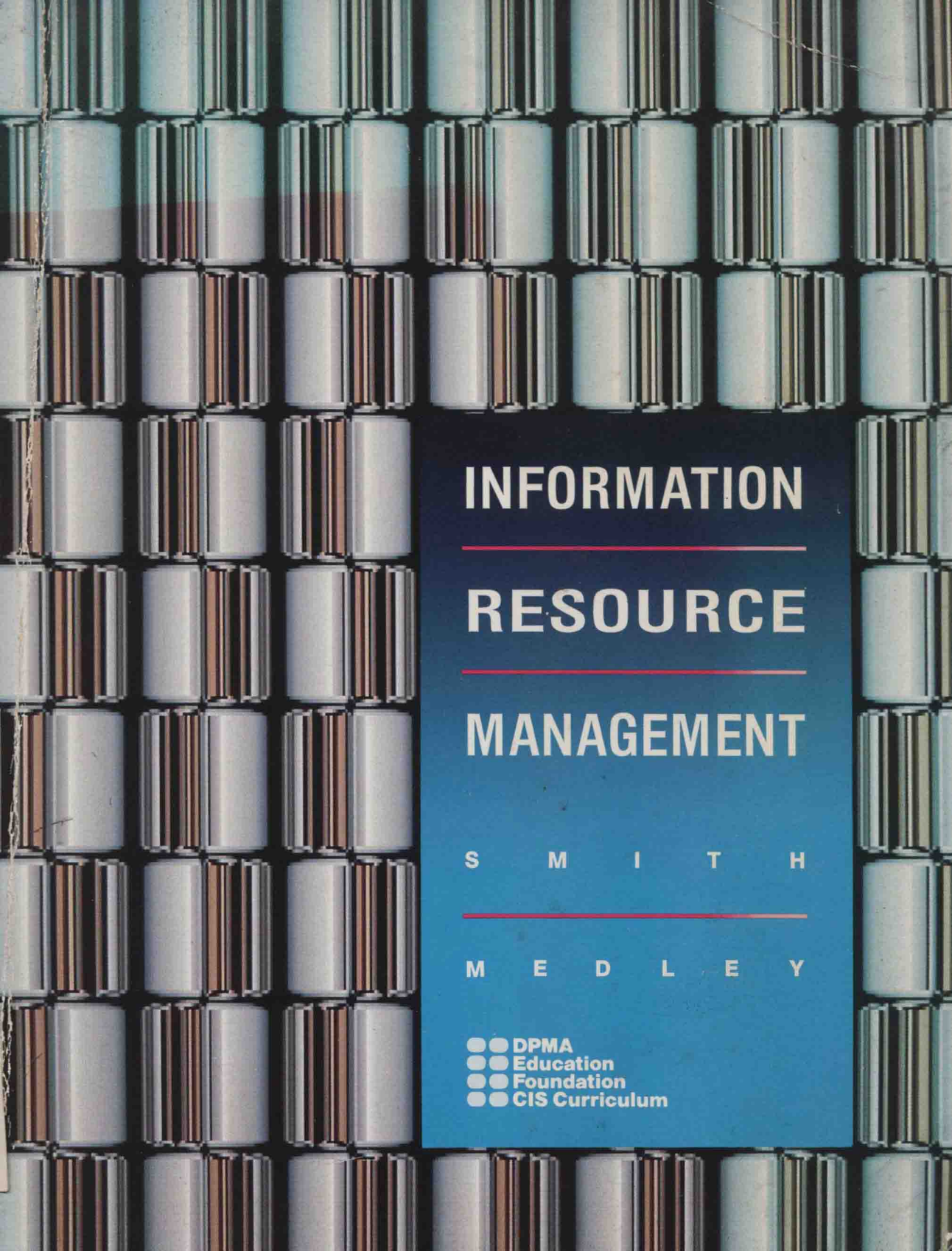
INFORMATION
RESOURCE
MANAGEMENT
S M I T H
M E D L E Y
DPMA
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Information Resource Management

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Information Resource Management

Preface

COMPUTERS AND PROFESSIONALISM

Professional stature for people who create and manage computer systems has been a longstanding goal, one that finally is being realized. Significantly, recognition for computer professionalism is being derived from sources other than the hardware and software technologies with which many computer workers occupy themselves. Rather, as has happened in other fields, professional recognition has come through an awareness of the criticality and value of assets entrusted to managers of computer functions.

