Introduction

The Technology Business Management Council, or TBM Council, has created a taxonomy to support cost modeling of information technology (IT) and to demonstrate how IT adds value to the organization. The TBM Council and the taxonomy seek to improve transparency of costs, consumption, and performance of IT in the organization and optimize IT investment and spending to support the business and achieve its objectives.

The purpose of this evaluation is to determine how effectively the TBM Taxonomy supports the creation of causal internal decision support information in an organization. The evaluation is done using the Institute of Management Accountant's Statement on Management Accounting: Costing System Attributes that Support Good Decision Making. This document provides detailed levels for the 10 concepts that support the principle of causality which is the guiding principle for cost modeling as defined by the IMA Conceptual Framework for Managerial Costing (CFMC). The CFMC defines the principles and concepts for building and using cost models for internal decision support.

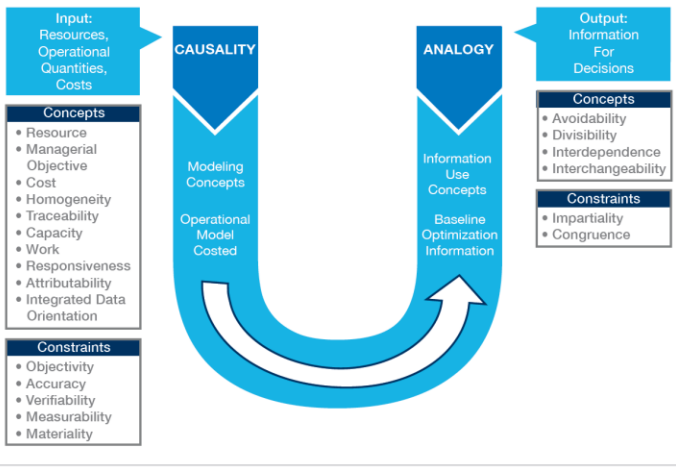
The focus of this evaluation is on the TBM Taxonomy; however, the TBM Council website references vendor cost models and these were used if they provide clarity to a evaluation point that was unclear in the TBM Taxonomy.

Definitions

Managerial costing, as defined by the IMA, "is costing done purely for the organization to use internally to ensure that information for decisions reflects the characteristics of the organization's resources and operations." Managerial costing is purely for internal use to ensure that decision-support information reflects the characteristics of the organization's resources and operations and meets the needs of the organization's decision makers. Managerial cost modeling provides a monetary representation of the organization's resources, processes, and the products, service lines, channels, and customers that consume those resources.

Conceptual Framework Managerial Costing: The Conceptual Framework for Managerial Costing (CFMC) is a Statement on Management Accounting published by the Institute of Management Accountants. Below is the core diagram from the CFMC that illustrates the 2 principles, causality and analogy; the concepts and constraints associated with each principle; and the core concept that information use and optimization efforts hinge on an operational model that is the foundation of costing.

Figure 1. The Conceptual Framework for Managerial Costing



Definitions of the 10 Concepts of Causality:

Table 1: Modeling Concepts Supporting Causality

Concept	Description
1. Resources	The Resources concept is defined to focus attention on the source of all costs for an organization–the resources it has acquired/employed and uses (or could use) to create value.
2. Managerial Objectives	A specific result or outcome that management plans to achieve. The goal is to have a managerial costing system that provides information on all the intermediate and final managerial objectives needed to achieve management's strategic objectives.
3. Cost	A monetary measure of (1) consuming a resource or its output to achieve a specific managerial objective, or (2) making a resource or its output available and not using it.
4. Homogeneity	A characteristic of one or more resources or inputs of similar technology or skill that allows for their costs to be governed by the same set of determinants in a nearly identical manner.
5. Traceability	A characteristic of an input unit that permits it to be identified in its entirety with a specific managerial objective on the basis of verifiable transaction records.
6. Capacity	The potential for a resource to do work. Capacity describes the limits and nature of a resource's contribution to achieving managerial objectives.
7. Work	A measure of the specific nature of units of resource output. The effective modeling of work requires the use of resource quantities to maintain traceability of the resource capacities throughout an enterprise model.
8. Responsiveness	Captures the nature of cause-and-effect relationships, which can be fixed, proportional, or a combination of both in relation to output. The cost model must reflect the responsiveness of inputs (and hence their costs) to outputs to enable accurate marginal cost information.
9. Attributability	Defines how weak causal relationships are modeled. Weak causal relationships and their costs can distort cost information and impair managerial decisions if they are allocated (mixed in with strong causal assignments).
10. Integrated Data Orientation	Operational and financial data is readily available to be accessed and aggregated to a variety of different views. A major advantage of this concept is the timeliness of relevant information.

