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Accounting Information Quality: Reconciling Hierarchical and Dimensional Contexts

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Introduction

Information Quality (IQ) is an emerging area of research that crosses many disciplines. It is particularly critical within Management Information Systems (MIS) as it governs the design of systems as well as production and use of the information in the systems (Ballou, 1998; Wang et al., 1998; Lee, 1996; Wang & Strong, 1996).

Providing and assuring quality information has been the primary objective of accounting since the inception of the field. With the advent of Accounting Information Systems (AIS), the traditional focus on the input and recording of data needs to be offset with a recognition that the systems themselves may affect the quality of information.

This paper examines and reconciles the defining dimensions of information quality in these two areas. The IQ literature can inform accountants of systems issues that may be missing from the hierarchy of information qualities published by the Financial Accounting Standards Board (FASB), which is the basis of much accounting practice. In addition, IQ researchers and practitioners can learn from the tools and approaches developed by accountants. Many frameworks, rules and laws exist governing IQ issues as they apply to the accountant's role in providing, controlling, auditing and interpreting accounting data.

Reconciling the IQ Hierarchy with the IQ Dimensions

Accountants frequently reference a hierarchy of information qualities originally published by FASB (FASB, 1980). Dimensions of the hierarchy, reproduced in Figure 1, are described in Table 1. Definitions are derived from Gelinas and Oram (1996) and Pincus (1997). IQ researchers have independently developed and tested a set of dimensions that parallel this hierarchy (Wang and Strong, 1996). The Wang-Strong dimensions are included as Table 2.

It is obvious that there is considerable overlap in these two approaches. The overlap confirms the robustness of the underlying concepts, especially as they were developed from different perspectives and for different purposes. The accounting hierarchy is intended to guide professionals in assessing the overall quality of the information collection, reporting and control processes for business financial and nonfinancial data. The Wang-Strong dimensions guide IS professionals in the delivery of quality information to information consumers, incorporating information technology in the production, storage and use of information.

More interesting are the differences between the two approaches. First, there are several aspects of the FASB hierarchy which are missing from the Wang-Strong presentation. Materiality, an underlying principal of accounting record keeping, provides a minimum threshold over which data is considered to be important enough for inclusion in collected or reported data. Cost-benefit identifies the upper threshold, wherein the information, while material, is not considered to be worth the effort of obtaining it. The Wang-Strong dimensions seem to presume that cost is not a relevant characteristic of information.

Validity and verifiability are also important to accountants, as they are charged with assuring that reported information fairly represent the economic, operational activity of an examined company. The Wang-Strong view assumes that underlying data is genuine and can be authenticated outside of the IQ assessment process.

The Wang-Strong dimensions include a contextual perspective that FASB does not, except as a characteristic of the decision maker, the user of the information. The dimensions of believability and reputation apply to how the user perceives the information. Up until now, accountants have been primarily concerned with providing quality information, and less about how it would be interpreted. With easy access to shared, public data, accountants should also begin to examine the range of contexts in which the information will be used.

Information technology complicates the study of IQ by increasing the amount of data that can be reasonably stored, increasing the number of access points to information and eliminating physical records of or easily readable formats for inputting and updating data. The Wang-Strong dimensions incorporates characteristics of systems that can have a direct impact on IQ, including Amount of Data, and Access to the information. A third dimension, Access Security, while not an explicit element of the FASB hierarchy, is a major component of tools and frameworks used to control information quality, such as COBIT, the Control Objectives for Information Technology (ISACA, 1996). As the accounting profession expands its offerings into various areas of assurance services, it is important to focus on the qualitative implications of the systems in which the information resides.

Two other dimensions common to the two approaches are worth mentioning as their use may differ in each perspective. The first of these is Comparability/Consistency. Accountants view information *consistency* as a concern both “across” time as well as “within” a particular time period (or set of data). Information must be *comparable* across records in a database, as well as with historical records. This dual view of consistency enables trend analysis and forecasts to be made, both of which are key activities of users of accounting information. The Wang-Strong view of Consistency is broader, and encompasses both of these.

The other interesting common dimension is Completeness. The FASB hierarchy is careful to distinguish between occasions when fields are missing from a record (considered to be an error in the record and therefore an instance of lack of Accuracy), and instances where a record is itself missing from a set, here illustrating a lack of Completeness. The Wang-Strong model includes three types of Completeness, including these two, missing values and missing records, as well as a third, schema completeness, which is a system design issue, and an important area of concern of today’s accountant.

Conclusion

The IQ hierarchy established in accounting reflects traditional practice in an accounting task context. Naturally, the hierarchy explicitly frames accounting context-specific IQ characteristics, such as Materiality and Cost-benefit. The Wang-Strong dimensions are developed from a general information consumers’ task context. As such, it encompasses a broader definition that incorporates an information systems context. We have examined (1) the overlapping dimensions, (2) exclusive dimensions, and (3) common dimensions of these two frameworks. We suggest that reconciling the two approaches in defining IQ offers lessons to be learned for both the accounting and IQ areas. IQ assurance will be an increasingly important concern of the accounting profession as the information age overtakes existing business processes. A comprehensive framework for measuring and testing IQ must incorporate the challenges and opportunities posed by IT today and in the future. Our goal is to pursue research to test a set of propositions about accounting IQ against data and cases collected from the field, to update the FASB hierarchy for tomorrow’s concerns.

