Understanding Blocks, Slots, Templates, and Exemplars

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Patterns are important to information technology professionals. Recognizing and leveraging patterns helps software engineers[1] create software and to make software easier[2] to use. A pattern language[3] is a method of describing good design practices within some domain of expertise. Patterns allow for problems to be solved with elegance and grace. Patterns are precise and empirically verifiable. Patterns can be used to make things that are complex significantly simpler to use.

Blocks, slots, templates, and exemplars are all types of patterns and enable the leverage of even more patterns.

Understanding the notion of a block and a slot

Think of a financial report not as one big thing, but rather as thousands and thousands of much smaller pieces[4]. Reports can be broken down into pieces or report fragments, or I call them components. A component is simply a set of reported facts that tend to be cohesive and share a certain common nature and therefore go together.

I just made up the term component. By giving each type of piece a name, the pieces can be referred to. The different types of pieces are related to other types of pieces in clear, consistent, logically coherent, and unambiguous ways[5]. Imagine the lowest common component that is used to work with some set of information reported in a financial report. I call that structure a "block"[6].

A block is a part of a report component that participates in the same concept arrangement pattern[7]. A roll up, roll forward, adjustment, and hierarchy are all types of concept arrangement patterns. Every XBRL-based public company financial report is essentially a set of blocks. I estimate that there are about 754,430 blocks in the set of reports that I analyzed. 16% are roll ups, 5% are roll forwards, 24% are hierarchies, and 54% are text blocks.

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[1] Using Patterns to Define a Software Solution, https://msdn.microsoft.com/en-us/library/bb190165.aspx
[2] See sections 4 *Patterns*, 4.1 *Simple Patterns*, 4.2 *Merging Patterns*, http://ceur-ws.org/Vol-1299/paper1.pdf
[3] Pattern language, http://en.wikipedia.org/wiki/Pattern_language
[4] See Analysis of 6,751 XBRL-based Public Company 10-Ks Submitted to SEC, http://www.xbrlsite.com/DigitalFinancialReporting/Book2015/DigitalFinancialReporting-2015-04-29-C28.pdf
[5] See *Understanding Basic Mechanics of a Digital Financial Report*, http://www.xbrlsite.com/DigitalFinancialReporting/Book2015/DigitalFinancialReporting-2015-04-29-C05.pdf
[6] See Section 5.7 Notion of Block, http://www.xbrlsite.com/DigitalFinancialReporting/Book2015/DigitalFinancialReporting-2015-04-29-C05.pdf#page=5
[7] See page 11, http://www.xbrlsite.com/2015/Analysis/AnalysisSummary2014_PiecesOfReoprt.pdf#page=11

Blocks have something called a "slot"[8]. A slot is simply the idea of an allotted place where something can be logically and sensibly placed in the block.

Blocks and slots are in no way random. Blocks are used to represent information that is disclosed in a financial report in consistent ways, patterns. Balance sheets and the other primary financial statements are made up of blocks, long-term debt maturities disclosure and other disclosures are made up of blocks. As I pointed out, blocks have very specific relations patterns: roll up, or roll forward, text block, or adjustment. Blocks are related to other blocks in very specific ways. Here is an example of a block:

Property, Plant and Equipment, by Component [Line Items]	Period [Axis]	
	2010-12-31	2009-12-31
Property, Plant and Equipment, by Component [Roll Up]		
Land	1,000,000	1,000,000
Machinery and equipment, gross	2,000,000	2,000,000
Furniture and fixtures, gross	6,000,000	6,000,000
Accumulated depreciation	(1,000,000)	(1,000,000)
Property, plant and equipment, net	8,000,000	8,000,000

You cannot add a second total to a roll up as a roll up has only one total. It would not make logical sense to add a second total to a roll up. It does make sense to add an entirely new period characteristic.

If you are a professional accountant you understand how information is related, there are many, many things you can imply from understanding the block related to this specific block and relative to other blocks which might exist within a financial report.

Below is a slightly more complex block. The block below is made up of two roll ups and has a whole-part relation which semantically is really similar to a roll up. Professional accountants understand that the disclosure below both "foots" and "cross casts":

[8] See section 5.5. Understanding the notion of slot or opening, http://www.xbrlsite.com/DigitalFinancialReporting/Book2015/DigitalFinancialReporting-2015-04-29-C05.pdf#page=3

	0000000001			
	31-Dec-2011			
	All Available-for-Sale Debt and Equity Securities [Domain]	Treasury bills [Member]	Corporate bonds [Member]	Sovereign debt securities [Member]
Available-for-sale Securities, Contractual Maturities [Table]				
Available-for-sale Securities, Contractual Maturities [Line Items]				
Available-for-sale securities at amortized cost [Roll Up]				
Due in one year or less	$300,000,000	$100,000,000	$100,000,000	$100,000,000
Due after one year through five years	$300,000,000	$100,000,000	$100,000,000	$100,000,000
Due after five years through ten years	$300,000,000	$100,000,000	$100,000,000	$100,000,000
Due after ten years	$300,000,000	$100,000,000	$100,000,000	$100,000,000
No contractual maturity dates	$300,000,000	$100,000,000	$100,000,000	$100,000,000
Available-for-sale securities at amortized cost	$1,500,000,000	$500,000,000	$500,000,000	$500,000,000
Available-for-sale securities at estimated fair value [Roll Up]				
Due in one year or less	$300,000,000	$100,000,000	$100,000,000	$100,000,000
Due after one year through five years	$300,000,000	$100,000,000	$100,000,000	$100,000,000
Due after five years through ten years	$300,000,000	$100,000,000	$100,000,000	$100,000,000
Due after ten years	$300,000,000	$100,000,000	$100,000,000	$100,000,000
No contractual maturity dates	$300,000,000	$100,000,000	$100,000,000	$100,000,000
Available-for-sale securities at estimated fair value	$1,500,000,000	$500,000,000	$500,000,000	$500,000,000

Imagine being able to articulate all the things that professional accountants imply when they look at such information in a form that is explicitly understandable by a machine such as a computer.

Understanding pattern languages

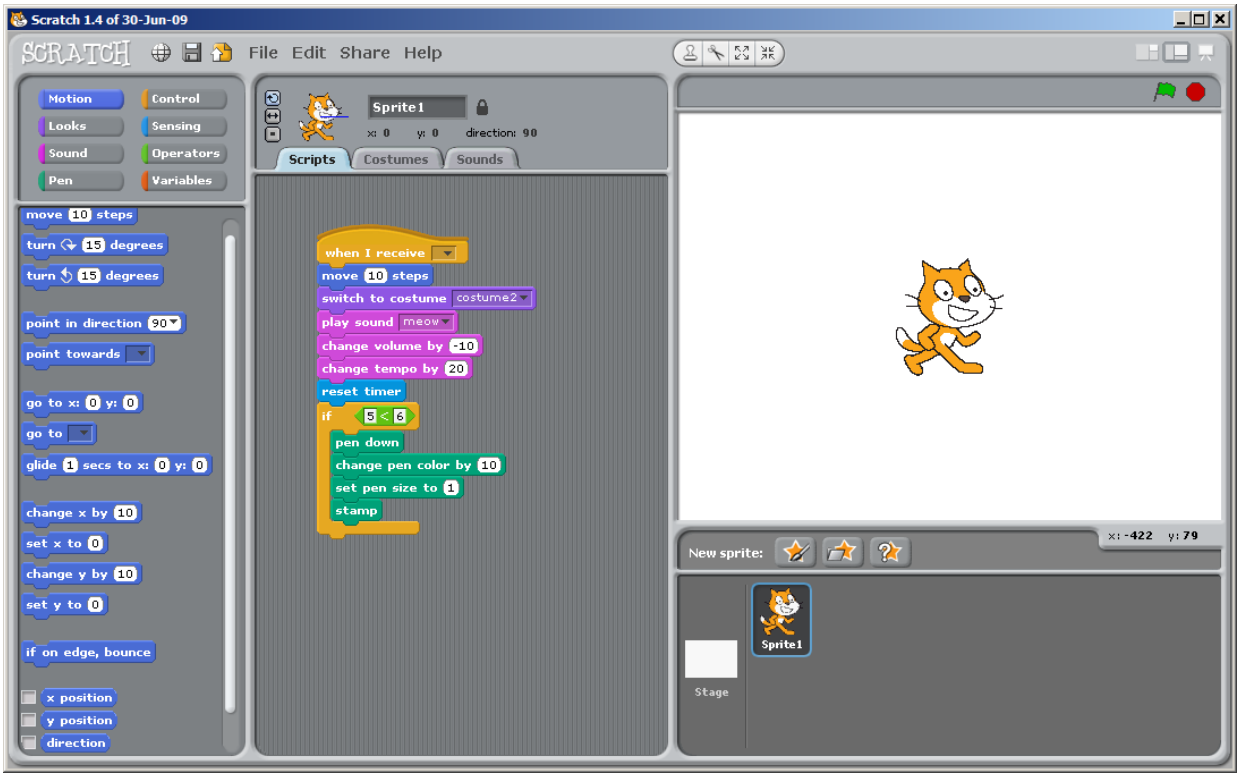
Scratch[9] is a software application created by MIT which is used to teach concepts of programming to elementary and middle school students. The application allows users to program complex animations.

