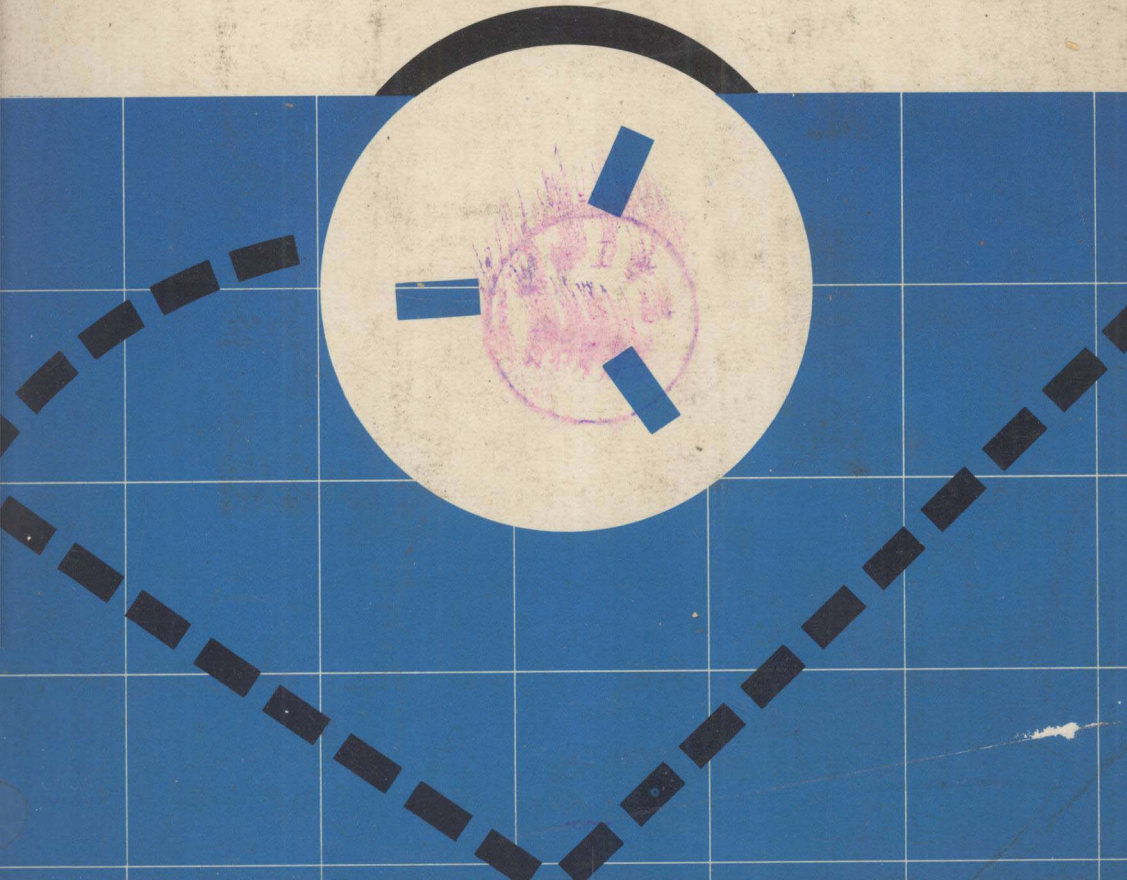
Donald H. Sanders and Stanley J. Birkin

Computers and Management In a Changing Society



Computers and Management

In a Changing Society

Third Edition

Donald H. Sanders
M. J. Neeley School of Business
Texas Christian University

Stanley J. Birkin
College of Business Administration
University of South Florida

McGraw-Hill Book Company

New York St. Louis San Francisco Auckland Bogotá Hamburg
Johannesburg London Madrid Mexico Montreal New Delhi Panama
Paris São Paulo Singapore Sydney Tokyo Toronto

This book was set in Times Roman by Black Dot, Inc. (ECU).
The editors were Charles E. Stewart and James B. Armstrong;
the production supervisor was Dominick Petrellese.
New drawings were done by J & R Services, Inc.
The cover was designed by Mark Rubin.
R. R. Donnelley & Sons Company was printer and binder.

COMPUTERS AND MANAGEMENT
In a Changing Society

Copyright © 1980, 1974, 1970 by McGraw-Hill, Inc. All rights reserved. Printed in the United States of America. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of the publisher.

234567890 DODO 89876543210

Library of Congress Cataloging in Publication Data

Sanders, Donald H comp.
Computers and management.

Includes index.
1. Business—Data processing. 2. Management information systems. I. Birkin, Stanley J., joint author. III. Title.
HF5548.2.S22 1980 658.4'03 79-22490
ISBN 0-07-054627-4

Computers and Management

In a Changing Society

To my mother, Irene.
D.H.S.

To my parents, Arthur and Sarah.
S.J.B.

此为试读,需要完整PDF请访问: www.ertongbook.com

Preface

Computers continue to play an ever-increasing role both in our everyday lives and in organizations of all types. Within these organizations the impact of computerization results in tremendous change and presents management in many situations with one of the most difficult of all contemporary challenges.

