Reengineering Business Reporting: Creating A Test Bed For Technology Driven Reporting

Miklos A. Vasarhelyi
Michael Alles
Rutgers University

Enhanced Business Reporting Consortium

- A consortium of stakeholders collaborating to improve the quality, integrity, and transparency of information used for decision-making in a cost effective, time efficient manner.
- Developed several sample reports, most intentionally incremental to promote change.
- Galileo “presents ideas that are further departures from current practice”.
Many Initiatives To Reform Reporting

- FASB + IASB conceptual statement convergence.
- CICA Canadian performance reporting initiative.
- CFA comprehensive business reporting model.
- What has not been explored fully is the role that technology can play in a 21st century financial reporting system.

SEC Commissioner Cynthia A. Glassman

“The current questions about the ability of our accounting and reporting framework to communicate meaningful information to investors arise, in part, because the economy continues to evolve at a rapid pace, while reporting standards and mechanisms are in a ‘catch-up’ mode... advances in technology, including the emergence of the internet, faster and more ubiquitous communication and other technological developments, have changed the way companies do business, as well as changing the types of financial arrangements and instruments that businesses utilize. As the business world has become more complex, so have financial reports and accounting standards.”
Using Test Beds To Explore Innovation

- NASA's X-29 aircraft flight tested innovative new technologies.
- Not meant to go into production.
- Stable only with computer autopilot.
- Attempt something analogous with financial reporting.

From Galileo To Open Source Test Bed

- Galileo, a closed project of EBRC, created a collection of tools to reengineer financial reporting.
- Next step is to develop a "test bed" for investigating and integrating those tools into a comprehensive 21st century reporting system.
- Create a framework that can invite and foster open source collaboration.
Initial Objectives Of Financial Reporting Test Bed

- Impossible for one paper to create a comprehensive, widely accepted model.
- Aim here only to develop a conceptual model of the drivers of change and understand the forces that will shape any new reporting system.
- Put forward common building blocks of a new system upon which a detailed structure can be collaboratively constructed.

First Understand Need For Change

- CFA: “as businesses develop new products and services, the financial reporting model must keep pace to ensure that financial statements are relevant, clear, accurate, and complete. Investors worldwide are too often in the dark about the true value of companies because accounting practices fail to reflect the economics of today’s business operations.”
- Senator Levin: “the fiction that corporate financial statements had become: companies technically were in compliance with accounting rules, yet their financial statements were hiding huge debts and other liabilities.”
- Well known problems with intangibles, valuation etc.
Drivers Of Financial Reporting Failure

- Changes in fundamental drivers of the financial reporting conceptual model:
  1. Needs and capabilities of users.
  2. Costs of disclosure for both firms and users.
  3. The process of financial reporting.

User Needs And Capabilities

- FASB Conceptual Statement no. 1: users have "reasonable understanding of business and economic activities and are willing to study the information with reasonable diligence"
- Minimalistic description of today’s market makers: hedge funds, intermediaries, analysts.
- Demand for raw data, ability to process it themselves far removed from those of "widows and orphans".
Broader Perspective On Costs Of Disclosure

- Traditional cost versus benefit consideration in disclosure incomplete, obsolete.
- Direct costs of disclosure becoming lower, with “push button” ERP-based reporting.
- Opportunity costs of flawed reporting on cost of capital undercounted.
- Ignores cost to sophisticated users to disentangle reports not aimed at meeting their needs.

CFA Perspective

“The most compelling argument for requiring that the reporting changes be made is that if investors must transform financial statements, and the information they contain, into a different form so that they can use the information in their decision making, then the statements and information should be presented in that form in the first place.”
Academic Perspective

“Financial accounting standards allow companies considerable flexibility in determining which accounts are aggregated into the individual line items in the primary financial statements. Because of the difficulty inherent in assessing the relevance and persistence of these amounts, users of financial accounting information often must sort through voluminous notes and non-financial information to effectively forecast the future earnings, cash flows, or intrinsic value of a company. This wide dispersion of value-relevant information increases the direct and indirect cost of valuation activities.”

Hirst and Hopkins (1998)

The Financial Reporting Process

- Financial reports are the outcome of an accounting process in which data held by the firm is transformed into publicly released information.
- Characterized by aggregation, condensation and summarization based on perceived costs of disclosure, needs and capabilities of users.
- Necessitates information loss, tradeoff between relevance and reliability.
Existing Reporting System

- Users are assumed to be limited in their sophistication ability to deal with disaggregate information themselves.
- Costly to prepare and report information on a more timely basis.
- Hence firms preprocess information to issue highly aggregated, condensations of financial performance.
- Process favors reliability over relevance, but is also increasingly susceptible to manipulation.

Consequences Of Current Reporting System

- The focus of the financial reporting system on the mandated statements constrains the analysis that users are able to perform.
- The lack of other instruments of communication lead firm managers to use those statements to signal information, requiring a continuing focus on the form of those statements, independent of their content.
- The fact that assurance is provided on only those statements means that they have to receive disproportionate weight, regardless of their information value.
Changes In Underlying Drivers Necessitates Rethinking The Financial Reporting Process

- Adopt holistic view of process by which financial data held by the firm is translated into decision relevant information by users.
- Part of process takes place within the firm, but also recognize part outside of it undertaken by users analyzing data to better meet their needs.
- Recalibrate the handover point: how much preprocessing should the firm do? What responsibility can users assume?