The important notion which is shown by Scratch is that of "building blocks". The building block are interconnected in only appropriate ways; inappropriate interconnections are not allowed because they are not logical. The software manages what is logical and what is not based on rules that the software application understands, rules that are expressed in machine-readable terms.

The logical interconnections of pieces can be thought of as a pattern language, a way of describing how one thing interacts with another thing. You interact with the application by dragging and dropping specific types of objects which provide specific types of functionality and have specific parameters that need to be provided.

This is what the interface of Scratch looks like:

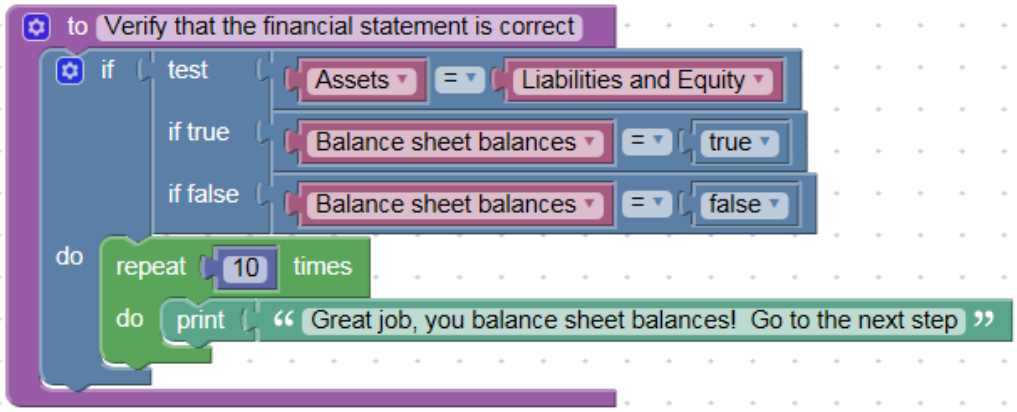
[9] Scratch; to see the application in action watch the video on the upper right hand side, http://scratch.mit.edu/



You have to use your imagination a bit to understand the abstract ideas that let you see how what Scratch does can be related to a financial report. Hopefully, a lot of people can make that leap from scratch to digital financial report. A couple of other examples will help make that mental leap.

Another tool which is very similar to Scratch is something called Blockly. Blockly[10] is a set of programming tools which was created based on work by MIT in creating Scratch. Scratch is one specific implementation of the notion of a pattern language. Blockly is a more generalized idea. Using Blockly, you can create your own pattern language.

The following is an example of one implementation of Blockly:



[10] Blockly, http://xbrl.squarespace.com/journal/2014/7/14/blockly.html

Back in 2009 the notion of a "radically tailorable software application[11]" came to my mind. What if you had an application and that application could be tailored to specific needs using metadata. I believed then, and I still believe, that an application like this would be the killer app that will help accounting professionals understand what XBRL truly offers.

Now, radically tailorable software application does not seem like the correct description. A better description is something that has finite boundaries but within those boundaries, the application is tailorable to meet specific needs. Things work within the finite boundaries, limits exist but so does flexibility exactly where you need flexibility and nowhere else. The application is tailorable within the specific finite boundaries. Those finite boundaries offer leverage.

The fundamental notion is this: Business users don't write the complex rules using complex technical syntax and other stuff which they don't understand which are used to specify the building blocks; information technology professionals do that. Business users interact at the level of using the building blocks and only as the building blocks are intended to be used. Some more skilled business professionals do work with the information technology professionals to create the basic building blocks, create new building blocks, and to modify building blocks.

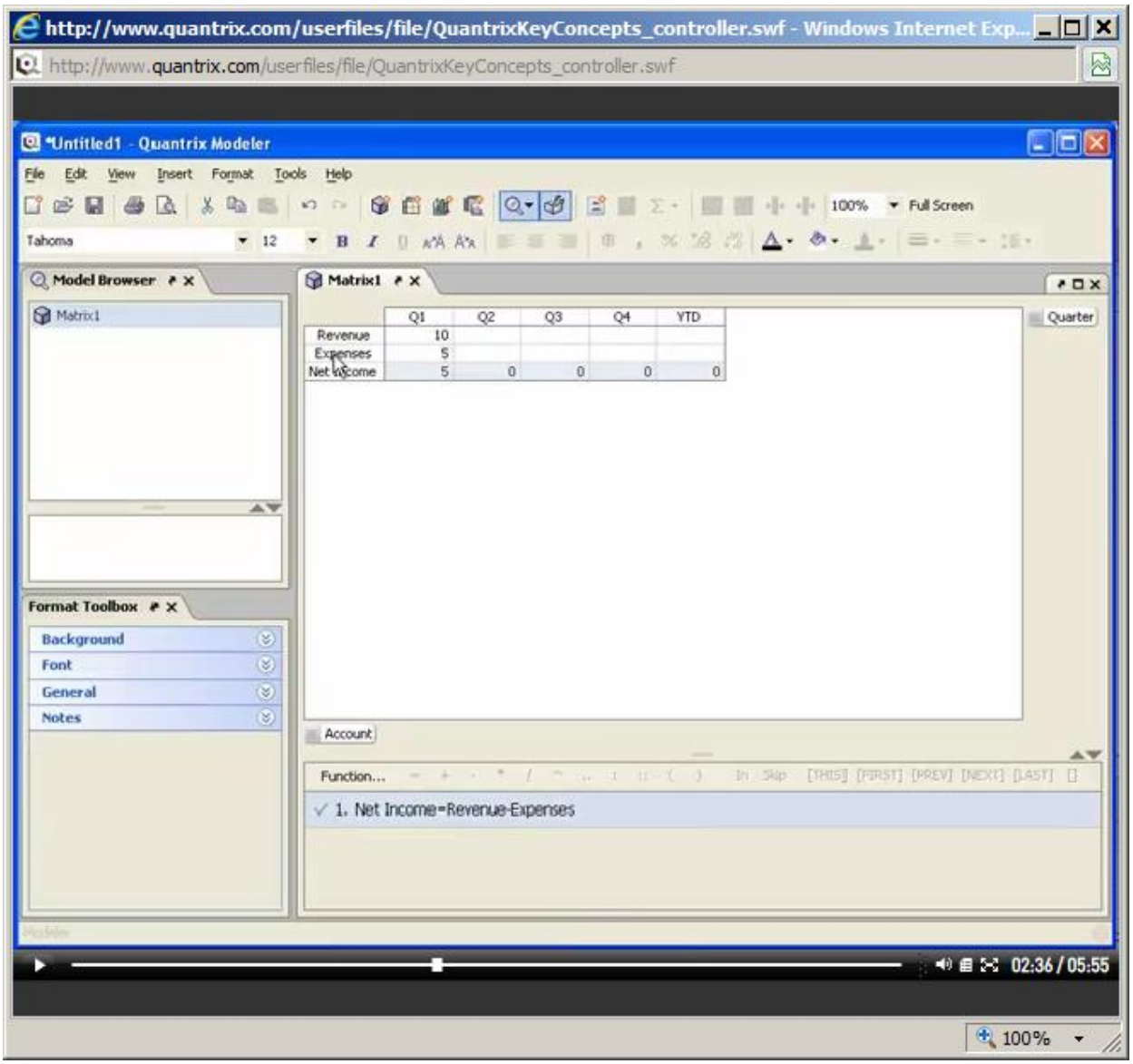
Examples of software applications that use these ideas