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Table 1. Definitions of FASB Hierarchy Elements

<i>Elements</i>	<i>Definitions</i>
Costs vs. Benefits	Overall constraint on the amount of information a decision maker will get.
Understandability	Familiar form and/or presentation; makes sense to user
Reliability	Comprised of Representational Faithfulness, Neutrality, and Verifiability
Representational Faithfulness	Ability to count on information being what its purported to be
Accuracy	Correspondence between the information and the events or objects that the information represents
Completeness	Degree to which information includes data about every relevant object or event
Validity	Information describes actual events or actual objects
Neutrality	Reasonably free from error
Verifiability	Can be independently derived from the same underlying data
Relevance	Comprised of Timeliness, Predictive Value and Feedback Value
Timeliness	Availability prior to point of need
Predictive Value	Information that can help to predict the future
Feedback Value	Confirms (or disconfirms) user’s expectations
Comparability	Can be compared to a benchmark
Materiality	Threshold below which even relevant, reliable information isn’t likely to make a difference in a user’s decision

Table 2. Dimensions of Information Quality

<i>Dimensions</i>	<i>Definitions</i>
Accessibility	the extent to which information is available, or easily and quickly retrievable
Appropriate Amount of Information	the extent to which the volume of information is appropriate for the task at hand
Believability	the extent to which information is regarded as true and credible
Completeness	the extent to which information is not missing and is of sufficient breadth and depth for the task at hand
Concise Representation	the extent to which information is compactly represented
Consistent Representation	the extent to which information is presented in the same format
Ease of Manipulation	the extent to which information is easy to manipulate and apply to different tasks
Free-of-Error	the extent to which information is correct and reliable
Interpretability	the extent to which information is in appropriate languages, symbols, and units, and the definitions are clear
Objectivity	the extent to which information is unbiased, unprejudiced, and impartial
Relevancy	the extent to which information is applicable and helpful for the task at hand
Reputation	the extent to which information is highly regarded in terms of its source or content
Security	the extent to which access to information is restricted appropriately to maintain its security
Timeliness	the extent to which the information is sufficiently up-to-date for the task at hand
Understandability	the extent to which information is easily comprehended
Value-Added	the extent to which information is beneficial and provides advantages from its use

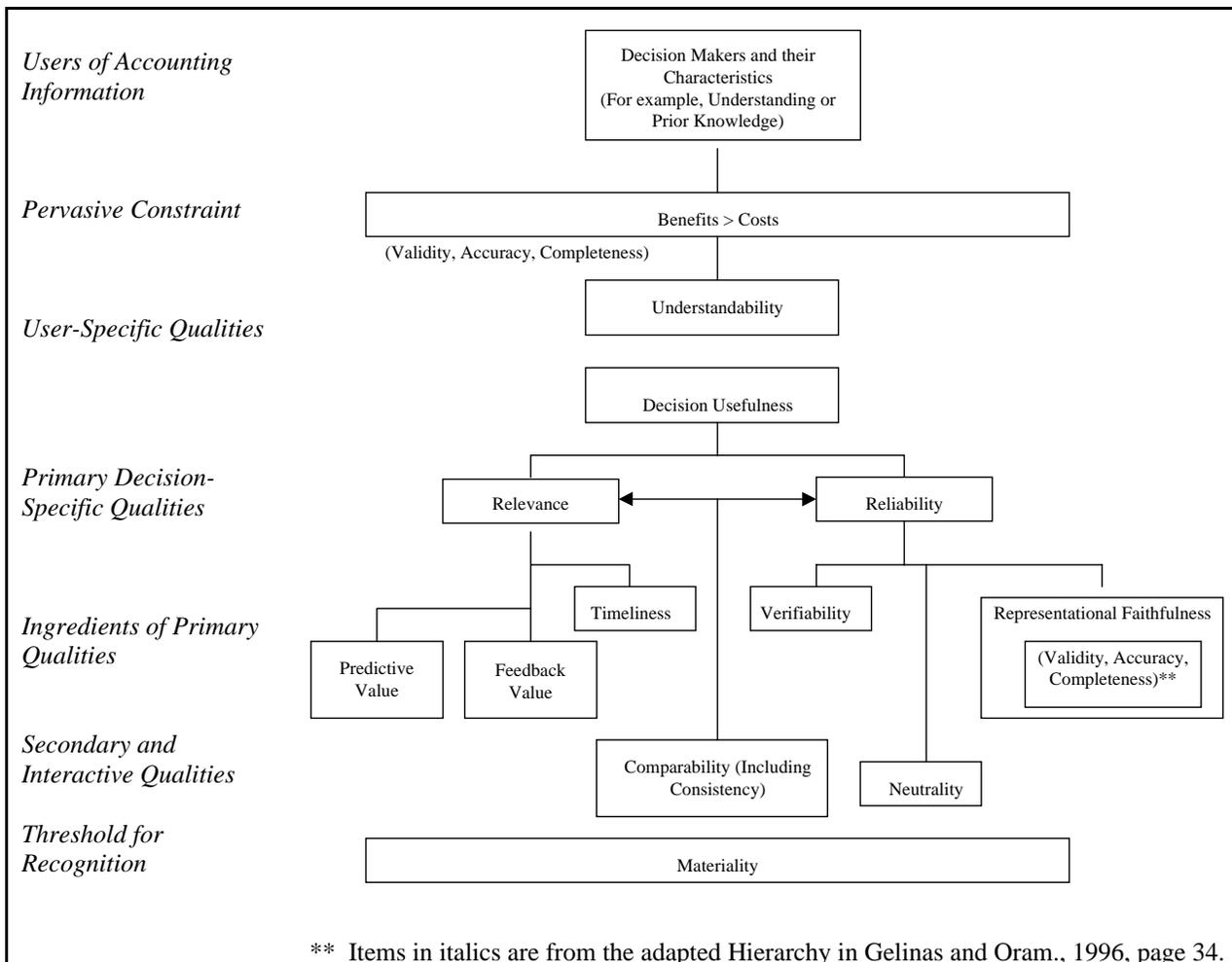


Figure 1. FASB Hierarchy of Accounting Information Qualities (FASB, 1980)