styles that use the SPEC6 type income statement format with a total of 2,180 using that income statement format. That represents 37% of all public companies that report to the SEC.

There are 29 specific reporting styles that are used by 5,326 public companies that represent 90% of all of those that report to the SEC. Below is a list of those reporting styles that are used by that 90% of public companies.

ReportingFrameCode	Filings	Filings with No Errors	Total errors	Average errors	Percent without Error	% of Total Filings	Cumulative %
COMID-BSC-CF1-ISM-IEMIB-OILY-SPEC6	1,911	1,701	333	.2	89.20%	32%	32%
COMID-BSC-CF1-ISS-IEMIB-OILY-SPEC1	847	746	156	.2	88.08%	14%	46%
COMID-BSC-CF1-ISS-IEMIB-OILY-SPEC2	742	679	92	.1	91.51%	13%	59%
INTBX-BSU-CF1-ISS-IEMIX-OILN	460	427	48	.1	92.83%	8%	67%
COMID-BSC-CF1-ISM-IEMIB-OILY-SPEC9	160	152	10	.1	95.00%	3%	69%
COMID-BSC-CF1-IS3-IEMIB-OILN	109	86	29	.3	78.90%	2%	71%
INSBX-BSU-CF1-ISS-IEMIX-OILN	103	96	9	.1	93.20%	2%	73%
COMID-BSC-CF1-IS6-IEMIX-OILN	93	85	11	.1	91.40%	2%	75%
COMID-BSC-CF1-IS8-IEMIB-OILN	73	63	14	.2	86.30%	1%	76%
COMID-BSC-CF1-ISM-IEMIT-OILY-SPEC6	73	59	19	.3	80.82%	1%	77%
COMID-BSC-CF1-IS4-IEMIB-OILN	60	50	12	.2	83.33%	1%	78%
COMID-BSC-CF1-ISM-IEMIB-OILY-SPEC6-SCI2	60	40	23	.4	66.67%	1%	79%
COMID-BSC-CF1-ISS-IEMIB-OILY-SPEC2A	58	51	9	.2	87.93%	1%	80%
COMID-BSU-CF1-ISS-IEMIB-OILY-SPEC1	58	50	14	.2	86.21%	1%	81%
COMID-BSN-CF1-ISM-IEMIB-OILY-SPEC6	57	41	29	.5	71.93%	1%	82%
COMID-BSC-CF2-ISM-IEMIB-OILY-SPEC6	55	48	10	.2	87.27%	1%	83%
COMID-BSC-CF1-ISS-IEMIT-OILY-SPEC2	52	46	11	.2	88.46%	1%	84%
COMID-BSC-CF1-IS5-IEMIB-OILN	52	39	23	.4	75.00%	1%	85%
COMID-BSU-CF1-IS3-IEMIB-OILN	45	36	11	.2	80.00%	1%	85%
COMID-BSU-CF1-ISS-IEMIB-OILY-SPEC2	38	34	6	.2	89.47%	1%	86%
COMID-BSC-CF1-ISM-IEMIB-OILY-SPEC8	38	32	7	.2	84.21%	1%	87%
COMID-BSC-CF1-ISS-IEMIB-OILY-SPEC2-SCI2	27	23	5	.2	85.19%	0%	87%
COMID-BSN-CF1-ISS-IEMIB-OILY-SPEC1	25	19	7	.3	76.00%	0%	88%
COMID-BSU-CF1-IS4-IEMIB-OILN	23	22	1	.	95.65%	0%	88%
COMID-BSC-CF2-ISS-IEMIB-OILY-SPEC2	23	20	3	.1	86.96%	0%	88%
INTBX-BSU-CF1-ISS-IEMIX-OILN-SCI2	22	15	11	.5	68.18%	0%	89%
COMID-BSU-CF1-IS6-IEMIX-OILN	21	19	2	.1	90.48%	0%	89%
COMID-BSC-CF1-ISM-IEMIX-OILY-SPEC7	21	13	9	.4	61.90%	0%	89%
COMID-BSC-CF1-ISS-IEMIB-OILY-SPEC1A	20	19	1	.1	95.00%	0%	90%
Total	5,326	4,711	915				

So what about the other 10% of public companies that report to the SEC, 612 companies? Well, there is another 2% or 36 reporting styles that are also specific reporting styles but those styles are used by fewer public companies.

[14] List of current of public companies using this reporting style, http://www.xbrlsite.com/2015/fro/us-gaap/html/ReportFrames/COMID-BSC-CF1-ISM-IEMIB-OILY-SPEC6/COMID-BSC-CF1-ISM-IEMIB-OILY-SPEC6.html