One of the closest working applications which show the notion of blocks as it relates to financial reporting is The Quantrix modeler. Quantrix refers to the notion of a block as a "matrix". You can see tangible examples of how Quantrix works by watching these videos[12] and this tutorial[13]. The following is a screen shot of The Quantrix Modeler:

[11] XBRL Killer App: A Radically Tailorable Tool, http://xbrl.squarespace.com/journal/2009/4/30/xbrl-killer-app-a-radically-tailorable-tool.html

[12] Quantrix videos, http://www.quantrix.com/Quantrix_Video_Demos.htm

[13] Quantrix tutorial, http://www.quantrix.com/en/community/videos/2014/08/webinar-quantrix-modeler-essentials/



So a logical question would be, "Why can't Quantrix simply be used for editing XBRL-based financial information?"

There are three primary reasons why The Quantrix Modeler will not work. The first reason is that Quantrix forces the use of OLAP (Online Analytical Processing). OLAP handles numbers well, but does not support the use of text which is a significant limitation. OLAP has other significant limitations also[14]. Financial reports have text, particularly within the disclosures.

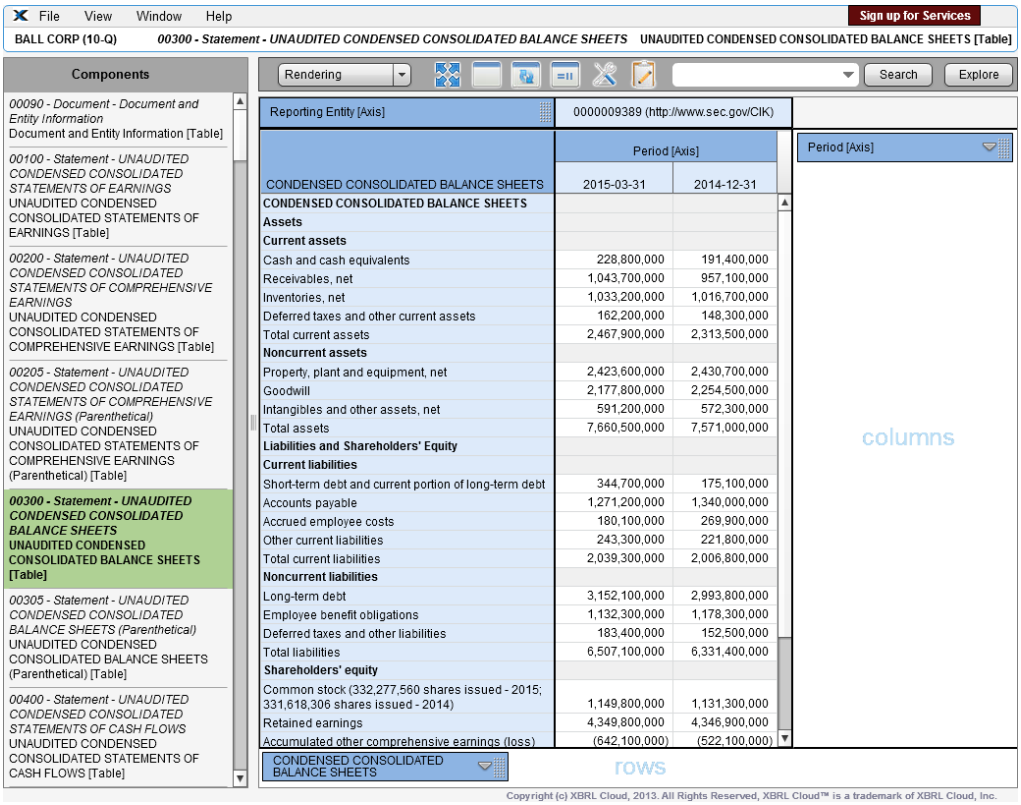
[14] See Understanding Cell Stores and NOLAP, the Future of the Spreadsheet, http://xbrl.squarespace.com/journal/2014/11/14/understanding-cell-stores-and-nolap-the-future-of-the-spread.html

The second reason that Quantrix will not work is because Quantrix does not support the XBRL technical format. This is less of an issue, one could simply map from the Qunatrix syntax to the XBRL syntax. But, given the first limitation, this second imitation cannot be overcome.

Third and most importantly, Quantrix will not work because Quantrix does not understand the semantics of a financial report. Quantrix understands what a roll up is (i.e. they call it a calculation). But Quantrix does not understand what a roll forward is, what an adjustment is, what a disclosure is, what disclosures are required, and other important financial report semantics.

Quantrix could perhaps be modified to overcome each of these limitations, but at this point it is not a workable solution.

Another software product for working with digital financial reports is the XBRL Cloud Viewer[15]. The screen shot below shows the balance sheet of a public company 10-K in the XBRL Cloud Viewer application[16].



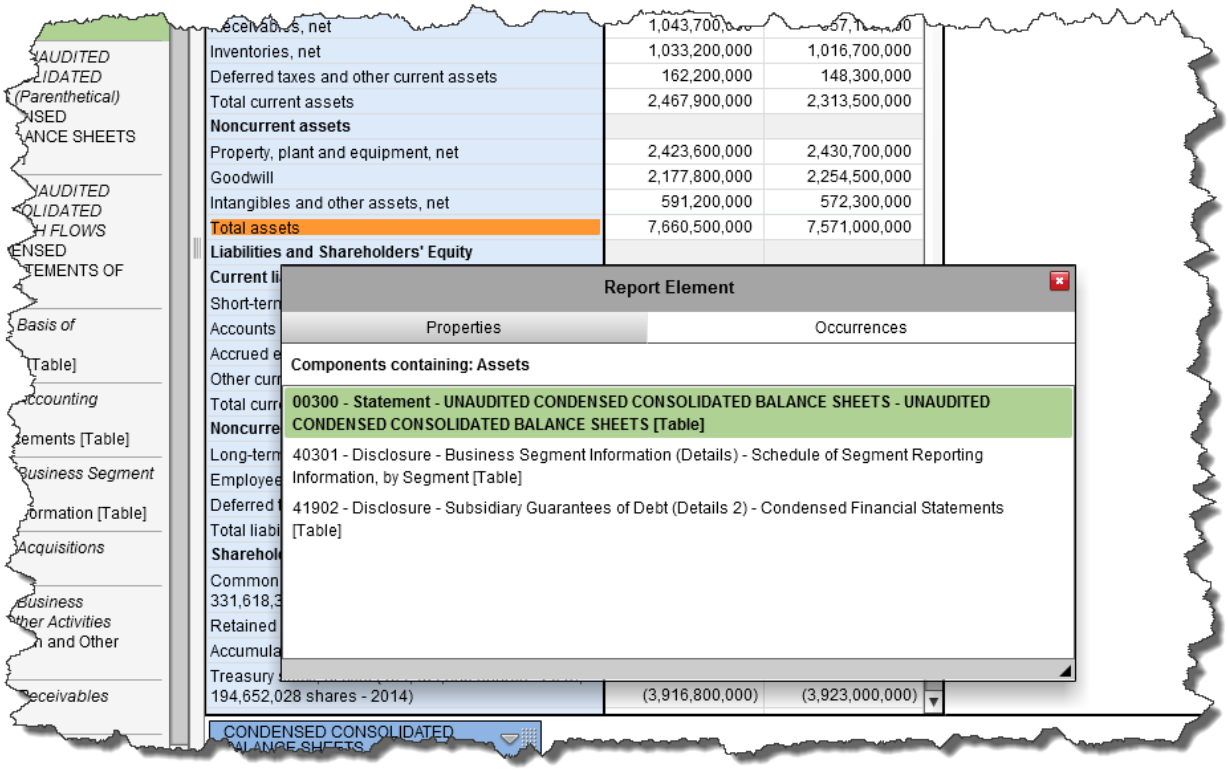
[15] You can use the XBRL Cloud Viewer to look at any financial report submitted by a public company to the SEC here on the XBRL Cloud EDGAR Dashboard, simply press the "Viewer" button in the column "Interactive Reviewer", https://edgardashboard.xbrlcloud.com/edgar-dashboard/