Rethinking The Conceptual Model

![Diagram of financial reporting process]

- Raw Firm Data → Pre-processing, Aggregation → Financial Statements → Handover Point → User Financial Statement Analysis → Decision Relevant Information

- Management Manipulation, Cost of Disclosure, Proprietary Information
- User Demand For Information, Cost and Ability to Process Disaggregate Data, Data Overload
Building Blocks To Operationalize Conceptual Model

1. BB1: one set of books.
2. BB2: when in doubt, disclose the facts.
3. BB3: support estimates and competing aggregation methods.
4. BB 4: provide data with context.
5. BB 5: “Auditability” must be an inherent characteristic of a business reporting system.
6. BB 6: the business reporting test bed is a process and not an outcome.

BB1: One Set Of Books

- An old saw in business that firms maintain multiple sets of books: the real story of the firm only available to managers and another set of accounts that is reported to external parties.
- Dichotomy may have made sense in a world of highly aggregated and simplified reporting to unsophisticated users, but difficult to sustain today.
- Reporting based on one set of books is not just desirable, but it is already here given ERP systems based on data warehouses.
- In test bed internal and external reporting based on the same underlying data, based on the same underlying MC system, with style sheets determining presentation format.
BB1: One Set Of Books Cont.

- New business reporting system must arise from and be a reflection of that primary management control system of the firm, and not a distinct and imperfect measure of it in the way accounting systems are often today.
- Being an endogenous part of the management control system means that the financial reporting system can built upon and takes advantage of the very sophisticated sensing and measuring capabilities of that ERP based control infrastructure of the firm.

Technical Architecture For BB1
BB2: When In Doubt Disclose The Facts

- This is the founding principle of the new reporting paradigm: that users should have the opportunity to process data as they see fit, rather than having to accept a one size fits all method chosen by the firm or by accounting standards.
- Getting away from “one size fits all” means that users who only want the one page income statement summary of firm performance do not constrain those who want to make their own assessment based on the underlying data—or vice versa.
- Based on assumption that market maker users want basic data that they can process as they see fit, not information that is pre-computed and manipulated or obscured by management.

Contrasting Views On Effects Of BB2

“Some of the analysts I have heard from clearly want standards to help them make sense of the information companies provide. The supposition that analysts would be able to go data mining in publicly available corporate databanks to develop the information they need is laughable. The analysts I know would have neither the time nor the ability to do that. In my experience, analysts are barely able to cope with the volume and nature of information currently available to them, given the outputs they are expected to provide.”

Anonymous referee.
CFA: View Of The Users

“A frequently heard argument against standard setters’ proposals to require additional disclosures is that investors already suffer from information overload and cannot assimilate any more. **We counter that more accurate and useful information never results in overload.** First, whether it is used by investors in every case does not bear on the fact that such information should represent true and fair value. Second, what burdens investors is extraneous information—disclosure that neither informs nor enlightens, the typical boilerplate prose that remains in companies’ financial reports year after year unchanged or amended in any way.”

BB3: Support Estimates And Competing Aggregation Methods

- Estimates and accruals are what distinguishes financial reports from cash flow statements.
- Making estimates for too long has been considered to be an art form and not a science, and therefore not subject to systemization.
- Estimates can hyperlink to both the basis of the estimate as well as the method of the estimate.
- When not data based, provide information on how estimate was arrived at.
- Enable calculation of alternative methods, especially when default is purely arbitrary (for example, depreciation).
BB4: Provide Data With Context

- Topographic map conveys the same information, but also a great deal more context that places the party’s location in perspective. For example, different colors are used to indicate land, lakes or intermittent water supplies. Topographic contours link together points of common altitude, while their density indicates the rate of ascent.
- FASB concepts statement also discusses financial accounting in terms of a cartographic map, but focus is on the completeness of the map and not on placing data into context.
BB4: Provide Data With Context Cont.

- The provision of data with context is an essential basis of a new reporting system.
- At a minimum, that means that tagging technology, such as XBRL and XBRL-GL, will be extensively used to make data “self describing”, while control tags will provide data level assurance.
- But no single piece of data can stand alone. To be truly useful to users, data must be placed within a broader context, its relationship to other data made obvious in much the same way as the contours do on the topographic map.

Technical Architecture For BB4

- This technology has two main components, the back end and the front end part of the technology.
- The back end contains the corporate database (OLTP) and the data warehouse (online analytical processing) of the company.
- The OLAP layer allows for the extraction from corporate systems of an aggregate view along multiple dimensions.
- Using technologies such as XBRL, XBRL-GL, drill downs, slice and dice spreadsheets etc. Allows business reports to be a user-driven dynamic instrument, with automatic updating, based on the life-cycle of the process.
- The key to context is showing relationships across data, with appropriate metrics, analytics and KPIs.
BB5: “Auditability” Must Be An Inherent Characteristic Of A Business Reporting System

- The only meaningful reports are credible ones and the basis of credibility in business is independent assurance.
- Ability to audit financial information has to be built into the financial reporting system.
- Continuous auditing incorporated into the firm’s management control infrastructure from which external reports are extracted.
- With less preprocessing of information and more disaggregate data being reported, data level assurance will become essential.

BB6: The Business Reporting Test Bed Is A Process And Not An Outcome

- A test bed is a means towards an end and not an end in itself.
- It is not expected to be put into practice as is but to serve as a device to experiment with new technologies and techniques that can be migrated into practice through a change management process.
- Any new reporting model must be dynamic, with deliberate built-in obsolescence, so that it is continually updated as technology changes.
Starting Point Of A Process To Reengineer Reporting

- Building blocks serve as a foundation to shape thinking.
- Now need to consider technical architecture to implement them.
- Test, enrich conceptual model to help better guide development.
- Open up test bed for competing or complementary innovations.