ReportingFrameCode	Filings	Filings with No Errors	Total errors	Average errors	Percent without Error		% of Total Filings	Cumulative %
COMID-BSN-CF1-ISS-IEMIB-OILY-SPEC2	19	18	1	.1	94.74%		0.32%	90%
COMID-BSC-CF1-ISS-IEMIT-OILY-SPEC1	13	11	2	.2	84.62%		0.22%	90%
COMID-BSC-CF1-ISS-IEMIB-OILY-SPEC1-SCI2	12	8	6	.5	66.67%		0.20%	90%
COMID-BSC-CF2-ISS-IEMIB-OILY-SPEC1	11	9	4	.4	81.82%		0.19%	91%
INSBX-BSU-CF1-ISS-IEMIT-OILN	11	8	8	.7	72.73%		0.19%	91%
COMID-BSU-CF1-ISM-IEMIB-OILY-SPEC6	10	9	1	.1	90.00%		0.17%	91%
COMID-BSC-CF1-IS6-IEMIX-OILN-SCI2	8	5	4	.5	62.50%		0.13%	91%
COMID-BSU-CF1-ISS-IEMIT-OILY-SPEC2	6	6	0	.	100.00%		0.10%	91%
COMID-BSC-CF2-ISM-IEMIT-OILY-SPEC6	5	4	1	.2	80.00%		0.08%	91%
COMID-BSN-CF1-IS6-IEMIX-OILN	4	3	1	.3	75.00%		0.07%	91%
COMID-BSC-CF1-IS8-IEMIB-OILN-SCI2	3	3	0	.	100.00%		0.05%	91%
COMID-BSC-CF2-IS6-IEMIX-OILN	3	3	0	.	100.00%		0.05%	91%
COMID-BSN-CF2-ISM-IEMIB-OILY-SPEC6	3	3	0	.	100.00%		0.05%	92%
COMID-BSU-CF1-IS3-IEMIT-OILN	3	3	0	.	100.00%		0.05%	92%
COMID-BSU-CF1-ISM-IEMIT-OILY-SPEC6	3	2	1	.3	66.67%		0.05%	92%
COMID-BSC-CF1-ISS-IEMIT-OILY-SPEC1-SCI2	3	0	4	1.3	0.00%		0.05%	92%
COMID-BSC-CF2-ISS-IEMIB-OILY-SPEC2A	2	2	0	.	100.00%		0.03%	92%
COMID-BSC-CF2-ISM-IEMIB-OILY-SPEC6-SCI2	2	1	1	.5	50.00%		0.03%	92%
COMID-BSC-CF2-ISM-IEMIB-OILY-SPEC8	2	1	1	.5	50.00%		0.03%	92%
COMID-BSN-CF1-ISS-IEMIB-OILY-SPEC1-SCI2	2	1	1	.5	50.00%		0.03%	92%
COMID-BSU-CF2-ISS-IEMIB-OILY-SPEC1	2	1	1	.5	50.00%		0.03%	92%
COMID-BSC-CF1-ISM-IEMIT-OILY-SPEC6E	1	1	0	.	100.00%		0.02%	92%
COMID-BSC-CF1-ISS-IEMIB-OILY-SPEC1A-SCI2	1	1	0	.	100.00%		0.02%	92%
COMID-BSC-CF2-IS4-IEMIB-OILN	1	1	0	.	100.00%		0.02%	92%
COMID-BSC-CF2-ISS-IEMIT-OILY-SPEC2	1	1	0	.	100.00%		0.02%	92%
COMID-BSN-CF1-ISM-IEMIB-OILY-SPEC8	1	1	0	.	100.00%		0.02%	92%
COMID-BSN-CF1-ISS-IEMIB-OILY-SPEC2A	1	1	0	.	100.00%		0.02%	92%
COMID-BSN-CF1-ISS-IEMIB-OILY-SPEC4	1	1	0	.	100.00%		0.02%	92%
SECBX-BSU-CF1-ISM-IEMIX-OILN-CITI	1	1	0	.	100.00%		0.02%	92%
COMID-BSN-CF1-ISS-IEMIT-OILY-SPEC1	1	0	1	1.	0.00%		0.02%	92%
COMID-BSU-CF2-ISS-IEMIB-OILY-SPEC1-SCI2	1	0	1	1.	0.00%		0.02%	92%
INSBX-BSU-CF1-ISS-IEMIT-OILN-SCI2	1	0	1	1.	0.00%		0.02%	92%
Total	138	109	40					

The first group and the second group really go together because they are both what I call specific reporting styles. I will explain what I mean by "specific" in a moment. But I separated these for two reasons. First, I wanted to make a point that there are 90% that use only 29 styles and the next 2% use an additional 36 styles.

The third and final group make up what I call "general" reporting styles. What I mean by "general" as contrast to "specific" is the following. When I started experimenting with the fundamental accounting concept relations continuity cross checks, I actually tried to represent all relations in what amounted to one reporting style. I quickly realized that that would not work. The impute rules that I had to write because far too complex and unwieldy to deal with. So I created multiple "general" reporting styles and tried to fit all the public companies into those general reporting styles. This worked to a degree, but even with these additional

reporting styles, the impute rules used to derive unreported line items were still too unwieldy to deal with. I change my strategy and stopped creating general reporting styles and started creating only specific reporting styles. But, I still have to transition some companies from the general style that was first used to the better more specific reporting styles.

So basically, 27 of these general styles need to be recast as more specific reporting styles and I have not yet gotten around to that task yet. That represents about 172 public companies. So potentially, that could mean that there are somewhere between 27 and 172 additional reporting styles.