Colleges are now focusing much attention on the computer through courses in business administration and in the social and behavioral sciences. This increased attention is justified, since students destined to become managers in tomorrow's organizations will find themselves working in an environment significantly affected by the use of computer-based information systems. This is the case both in the business community and in the not-for-profit sector.

In order to prepare for a successful working relationship with these computerized information systems, present and potential managers must (1) learn about the computer—what is is, what it can and cannot do, and how it operates—and (2) acquire an understanding of the managerial and social implications of computer usage.

Many introductory data processing courses emphasize the first of these needs; they employ textbooks and/or manuals which are technically oriented and which are designed to provide the necessary grasp of hardware and programming concepts. Such courses are valuable and needed. However, they often do

not deal with the broad impact that computers have had, are having, and may be expected to have on managers and on the environment in which managers work.

The purpose of this book is to provide the broad managerial orientation which is needed. More specifically, this volume (1) explains why knowledge of information processing is required (and in so doing introduces readers to some basic information processing concepts); (2) points out the managerial implications of computer usage to many whose data processing preparation is not likely to be extensive; (3) discusses some of the ways in which computers may possibly influence the society in which managers live and work; and (4) provides, in a single source, *relevant readings* taken from leading publications and written by respected authorities.

TEXT ORGANIZATION

In *Chapter 1,* the subject of management information is examined. The data processing steps necessary to produce such information are identified; the need for (and the importance of) management information is presented; and the desired properties of quality information are discussed. The concluding pages of the chapter are devoted to a study of the evolution of information processing.

Chapter 2 focuses attention on the information processing revolution which is now under way. Topics treated in this chapter include (1) the technological, social, and economic changes that provide the setting for sweeping informational changes and (2) the new management information systems being developed to enable administrators to cope with rapid environmental change. This chapter explains, in part, why future managers must have knowledge of information processing.

Chapter 3 is an orientation chapter which presents a broad-brush treatment of the implications of computer usage for management and society. Also included are analyses of the potential benefits of computers and a discussion of the negative implications of computerization. *Chapters 4 through 7* examine the problems and issues related to the areas of planning, organizing, staffing, and controlling.

Chapter 8, the final chapter, considers the use and impact of computers in not-for-profit organizations such as those in the fields of health, law, government, and social services. Even though many facets of computer usage are standard across all areas, these nonprofit organizations merit special attention because of their relatively new use of computers and because of the significance of the implications for society as a whole.

CHANGES IN THIS EDITION

This edition contains a significant number of changes. Among the more important changes are:

- The expansion and updating of the treatment given to important contemporary topics such as data-base systems and MIS applications.

- The replacement of the majority of the readings found in the second edition with more current articles.
- The development and inclusion of new cases replacing most of those in the second edition. (These cases can be used as starting points for discussion of the text material in the chapters.)
- The addition of an *entirely new chapter,* "Computers in Not-for-Profit Organizations," which focuses on the usage of computers in these types of organizations.

USE OF THIS BOOK

Computers and Management requires no mathematical or data processing background and is designed to be used (1) in introductory data processing courses (it will supplement the programming books and manuals used in technically oriented courses and can be used as a readings book regardless of the course orientation); (2) in basic management courses, where it will serve to impress upon management students the importance of the computer as a managerial tool; (3) in introductory systems-analysis courses, where it will expose potential analysts to the effects which their proposed systems changes are likely to have on managers and on the managerial environment; and (4) in business and not-for-profit organizations where managers will find in this volume a concise presentation of current trends and future expectations in the area of business information systems.

It would be inappropriate to conclude these opening remarks without acknowledging the contributions of those publishers and authors who have granted permission for their materials to be used as readings in this book. Their individual contributions are mentioned in the body of the book.

Donald H. Sanders
Stanley J. Birkin

Computers and Management

In a Changing Society

Contents

Preface xv

1

MANAGEMENT INFORMATION: INTRODUCTORY CONCEPTS

Purpose and Organization 3
Information Concepts 4

Information Defined / Sources of Data / Data Processing

Need for Management Information 7

What Information Is Needed / Desired Properties of Management Information

Information Improvement and Computer Processing 13

Evolution of Information Processing 15

Manual Stage / Machine-Assisted Manual Development/ Electromechanical Punched Card Development / Computer Development

Review Questions 22

Introduction to Readings 1 through 3 25

Reading
1 How Effective Managers Use Information Systems, *Steven L. Alter* 25
2 Management Misinformation Systems, *Russell L. Ackoff* 37
3 The Expectation Gap, *William S. Anderson* 47

Summary of Chapter 1 54

2
THE INFORMATION REVOLUTION

Revolutionary Environmental Changes 57

Scientific and Technological Changes / Social and Economic Changes / Managerial Implications of These Changes

Revolution in Computer Technology 59

Hardware Developments / Software Developments

Developments in Management Information Systems 69

An MIS Orientation / Quick-Response Systems / Data-Base Systems

Review Questions 82

Introduction to Readings 4 through 7 85

Reading
4 The Primacy of the User (Part 1), *William Ainsworth* 85
5 Beyond the Computer Age, *George E. Mueller* 90
6 New Look at MIS, *Martin J. Shio* 96
7 The Computer Gets a Voice, *John R. Hansen* 101
Case A Computer Models: "Black Box" or Management-Oriented?, *Michael C. Luecke* 105

