

Comments on SASB Standards

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These comments pertain to all SASB Industry Standards, all Disclosure Topics, all Accounting Metrics, and all Metric-Level proposed updates. The latter are of particular interest because the unexamined assumptions about how the proposed metrics work compromise all of the Criteria for Accounting Metrics in the SASB Conceptual Framework, and listed, for instance, on page 7 of the Services-Basis for Conclusions.pdf document. The criteria of particular interest here include fair representation, usefulness, applicability, comparability, and being complete. The goal here is to document these issues for future targeting as the metrics are improved.

In creating an array of sustainability accounting standards, SASB has worked to advance the practical value of the ancient interdependencies of measurement and commerce. The profound efforts that have been invested in creating standards for sustainability accounting demand continued focus in moving forward from intuitions about measurability to more rigorous, convenient, and scientific approaches to qualitatively meaningful quantification. The Proposed Changes to Provisional Standards that are currently open for public review and comment extend and amplify previous assumptions about measurement and approaches to it. These comments spell out some of those assumptions and offer alternatives more likely to function as transparent media embodying the values of sustainability.

Six issues in particular unnecessarily complicate and hobble the standards and their implementation, and should be addressed in future improvements. The scientific value and viability of these recommendations have been asserted in recent collaborations of metrologists (weights and measures standards engineers) and psychological measurement researchers. The practical value of these recommendations has been established in over 60 years of research and applications across a wide range of fields. A small sampling of the tens of thousands of peer-reviewed publications in this area are listed below, grouped by topic.

- First, comparable metrics need not be based in common content. Content provides an initial clue as to common interests and potential comparability, but remaining fixated on content as the sole criterion for communicating variation creates more problems than it solves. Decades of research and practice in psychology and the social sciences show how different indicators can be calibrated to measure the same thing. This opens the door to flexible methods of adapting indicators to the needs of individual firms or industries without compromising comparability across firms within and across industries.
- Second, the focus on individual sustainability indicators as the metrics of interest needlessly over-complicates the interpretation and application of the standards. The consensus choice of particular indicators as being of interest in evaluating sustainability in a given industry suggests an implicit theory of what all the indicators taken together likely measure. That theory needs to be articulated, a formal mathematical model of what is to be measured needs to be stated, the model needs to be experimentally tested, and the entire population of all relevant indicators

needs to be calibrated in a common unit of comparison. Doing this will result in a capacity to summarize multiple indicators in a single number that can be interpreted meaningfully in terms of the established consistency of the pattern across all indicators measuring the same aspect of sustainability, whether or not they were administered.

- Third, and in the same vein, numeric counts and percentages are not measures. Contrary to the terms used in the SASB standards, counts and percentages are not quantitative in the sense of each additional one more standing for the same amount. I may have five rocks, and you may have two, but there is no way of telling from those counts who has more rock. Counts and percentages are at best ordinal, not interval. Commercial measurement standards for weight, volume, etc. all employ interval units established via theory and experiment as maintaining their size across counts of concrete individual instances of real things. Sustainability metrics require the same attention to technical detail as metrics in any other area of commerce.
- Fourth, to interpret measures of mass, energy, volume, etc. as measures of sustainability, they need to be shown via theory and experiment to actually support these kinds of inferences. Physical measures (such as metric tons, joules, kilowatt hours, etc.) are scientifically calibrated to measure in standard unit amounts, but that does not mean those measures of physical variables automatically translate into measures of sustainability, which is what is assumed across many of the SASB standards. To measure sustainability, as distinct from mass, energy, or volume, it must be conceptualized in theory, experimentally modeled and tested, and embodied in a network of calibrated instruments traceable to a unit standard.
- Fifth, uncertainty needs to be explicitly estimated and presented as an expected range of variation.
- Sixth, inconsistencies in a firm's data across indicators need to be flagged for special attention. Longstanding report formats and methods can be put to good use here.

Given the importance of sustainability standards for the future of life on earth, given SASB's efforts at creating sustainability metric standards, and given the huge multipliers obtained when distributed network effects are put in play, the implicit goal of SASB is the establishment of a new intangible assets metric system. These comments are intended to provoke further deliberately conceived and implemented developments in that direction.

The end result of those developments will be the creation of common languages of sustainability research and practice, common languages that provide the media for collectively coordinating decisions and behaviors across local and global spheres of activity. As such, given the history of economics, it can reasonably be expected that the efficiencies gained from enhanced communications and information infrastructures will bring sustainability capital to life on previously unimagined mass scales. See the references listed below for more information in this area.

Following through on these recommendations will make it possible to harness the energy of the billions of people globally who for decades have been vocally expressing their desire for change. Providing a medium for channeling and focusing that energy on sustainability is the most urgent demand of our times. SASB is leading a vitally important array of efforts in this direction. The challenges are huge, but having defined the problem, humanity is likely able to come through for itself as the steward of life on earth.

