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The Evolution of Information Technology Management at the Federal Level: Implications for Public Administration

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Federal agencies rely extensively on information technology (IT) to perform basic missions. Arguably, public administration should be driving the theory, policy, and practice for managing these increasingly important resources. This is especially true as public organizations move to electronic service delivery to improve mission performance.

However, despite some maturation in the literature for managing IT in federal agencies, public administration has contributed little to this effort. Other academic fields, such as information sciences, business administration, and practitioners, have done more to improve IT management at the federal level.

This chapter analyzes federal IT management literature from several academic disciplines and government documents. The analysis compares federal IT management with a normative model of management maturity focusing on the strategic objectives for IT and related management approaches. Public administration's lack of contribution to federal IT management raises profound questions whether federal agencies will be prepared for the information age.

Given the growing importance of effective information technology (IT) management to the basic functioning of most public programs, the sophistication of the policy, theory, and practice in this area should be evolving quickly. Unfortunately, that is not so (Holden, 1996; Holden & Hernon, 1996). As a result, it is quite possible

that the current generation of public administration scholars and practitioners may be ill-equipped to face the challenges of the information age in which we find ourselves trying to govern.

A mere gap in IT management theory might not be fatal, but in reality, the implications for the practice of public administration, and therefore governance, are quite grim. Press accounts of the possibility of the year 2000 computer problem causing chaos in air traffic control present one example of how integral IT has become to the safety and economic well-being of the country. While the billions of dollars currently spent by the federal government on IT make up an insignificant portion of the budget, IT underpins almost the whole budget directly or indirectly. Just ponder the implications to the government's cash flow if the Internal Revenue Service could not collect taxes or the Social Security Administration could not post employee earnings.

This chapter compares the federal IT management literature with a normative model of management maturity, examining the strategic objectives for IT and the related management approaches. The academic disciplines that contribute to an understanding of the management of IT in the federal government include business administration, state and local government management, information sciences, and public administration. Although the analysis of the literature does include government publications, it does not discuss the pertinent public law or government-wide policy (See instead Beachboard & McClure, 1996; Holden, 1994 ; Plocher, 1996).

Like public administration more generally, IT management draws on several different sources. Unlike other management topics in public administration, though, the literature covering IT management lacks breadth and maturity. The following quotation from Weber (1988, p. 68) summarizes the state of the literature as of 1990.

> Much of the literature still presents heresy, speculation, opinions, or evidence gathered by parties with vested political interests. Unfortunately, carefully conducted theoretical and empirical research studies are still scarce, and even those works are frequently plagued by incomplete, conflicting and counter intuitive results. (Northop, 1990, p. 505)

While the chapter documents some progress in the field in the last decade, it also points to continuing shortcomings. It is particularly troubling that disciplines besides public administration are responsible for the few recent developments in IT management literature. Compared against the management maturity model presented below, there is clearly much work left to do.

A Model for Information Technology Management Maturity

This analysis of federal IT management literature proceeds in an order that reflects the maturation of the strategic objectives for IT and the attendant management philosophy over the last 40 years. As a normative standard, this analysis adapts a model of maturation of theory and practice that Donald Marchand (1985) first used for the field of information management (Holden, 1994). He identified four stages of evolution for information management, encompassing the 20th century.

This chapter adapts his model as an organizing principle in several ways. First,

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