ReportingFrameCode	Filings	Filings with No Errors	Total errors	Average errors	Percent without Error
COMID-BSC-CF1-ISM-IEMIX-OILY-PARK	151	141	18	.1	93.38%
COMID-BSC-CF1-ISS-IEMIB-OILY	93	83	21	.2	89.25%
REITX-BSU-CF1-ISS-IEMIX-OILY-PARK	55	54	1	.	98.18%
Limited	49	48	1	.	97.96%
Limited2	38	38	0	.	100.00%
UTILX-BSR-CF1-XXX-XXXXX-XXXX-SCI2	9	9	0	.	100.00%
SECBX-BSU-CF1-ISS-IEMIX-OILN	8	8	0	.	100.00%
COMID-BSC-CF2-ISM-IEMIX-OILY-PARK	7	7	0	.	100.00%
UTILX-BSR-CF1-XXX-XXXXX-XXXX	7	7	0	.	100.00%
REITX-BSU-CF1-ISS-IEMIX-OILN	6	5	1	.2	83.33%
COMID-BSC-CF1-ISS-IEMIT-OILN	6	3	3	.5	50.00%
COMID-BSC-CF1-ISM-IEMIT-OILY	4	4	0	.	100.00%
COMID-BSU-CF1-ISS-IEMIB-OILY	4	4	0	.	100.00%
COMID-BSC-CF1-ISS-IEMIX-OILY	4	3	2	.5	75.00%
COMID-BSU-CF1-ISS-IEMIX-OILN	4	3	1	.3	75.00%
COMID-BSC-CF1-ISM-IEMIX-OILN	3	3	0	.	100.00%
REITX-BSU-CF2-ISS-IEMIX-OILY-PARK	3	3	0	.	100.00%
INSBX-BSU-CF1-ISS-IEMIX-OILN-SCI2	3	2	1	.3	66.67%
COMID-BSC-CF1-ISS-IEMIX-OILY-SCI2	2	2	0	.	100.00%
COMID-BSC-CF2-ISM-IEMIX-OILY	2	2	0	.	100.00%
COMID-BSU-CF1-ISM-IEMIX-OILN	2	2	0	.	100.00%
SECBX-BSU-CF1-ISM-IEMIX-OILN	2	2	0	.	100.00%
SECBX-BSU-CF1-ISS-IEMIX-OILY	2	2	0	.	100.00%
COMID-BSC-CF2-IS3-IEMIB-OILN	2	1	2	1.	50.00%
COMID-BSC-CF1-ISM-IEMIX-OILY	1	1	0	.	100.00%
COMID-BSC-CF1-ISS-IEMIT-OILY	1	1	0	.	100.00%
COMID-BSC-CF2-ISS-IEMIB-OILY	1	1	0	.	100.00%
COMID-BSC-CF2-ISS-IEMIT-OILY	1	1	0	.	100.00%
COMID-BSN-CF1-ISM-IEMIX-OILY	1	1	0	.	100.00%
COMID-BSU-CF1-ISS-IEMIB-OILN	1	1	0	.	100.00%
COMID-BSU-CF1-ISS-IEMIT-OILN	1	1	0	.	100.00%
COMID-BSU-CF1-ISS-IEMIX-OILY	1	1	0	.	100.00%
COMID-BSU-CF2-IS6-IEMIX-OILN	1	1	0	.	100.00%
Sub total	475	445			

The final group which have the term “PARK” or “Limited” within the reporting style code have one or more of the primary financial statement validation turned off for the time being because

I have not created their precise enough reporting style as of yet. That represents 303 public companies.

And so, that means that there could potentially be somewhere between 33 and 475 additional more precise specific reporting styles that I would need to add to get complete coverage of all the reporting styles of all public companies that report to the SEC.

The bottom line is two important pieces of information. First, there could possibly be a maximum of 540 different reporting styles used by public companies that report to the SEC. However, there is a very good probability there are not that many because of the 475 new specific reporting styles that need to be created, there are very likely groups that would report in a similar manner. But the maximum possible is 540. Second, while there are possibly 540 reporting styles of public companies that report to the SEC; 90% use only 29 reporting styles; 92% use only 65 reporting styles; and it is the other 8% that use the other 475 reporting styles.

An extremely interesting project will be to look at the 475 to understand exactly what causes their reporting style to be different than the 65 other reporting styles used.

Understanding why What I am Saying Matters

You may be wondering why any of this matters. Why am I going through the trouble to figure out the reporting styles of public companies that report to the SEC? The answer is patterns.

Software works using patterns. The fewer the patterns and the lower the level of the patterns, the less work software can perform. On the other hand, the more high-level patterns you have to work with the more work you can get software to perform.

Converting General Reporting Styles to more Specific Reporting Styles

And so how do you understand a financial report and create a pattern for the report. I will provide an example of the income statement of one public company that has been assigned the interim general reporting style of "COMID-BSC-CF1-ISS-IEMIX-OILY". The company is:

American Church Mortgage Company

http://www.sec.gov/Archives/edgar/data/934543/000093454317000047/0000934543-17-000047-index.htm

Here is the income statement of that public company:

Income Statement [Abstract]	Period [Axis]			
	2017-07-01 - 2017-09-30	2017-01-01 - 2017-09-30	2016-07-01 - 2016-09-30	2016-01-01 - 2016-09-30
Income Statement [Abstract]				
Interest and Other Income	677,065	2,059,857	650,876	1,989,106
Interest Expense	480,351	1,436,104	512,411	1,518,067
Net Interest Income	196,714	623,753	138,465	471,039
Provision for losses on mortgage loans receivable	28,524	80,323	16,836	161,312
Net Interest Income after Provision for Mortgage Losses	168,190	543,430	121,629	161,312
Other than temporary impairment on bond portfolio	xsi:nil	xsi:nil	60,000	180,000
Operating Expenses				
Other operating expenses	106,616	449,921	111,724	453,961
Operating Income (Loss)	61,574	93,509	(50,095)	(324,234)
Other Income	xsi:nil	xsi:nil	xsi:nil	xsi:nil
Net Income (Loss)	61,574	93,509	(50,095)	(324,234)

So first, it is extremely challenging to understand what this financial report is really trying to say or what it SHOULD be trying to say because the report is filled with errors. First, the income statement roll up relations are not represented correctly. Second, an extension concept "ACMC:NetInterestIncomeAfterProvisionForMortgageLosses" to represent the line item "Net Interest Income After Provisions for Mortgage Losses" and then uses the US GAAP XBRL Taxonomy concept "us-gaap:ProvisionForOtherLosses" which is generally used with an interest-based revenues style but then other portions of the income statement are not using the interest-based reporting style.

