Chapter VI

Assessment and Improvement of Data and Information Quality

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Abstract

This chapter introduces a way for assessing and improving information quality on organizations. Information is one of the most important assets for today’s enterprises since it is the basis for organizational decisions. However, as information is produced from data, both data and information quality must be managed. Although many researchers have proposed technical and managerial solutions to some specific information quality problems, an integrative framework which brings together these kinds of solutions is still lacking. Our proposal consists of a framework for assessing and improving information quality through the concept of information management process (IMP). An IMP is assessed according to an information quality maturity model by using an assessment and improvement methodology. The framework provides a consistent roadway for coordinating efforts and resources to manage information quality with a strategic perspective. As an application example, a study case has been included in the chapter.

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Introduction: The Problem

It is a widely known fact that an organization depends on data and information quality for effective operations and decision making (Price & Shanks, 2005). These decisions directly affect both the success of the business (Eppler & Wittig, 2000; Gertz, Tamer, Saake, & Sattler, 2004; Pipino, Lee & Wang, 2002) and the overall efficiency of organizations (Burgess, Gray, & Fiddian, 2003; Kim & Choi, 2003; Redman, 1996) since data and information are to be seen as among the most important assets for organizations (Huang, Lee, & Wang, 1999).

This situation leads organizations to take caution with their data and information to avoid problems due to poor quality. But dealing with information problems is not a trivial issue; it is not free and many resources are required (Xu, 2003) because quality assurance and management is a complex process, in which the difference between costs and required information quality is closely linked to the context of the application and organization requirements (Bringel, Caetano, & Tribiolet, 2004). Most of the actual achieved pragmatic and theoretical efforts on information quality research are focused on solving specific and concrete objectives or subjective problems (Price & Shanks, 2005) regarding the technical or managerial information quality issues. These efforts often lack a strategic perspective that does not allow organizations to optimize the effectiveness of their information quality initiatives in an organizational scope because, among other important causes, there are no commitments from organization heads to improve the quality of existent data and information and new data (Motha & Viktor, 2001). All of these commitments must be oriented to avoid some kinds of potholes which can generate serious problems like data not used, barriers to data accessibility, or data utilization difficulty (Strong, Lee, & Wang, 1997). These problems may translate into important consequences at a technical level — as in data warehouse implementation (Celko, 1995) — at an organizational level — loss of customers (Redman, 1996), important financial losses (Loshin, 2001; Strong et al., 1997), or unsatisfied data workers (English, 1999) — or at the legal level because of privacy regulations. Many organizations, having identified their data and information quality problems, do not have the right techniques, tools, and practices to implement some of the proposed solutions from research (Kim & Choi, 2003). Information quality issues are not usually understood as a global problem for entire organizations, but punctual and isolated ones. It might be a matter of a quality management team, encouraged by organization heads, who must draw a clear understanding of the meaning of the term information quality (Price & Shanks, 2005) and information quality management. Then, they might implement several quality management concepts like information quality policy, information strategy, information quality planning, information quality control, and information quality assurance through organization (Helfert & von Maur, 2002; Hinrichs, 2000) implying all workers by commitments and trying to coordinate efforts and resources in order to control and improve information quality issues with a strategic perspective (Motha & Viktor, 2001). Unfortunately, there is not yet an integrative framework that guides organizations to achieve information quality goals through management by implementing the previously mentioned concepts (Eppler, 2003; Pipino et al., 2002; Price & Shanks, 2005). The main aim of this chapter is to fulfill this lack by providing the necessary elements to improve not only quality of data and information, but also data and information management.
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