Evaluation

This evaluation of the TBM Taxonomy is made using the IMA Statement of Management Accounting – Costing System Attributes that Support Good Decision Making which defines and provides examples of levels of sophistication of the 10 CFMC concepts of the principle of causality, the guiding principle for building internal decision support models. In the assessment, a score of Level 1 indicates weak and highly compromised internal decision support capabilities and Level 5 indicates exemplary and comprehensive internal decision support capabilities. Assessments using this SMA are recommended for three purposes:

1. Assessing the level of internal decision-support cost information their organization needs from each of the 10 cost modeling concepts to enable managers to meet their organization's goals and objectives.
2. Evaluating an organization's current managerial costing capability and identify areas of cost modeling the organization should enhance in order to provide better decision support information.
3. Evaluating managerial costing solutions to see if they satisfy an organization's information and decision-making needs.

Each of these purposes are applicable to the TBM Taxonomy though the SMA was written from the perspective of looking at the costing of an entire organization. The evaluation provides solid insights into the strengths and weakness of the cost modeling guidance provided by the TBM Taxonomy.

1. Concept of Resources

Evaluation: Level 1 (External Reporting Only) approaching Level 2 (Simple)

Comments: The TBM Taxonomy uses general ledger categories that they define into cost pool categories and subcategories. It is unclear from the taxonomy if these are fully thought of as resources with quantity categorization rather than just expense pools. These cost pools are then assigned to Towers and sub-Towers. The TBM Taxonomy is silent on tracking the flow of quantitative resource units (e.g., CPU minutes) or resource output units (e.g., square footage). The evaluation score on resources may be higher if the cost pool source data has resource unit data or source documents that are coded to include their use by higher level objectives (towers, solutions, and/or business units/customers). Some vendor examples show that resource use, such as internal labor time, is tracked through to the final business unit costs.

Because resources are the foundation of all capacity and cost insights, a deficiency here spreads throughout the model and its information.

2. Concept of Managerial Objective

Evaluation: Level 4 (Sophisticated) approaching Level 5 (Highly Sophisticated)

Comments: The TBM Taxonomy does an excellent job of identifying intermediate and final managerial objectives for IT. The taxonomy's general ledger cost pool approach means managerial objectives for resources are poorly defined. Intermediate and final managerial objectives are defined consistent with the organization's strategic objectives and appear to be capable of readily adapting to a management model, performance management and reward systems, and individual managers' responsibility areas across the organization. An exception exists in the areas of resource management and capacity management which are not addressed.

3. Concept of Cost

Evaluation: Level 2 (Simple) approaching Level 3 (Low Sophistication)

Comments: In line with its GL-centric view of cost, the TBM Taxonomy adopts the antiquated, and often distorting, concepts of direct and indirect costs. The typical result of classifying some costs as indirect is that their cause-and-effect relationships cease to be examined, and they are allocated in a simplistic and distorting manner. IT costs, in their entirety, have often been treated as indirect costs to an organization. The TBM Taxonomy seeks to remedy that situation, and it, therefore, needs to be more rigorous in applying causality to its modeling guidance.

The TBM Taxonomy GL accounts when combined with Tower and Solution source data could be constructed to correspond to resource groupings with similar outputs. However, there is no information in the taxonomy on the definition and role of resources or their quantities. Resources, as the source of all costs, serve as the cornerstone of a cost model. Not modeling resources correctly results in the low score here. The TBM Taxonomy is also silent on handling the cost of not using resources (idle and excess capacity). Examples from vendors show such overhead being allocated with very weak causality by simplistic drivers, and unit prices likely fluctuate when consumption changes to ensure full cost recovery.

4. Concept of Homogeneity

Evaluation: Level 1 (External Reporting Only) approaching Level 2 (Simple)

Comments: The TBM Taxonomy does not directly address homogeneity, and it focuses on broad cost pools with no clarity on resource definitions or distinctions within those broad cost pools. It may be possible that the segregation of its cost pools combined with assignment to towers and solutions creates a reasonable degree of homogeneity if inputs and outputs are defined with sufficient specificity and granularity. This will be strengthened if source documents/data are coded for the cost pool, tower, and solution, which is indicated in some vendor examples. Certain aspects of homogeneity such as capacity characteristics and level or age of technology should be addressed by the TBM Taxonomy because they are relevant to distinguishing the products and services provided.

5. Concept of Traceability

Evaluation: Level 3 (Low Sophistication)

Comments: The TBM Taxonomy does not directly address traceability, and it fails to specify that resource use and an operational model should serve as the basis for tracing. It does create a logical model that allows GL expenditures to be coded and assigned directly to the various levels of the organization. The TBM Taxonomy focuses on monetary tracing/allocations and ignores operational quantities which are the true determinants of monetary impact. Indications from vendor examples of modeling the taxonomy show use of the Taxonomy's coding schema for money is viable and probably widely used, and operational quantities are normally present in the model. Examples of vendor applications also shows IT overhead appears to be pooled and aggregated then allocated with very general drivers, rather than traced, which damages causality and the quality of decision support information.

6. Concept of Capacity

Evaluation: Level 2 (Simple)

Comments: The TBM Taxonomy identifies "transparency of consumption" as a key goal; however, it is silent on how capacity is to be tracked and addressed. Vendor examples show that consumption of resources is tracked through all levels of the taxonomy, so consumption, if not capacity, information appears to be made available. It appears all capacity costs are pushed to products and services through full absorption costing; unused

or idle capacity costs do not seem to be identified and are arbitrarily spread throughout the model. Excess/idle costs are weak causal costs and should not be blended with strong causal costs. Vendor examples show such weak causal costs are generally allocated simplistically; they should be appropriately modeled for causality and assigned where they are visible to highlight the need for corresponding optimization actions.

It is important to note that there is a dependency between the concepts of capacity and responsiveness. Excluding capacity from the model results in the lack of a proper basis upon which to identify fixed costs (refer the Responsiveness evaluation below).

7. Concept of Work

Evaluation: Level 3 (Low Sophistication) to (Level 4 Sophisticated)

Comments: The TBM Taxonomy can provide a great deal of information about how resources are used through the towers and solutions layers to business units, business architecture, and customers/partners. Vendor examples show this is possible. One impediment to a higher rating is that the vendor examples show that costs are "pushed" through the system rather than "pulled" by the consumption. "Push" means that idle and excess capacity costs that an objective or customer is not responsible for are added to the costs allocated to the objective or customer; this is also known as full absorption costing. "Pull" means that costs only move when a quantity of resource or service is consumed by an objective or customer. A second impediment to a higher rating is that the taxonomy fails to address the importance of work measures transmitting operational quantities or resources as well as monetary impact.

8. Concept of Responsiveness

Evaluation: Level 2 (Simple) approaching Level 3 (Low Sophistication)

Comments: The TBM Taxonomy contains a short section titled "Fixed and Variable Costs", and it doesn't apply the concept to use of the resources. In this section, they define fixed and variable in relation to "business volumes" which strongly implies a final product or service for IT functions. This is the traditional and now defunct concept of variability which looks at cost characteristics only in relation to a final objective, product or service. The TBM Taxonomy uses the example of employees as a fixed cost which likely means it doesn't model activity levels or idle/excess capacity of this key resource. Viewing employees as a fixed cost showcases the all-too-common error of using the concept of fixed cost to mean a cost is unavoidable in the short term; this is simplistic and not a good starting point for

effective decision support. At sophisticated levels of responsiveness, fixed and variable characteristics relate first to resources and their output, and only subsequently money. Sophisticated applications of responsiveness are also traced from resources through a process from intermediate outputs to final outputs. Additionally, a resource's output and cost may not be simply either fixed or variable, but a combination of fixed and variable.

Vendor examples of modeling show no tracking of fixed and variable consumption or costs. This gap greatly impedes optimization and decision making when marginal and incremental changes are evaluated.

