1. Method

This section provides a comprehensive introduction to a proven, tested, best-practices based **method and framework for creating XBRL-based digital financial reports**. To thoroughly understand this method and framework, please read *Method of Implementing a Standard Digital Financial Report Using the XBRL Syntax*[1]. To understand how this method was derived, please see *Understanding Method*[2].

Why force every individual enterprise to re-invent the wheel and figure out how to implement XBRL-based digital financial reporting?

1.1. Custom, Product, Commodity

The difference between "custom", a "product", and a "commodity" is explained in this blog post, *Properties of Products*[3]. In summary,

- **Custom**: Means unique to each individual customer. No attempt is made to standardize.
- **Product**: Found repeatable patterns (**clusters**), created a product for each pattern. Standards can be used. (As Malcom Gladwell explained in a TED Talk, "The answer is that there is no best pickle or spaghetti sauce. But there are best clusters of pickles and spaghetti sauces.")
- **Commodity**: Generalize the product so much that it is fungible, indistinguishable. Standards can be used.

An XBRL-based digital financial report should be **indistinguishable in terms of quality**. Are their customers that consciously want low quality? That would be absurd. As such, *high-quality XBRL-based digital financial reports should be a commodity*.

"Custom" is not scalable. While standard approaches do allow scaling.

Companies should not compete as to whether they can or cannot create high-quality XBRL-based reports.

1.2. Utility of Method

A meta-models is a model whose purpose is to describe and process models that subscribe to that meta-model. Models and meta-models both prescribe and describe what is permissible and what is not permissible per some model or meta-model.

One reason for this is to be sure each model is consistent with the specification provided by the meta-model. The following is a summary of the utility of this method:

- Clear scope and purpose providing a framework and theory for thinking about financial reports.

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[1] *Method of Implementing a Standard Digital Financial Report Using the XBRL Syntax*, http://www.xbrlsite.com/2020/Theory/SBRM-Method.pdf

[2] *Understanding Method*, http://xbrlsite.azurewebsites.net/2020/Library/UnderstandingMethod.pdf

[3] Markus Andrezak, *Properties of Products*, http://ueberproduct.de/en/properties-of-products/

- Formally documented and unambiguous specification.
- Open and freely available.
- Verified and tested leaving no stone unturned, no question unanswered, or argument about how the framework and theory work.

Benefits provided by the method include:

- **Process Automation:** Because the method is through and complete, processes can be effectively automated. How exactly can you be sure your financial report is a true and fair representation of the financial position and financial performance of your entity without testing it to be sure the report is working effectively? If you cannot measure it, you cannot control it.
- **Risk Reduction:** Process automation and automated verification reduces the risk of noncompliance. Hope and chance are not good strategies for complying with statutory and regulatory reporting rules.
- **Social Cooperation and Benefit:** Being able to effectively exchange information between processes which enables the automation of those processes provides social benefit. Among those benefits are cost reduction, process quality improvement, ability to provide new products/services, and improved functioning of capital markets resulting from these process improvements.

Let's look into exactly how these benefits are realized in a little bit more detail.