References on bringing intangible assets to life

- Fisher, W. P., Jr. (2002, Spring). "The Mystery of Capital" and the human sciences. *Rasch Measurement Transactions*, 15(4), 854 [<http://www.rasch.org/rmt/rmt154j.htm>].
- Fisher, W. P., Jr. (2007, Summer). Living capital metrics. *Rasch Measurement Transactions*, 21(1), 1092-1093 [<http://www.rasch.org/rmt/rmt211.pdf>].
- Fisher, W. P., Jr. (2009, November 19). *Draft legislation on development and adoption of an intangible assets metric system*. Retrieved 6 January 2011, from Living Capital Metrics blog: <http://livingcapitalmetrics.wordpress.com/2009/11/19/draft-legislation/>
- Fisher, W. P., Jr. (2009, November). Invariance and traceability for measures of human, social, and natural capital: Theory and application. *Measurement*, 42(9), 1278-1287.
- Fisher, W. P., Jr. (2009). *NIST Critical national need idea White Paper: Metrological infrastructure for human, social, and natural capital* (Tech. Rep. No. http://www.nist.gov/tip/wp/pswp/upload/202_metrological_infrastructure_for_human_social_natural.pdf). Washington, DC: National Institute for Standards and Technology.
- Fisher, W. P., Jr. (2010). *Measurement, reduced transaction costs, and the ethics of efficient markets for human, social, and natural capital*, Bridge to Business Postdoctoral Certification, Freeman School of Business, Tulane University (<http://ssrn.com/abstract=2340674>).
- Fisher, W. P., Jr. (2011). Bringing human, social, and natural capital to life: Practical consequences and opportunities. *Journal of Applied Measurement*, 12(1), 49-66.
- Fisher, W. P., Jr. (2012). Measure and manage: Intangible assets metric standards for sustainability. In J. Marques, S. Dhiman & S. Holt (Eds.), *Business administration education: Changes in management and leadership strategies* (pp. 43-63). New York: Palgrave Macmillan.
- Fisher, W. P., Jr. (2012, May/June). What the world needs now: A bold plan for new standards [Third place, 2011 NIST/SES World Standards Day paper competition]. *Standards Engineering*, 64(3), 1 & 3-5 [<http://ssrn.com/abstract=2083975>].
- Fisher, W. P., Jr., & Stenner, A. J. (2011, January). *Metrology for the social, behavioral, and economic sciences* (Social, Behavioral, and Economic Sciences White Paper Series). National Science Foundation: http://www.nsf.gov/sbe/sbe_2020/submission_detail.cfm?upld_id=36
- Fisher, W. P., Jr., & Stenner, A. J. (2011, August 31 to September 2). *A technology roadmap for intangible assets metrology*. In *Fundamentals of measurement science*. International Measurement Confederation (IMEKO) TC1-TC7-TC13 Joint Symposium, <http://www.db-thueringen.de/servlets/DerivateServlet/Derivate-24493/ilm1-2011imeko-018.pdf>, Jena, Germany.
- Miller, P., & O'Leary, T. (2007, October/November). Mediating instruments and making markets: Capital budgeting, science and the economy. *Accounting, Organizations, and Society*, 32(7-8), 701-734.

References on metrology and psychological measurement

- Fisher, W. P., Jr., & Stenner, A. J. (2016). Theory-based metrological traceability in education: A reading measurement network. *Measurement*, 92, 489-496.
- Mari, L., Maul, A., Irribarra, D. T., & Wilson, M. (2016, March). Quantities, quantification, and the necessary and sufficient conditions for measurement. *Measurement*, 100, 115-121.
- Mari, L., & Wilson, M. (2014, May). An introduction to the Rasch measurement approach for metrologists. *Measurement*, 51, 315-327.

- Mari, L., & Wilson, M. (2015, 11-14 May). A structural framework across strongly and weakly defined measurements. *Instrumentation and Measurement Technology Conference (I2MTC), 2015 IEEE International*, pp. 1522-1526.
- Pendrill, L. (2014, December). Man as a measurement instrument [Special Feature]. *NCSLi Measure: The Journal of Measurement Science*, 9(4), 22-33.
- Pendrill, L., & Fisher, W. P., Jr. (2013). Quantifying human response: Linking metrological and psychometric characterisations of man as a measurement instrument. *Journal of Physics Conference Series*, 459, <http://iopscience.iop.org/1742-6596/459/1/012057>.
- Pendrill, L., & Fisher, W. P., Jr. (2015). Counting and quantification: Comparing psychometric and metrological perspectives on visual perceptions of number. *Measurement*, 71, 46-55.
- Wilson, M., & Fisher, W. (2016). Preface: 2016 IMEKO TC1-TC7-TC13 Joint Symposium: Metrology Across the Sciences: Wishful Thinking? *Journal of Physics Conference Series*, 772(1), 011001. Retrieved from <http://iopscience.iop.org/article/10.1088/1742-6596/772/1/011001/pdf>
- Wilson, M., Mari, L., Maul, A., & Torres Iribara, D. (2015). A comparison of measurement concepts across physical science and social science domains: Instrument design, calibration, and measurement. *Journal of Physics Conference Series*, 588(012034), <http://iopscience.iop.org/1742-6596/588/1/012034>.

References on the state of the art in psychological measurement

- Barney, M., & Fisher, W. P., Jr. (2016, April). Adaptive measurement and assessment. *Annual Review of Organizational Psychology and Organizational Behavior*, 3, 469-490.
- Stenner, A. J., Fisher, W. P., Jr., Stone, M. H., & Burdick, D. S. (2013, August). Causal Rasch models. *Frontiers in Psychology: Quantitative Psychology and Measurement*, 4(536), 1-14 [doi: 10.3389/fpsyg.2013.00536].
- Wilson, M. R. (2013, April). Seeking a balance between the statistical and scientific elements in psychometrics. *Psychometrika*, 78(2), 211-236.
- Wilson, M. R. (2013). Using the concept of a measurement system to characterize measurement models used in psychometrics. *Measurement*, 46, 3766-3774.