Summary of Chapter 2 115

此为试读,需要完整PDF请访问: www.ertongbook.com

3

COMPUTER IMPLICATIONS FOR ORGANIZATIONS AND INDIVIDUALS

Types of Organizations Affected by Computers 117

Economic Organizations / Public Organizations

Benefits to Individuals in Organizations 123

Administrators / Employees

Benefits to Individuals in Private Life 124

Benefits from Economic Organizations / Benefits from Public Organizations

Possible Negative Implications of Business Computer Usage 127

Data Integrity Issues / Data Security Issues / The Privacy Issue

Review Questions 136

Introduction to Readings 8 through 10 139

Reading
8 Ten Hot Buttons Facing Management, *Gilbert H. Hoxie* and *Donald M. Shea* 139
9 Humanizing Information Systems, *Theodor D. Sterling* and *Kenneth Laudon* 150
10 Electronic Mail Comes of Age, *Frederick W. Miller* 160
Case B The Computer Impact: An Optimistic Outlook, *Donald H. Sanders* 164

Summary of Chapter 3 166

4

PLANNING FOR COMPUTERIZATION

The System Analysis Stage 169

Planning Prerequisites and Identification of Objectives / Data-Gathering Operations / Analyzing the Current System

Determination of Alternatives: Some Issues Influencing Design 170

Conceptual Design Issues / The Issue of System Flexibility / The Issue of System Control / The "Make" or "Buy" Issue / Human Factors and Operational Issues / The Issue of Economic Tradeoffs

Evaluating Alternatives 179

Equipment Evaluation and Selection / Estimated Return on Investment / Equipment Acquisition Methods

Making Decisions 183

Review Questions 184

Introduction to Readings 11 through 14 187

11 Get Ready for Long Range DP Planning, *Benjamin Knowles, Jr.* 187
12 How to Avoid Pitfalls of Information Systems Development, *Charles F. Axelson* 196
13 The Primacy of the User (Part 2), *William Ainsworth* 204
14 The Systems Analyst as a Change Agent, *William Feeney* and *Frea Sladek* 211
Case C The Disintegration of an Information System, *Neil Milroy* 219

Summary of Chapter 4 229

5

THE COMPUTER'S IMPACT ON PLANNING AND ORGANIZATIONAL STRUCTURE

Administrative Activities 231

Planning / Organizing / Staffing / Controlling

Planning, Decision Making, and Computer Usage 233

Planning with Computers / Decision-Making Techniques

Organizational Structure and Computer Usage 240

Where Will Decision Making Occur? / Where Will Data Be Processed? / Where Will Data Be Stored? / Where Will Computing Resources Be Located?

Review Questions 247

Introduction to Readings 15 through 17 249

15 Decision Support Systems: Personal Computing Services for Managers, *Eric D. Carlson* 249
16 Issues in Centralization, *Carl H. Reynolds* 256
17 Should You Decentralize?, *James Hannan* and *Louis Fried* 264
Case D New Trends in Data Processing 271

Summary of Chapter 5 276

6

STAFFING IMPLICATIONS OF COMPUTER USAGE

Internal Effects of Computerization 277

Changes in Job Duties / Changes in Employment Status / Personnel Resistance to Systems Change

Staffing the Computer Facility 284

The Selection Process / Recruiting Potential Candidates / Training Selected Employees / Motivating Computer Personnel

Organizing the Computer Facility 293

Review Questions 295

Introduction to Readings 18 through 20 297

18 What Motivates DP Professional, *J. Daniel Cougar* and *Robert A. Zawacki* 297
19 Hostility in Organization Change, *Louis Fried* 307
20 Management's Responsibility for Safeguarding Information, *Belden Menkus* 322
Case E Behavioral Reactions to the Introduction of a Management Information System at the U.S. Post Office: Some Empirical Observations, *Gary W. Dickson, John K. Simmons,* and *John C. Anderson* 332

Summary of Chapter 6 342

7

CONTROL AND THE COMPUTER

Managerial Control Implications 343

Internal Control Implications / A Final Note on Management Responsibility

Controlling the Computer Facility 352

Control of Operating Efficiency / Control of Data Integrity, System Security, and Personal Privacy

Review Questions 362

Introduction to Readings 21 through 23 363

21 Embezzler's Guide to the Computer, *Brandt Allen* 363
22 Data Security, *Marvin M. Wofsey* 377

23 Controlling the Costs of Data Services, *Richard L. Nolan* 392
Case F Getting Control of the System 406

Summary of Chapter 7 414

8
COMPUTERS IN NOT-FOR-PROFIT ORGANIZATIONS

Computers in the Federal Government 417

Planning and Decision Making in the Federal Government / Control in the Federal Government / Computers in Federal Law Enforcement

Computers in State and Local Governments 422

Planning and Decision Making in State and Local Governments / Control in State and Local Governments

Computers, Lawyers, and the Courts 425

Computers and Lawyers / