

Data Management and Data Administration: Assessing 25 Years of Practice

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ABSTRACT

Data management (DM) has existed in conjunction with software development and the management of the full set of information technology (IT)-related components. However, it has been more than two decades since research into DM as it is practiced has been published. In this paper, the authors compare aspects of DM across a quarter-century timeline, obtaining data using comparable sets of subject matter experts. Using this information to observe the profession's evolution, the authors have updated the understanding of DM as it is practiced, giving additional insight into DM, including its current responsibilities, reporting structures, and perceptions of success, among other factors. The analysis indicates that successfully investing in DM presents current, real challenges to IT and organizations. Although DM is evolving away from purely operational responsibilities toward higher-level responsibilities, perceptions of success have fallen. This paper details the quarter-century comparison of DM practices, analyzes them, and draws conclusions.

Keywords: *Data Administration, Data as a Strategic Resource, Data Education, Data Management, IS/CS Curricula, Process Improvement, Process Maturity, Standards and Practices, System Development*

INTRODUCTION

Data management (DM) has long been practiced in conjunction with software development and the management of the full set of information technology (IT)-related components – often broadly categorized as: people, processes, hardware, software, and data. Today, the amount of

data, and the information that organizations must derive from the data, is increasing precipitously, as are the requirements for successful application of information-based strategies (Swartz, 2007; “Data, data everywhere,” 2010). This analysis resulted from an in-depth examination of organizational DM practices. Our results are centered on an opportunity to ask comparable subject matter experts, the same or similar questions – a quarter-century apart. Our goals are to provide insights into key aspects of how

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organizations are practicing DM as this crucial, shared business/IT responsibility continues to evolve across decades of computing.

The next section of this paper describes the research background and provides a brief description of the surveyed subject matter experts (SMEs). The third section summarizes analysis of comparable responses indicating statistical significance. After the incorporation of supplemental survey information, we summarize our findings.

RESEARCH BACKGROUND

A recent accepted definition of DM is “understanding the current and future data needs of an enterprise and making that data effective and efficient in supporting business activities” (Aiken, Allen, Parker, & Mattia, 2006, p. 49). Thus, DM’s purpose is to implement the coordinated set of practices required to marshal specific resources (organizational information assets) in support of strategy implementation. Successful achievement of organizational strategy would seem to be at least partially dependent on organizational DM practices.

This section describes previous research, the survey, and other incorporated sources. In 1981, IBM surveyed its data administration and database administration customers through its US offices (Gillenson, 1982). At the time, IBM’s dominance of the mainframe environment provided a representative cross-section suitable for studying DM practices and this was the most comprehensive study of its kind at that time. While we will discuss this study in more detail later in this paper, we note here that in 1981, 71% of the organizations surveyed had some DM function. However, most DM activities focused on database administration as opposed to more strategically oriented DM goals.

Contemporaneous studies (Kahn, 1983; McCrick & Goldstein, 1980; Munzenberger, 1980; Weldon, 1979a, 1979b) reached conclusions similar to that of the 1981 survey. Data management activities were mostly limited to

operational database administration functions and the movement towards strategic DM was in its nascent stage and had achieved limited success at that point – in the eyes of DM practitioners.

A follow-up to the 1981 survey was conducted in 1983 by telephone with a subset of its respondents and was published as Gillenson (1985). Not surprisingly, it revealed that database management systems (DBMS) usage was increasing. A more important finding was that while database administration was stable, data administration was notably on the ascendance, only two years after the initial survey. This was significant because “data administration” was the first topic to incorporate activities described at the time as “liaison to systems analysts” and “long range planning.” This constituted the start of managing data as a strategic corporate resource – the core of DM activities.

Several firms with “forward-thinking IS groups” were developing “subject area databases,” “information databases” (which according to their descriptions, sounded like the beginnings of data warehouses), and “data architectures,” and were engaging in “strategic data planning” (Goodhue, Kirsch, Quillard, & Wybo, 1992; Goodhue, Quillard, & Rockart, 1988). At this time, Trauth (1989) said that one facet of “information resource management” was to “maintain a global view of corporate data” (p. 257). Later, Gillenson (1991) found that a group of surveyed firms, “...expect data administration functions to have increasing visibility in the areas of data standards, data ownership, the understanding of the company’s data, and the teaching of that understanding to others” (p. 10).

During 2007, we surveyed more than 1,000 data managers attending the annual Data Management Association (DAMA) Conference (now called Enterprise Data World) and many other regional events – partially listed at <http://peteraiken.net> (Aiken, 2010). Our results are based on approximately 100 responses or a respectable 10% return. (Note that not all

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