[16] You can get to this screen by clicking on this link which will take you to the specific report and the specific section of that report, https://edgardashboard.xbrlcloud.com/flex/viewer/XBRLViewer.html#table=xbrl%3AimpliedTable&instance=http%3A%2F%2Fwww.sec.gov%2FArchives%2Fedgar%2Fdata%2F9389%2F000110465915036329%2Fbll-20150331.xml&network=http%3A%2F%2Fwww.ball.com%2Frole%2FStatementUnauditedCondensedConsolidatedBalanceSheets

While the XBRL Cloud viewer does understand the XBRL technical syntax and it can load any digital financial report of any company, it also has limitations. First, it is only a viewer and cannot be used to create a financial report. Second, while the XBRL Cloud viewer does understand some semantics of a financial report, it does not understand remotely enough semantics to help professional accountants create these reports correctly.

If you take a close look at the report above, you will notice that there are no single and double underscores on concept such as “Total assets” or “Total current liabilities”. This is because the reporting entity did not include the roll up computations (i.e. the XBRL calculation relations) for the balance sheet. Because the machine-readable business rules are not provided, the application cannot help the user make use of the business report.

Contrast that to business rules which are provided. Consider the following screen shot of the same report:



The user of the application clicks on the report element “Total assets”, and a list of the three places where that concept is used within the financial report appears on the screen. The user of the application can simply click on any of those three report components and then the software application can navigate to that specific report component and precisely to that same concept in the report. This is because the software does understand those business semantics.

XBRL Cloud likewise could perhaps be modified to support editing and to make the application understand financial report semantics significantly better.

Current state of software

While either The Quantrix Modeler or the XBRL Cloud Viewer might be modified to support the functionally necessary for working with a financial report, the primary point of pointing out that software is to get you to understand the notion of blocks and patterns. But suppose that you understood this notion, what exactly would software need to be able to do to create financial reports successfully? More importantly, does any software exist that actually fills that need?

While individual software applications can be used to see and understand the possibilities offered by making use of the structured nature of XBRL-based digital financial reports; no single software vendor has pieced together the appropriate functionality necessary to make digital financial reports easy enough for professional accountants to create and with a high enough quality level to be usable by analysts.

It is easy enough to understand when professional accountants are being successful. Below is an analysis of 6,674 financial reports of public companies which were submitted to the SEC in the XBRL format. The analysis tests approximately 50 business rules. Each public company financial report should be consistent with the description of the business rule. However, for all public company financial reports, the average report has 2.8 inconsistencies with the set of approximately 50 rules. Different software vendors to better or worse at conforming to these basic quality checks to see if reports are correctly created.

	#1	#2	#3	#4	#5					#6	#7			
Generator	XBRL Technical Syntax	EFM	Report Level Model Structure	Root Reporting Entity Detection	Balance Sheet Date Consistency	Missing Assets Roll Up	Missing Liabilities and Equity Roll Up	Missing Net Income Roll Up	Missing Net Cash Flow Roll Up	Missing Roll Ups (Total of H, I, J, and K)	Fundamental Accounting Concept Errors	Total Errors	Total Filings	Total Errors / Total Filings
Advanced Computer Innovations	0	3,343	43	7	4	142	149	273	315	879	521	4,797	360	13.3
Compliance Xpressware	0	0	0	0	0	0	0	2	3	5	93	98	92	1.1
CompSci	0	0	10	0	0	17	11	22	36	86	547	643	431	1.5
Computershare Communication	0	0	0	0	0	1	0	0	1	2	5	7	4	1.8
DataTracks	0	0	0	2	2	3	3	4	5	15	150	169	136	1.2
Diversified Global Graphics	0	0	0	0	0	1	0	0	1	2	7	9	4	2.3
Doremus	0	0	0	0	0	0	0	0	0	0	7	7	8	0.9
Edgar Filing	0	1	1	0	0	1	0	0	0	1	15	18	10	1.8
Edgar Technology	0	0	0	0	0	0	0	0	0	0	1	1	4	0.3
EDGARbiz	0	0	1	0	0	0	0	0	0	0	11	12	15	0.8
EDGARizerX	0	3	2	0	0	0	0	1	1	2	11	18	5	3.6
ETBS	0	0	0	0	0	0	0	0	0	0	9	9	5	1.8
Ez-Editor	4	12	25	2	1	20	10	10	29	69	501	614	440	1.4
Ez-XBRL	0	0	23	1	0	23	0	9	9	41	189	254	168	1.5
Fujitsu Interstage XWand	0	12	35	0	1	0	1	0	1	2	40	90	29	3.1
GoFiler	0	2,251	150	6	5	81	89	140	240	550	700	3,662	523	7.0
IBM Cognos	0	0	102	4	5	3	4	3	8	18	279	404	135	3.0
Merrill	0	1	50	0	0	1	1	3	15	20	843	907	508	1.8
NeoClarus	0	0	4	1	1	65	78	100	73	316	136	458	105	4.4
Novaworks	0	219	30	7	5	17	18	40	168	243	356	860	256	3.4
Peak Performance Partners	0	0	0	0	0	0	0	0	1	1	5	6	5	1.2
QXInteractive	0	0	22	2	2	6	2	16	96	120	245	391	181	2.2
Rivet	1	0	0	0	0	1	5	6	4	16	366	383	270	1.4
RR Donnelley/Edgar Online	0	7	54	7	7	7	31	16	20	74	1,274	1,423	1,092	1.3
SAP	0	0	28	0	0	0	0	0	0	0	11	39	6	6.5
SECUREX Filings	0	0	1	0	0	0	0	0	0	0	29	30	30	1.0
SmartXBRL	0	0	128	0	0	2	5	7	8	22	23	173	8	21.6
Thomson Reuters	4	0	27	2	2	0	3	1	18	22	348	405	255	1.6
Unknown	0	48	5	0	0	1	1	2	7	11	27	91	17	5.4
Vintage Filings	0	0	29	0	0	2	0	1	1	4	88	121	66	1.8
WebFilings	0	0	45	11	15	7	18	14	89	128	2,037	2,236	1,463	1.5
XBRLedger	0	0	1	0	0	1	0	1	3	5	35	41	33	1.2
YES International	0	0	0	0	0	0	0	0	0	0	1	1	1	1.0
Z-K Global	0	0	1	0	0	0	0	0	1	1	10	12	9	1.3
Total	**9**	**5,897**	**817**	**52**	**50**	**402**	**429**	**671**	**1,153**	**2,655**	**8,920**	**18,389**	**6,674**	**2.8**