A pattern in the 5,326 public companies that make up 90% of all reporting styles is that it is never the case that a public company has to create an extension concept to report a high-level financial report line item. Yet, this public company creates an extension concept that appears to be unwarranted. Second, company is mixing interest-based revenues concepts and the accounting activity used by commercial and industrial companies. Specifically, it is never the case that the concepts "us-gaap:InterestIncomeExpenseNet" used to report the line item "Net Interest Income" and "us-gaap:OperatingIncomeLoss" used to represent the line item "Operating Income (Loss)" are logically used together in a financial report of a public company and therefore it is questionable whether this income statement representation is correct.

So, before a reporting style can be determined, reporting errors and errors in the use of XBRL concepts need to be sorted out. Once those are sorted out and it is determined if there is, perhaps, a concept missing from the US GAAP XBRL Taxonomy; then one can start determining what the reporting style of this public company should be.

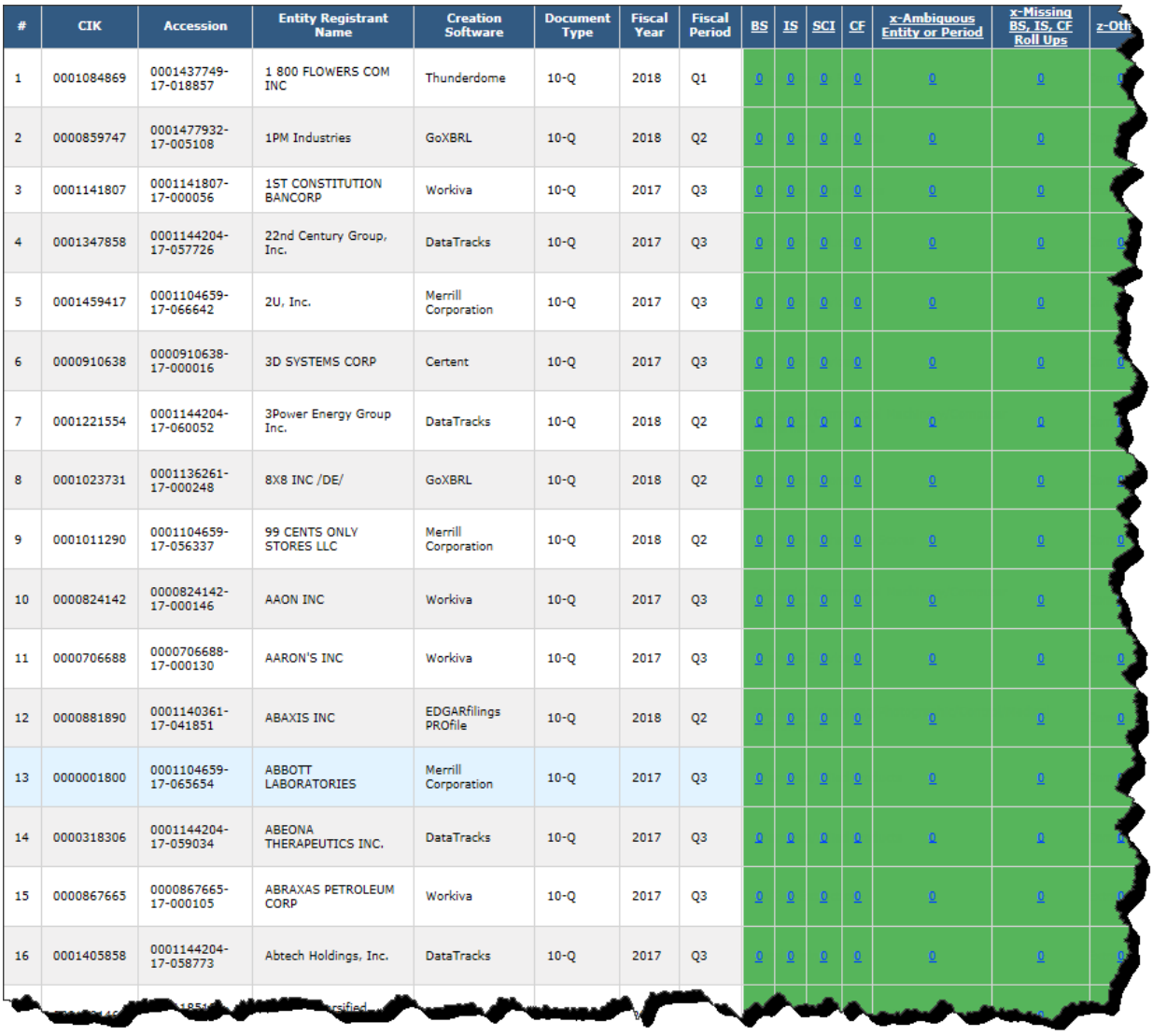
A similar exercise needs to be carried out for all 475 public companies that do not currently have a precise specific reporting style assigned to it. Then, one of exactly two things would occur:

1. Each company is assigned to an existing reporting style.
2. A new reporting style is created and that new style is used for the company.