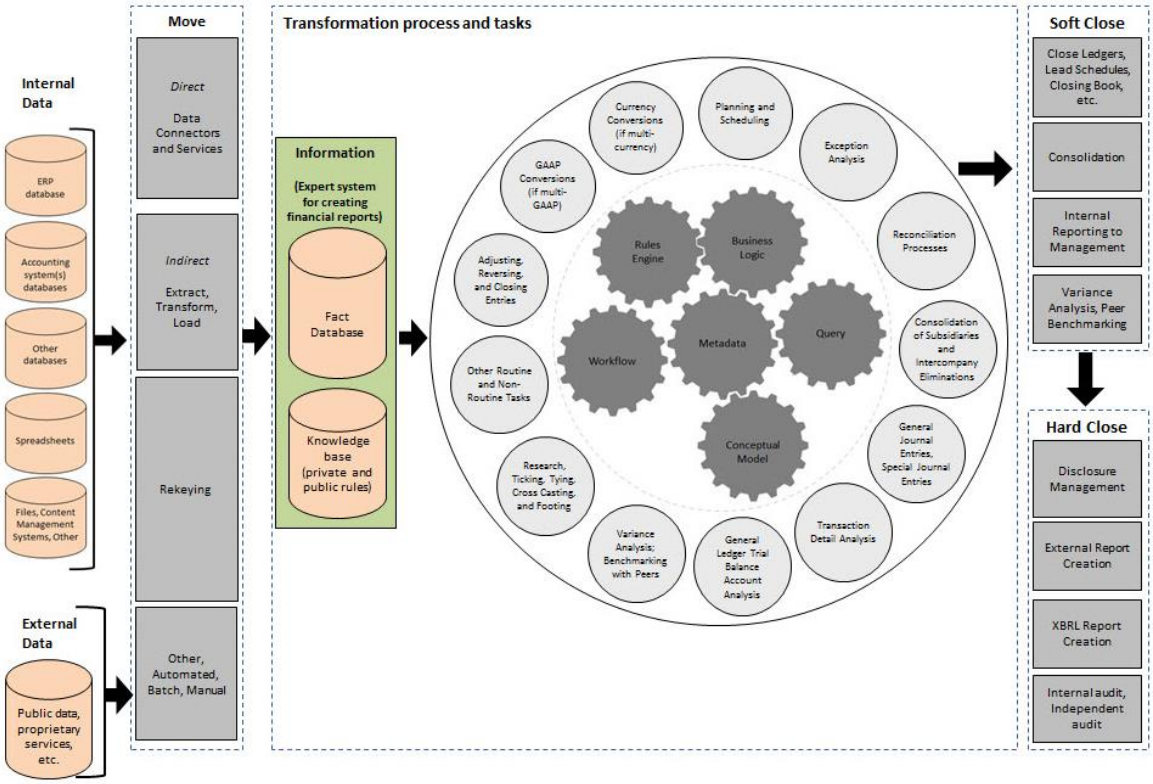
1.3. Business Case for Method

Automation is about removing friction, driving costs down, speeding processes up, and improving efficiency. Automation is about improving processes in order to deliver goods and services that are better for less cost.

Old technologies are making it increasingly difficult to keep up with today's fast paced information exchange. New technologies such as structured information, artificial intelligence, digital distributed ledgers offer significant and compelling opportunities to make accounting, reporting, auditing, and analysis tasks and processes more efficient and effective. A Forbes[4] article points out that organizations are already using artificial intelligence to create more intelligent products, create more intelligent services, and improve internal business processes.

But figuring out how to employ these new technologies and finding people with the necessary skills and experience to analyze systems and fix problems can be challenging. What if there were a standards-based proven best practices method you could use to improve your productivity?

[4] Bernard Marr, Forbes, *3 Important Ways Artificial Intelligence Will Transform Your Business And Turbocharge Success*, https://www.forbes.com/sites/bernardmarr/2020/08/03/3-important-ways-artificial-intelligence-will-transform-your-business-and-turbocharge-success/



Enter global standard technologies. XBRL International's *Extensible Business Reporting Language*[5] (**XBRL**) is a global standard syntax for representing business information in machine readable form. OMG's *Standard Business Report Model*[6] (**SBRM**) is a logical conceptualization of a business report. SBRM formally documents a logical conceptualization of a business report in both human-readable and machine-readable models. This enables a machine-readable report to be represented in literally any syntax. XBRL is one syntax; but you could also use JSON (JavaScript Object Notation), RDF (Resource Description Format), PROLOG (Programming Logic), Cypher, CSV, Excel, relational database, or literally any other technical syntax which you might prefer. Used together, XBRL and SBRM allow for the creation of a **reliable best practice method**[7] for automating accounting, reporting, auditing, and analysis tasks and processes. This method's underpinning is a *Logical Theory Describing Financial Report*[8]. What technology you use is up to you.

Continuous accounting, continuous reporting, artificial intelligence assisted audits, algorithmic regulation, automated analysis all offer unprecedented opportunities. But what are your challenges?

- **Complex disparate systems trap information**: The reality of many if not most finance processes is many dissimilar systems making information integration complex. Often, complexity is self-inflicted such as an incorrectly

[5] XBRL International, *Extensible Business Reporting Language (XBRL)*, https://www.xbrl.org/

[6] OMG, *Standard Business report Model* (SBRM), https://www.omg.org/intro/SBRM.pdf

[7] Charles Hoffman, CPA, *Understanding Method*, http://xbrlsite.azurewebsites.net/2020/Library/UnderstandingMethod.pdf

[8] Charles Hoffman, CPA, *Logical Theory Describing Financial Report*, http://xbrl.squarespace.com/logical-theory-financial-rep/

set up chart of accounts or a less than adequate mapping between the chart of accounts and a report writer or audit lead schedules. *The fix?* Take the time to set up your accounting systems correctly.

- **Missing metadata**: Far too often information necessary to flow data through a system is entered into the system at the end of a process instead of at the beginning of a process. This missing metadata makes it impossible to automate processes. *The fix?* Establish standard metadata, enter that metadata as early in the process as possible, enable information to flow through the process where possible.
- **Missing information**: Commonly, information necessary for a system to be automated is not available to the system and therefore information is supplemented by manually created spreadsheets. *The fix?* Bring more and more tasks and processes into core systems and avoid supplementing information using spreadsheets.
- **Overly manual process control mechanisms**: Process control mechanisms today tend to be overworked accounting professionals that have to manually control process output quality within systems that push far too much work to the end of the process. This manual approach is expensive, not reliable enough letting errors slip through the systems, and cause more important work to be delayed or simply left undone. *The fix?* Augment manual processes with automated processes and let machines help overworked humans get work done.
- **Communications issues**: The typical professional accountant does not really grasp the possibilities that technology offers to improve processes accurately. Computer scientists do not tend to understand important nuances of accounting, reporting, auditing, and analysis and therefore cannot build systems precisely or set priorities effectively. Most accountants focus on getting work done allocating little to no effort towards process improvement. *The fix?* It will take far less time for a professional accountant to learn what is necessary to communicate effectively with computer scientists than it would for a computer scientist to understand the important subtleties and nuances of accounting, reporting, auditing, and analysis. Take the time to improve your skills. If you don't want to make the investment, then hire a good consultant that has.

As the Harvard Business Review points out[9], the digital transformation is about talent, not technology. The coming digital transformation is primarily about people and the realization that effective digital transformation involves changes to organizational dynamics and how work gets done. The digital transformation is a paradigm shift. Don't use old, outdated mental maps; it is important to update your mental map.

1.4. Financial Report Levels

To clearly and precisely understand XBRL-based digital financial reporting and the target level of this method, it helps to think of the spectrum of financial reports in terms of levels similar to how levels are helpful in understanding the capabilities of self-driving cars[10]. The term "self-driving" means different things to different people so it makes it difficult to have a precise conversation about that topic. But breaking the description into a spectrum of descriptions is very helpful to the communication process.

This is similarly true for the levels of an XBRL-based digital financial report. Below we will break down a financial report into helpful levels that will enable a precise and clear discussion. We will provide a very brief description, a little bit of information, and a link to specific examples that instantiate a report per each specific level. The marginal difference between each level is very helpful in providing the reader with a solid understanding of the different levels.

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[9] Becky Frankiewicz and Tomas Chamorro-Premuzic, Harvard Business Review, *Digital Transformation Is About Talent, Not Technology*, https://hbr.org/2020/05/digital-transformation-is-about-talent-not-technology

[10] Truecar, The 5 Levels of Autonomous Vehicles, https://www.truecar.com/blog/5-levels-autonomous-vehicles/

Here is an overview of the levels related to financial reporting as I see them beginning with the least functional in terms of both human and machine use of the information from with a financial report.

- **Level 0**: Not machine readable. *An example of level 0 is a clay tablet, papyrus, or paper as the report medium*.
- **Level 1**[11]: Machine readable, nonstandard, structured for presentation. *PDF, HTML, or XHTML are examples of level 1*.
- **Level 2**[12]: Machine readable, nonstandard, structured for meaning, no taxonomy (a.k.a. dictionary), no rules, no report model. *An XBRL-based report without an XBRL taxonomy schema, without XBRL relations and resources, and without XBRL Formulas is an example*.
- **Level 3**[13]: Machine readable, global standard syntax, structured for meaning, with taxonomy (a.k.a. dictionary), incomplete rules, incomplete high-level report model. *An XBRL-based report with a XBRL taxonomy schema, with XBRL relations and resources, but without XBRL Formulas is an example.*
- **Level 4**[14]: Machine readable, global standard syntax, structured for meaning, with taxonomy (a.k.a. dictionary), complete set of rules provided, incomplete high-level report model. *An XBRL-based report with a XBRL taxonomy schema, with XBRL relations and resources, and with XBRL Formulas that completely describes the report is an example*.
- **Level 5**[15]: Machine readable, global standard syntax, structured for meaning, with taxonomy (a.k.a. dictionary), complete set of rules provided, complete global standard high-level report model, yields PROVEN properly functioning system and UNDERSTANDABLE report information. *An XBRL-based report with all the characteristics of level 4, plus consistency cross checks, type-subtype relations, consistent modeling of XBRL presentation relations, information that describes the correct representation of every disclosure within the report, and a reporting checklist that describes all required disclosures is an example*.
- **Level 6**: All of Level 5 PLUS blockchain-anchored XBRL to increase trust. *An XBRL-based report with all the characteristics of level 5, plus information within a digital distributed ledger that assures no one has tampered with the report is an example*.
- **Level 7**: All of Level 6 PLUS blockchain-anchored transactions and events. *An XBRL-based report with all the characteristics of level 6, plus information that indicates that assures no one has tampered with transactions is an example*.

The target of this method is Level 5 and above. Below Level 5 the functionality what we generally need from such reports in terms of quality and effective use of reported information in automated machine-based processes is not good enough.

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[11] Level 1 financial report example, http://xbrlsite.azurewebsites.net/2021/reporting-scheme/proof/reference-level1/

[12] Level 2 financial report example, http://xbrlsite.azurewebsites.net/2021/reporting-scheme/proof/reference-level2/

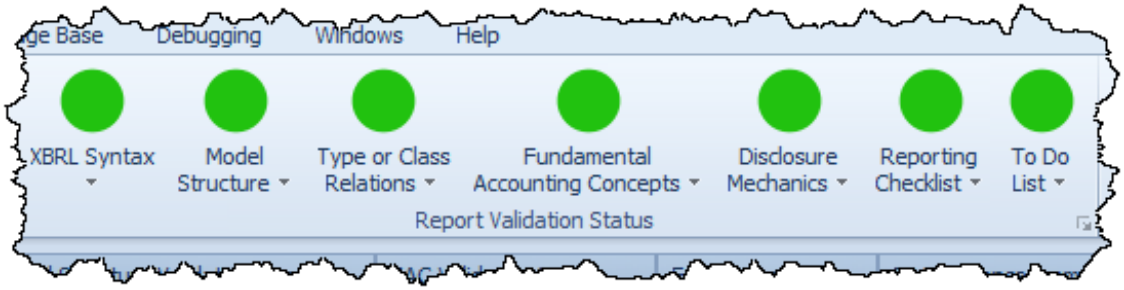
[13] Level 3 financial report example, http://xbrlsite.azurewebsites.net/2021/reporting-scheme/proof/reference-level3/

[14] Level 4 financial report example, http://xbrlsite.azurewebsites.net/2021/reporting-scheme/proof/reference-level4/

[15] Level 5 financial report example, http://xbrlsite.azurewebsites.net/2021/reporting-scheme/proof/reference-level5/

1.5. Overview of Best Practice based Method for Creating XBRL-based Digital Financial Reports

The following is a brief overview of the Method of Implementing a Standard Financial Report Using the XBRL Syntax[16]. This graphic provides somewhat of a "dashboard" for understanding this method:



The dashboard has seven categories that are explained as follows:

1. **XBRL Syntax**: This category of rules is provided by XBRL International in the form of a machine-readable set of rules referred to as a conformance suite[17]. This conformance suite is 100% automatable via computer-based processes and used to be sure the XBRL technical format is consistent with the expectations of the XBRL Technical specification. The XBRL conformance suite has helped software vendors get their XBRL technical syntax consistent and today about 99.99% of all XBRL-based financial reports are consistent with expectation. But, this checks only the information FORMAT, not the MEANING conveyed by the information.
2. **Model Structure**: This category of rules overcomes missing information related to the relationship between the categories of report elements that are used to structure a financial report model. While the permissible sorts of XBRL calculation relations and XBRL definition relations and certain aspects of XBRL presentation relations are specified by the XBRL technical specification; information about the permissible associations between the categories of report elements as shown by the matrix below are not specified. The model structure rules simply explicitly specify these rules:

		Parent						
		Network	Table	Axis	Member	Line Items	Abstract	Concept
Child	Network	Illegal XBRL	Illegal XBRL	Illegal XBRL	Illegal XBRL	Illegal XBRL	Illegal XBRL	Illegal XBRL
	Table	OK	Disallowed	Disallowed	Disallowed	Disallowed	OK	Disallowed
	Axis	Disallowed	OK	Disallowed	Disallowed	Disallowed	Disallowed	Disallowed
	Member	Disallowed	Disallowed	OK	OK	Disallowed	Disallowed	Disallowed
	Line Items	Disallowed	OK	Disallowed	Disallowed	Disallowed	Disallowed	Disallowed
	Abstract	OK	Disallowed	Disallowed	Disallowed	OK	OK	Disallowed
	Concept	Disallowed	Disallowed	Disallowed	Disallowed	OK	OK	Disallowed

[16] *Method of Implementing a Standard Financial Report Using the XBRL Syntax*, http://www.xbrlsite.com/2020/Theory/SBRM-Method.pdf

[17] XBRL International, XBRL 2.1, https://specifications.xbrl.org/work-product-index-group-base-spec-base-spec.html

3. **Type or class relations** (a.k.a. type-subtype relations): This category of rules specifies allowed subtype relations for each type defined in an XBRL taxonomy. Other terms for this are "is-a" relations or "general-special" relations or "wider-narrower" relations. An example would be a type-subtype rule that specifies that "Accounts Payable" is a sub type of the "Current Liabilities" type. This prevents the inadvertent use of "Accounts Payable" as a part of "Noncurrent Liabilities" or "Equity", etc.
4. **Fundamental accounting concepts:** This category of rules specifies information that helps detect common inconsistencies and contradictions within a financial report[18]. Consistency cross checks are created[19] against expectation. There are many examples of the types of errors that have been known to commonly occur[20]. For example, for US GAAP XBRL-based financial reports submitted to the SEC a common error was to use the concept "us-gaap:NoncurrentAssets" to represent information for which the concept "us-gaap:AssetsNoncurrent" should have been used.
5. **Disclosure mechanics:** This category of rules is used to specify the permissible representations of each specific disclosure. For example, the disclosure "Components of Inventories" would be specified to be a "roll up" mathematical relation which uses the concept "us-gaap:InventoryNet" or a permissible alternative to represent that total. Disclosure mechanics rules likewise specify that the concept "us-gaap:ScheduleOfInventoriesTextBlock" should be used to represent the Level 3 disclosure text block disclosure.
6. **Reporting checklist:** This category of rules is used to specify the permissible sets of disclosures that are required to exist within a financial report. For example, the fact that a balance sheet is always required to be included can be specified, as would be the case for an income statement, statement of cash flow, or statement of changes in equity. The fact that a combined statement of comprehensive income and income could be used as an alternative can be specified. Finally, if a specific line item such as "Inventories" is provided on the balance sheet, the fact that an inventories policy and inventories disclosure must be provided can be specified.
7. **To do list:** This category of rules is for cases where either (a) a rule CANNOT be specified in machine-readable terms because the rules language used is not expressive enough to represent the rule or (b) a rule COULD have been represented but it simply HAS NOT been represented and therefore manual work is necessary to verify report logic that could have been automated.

And so, XBRL Syntax validation provides only a small subset of what can be verified to be correctly represented within an XBRL-based financial report. Categories 2 through 6 must either be (a) also represented using machine-readable rules and

[18] Quarterly XBRL-based Public Company Financial Report Quality Measurement (March 2019), http://xbrl.squarespace.com/journal/2019/3/29/quarterly-xbrl-based-public-company-financial-report-quality.html

[19] Consistency cross check rules, http://xbrlsite.azurewebsites.net/2019/Library/Signals_2019-03-31.jpg

[20] High-quality examples of errors, http://xbrl.squarespace.com/journal/2017/4/29/high-quality-examples-of-errors-in-xbrl-based-financial-repo.html

verified using automated processes or (b) verified using manual processes which are less reliable and therefore more prone to error.

1.6. Using Method

Again, to thoroughly understand this method and framework, please read *Method of Implementing a Standard Digital Financial Report Using the XBRL Syntax*[21]. To understand how this method was derived, please see *Understanding Method*[22].

[21] *Method of Implementing a Standard Digital Financial Report Using the XBRL Syntax*, http://www.xbrlsite.com/2020/Theory/SBRM-Method.pdf

[22] *Understanding Method*, http://xbrlsite.azurewebsites.net/2020/Library/UnderstandingMethod.pdf