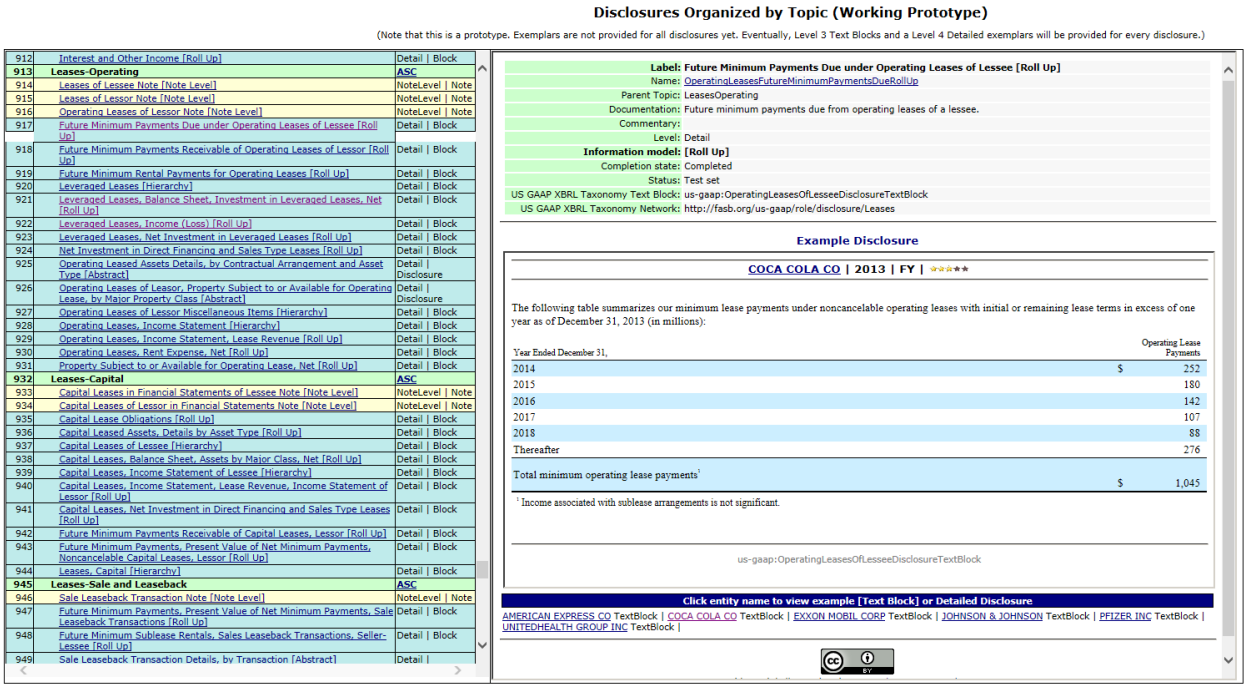
Every one of these consistency checks can be enforced using machine-readable business rules. The SEC could force 100% conformance to this set of rules by simply testing these same business rules prior to the acceptance of any public company financial report which is submitted to the SEC. Likewise, any software vendor could test consistency to these business rules and therefore create 100% correct financial reports per these 50 basic business rules.

And so, that is what is necessary: Software must at a minimum be able to allow a professional accountant to easily create a financial report which passes 100% of these minimal consistency checks to see if the financial report is fundamentally correct.

While this basic set of 50 business rules is not sufficient for making sure that every business rule in every public company financial report is correct. There are thousands and thousands of such rules. However, demonstrating consistency to the 50 basic business rules shows that one is on the correct path toward enabling professional accountants to successfully create high-quality digital financial reports. Once on that path, all that is necessary is to create more machine-readable business rules and therefore automatable consistency checks.

Disclosures are combinations of blocks

A financial disclosure, every financial disclosure, is a set of one or more blocks. Consider the set of disclosures below[17]:



[17] You can see this online here, http://www.xbrlsite.com/LinkedData/Exemplars/Topics.aspx

Imagine every disclosure (there are about between 1000 and 2000 most likely) having templates which are glued together using business rules and the ideal of blocks and slots. Accounting professionals don't deal with the XBRL technical syntax at all, ever. They deal with things they understand. Computers hide the technical syntax from these accounting professionals, the computers make sure everything ticks and ties, cross casts and foots properly. Accounting professionals interact with the pieces of a block. What can be added to this block below? Add a new period. Add a new line item. The interface allows that. Even better, software could import information from some existing system which contains the disclosure information and the professional accountant simply reviews the disclosure[18].

Inventory Components [Line Items]	Period [Axis]	
	2012-12-31	2011-12-31
Inventory, Net [Roll Up]		
Finished Goods	1,000,000	1,000,000
Work in progress	1,000,000	1,000,000
Raw materials	1,000,000	1,000,000
Other	1,000,000	1,000,000
Total inventories, net	4,000,000	4,000,000

Imagine how useful that functionally is to professional accountants. Nothing looks scary or technical at all.

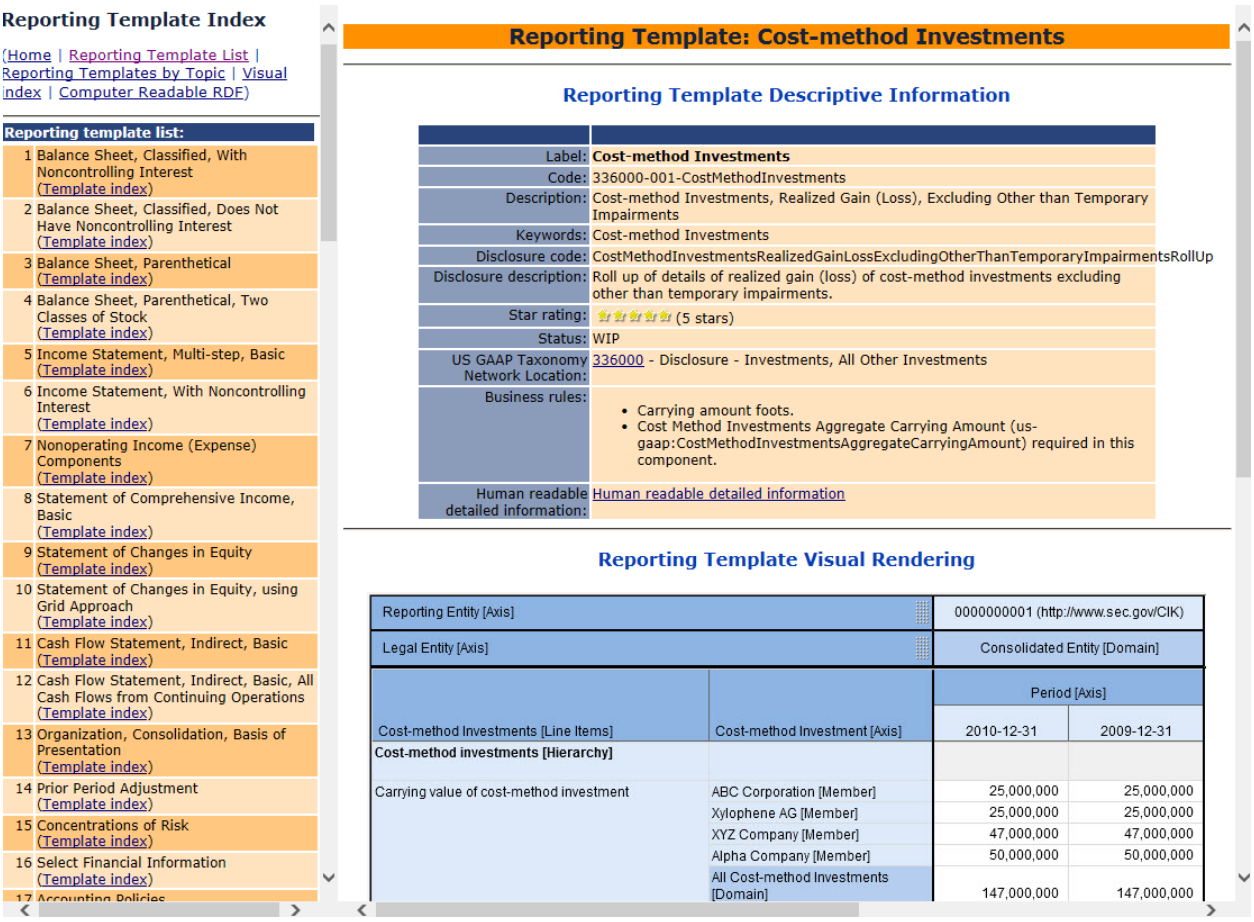
Computers do what they do best, mindless, repetitive tasks. That frees the accounting professionals to focus on what they do best, exercising professional judgment, something that a computer will never be able to do.