It really is that straight forward. A reporting style could be used by thousands of public companies or a reporting style could be created that is unique to exactly one public company.

Awash in a Sea of Green

Imagine a dashboard that represents the errors detected in an XBRL-based financial report:



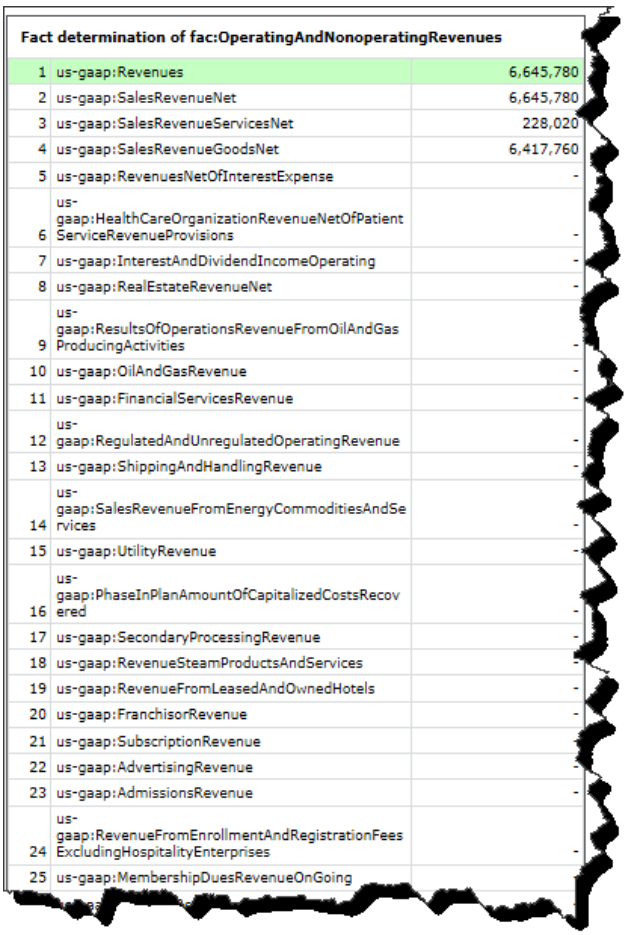
#	CIK	Accession	Entity Registrant Name	Creation Software	Document Type	Fiscal Year	Fiscal Period	BS	IS	SCI	CF	x-Ambiguous Entity or Period	x-Missing BS, IS, CF Roll Ups	z-Oth
1	0001084869	0001437749-17-018857	1 800 FLOWERS COM INC	Thunderdome	10-Q	2018	Q1	0	0	0	0	0	0	0
2	0000859747	0001477932-17-005108	1PM Industries	GoXBRL	10-Q	2018	Q2	0	0	0	0	0	0	
3	0001141807	0001141807-17-000056	1ST CONSTITUTION BANCORP	Workiva	10-Q	2017	Q3	0	0	0	0	0	0	
4	0001347858	0001144204-17-057726	22nd Century Group, Inc.	DataTracks	10-Q	2017	Q3	0	0	0	0	0	0	0
5	0001459417	0001104659-17-066642	2U, Inc.	Merrill Corporation	10-Q	2017	Q3	0	0	0	0	0	0	
6	0000910638	0000910638-17-000016	3D SYSTEMS CORP	Certent	10-Q	2017	Q3	0	0	0	0	0	0	0
7	0001221554	0001144204-17-060052	3Power Energy Group Inc.	DataTracks	10-Q	2018	Q2	0	0	0	0	0	0	
8	0001023731	0001136261-17-000248	8X8 INC /DE/	GoXBRL	10-Q	2018	Q2	0	0	0	0	0	0	0
9	0001011290	0001104659-17-056337	99 CENTS ONLY STORES LLC	Merrill Corporation	10-Q	2018	Q2	0	0	0	0	0	0	0
10	0000824142	0000824142-17-000146	AAON INC	Workiva	10-Q	2017	Q3	0	0	0	0	0	0	
11	0000706688	0000706688-17-000130	AARON'S INC	Workiva	10-Q	2017	Q3	0	0	0	0	0	0	0
12	0000881890	0001140361-17-041851	ABAXIS INC	EDGARfilings PROfile	10-Q	2018	Q2	0	0	0	0	0	0	0
13	0000001800	0001104659-17-065654	ABBOTT LABORATORIES	Merrill Corporation	10-Q	2017	Q3	0	0	0	0	0	0	
14	0000318306	0001144204-17-059034	ABEONA THERAPEUTICS INC.	DataTracks	10-Q	2017	Q3	0	0	0	0	0	0	
15	0000867665	0000867665-17-000105	ABRAXAS PETROLEUM CORP	Workiva	10-Q	2017	Q3	0	0	0	0	0	0	0
16	0001405858	0001144204-17-058773	Abtech Holdings, Inc.	DataTracks	10-Q	2017	Q3	0	0	0	0	0	0	0

Note that the dashboard above shows a sea of green cells which contain zeros. The green cell with a zero indicates that no errors were encountered when a software application compared the primary financial statements of the reporting economy entity with what was anticipated to be reported per the reporting styles used for the automated validation check of the report.

This means that no public company on that dashboard made any mistakes that are being checked by rules articulated by the machine-readable metadata. That is one of the benefits of the reporting style, each style has a set of business rules in machine readable form that are used to verify that the report is being created correctly.