Corporate managers and the business community at large have come to recognize that a company is dependent upon the soundness and accessibility of its information resources. With this recognition of dependence has come a willingness to make appointments at the highest organizational levels for those specialized managers who are able to exercise responsibility for and custody over assets that other managers barely understand.

The business world is conditioned by precedents to such patterns of recognition and to reactions that bring about broad, sweeping changes. To cite just one precedent, recognition of the vital nature of financial assets and their control has, through the years, elevated accounting to professional status, complete with educational and entry requirements, as well as a code of conduct. Significantly, the elevation of accounting corresponded with and followed major discoveries of fraudulent use of assets. When computers gained notoriety as burglary tools, a corresponding recognition emerged for

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the dependency of organizations upon information assets that had evolved. Recognition and organizational elevation followed in kind.

Perhaps the most vivid evidence of the growing professional and managerial importance of computer-centered endeavors lies in the new title that has been bestowed upon functions organized as custodians of information resources. The currently favored name is information resources management (IRM), a designation that replaces descriptions such as computer information systems (CIS), management information systems (MIS), and data processing (DP). IRM managers tend to sit higher in organization charts and to assume responsibilities with broader scope than counterparts with other titles.

This book is about the challenges of IRM as a concept and as a managerial reality. It is a book about professionalism for professionals and aspiring professionals interested in the future face and functions of computer-inclusive information systems. An immediate goal of this work is to provide a text that conforms to the learning-materials needs of a course within the Data Processing Management Association (DPMA) Model Curriculum for Undergraduate Computer Information Systems. The book was developed under DPMA cognizance specifically to meet the requirements of the CIS-15 course entitled *Information Resource Management.*

VALUE OF THIS BOOK

The IRM concept demands the development of a select group consisting of managers and executives who can survive on the basis of their general management skills and who also can bring expertise in computer technology to their work assignments. The challenges and opportunities presented by implementation of IRM concepts are being met by two categories of specially qualified people:

- Persons who already possess computer-related knowledge and skills are mastering the concepts and responsibilities of general management.
- Management generalists are acquiring computer expertise.

This book can serve as a high-level primer, and possibly also as a job description, for persons ready to capitalize on the recent and future growth of opportunities in the management and control of information resources.

CONTENT ORGANIZATION

This book starts with a review of management principles pertinent to IRM, traces the trends that have brought IRM to a forefront position in the business world, identifies relevant technologies and their evolution, then moves into the corporate environment in which IRM specialists interact with and support efforts to establish and meet overall corporate objectives.

Chapter 1. IRM is defined as a subset of general management. Elements of an overall, effective system of management are identified and are related to the responsibilities and support functions of IRM. In the initial review, the contributions of early and prominent management scientists are reviewed and related to current trends. The trends cited include the emergence of global economic markets, increasing competition, changes in organization structures, and the dynamic role of computers and computer specialists.

Chapter 2. As a continuum in building student background, this chapter deals with relationships among information, knowledge, and management. Information is identified as an end product of data processing with attributes that include timeliness, content, format, cost, and value. Knowledge is presented as a by-product of the combination of information and experience, a distillation of information that results from contributions at all levels of an organization. Information and knowledge distilled from experience, in turn, provide the managerial skills requisite for effective planning and decision making. The point is made that the critical role of information within this composite picture has contributed to the recognition of and professional status accorded to the IRM function and IRM people.

Chapter 3. The evolution of IRM concepts and practices has occurred naturally from a series of historic stages associated with the development and use of computers. Initial emphasis was on a data processing approach in which "runs" on computers replaced specialized processing functions performed by the computer's predecessors, punched card accounting machines. As magnetic storage capabilities were introduced and became more important, the field entered an era of emphasis on information systems. The idea of an information system, in turn, led to recognition that stored files were coming to represent the main values of and focal points for the integration of computer-generated information and the management of computer-using organizations. The term, management information systems (MIS), came into

use to reflect the fact that computer outputs were being directed toward the operational monitoring and decision-making functions of managers. The evolution of IRM concepts and practices reflects the functional integration of multiple technologies to meet the needs of organizations. The same basic technology used in computers was, through the years, adapted to data and voice communication equipment, office copiers, typewriters, microcomputer work stations, and other devices that revolutionized office work. Under IRM concepts, then, management has followed the natural lead of technology. IRM executives tend to be assigned responsibility for all computing, telecommunications, and reprographics functions within their organizations. This positions IRM as the focal point for information- and communication-oriented functions for the organization as a whole.