Disclosure or Reporting Templates

Imagine a set of disclosure templates[19]. Each template is pre-configured and otherwise wired together correctly. Imagine that a template existed for every possible disclosure. Reporting entities can add additional information which they might choose to report to the disclosure template as they see fit. However, they cannot break the template because the software will not let them break the disclosure template. The template also does as much as possible to make sure the reporting entity is conforming to disclosure requirements, thus reducing the possibility of nonconformance. Computers will never be able to reduce the risk of nonconformance to zero because computers will never be able to verify all information. However, they can enable the automated verification of much more than they are being utilized for today.

[18] See the entire financial report prototype here, http://www.xbrlsite.com/DigitalFinancialReporting/ReferenceImplementation/2013-05-15/evidence-package_New/index.html#Rendering-InventoryComponents-abc_InventoryComponentsTable.html

[19] Here is a set of disclosure templates for US GAAP, http://www.xbrlsite.com/2013/ReportingTemplates/2013-05-15/TemplateIndex/index.html



Reporting Template Index

(Home | Reporting Template List | Reporting Templates by Topic | Visual index | Computer Readable RDF)

Reporting template list:

1 Balance Sheet, Classified, With Noncontrolling Interest (Template index)
2 Balance Sheet, Classified, Does Not Have Noncontrolling Interest (Template index)
3 Balance Sheet, Parenthetical (Template index)
4 Balance Sheet, Parenthetical, Two Classes of Stock (Template index)
5 Income Statement, Multi-step, Basic (Template index)
6 Income Statement, With Noncontrolling Interest (Template index)
7 Nonoperating Income (Expense) Components (Template index)
8 Statement of Comprehensive Income, Basic (Template index)
9 Statement of Changes in Equity (Template index)
10 Statement of Changes in Equity, using Grid Approach (Template index)
11 Cash Flow Statement, Indirect, Basic (Template index)
12 Cash Flow Statement, Indirect, Basic, All Cash Flows from Continuing Operations (Template index)
13 Organization, Consolidation, Basis of Presentation (Template index)
14 Prior Period Adjustment (Template index)
15 Concentrations of Risk (Template index)
16 Select Financial Information (Template index)
17 Accounting Policies

Reporting Template: Cost-method Investments

Reporting Template Descriptive Information

Label:	**Cost-method Investments**
Code:	336000-001-CostMethodInvestments
Description:	Cost-method Investments, Realized Gain (Loss), Excluding Other than Temporary Impairments
Keywords:	Cost-method Investments
Disclosure code:	CostMethodInvestmentsRealizedGainLossExcludingOtherThanTemporaryImpairmentsRollUp
Disclosure description:	Roll up of details of realized gain (loss) of cost-method investments excluding other than temporary impairments.
Star rating:	(5 stars)
Status:	WIP
US GAAP Taxonomy Network Location:	336000 - Disclosure - Investments, All Other Investments
Business rules:	• Carrying amount foots. • Cost Method Investments Aggregate Carrying Amount (us-gaap:CostMethodInvestmentsAggregateCarryingAmount) required in this component.
Human readable detailed information:	Human readable detailed information

Reporting Template Visual Rendering

Reporting Entity [Axis]		0000000001 (http://www.sec.gov/CIK)	
Legal Entity [Axis]		Consolidated Entity [Domain]	
		Period [Axis]	
Cost-method Investments [Line Items]	Cost-method Investment [Axis]	2010-12-31	2009-12-31
Cost-method investments [Hierarchy]			
Carrying value of cost-method investment	ABC Corporation [Member]	25,000,000	25,000,000
	Xylophene AG [Member]	25,000,000	25,000,000
	XYZ Company [Member]	47,000,000	47,000,000
	Alpha Company [Member]	50,000,000	50,000,000
	All Cost-method Investments [Domain]	147,000,000	147,000,000

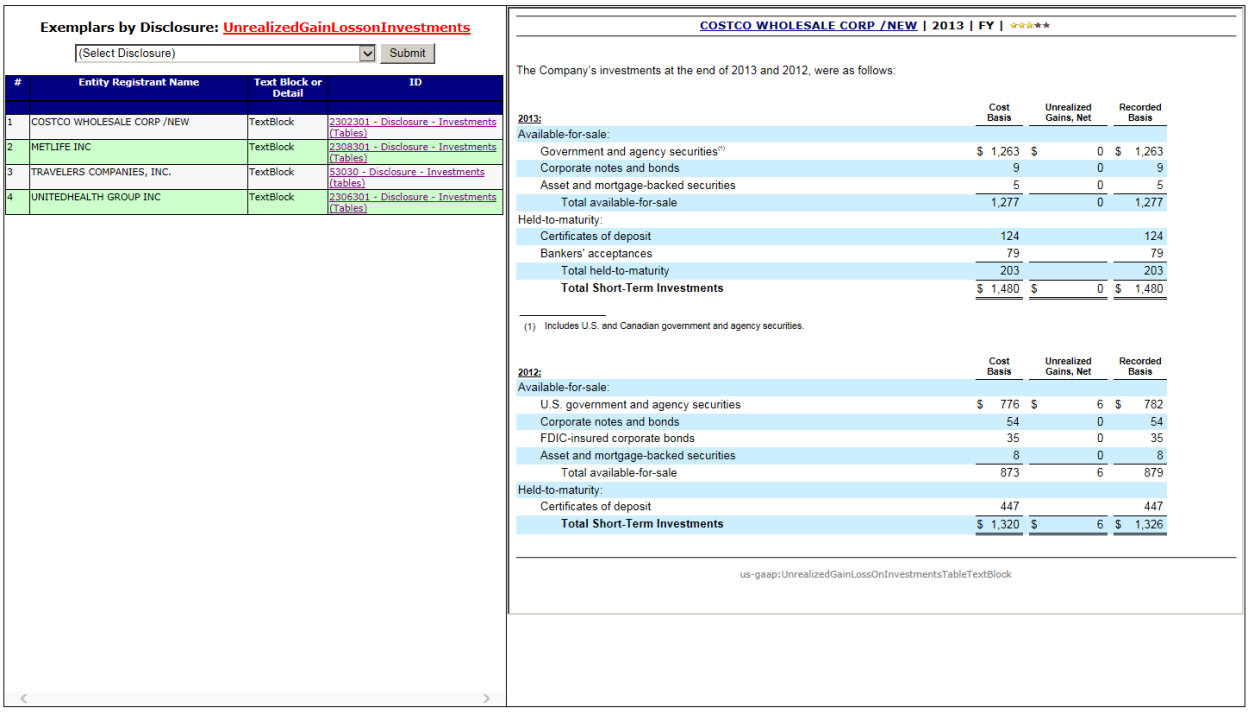
Exemplars are disclosure templates from actual public company financial reports

Imagine an entire library of high-quality disclosure templates at the tip of your fingers[20]. That is what the SEC EDGAR system is. Public company disclosures created by professional accountants and submitted to the SEC, all publically available free of charge. Imagine being able to leverage how other accountants interpret the accounting rules and using that as input into your process of creating disclosures. I refer to these public company disclosures available on the EDGAR system as exemplars.