9. Concept of Attributability

Evaluation: Level 1 approaching Level 2 (Simple)

Comments: The TBM Taxonomy does not directly address strong or weak causality. It includes a section titled "Direct, Consumed, and Indirect Costs". However, the taxonomy provides no guidance on how to incorporate these cost concepts into a model to improve decision support. The taxonomy also only deals with monetary costs and not resources. The description of indirect costs is clear, but simplistic with the conclusion that they should be considered overhead. The only real guidance on how to handle them is to negotiate an allocation method with final customers. Vendor guidance and examples provide a wider variety of assignment options, but indirect costs seem to be allocated with a generalized driver in the examples observed.

The importance of attributability is that it makes weak and non-causal costs, most importantly idle and excess capacity costs, visible to the appropriate manager for decision making and perhaps action - a crucial component of optimization. The TBM Taxonomy seems to overlook this.

10. Concept of Integrated Data Orientation

Evaluation: Level 3 (Low Sophistication)

Comments: The TBM Taxonomy establishes a set of monetary categories for cost pools, towers, solutions, and the business which allows strong integration with financial and operational systems at the data level. The TBM Taxonomy is less clear about the tracking of operational quantities, and the taxonomy clearly does not promote cost modeling based on an operational model. Vendor examples seem to show extensive operational data is incorporated into the higher levels of models; it is unclear how meaningful the information is.

Areas where financial systems and internal decision support characterizations may differ, such as depreciation and amortization, are not addressed. Vendor examples seem to focus on a separate model for TBM with periodic updates from linked systems, whether they are operational systems, and the nature of the integration is not clear. The TBM Taxonomy is silent on the level of operational integration desired for effective use and management.

Summary and Conclusion

The TBM Taxonomy is significant step toward improving the internal decision support information about the use and role of IT in organizations and its contribution to strategic objectives. The TBM Taxonomy draws an unfortunate parallel to financial standards and external financial reporting. Financial reporting standards are designed for external investors and creditors in capital markets who cannot demand specific information. The conceptual framework documents that underly all financial reporting standards clearly expect management to create and use a great deal of information beyond what is presented in financial statements. The TBM Taxonomy is primarily for internal decision support and optimization in line with changes in an organization's strategic objectives. The appropriate standard for TBM to align with would be the Institute of Management Accountants (IMA) Conceptual Framework for Managerial Costing (CFMC) which is completely focused on internal decision support and optimization.

This evaluation of the TBM Taxonomy has been made using the IMA Statement of Management Accounting – Costing System Attributes that Support Good Decision Making which defines and provides examples of levels of sophistication of the 10 CFMC concepts of the principle of causality, the guiding principle for building internal decision support models. Looking across the specific concepts, there are a few over-riding areas of improvement for the TBM Taxonomy.

1. Lack of focus on causality and resources – While the TBM Taxonomy provides the means to create causal information, it does not stress its importance clearly. Sadly, it clearly provides an option to allocate indirect costs non-causally. The TBM taxonomy focuses on monetary information when resource and operation quantity information are the true determinants of monetary impacts. Decision making must change resources and processes to impact monetary results, and good or bad monetary results cannot be understood unless they tie clearly to resources and operations.

2. Full absorption through all four levels of the TBM cost model – The TBM taxonomy assumes all money will be "pushed" through the model regardless of the level of resources used. This always severely degrades the decision making effectiveness of information. The Taxonomy has no discussion and makes no provisions for

capturing and correctly assigning excess and idle capacity costs, it simply pushes them through the model to the business level.

3. Lacks resource capacity measures – The TBM Taxonomy promotes "transparency of consumption" but is silent on defining how resource capacities should be modeled, characterized, and costed. Resources are the source of all costs and critical to TBM's optimization goal.

4. Inadequate reflection of resource use and cost behavior - Without clear tracking of resource use and cost behavior within the cost model, it is very difficult and often contentious to make critical optimization decisions about the avoidability (or non-avoidability) of cost and resources, particularly for common marginal and incremental decisions. While TBM has brief discussions of fixed and variable costs and direct/consumed/indirect costs, they are conceptually wrong for internal decision support and apply simplistic external financial reporting type practices.

TBM would benefit from taking a less monetary, and more operational quantity, focus for its goals of optimization and internal decision support. This would move it in the direction of the CFMC's theme that internal decision support information is best created from an operational model that is costed. Within this context, the TBM taxonomy should emphasize the importance of causality in model building, decision making, and optimization.

Comments, questions, or challenges to this document can be sent to:

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