Chapter 4. The role and functions of IRM within a given organization are shaped by a series of internal and external relationships. These relationships are built and maintained by the chief information officer (CIO). Relationships are required with other executives and managers, users, hardware vendors, software developers, administrators, project personnel, and persons with capital budgeting responsibility. Since computer utilization is a technical business, the CIO must integrate the resources of vendors with those of internal personnel to achieve smooth transition and in-depth training in implementing hardware and software changes. A prime responsibility, of course, is for the CIO to establish the value of information resources and to promote the use of these resources as tools for all levels of management.

Chapter 5. A number of organizational factors that led to the development of IRM concepts are traced in this chapter. The developmental sequence spanned periods of manual processing, punched card processing, data processing with computers, information systems, and IRM. At the first stage, manual methods promoted independence that included both ownership and custody of data by the individuals or groups who conducted transactions or used document files. At succeeding stages, increased centralization took place. During the punched card and data processing eras, information resources were centralized. The machine accounting center, then the computer facility, became custodians of data and information resources. After a time, however, the cycle was reversed by trends in distributed processing that included remote access to interactive computing facilities. With the widespread acceptance of microcomputers and electronic work stations, information resources were redistributed—at least to a degree. The new

challenge is to coordinate widespread distribution of information resources and processing capabilities. Goals include encouragement of the entrepreneurship implicit in standalone microcomputing capabilities while maintaining a required level of compatibility and integrity in databases and in information resources used in operations, planning, and decision making for the organization as a whole.

Chapter 6. IRM executives face challenges in the planning area that involve both their own areas of responsibility and requirements for integration with overall corporate plans. The CIO must formulate plans that, on one hand, anticipate such factors as changes in technology, shortages of personnel with mastery of advanced technologies, and projected obsolescence of current hardware and software. These computer-related factors, in turn, must be integrated with stated corporate needs for services and access to information. Integration of IRM plans with corporate plans must occur at all levels, strategic, tactical, and operational.

Chapter 7. Computers are both respondents to and promoters of change. Under IRM concepts, the effects of change are extended to many areas of personal and organizational behavior. Traditional concerns for behavioral impacts of computers centered around user involvement in systems development. It has been axiomatic for decades that, since all systems ultimately belong to their users, it is both logical and necessary to seek user input at the outset of a systems development project. More recently, impacts upon behavior have gone beyond the realm of systems development into global effects that are producing changes—or at least offering options for changes—in the basic work and lifestyle patterns of millions of people. Trends identified include the depersonalization of services through direct public access to computers, as occurs in ATM services of banks. Other factors include capabilities for telecommuting and teleconferencing that can affect the need for business travel or the basic idea about what is meant by "going to work." Security consciousness is leading to restrictions on information access, and to reactions that range from support to frustration. Other factors include the dramatic changes in organizational structure that are being implemented in response to IRM capabilities. The trend cited in this chapter is the "flattening of the organization chart" that results from the decrease in work assignments for middle managers because of the direct informational support given to decision makers by information systems.

Chapter 8. This chapter deals with systems development projects from a perspective that sees the direction of systems projects as an application of risk-management methods. The totality of systems development efforts within an organization is regarded as a weighting of prospects for success and benefit against the potential for failure, which is ever-present. Risk reduction and risk-management techniques are stressed, including care in resource allocation, project monitoring, and people management. The increasing application of expert systems to the development of information systems and the management of information resources is discussed as a promising trend.

Chapter 9. Initially, this chapter points out, computerized systems were designed to promote ease of access to information. Then, issues arose over the use of computer files for breaches of privacy and for outright theft. These developments have led to a situation in which security and access control are major issues and responsibilities within the scope of the CIO and IRM functions. Two levels of control requirements are covered in depth: controls over access to information by system users and physical protection of facilities. The economic balance between the cost of control measures and the value of those controls, as well as the information protected, is covered.