Powerful Query Mechanism

In addition to being an automated validation mechanism, the reporting styles are also a mechanism to effectively query information reported by public companies. Consider the income statement line item "Revenues". All of the following concepts that you see below would be appropriate to report revenues including many other concepts which are not shown in order to keep this screen shot as small as possible but still get the point across.



Fact determination of fac:OperatingAndNonoperatingRevenues		
1	us-gaap:Revenues	6,645,780
2	us-gaap:SalesRevenueNet	6,645,780
3	us-gaap:SalesRevenueServicesNet	228,020
4	us-gaap:SalesRevenueGoodsNet	6,417,760
5	us-gaap:RevenuesNetOfInterestExpense	-
6	us-gaap:HealthCareOrganizationRevenueNetOfPatientServiceRevenueProvisions	-
7	us-gaap:InterestAndDividendIncomeOperating	-
8	us-gaap:RealEstateRevenueNet	-
9	us-gaap:ResultsOfOperationsRevenueFromOilAndGasProducingActivities	-
10	us-gaap:OilAndGasRevenue	-
11	us-gaap:FinancialServicesRevenue	-
12	us-gaap:RegulatedAndUnregulatedOperatingRevenue	-
13	us-gaap:ShippingAndHandlingRevenue	-
14	us-gaap:SalesRevenueFromEnergyCommoditiesAndServices	-
15	us-gaap:UtilityRevenue	-
16	us-gaap:PhaseInPlanAmountOfCapitalizedCostsRecovered	-
17	us-gaap:SecondaryProcessingRevenue	-
18	us-gaap:RevenueSteamProductsAndServices	-
19	us-gaap:RevenueFromLeasedAndOwnedHotels	-
20	us-gaap:FranchisorRevenue	-
21	us-gaap:SubscriptionRevenue	-
22	us-gaap:AdvertisingRevenue	-
23	us-gaap:AdmissionsRevenue	-
24	us-gaap:RevenueFromEnrollmentAndRegistrationFeesExcludingHospitalityEnterprises	-
25	us-gaap:MembershipDuesRevenueOnGoing	

While the list of concepts is less for other financial statement line items, many other reported facts have multiple concepts which might be carrying the value for the line item. Not having this metadata makes querying reports and deriving the correct information without sorting through the entire report literally impossible. To get the right information and to be sure that the information you are extracting is accurate you need to examine the information in the

context of other information to be certain that your query is returning the right results. Sophisticated data aggregators are the only ones who can currently sort this out because this metadata is created by the data aggregators and proprietary intellectual property.

This leaves the promise of easy to use machine readable information for the average investor or analyst unsatisfied.

Publically available metadata provided by the reporting style and used to validate information to be sure the information is correct is also effective in properly extracting information for analysis. After all, this makes perfect sense. That is what the validation process is for…to make sure information is consistent with expectation.

Effective Exchange of Meaningful Information

The fundamental goal of public companies spending thousands of dollars to represent their financial information in machine-readable XBRL-based format is so that the information can be effectively exchanged. Consider this scenario:

> Two public companies, A and B, each have some knowledge about their financial position and financial condition. They must communicate their knowledge to an investor who is making investment decisions which will make use of the combined information so as to draw some conclusions. All three parties are using a common set of basic logical principles (facts known to be true, deductive reasoning, inductive reasoning, etc.) and common financial reporting standards (i.e. US GAAP), so they should be able to communicate this information fully, so that any inferences which, say, the investor draws from public company A's input should also be derivable by public company A using basic logical principles and common financial reporting standards, and vice versa; and similarly for the investor and public company B.

