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[1].

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. 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**: Machine readable, nonstandard, structured for presentation. *PDF, HTML, or XHTML are examples of Level 1*.
- **Level 2**: 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 of Level 2*.
- **Level 3**: 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 of Level 3.*
- **Level 4**: 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 of Level 4*.

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

- **Level 5**: 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 5.*
- **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 of Level 6.*
- **Level 7**: All of Level 6 PLUS blockchain-anchored accounting 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 of Level 7.*

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. It is possible to create a Level 4 XBRL-based report that is properly functioning, but it is impossible to check using automated processes. Level 5 provides a guarantee that the Level 4 financial report is properly functioning within a provides specification articulated with a complete set of rules. Level 5 measures quality whereas Level 4 quality is essentially based on what amounts to luck or hope which are not effective engineering techniques.

Integrity Level	Machine-Readable	Machine-Understandable (Structured for meaning)	Standardized Syntax	Controlled Vocabulary (Dictionary of Terms)	Standard Report Metamodel (Report logic)	Complete Set of Associations	Complete Set of Rules	Complete Set of Type-subtype Associations	Complete Set of Consistency Cross Checks	Complete Disclosure Mechanics and Reporting Checklist	Merkle Tree of Report Model and Report	Merkle Tree of Report Model, Report, and Transactions
Level 0 (Provide physically)	X	X	X	X	X	X	X	X	X	X	X	X
Level 1 (Provide digitally)	✓	X	X	X	X	X	X	X	X	X	X	X
Level 2 (Structure for meaning)	✓	✓	X	X	X	X	X	X	X	X	X	X
Level 3 (Standard structure)	✓	✓	✓	X	X	X	X	X	X	X	X	X
Level 4 (Provide common dictionary)	✓	✓	✓	✓	X	X	X	X	X	X	X	X
Level 5 (Complete set of rules)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	X	X
Level 6 (Trust report logic)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	X
Level 7 (Trust transaction provenance)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