Chapter 10. One of the major challenges associated with any new management concept lies in communicating principles and benefits to those with a need to know. This requirement is particularly important for IRM managers because of the mix of technology and managerial philosophy to be communicated. Accordingly, the chapter lays out a process approach that can be used in formulating both written and oral presentations. The methodology is audience-oriented. That is, communication begins with a perception of the specific audience addressed and its information needs. The process proceeds through a sequence of steps for information gathering, the ordering of information for logical presentation, the development of the message itself, and support for the media through print, audio, and visual (graphic) media.

Chapter 11. Success of an IRM program depends directly on the ability of an organization to develop and retain key people. This chapter identifies the elements of and provides guidelines for a complete human resources development and management program. Emphasis is on the finding of mutual interests and benefits for the skilled individuals required and the needs and best interests of the organization as a whole.

Chapter 12. This final chapter identifies current and future trends and issues of the IRM field. One inevitable highlight is the continuation of technological developments toward lower costs and greater power in computer processors, memories, and storage devices. Among other results, these trends can be expected to encourage creation of software tools that increase the user friendliness of computers. In turn, increased accessibility to computers by people will lead to a changing role in which IRM professionals are cast more as consultants and supporting resources than as custodians and technicians. Other factors that will have an impact are the increasing capabilities for information interchange among organizations and within society as a whole. This trend will encompass trans-border data flows that could, ultimately, encourage increasing coordination in world trade and economics.

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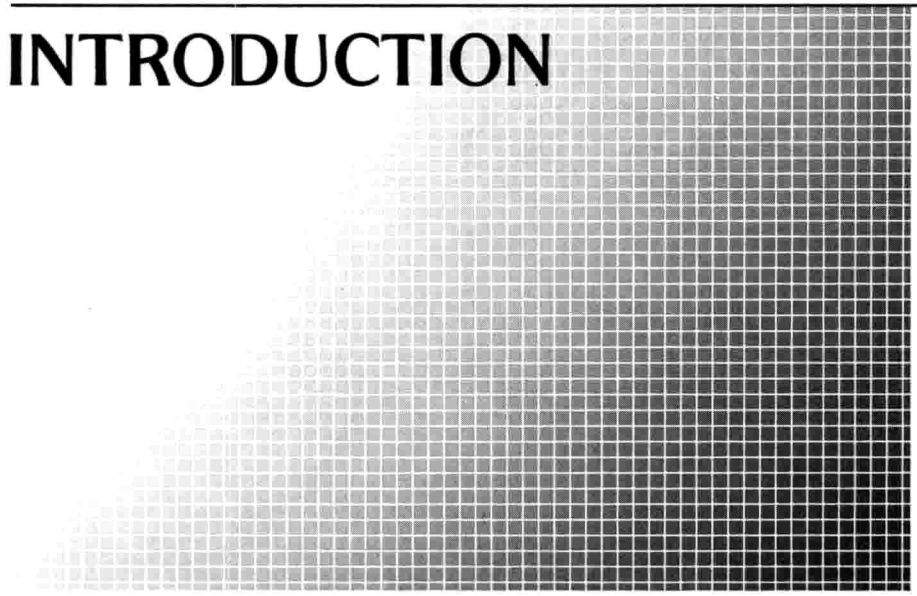
I

INTRODUCTION



Information resources management (IRM) represents an emerging dimension in the management of computer-inclusive systems and operations. IRM, first and foremost represents a recognition of the value of information resources accumulated and managed by computers to the companies that own and use those resources. The emergence of IRM also represents a natural evolution of the management of computational resources, beginning with the era of step-by-step processing through punched card machines and early computers. Computer-related management has grown steadily more sophisticated through periods that saw development of management information systems and distributed intelligence capabilities. Concurrently, users have gained increasing sophistication and have, accordingly, increased their demands for system responsiveness. As a result, IRM represents a blending of technical and general management skills that positions computer professionals in the mainstreams of their organizations.

The chapters in this first part of the text cover general principles of management, the relations of information and knowledge development to the process of management, and the stages in the evolution of IRM concepts.

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