



Chapter IV

Relativity of Information Quality: Ontological vs. Teleological, Internal vs. External View

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ABSTRACT

This chapter presents a qualitative inquiry into the universe of quality attributes of symbolic representation such as data and information values. It offers a rationale for a move from the internal toward the external, from the ontological to the teleological perspective. The focus is on approaches that derive attributes from established theories. The special relativity of quality as applied to information values is discussed at various levels of viewing those attributes within business-decision contexts. Four cases offer examples of top-down, dataflow-up examination of quality attributes to demonstrate the potential of the teleological perspective. A rationale for a broader use of qualified names for quality attributes is given. The evolutionary, by Liu and Chi (2002), and the purpose-focused, by Gackowski (2004, 2005a,

b), views of operations quality offer new potential for integrating the present theoretical contributions into a more complete, cohesive, and pragmatic model. Examples begin with the quantity and utility value of information, the direct primary attributes of quality, some of the direct secondary attributes, and end with samples of indirect attributes.

Introduction

This chapter presents a qualitative inquiry into the universe of operations quality requirements of information and the corresponding research directions. There is an urgent need to recognize the undeniable relativity of quality within the context of business applications and decision-making and, subsequently, to move from the solely internal toward the external, from the ontological toward the teleological perspective of quality.

In the literature review, Liu and Chi (2002) categorized different approaches as intuitive, empirical, and theoretical. Initially, the intuitive and the empirical approaches were most prevalent, but they lack theoretical foundations about how these attributes are defined and grouped. They identified four theories: mathematical theory of communications, information economics, ontological mappings, and operations research. Nevertheless, they concluded, “Existing theoretical approaches are limited in their ability to derive a full-fledged measurement model,” and a “generally accepted model has not yet appeared” (p. 292). In their response, they proposed a concept of evolutionary and theory-specific information quality that evolves along the stages of data collection, organization, presentation, and application.

This inquiry stays within the theoretical approaches, which promise results that are of a more lasting validity. The theoretical approaches derive attributes from established theories. There are also frequent references to quality attributes derived from operations research, management science, and decision science in the purpose-focused view presented by Gackowski (2004, 2005a, b). A discussion of the merits of both approaches is presented.

The special relativity of operations quality requirements that pertains to data and information values is discussed at the two major levels of information support: operations and management. A rationale for a top-down, dataflow-up examination of operations quality requirements is given. Four case-based examples (news media, one-time strategic business opportunity, simple business transaction processing, and an inventory-control information system that supports inventory management) illustrate the applicability and the potential of the teleological perspective of operations quality. Examples begin with a discussion of the controversial *quantity or amount of information* and *utility value of information*. They are followed by short discussions of the direct primary tentatively universal operations quality requirements, the direct secondary attributes, whether mandatory or not; and some examples of the indirect attributes that affect the direct primary and direct secondary ones, as defined by Gackowski (2004, 2005a, b). There is a by-product of this discussion: a rationale for changing the naming convention of some of the basic operations quality attributes. One needs a broader use of qualified names to better reflect the multiple aspects of those attributes.

To develop a full-fledged qualitative framework of operations quality, one must reach beyond the empirical survey-based assessment of frequently loosely and haphazardly defined attributes of operations quality. This happens easily when they are not defined within the context of their actual use. The correctness and completeness of the empirical results *cannot* be proven via fundamental principles; therefore, empirical studies are not discussed

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