This is very similar to one of the top selling products of the AICPA, U.S. GAAP Financial Statements - Best Practices in Presentation and Disclosure[21] (was called Accounting Trends and Techniques). However, there are some very important differences. Accounting Trends and Techniques has about 600 reporting entities; the SEC disclosure library has every reporting entity, every industry or accounting activity.

[20] Disclosure template library example, http://www.xbrlsite.com/LinkedData/Exemplars/Exemplars3.aspx?DisclosureObjectName=UnrealizedGainLossonInvestments

[21] U.S. GAAP Financial Statements - Best Practices in Presentation and Disclosure, http://www.cpa2biz.com/AST/AICPA_CPA2BIZ_Specials/Bestsellers/Bestsellers_Publications/PRDOVR~PC-009894/PC-009894.jsp?selectedFormat=Paperback



Exemplars by Disclosure: UnrealizedGainLossonInvestments

(Select Disclosure) Submit

#	Entity Registrant Name	Text Block or Detail	ID
1	COSTCO WHOLESALE CORP /NEW	TextBlock	2302301 - Disclosure - Investments (Tables)
2	METLIFE INC	TextBlock	2308301 - Disclosure - Investments (Tables)
3	TRAVELERS COMPANIES, INC.	TextBlock	53030 - Disclosure - Investments (tables)
4	UNITEDHEALTH GROUP INC	TextBlock	2306301 - Disclosure - Investments (Tables)

COSTCO WHOLESALE CORP /NEW | 2013 | FY | ★★★★★

The Company's investments at the end of 2013 and 2012, were as follows:

2013:	Cost Basis	Unrealized Gains, Net	Recorded Basis
Available-for-sale:			
Government and agency securities(1)	$ 1,263	$ 0	$ 1,263
Corporate notes and bonds	9	0	9
Asset and mortgage-backed securities	5	0	5
Total available-for-sale	1,277	0	1,277
Held-to-maturity:			
Certificates of deposit	124		124
Bankers' acceptances	79		79
Total held-to-maturity	203		203
Total Short-Term Investments	$ 1,480	$ 0	$ 1,480

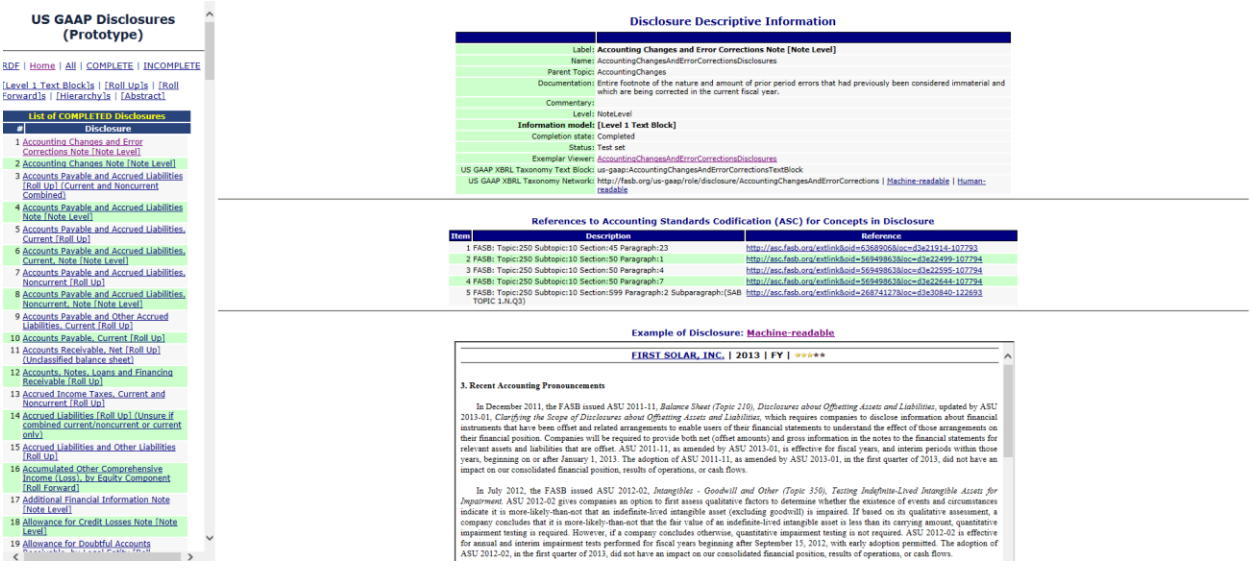
(1) Includes U.S. and Canadian government and agency securities.

2012:	Cost Basis	Unrealized Gains, Net	Recorded Basis
Available-for-sale:			
U.S. government and agency securities	$ 776	$ 6	$ 782
Corporate notes and bonds	54	0	54
FDIC-insured corporate bonds	35	0	35
Asset and mortgage-backed securities	8	0	8
Total available-for-sale	873	6	879
Held-to-maturity:			
Certificates of deposit	447		447
Total Short-Term Investments	$ 1,320	$ 6	$ 1,326

us-gaap:UnrealizedGainLossOnInvestmentsTableTextBlock

These exemplars are readable by humans, but more importantly they are also readable by machines such as computers. The exemplars can be imported directly into your financial report and then you can copy, paste, and adjust the publically available examples specifically to your exact needs.

Accountants have an entire library of disclosures available to them[22] which is readable by humans and also machine-readable. This process is used today be professional accountants, it is just harder.



US GAAP Disclosures (Prototype)

RDF | Home | All | COMPLETE | INCOMPLETE

[Level 1 Text Block]s | [Roll Up]s | [Roll Forward]s | [Hierarchy]s | [Abstract]

List of COMPLETED Disclosures

#	Disclosure
1	Accounting Changes and Error Corrections Note [Note Level]
2	Accounting Changes Note [Note Level]
3	Accounts Payable and Accrued Liabilities [Roll Up] [Current and Noncurrent Combined]
4	Accounts Payable and Accrued Liabilities Note [Note Level]
5	Accounts Payable and Accrued Liabilities, Current [Roll Up]
6	Accounts Payable and Accrued Liabilities, Current, Note [Note Level]
7	Accounts Payable and Accrued Liabilities, Noncurrent [Roll Up]
8	Accounts Payable and Accrued Liabilities, Noncurrent, Note [Note Level]
9	Accounts Payable and Other Accrued Liabilities, Current [Roll Up]
10	Accounts Payable, Current [Roll Up]
11	Accounts Receivable, Net [Roll Up] (Unclassified balance sheet)
12	Accounts, Notes, Loans and Financing Receivable [Roll Up]
13	Accrued Income Taxes, Current and Noncurrent [Roll Up]
14	Accrued Liabilities [Roll Up] (Unsure if combined current/noncurrent or current only)
15	Accrued Liabilities and Other Liabilities [Roll Up]
16	Accumulated Other Comprehensive Income (Loss), by Equity Component [Roll Forward]
17	Additional Financial Information Note [Note Level]
18	Allowance for Credit Losses Note [Note Level]
19	Allowance for Doubtful Accounts