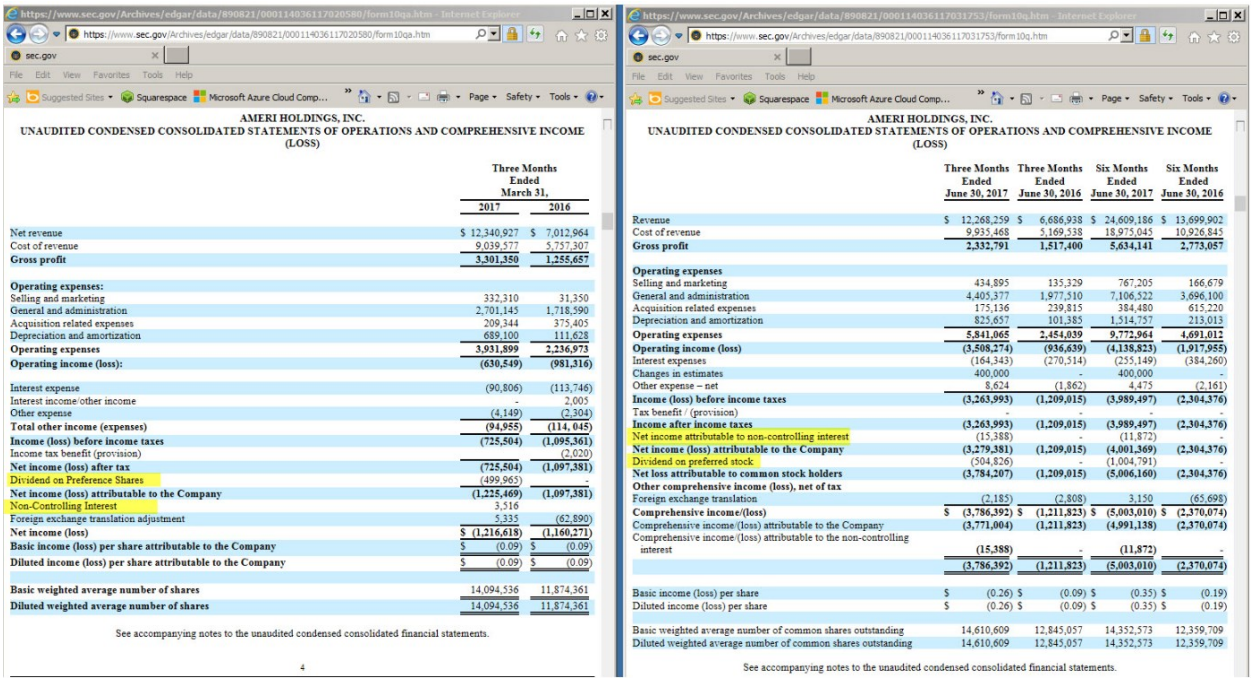
Reconciling Reporting Styles

While financial reports are not forms where every financial statement can be directly compared with every other financial report with any other public company, financial information still is comparable. To do a proper comparison, an analyst must understand the information they are comparing to create a meaningful comparison.

US GAAP does not specify for uniform financial information. Variability does exist and should exist within financial reports. Analysts and accountants can create appropriate comparisons.

Discovering Reporting Flaws and Ambiguity in US GAAP

One of the interesting by-products of XBRL-based financial reporting is the number of accounting errors that are becoming evident in the financial reports of public companies. Not XBRL errors, accounting errors[15]. Here is one example of an error where a reporting style was not being followed and an error was discovered which lead to the accounting error being corrected by the public company:



AMERI HOLDINGS, INC.
UNAUDITED CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS AND COMPREHENSIVE INCOME (LOSS)

	Three Months Ended March 31, 2017	Three Months Ended March 31, 2016
Net revenue	$ 12,340,927	$ 7,012,964
Cost of revenue	9,039,577	5,757,307
Gross profit	**3,301,350**	**1,255,657**
Operating expenses:		
Selling and marketing	332,310	31,350
General and administration	2,701,145	1,718,590
Acquisition related expenses	209,344	375,405
Depreciation and amortization	689,100	111,628
Operating expenses	**3,931,899**	**2,236,973**
Operating income (loss):	**(630,549)**	**(981,316)**
Interest expense	(90,806)	(113,746)
Interest income/other income	-	2,005
Other expense	(4,149)	(2,304)
Total other income (expenses)	**(94,955)**	**(114, 045)**
Income (loss) before income taxes	**(725,504)**	**(1,095,361)**
Income tax benefit (provision)		(2,020)
Net income (loss) after tax	**(725,504)**	**(1,097,381)**
Dividend on Preference Shares	(499,965)	-
Net income (loss) attributable to the Company	**(1,225,469)**	**(1,097,381)**
Non-Controlling Interest	3,516	
Foreign exchange translation adjustment	5,335	(62,890)
Net income (loss)	**$ (1,216,618)**	**(1,160,271)**
Basic income (loss) per share attributable to the Company	$ (0.09)	$ (0.09)
Diluted income (loss) per share attributable to the Company	$ (0.09)	$ (0.09)
Basic weighted average number of shares	14,094,536	11,874,361
Diluted weighted average number of shares	14,094,536	11,874,361

See accompanying notes to the unaudited condensed consolidated financial statements.

4

AMERI HOLDINGS, INC.
UNAUDITED CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS AND COMPREHENSIVE INCOME (LOSS)

	Three Months Ended June 30, 2017	Three Months Ended June 30, 2016	Six Months Ended June 30, 2017	Six Months Ended June 30, 2016
Revenue	$ 12,268,259	$ 6,686,938	$ 24,609,186	$ 13,699,902
Cost of revenue	9,935,468	5,169,538	18,975,045	10,926,845
Gross profit	**2,332,791**	**1,517,400**	**5,634,141**	**2,773,057**
Operating expenses				
Selling and marketing	434,895	135,329	767,205	166,679
General and administration	4,405,377	1,977,510	7,106,522	3,696,100
Acquisition related expenses	175,136	239,815	384,480	615,220
Depreciation and amortization	825,657	101,385	1,514,757	213,013
Operating expenses	**5,841,065**	**2,454,039**	**9,772,964**	**4,691,012**
Operating income (loss)	**(3,508,274)**	**(936,639)**	**(4,138,823)**	**(1,917,955)**
Interest expenses	(164,343)	(270,514)	(255,149)	(384,260)
Changes in estimates	400,000	-	400,000	-
Other expense – net	8,624	(1,862)	4,475	(2,161)
Income (loss) before income taxes	**(3,263,993)**	**(1,209,015)**	**(3,989,497)**	**(2,304,376)**
Tax benefit / (provision)				
Income after income taxes	**(3,263,993)**	**(1,209,015)**	**(3,989,497)**	**(2,304,376)**
Net income attributable to non-controlling interest	(15,388)	-	(11,872)	-
Net income (loss) attributable to the Company	**(3,279,381)**	**(1,209,015)**	**(4,001,369)**	**(2,304,376)**
Dividend on preferred stock	(504,826)	-	(1,004,791)	-
Net loss attributable to common stock holders	**(3,784,207)**	**(1,209,015)**	**(5,006,160)**	**(2,304,376)**
Other comprehensive income (loss), net of tax				
Foreign exchange translation	(2,185)	(2,808)	3,150	(65,698)
Comprehensive income/(loss)	**$ (3,786,392)**	**$ (1,211,823)**	**$ (5,003,010)**	**$ (2,370,074)**
Comprehensive income/(loss) attributable to the Company	(3,771,004)	(1,211,823)	(4,991,138)	(2,370,074)
Comprehensive income/(loss) attributable to the non-controlling interest	(15,388)	-	(11,872)	-
	(3,786,392)	(1,211,823)	(5,003,010)	(2,370,074)
Basic income (loss) per share	$ (0.26)	$ (0.09)	$ (0.35)	$ (0.19)
Diluted income (loss) per share	$ (0.26)	$ (0.09)	$ (0.35)	$ (0.19)
Basic weighted average number of common shares outstanding	14,610,609	12,845,057	14,352,573	12,359,709
Diluted weighted average number of common shares outstanding	14,610,609	12,845,057	14,352,573	12,359,709

