# Understanding Data and Information Systems for Recordkeeping

by
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# Foreword

Philip Bantin's *Understanding Data and Information Systems for Recordkeeping* is an important book for the archives and records management professional. As the author points out in his introduction, archivists and records managers need to understand the information systems that create and manage contemporary records. This understanding is necessary to communicate our needs and concerns to the information technology professionals responsible for systems and the records they contain. This book goes far to bridge the gap between professional perspectives.

After discussing the development of digital information systems since the Second World War, Bantin summarizes archival theory and practice about the nature of recordkeeping systems. Taken together, these first two chapters present a foundation for discussions among information and recordkeeping professionals.

In chapters 3–6, Bantin presents a structured approach for understanding the most common information systems and applying recordkeeping principles to them. He covers in depth: transaction processing systems (TPS) constructed on the relational database model, enterprise document management, and content management systems; decision support systems and data warehouses; and e-mail management systems. Throughout these chapters, Bantin's central principle is that archivists and records managers need to understand the technology in order to manage the records that flow from each technology. Bantin makes this information accessible to technophobes as well as technophiles.

Chapter 7 recognizes that the information and recordkeeping environments are affected by larger legal and regulatory concerns. Because organizations rely on digital systems for their mission-critical activities, the information systems often are part of legal and regulatory proceedings. Archivists and records managers increasingly are finding themselves part of compliance teams, either permanently or on an ad hoc basis. Understanding the legal system has become as im-

portant as understanding the information system itself. This book helps with both levels of understanding.

As series editor, I am pleased that *Understanding Data and Information Systems for Recordkeeping* is part of the Archives and Record Manager's Bookshelf. This is precisely the kind of book that Neal-Schuman and I envisioned when establishing the series—a book that recognizes the commonality of interest among archivists and records managers and facilitates communication between these closely related professions. Philip Bantin has been a leader in the management of digital records for the last two decades. In this book he summarizes much of what he has learned from being in both the trenches and the classroom. Countless archivists and records managers will benefit from his generosity in undertaking this daunting task.

Gregory S. Hunter, Ph.D., CA, CRM
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# Preface

The automation of records has caused a revolution in archives and records management. Fifty years ago, an organization would create and archive vital business documents such as annual budgets and long-range plans entirely in paper form. Fifteen years ago, the same organization might have created a budget or plan on the computer, but would print it out as a report and file it physically for long-term access. Today, organizations use automated electronic systems to create, store, and manage many of their most important, mission-critical records.

In order to be effective in this new world of electronic records management, archivists and records management professionals require two types of knowledge. First, they must understand the design features and existing functionality of the information systems commonly used by their institutions. Second, they must define the functional requirements for the type of system they want to build. Existing literature doesn't address these issues adequately. IT literature has discussed the first point in great detail—and usually in very technical language. Rarely does IT literature analyze the functionality of these information systems in terms of their impact on recordkeeping. Records management and archives literature, on the other hand, has done a good job of defining recordkeeping requirements, but has rarely described and analyzed information systems in any detail.

In *Understanding Data and Information Systems for Recordkeeping*, I attempt to provide a bridge between the theoretical discussions about recordkeeping requirements and specifications that have taken place in our field and the general technical facts available elsewhere. Using largely non-technical language, I discuss how information systems capture, store, and manage data. I also examine how to adapt these systems for use as recordkeeping systems, which are special information systems that manage and preserve the records that provide evidence of business transactions or of personal activities. I have tried to address the concerns of archivists and records managers in both the public and

private sectors. I hope that the basic content will also be useful for others involved in the process, including IT staff, auditors, risk managers, and lawyers.

My discussion of commonly used information systems, such as relational databases, data warehouses, decision support systems, and document management and content management systems, is organized around four objectives. First, I provide information on how these systems are designed and how to identify which types of functionality are primary and which are secondary. Second, I review the basic architecture of these systems to provide readers with a more detailed analysis of how data, information, and records are processed and managed. A third objective is to use the design features and functionality to analyze how the information systems function as recordkeeping systems. To achieve this goal, I compare the known functionality of the system under review with the functional requirements and metadata specifications that have been established for recordkeeping systems. Fourth, I analyze the strengths and weaknesses of the information systems as recordkeeping applications. As part of this analysis, I recommend some options and strategies for transforming these systems into better, more functional recordkeeping systems.

*Understanding Data and Information Systems for Recordkeeping* reflects the reality that in most cases, you will not be designing a new structure from scratch. Most projects will involve critiquing what currently exists and building future strategies around and through these information systems. Simply knowing what you want to achieve will not get you where you want to go. To reach your goals, you must understand the present and existing environment and fit your requirements and specifications into that framework.

## ORGANIZATION

Chapter 1, "The Impact of Change on the Management of Electronic Records," examines the outside forces that have impacted how records are created and managed. Questions that are addressed in the chapter include: What changes have occurred in the business environment? How has computer technology developed? How are these changes in organizational structure and in technology transforming archives and records management theory and practice?

Chapter 2, "Recordkeeping Systems," reviews the definitions of

records, recordkeeping systems, and metadata. Functional requirements statements, metadata specifications, and the characteristics that should be considered essential and fundamental for any such system are discussed.

Chapter 3, "Transaction Processing Systems Constructed on the Relational Database Model," details the design features and functionality of these systems. Issues covered include data model construction, structural components of relational databases, the ways in which a database preserves historical information, and strategies for making transaction processing systems better for recordkeeping.

Chapter 4, "Enterprise Document Management and Content Management Systems," discusses the evolution of document management systems from the mid 1990s to the present. It describes the changes of the past few years, current functionality, and the recordkeeping capabilities of content management systems.

Chapter 5, "Decision Support Systems and Data Warehouses," explains these applications, how they are structured, and how they capture, integrate, and transform data. The types of metadata typically found in the warehouse and the changes warehouses may undergo in the near future are also covered. The chapter concludes by examining whether data warehouses can be transformed into effective recordkeeping systems.

Chapter 6, "E-mail Management," outlines strategies for handling e-mail as a business record. It examines relevant court cases and litigation, pinpointing specific challenges in managing e-mail and actions that can be taken to overcome these challenges.

Chapter 7, "Laws, Regulations, and Best Practices Relating to Electronic Records Management," evaluates the most relevant legislation and requirements from the United States, Canada, and the United Kingdom. It also identifies lessons to be learned from these laws, regulations, and best practices as they relate to recordkeeping.

Chapter 8, "Conclusion," suggests reasons to be both optimistic and pessimistic about the future of electronic records management.

Developing effective electronic recordkeeping systems requires a thorough understanding of existing information systems. *Understanding Data and Information Systems for Recordkeeping* is dedicated to providing archivists and records managers with essential knowledge on how commonly used systems process data and information so that our professions can make a real and significant impact on how records are managed within our institutions.