Disclosure Descriptive Information

Label:	**Accounting Changes and Error Corrections Note [Note Level]**
Name:	AccountingChangesAndErrorCorrectionsDisclosures
Parent Topic:	AccountingChanges
Documentation:	Entire footnote of the nature and amount of prior period errors that had previously been considered immaterial and which are being corrected in the current fiscal year.
Commentary:	
Level:	NoteLevel
Information model:	**[Level 1 Text Block]**
Completion state:	Completed
Status:	Test set
Exemplar Viewer:	AccountingChangesAndErrorCorrectionsDisclosures
US GAAP XBRL Taxonomy Text Block:	us-gaap:AccountingChangesAndErrorCorrectionsTextBlock
US GAAP XBRL Taxonomy Network:	http://fasb.org/us-gaap/role/disclosure/AccountingChangesAndErrorCorrections | Machine-readable | Human-readable

References to Accounting Standards Codification (ASC) for Concepts in Disclosure

Item	Description	Reference
1	FASB: Topic:250 Subtopic:10 Section:45 Paragraph:23	http://asc.fasb.org/extlink&oid=6368906&loc=d3e21914-107793
2	FASB: Topic:250 Subtopic:10 Section:50 Paragraph:1	http://asc.fasb.org/extlink&oid=56949863&loc=d3e22499-107794
3	FASB: Topic:250 Subtopic:10 Section:50 Paragraph:4	http://asc.fasb.org/extlink&oid=56949863&loc=d3e22595-107794
4	FASB: Topic:250 Subtopic:10 Section:50 Paragraph:7	http://asc.fasb.org/extlink&oid=56949863&loc=d3e22644-107794
5	FASB: Topic:250 Subtopic:10 Section:S99 Paragraph:2 Subparagraph:(SAB TOPIC 1.N.Q3)	http://asc.fasb.org/extlink&oid=26874127&loc=d3e30840-122693

Example of Disclosure: Machine-readable

FIRST SOLAR, INC. | 2013 | FY | ★★★★★

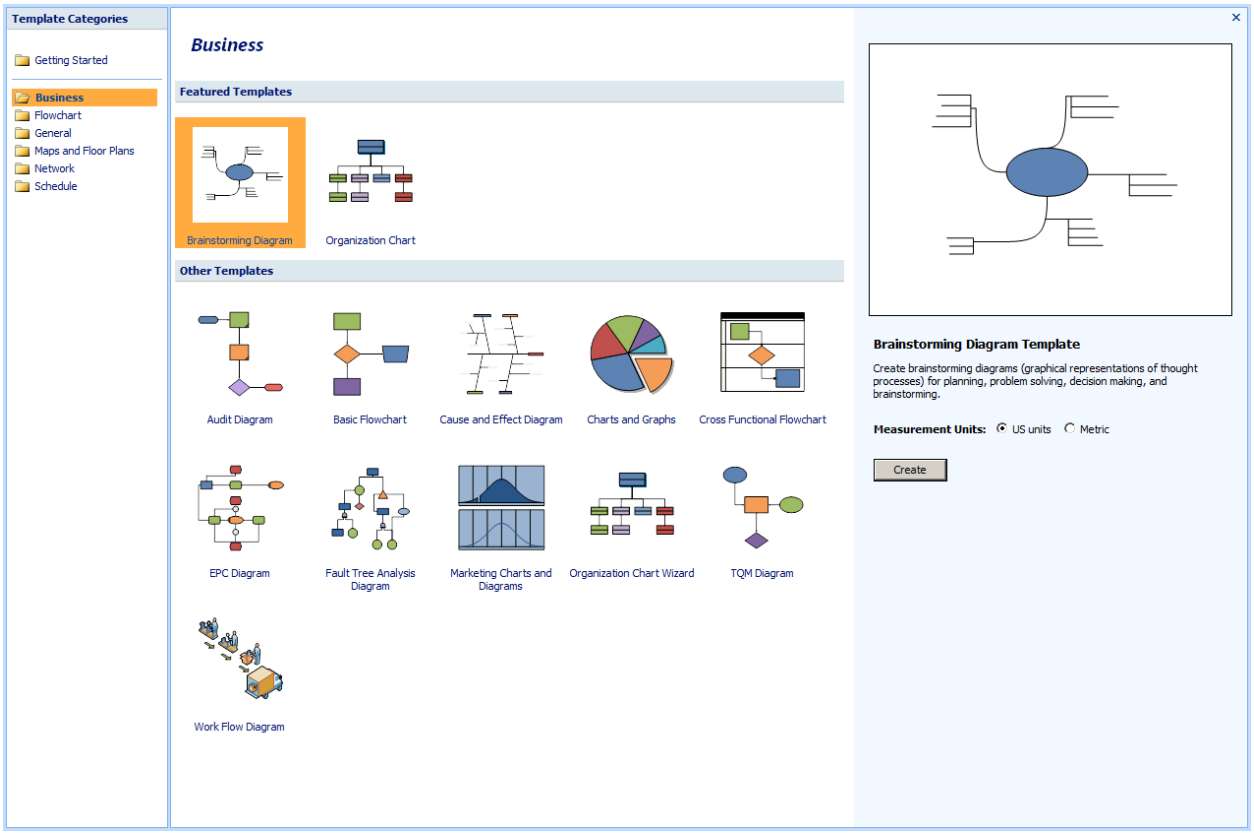
3. Recent Accounting Pronouncements

In December 2011, the FASB issued ASU 2011-11, *Balance Sheet (Topic 210), Disclosures about Offsetting Assets and Liabilities*, updated by ASU 2013-01, *Clarifying the Scope of Disclosures about Offsetting Assets and Liabilities*, which requires companies to disclose information about financial instruments that have been offset and related arrangements to enable users of their financial statements to understand the effect of those arrangements on their financial position. Companies will be required to provide both net (offset amounts) and gross information in the notes to the financial statements for relevant assets and liabilities that are offset. ASU 2011-11, as amended by ASU 2013-01, is effective for fiscal years, and interim periods within those years, beginning on or after January 1, 2013. The adoption of ASU 2011-11, as amended by ASU 2013-01, in the first quarter of 2013, did not have an impact on our consolidated financial position, results of operations, or cash flows.

In July 2012, the FASB issued ASU 2012-02, *Intangibles - Goodwill and Other (Topic 350), Testing Indefinite-Lived Intangible Assets for Impairment*. ASU 2012-02 gives companies an option to first assess qualitative factors to determine whether the existence of events and circumstances indicate it is more-likely-than-not that an indefinite-lived intangible asset (excluding goodwill) is impaired. If based on its qualitative assessment, a company concludes that it is more-likely-than-not that the fair value of an indefinite-lived intangible asset is less than its carrying amount, quantitative impairment testing is required. However, if a company concludes otherwise, quantitative impairment testing is not required. ASU 2012-02 is effective for annual and interim impairment tests performed for fiscal years beginning after September 15, 2012, with early adoption permitted. The adoption of ASU 2012-02, in the first quarter of 2013, did not have an impact on our consolidated financial position, results of operations, or cash flows.

[22] Disclosure library, http://www.xbrlsite.com/2015/fro/us-gaap/html/Disclosures/Detail/index.html

An interface within a financial report creation tool might be similar to how common software applications such as Microsoft Visio lets its users select templates by category of template. In the case of a financial report creation tool, the templates would be perhaps be organized by industry sector or accounting activity, type of legal entity (corporation or partnership), or other such organization approach.



Conclusion

Creating XBRL-based public company financial reports can be not only efficient, the idea is that digital financial reporting could be less costly that current approaches to creating a financial report, take far less time to create than current processes, and the quality of financial reports would increase. No private company would ever sign up for what public companies have to go through to report digitally to the SEC. But imagine is costs could be reduced, reports could be created in less time, and the quality of financial reports is better: why would a private company not desire to make use of that application? They never even have to press the "Save as XBRL…" button.

This is what financial reporting will become. Simple and elegant; an improvement over current processes. The work practices of professional accountants would change[23].

[23] Digital Financial Reporting Will Change Accounting Work Practices, http://xbrl.squarespace.com/journal/2014/3/20/digital-financial-reporting-will-change-accounting-work-prac.html