See accompanying notes to the unaudited condensed consolidated financial statements.

On the left you see "Dividends on Preference Shares" and "Non-Controlling Interest" in one order (the wrong order) and on the right you see where the public company corrected this error and put the two line items in the right order, the order that is used by all other public companies. The order used on the right is universally used by all public companies using any reporting style.

Further, when humans try and describe complicated things such as US GAAP accounting standards in books it is easy to inadvertently make mistakes which contribute to vagueness, inconsistencies, and ambiguities because the only way to check what you have written is manually using humans. But humans can make mistakes. When one uses machine-readable formats to express such information then machines can be used to check to make sure there is no vagueness, inconsistencies, or ambiguities.

[15] *XBRL Contributed to Detecting and Correcting Accounting Error*, http://xbrl.squarespace.com/journal/2017/8/16/xbrl-contributed-to-detecting-and-correcting-accounting-erro.html

While it is unlikely that all vagueness, inconsistencies, and ambiguities could ever all be removed from accounting standards; they certainly can be reduced if good tools are leveraged.

The paper, *An analysis of fundamental concepts in the conceptual framework using ontology technologies*[16], written by Marthinus Cornelius Gerber, Aurona Jacoba Gerber, Alta van der Merwe point out how tools such as ontologies and reasoners can be used to improve financial reporting standards.

Patterns in Disclosures

High-level patterns are not unique to the primary financial statements. Patterns exist within disclosures also[17]. As part of a grass-roots campaign I am undertaking to eliminate errors in the disclosures of financial reports[18], I have documented in machine-readable form some of the basic patterns of 65 common disclosures contained in the financial reports of public companies[19].

Over the next four months, learning from what was discovered from the reporting styles and fundamental accounting concept relations over the past four years, the metadata will be tuned for these 65 specific disclosures[20]. The goal is not only to get financial reports correct but rather to improve the processes of a set of filing agents and software vendors to understand how to use this approach to create a high quality XBRL-based financial report.

Conclusion

One type of practical knowledge is know-how; how to accomplish something. Patterns are what powers computer based software processes[21].

Creating a knowledge based system for financial reporting involves the transformation of machine-readable instructions in such a way as to explain to a machine how a system works and how to make a system work the way you want that system to work.

---

[16] Marthinus Cornelius Gerber, Aurona Jacoba Gerber, *Alta van der Merwe, An analysis of fundamental concepts in the conceptual framework using ontology technologies*, http://www.sajems.org/index.php/sajems/article/viewArticle/525

[17] *Understanding the Mechanical Rules of Disclosures*, http://xbrl.squarespace.com/journal/2016/7/18/understanding-the-mechanical-rules-of-disclosures.html

[18] *Campaign to Improve Disclosure Quality of XBRL-based Public Company Financial Reports Submitted to the SEC*, http://xbrl.squarespace.com/journal/2017/10/18/campaign-to-improve-disclosure-quality-of-xbrl-based-public.html

[19] *Disclosure Best Practices*, http://www.xbrlsite.com/2017/Prototypes/DisclosureAnalysis/DisclosureBestPractices.pdf

[20] *Campaign to Improve Disclosure Quality of XBRL-based Public Company Financial Reports Submitted to the SEC*, http://www.xbrlsite.com/2017/Prototypes/DisclosureAnalysis/CampaignToImproveDisclosureQuality.pdf

[21] *Putting the Expertise into an XBRL-based Knowledge Based System for Creating Financial Reports*, http://pesseract.azurewebsites.net/PuttingTheExpertiseIntoKnowledgeBasedSystem.pdf

Then, brick-by-brick, much like building a house, business domain experts and software engineers can create tools that automate certain types of tasks in that process. Humans encode information, represent knowledge, and share meaning using machine-readable patterns, languages, and logic. That will be the way an increasing number of work tasks will be performed in the Digital Age of accounting, reporting, and auditing[22]. The result will be more effective and efficient processes.

While the reporting styles and other examples provided here relate to the XBRL-based financial reports of public companies that are submitted to the U.S. Securities and Exchange Commission, these ideas are not unique to US GAAP or any other reporting scheme. This approach can be used for IFRS based reporting, private company reporting, state and local governments, not-for-profit reporting, and even the reporting of nonfinancial information.

US GAAP based financial reporting companies to the SEC is the most complex business reporting use case that I am aware of. If this use case can be satisfied, any other financial reporting or business reporting use case can likely also be satisfied by this approach.

[22] *Getting Ready for the Digital Age of Accounting, Reporting and Auditing: a Guide for Professional Accountants*, http://xbrlsite.azurewebsites.net/2017/Library/GettingReadyForTheDigitalAgeOfAccounting.pdf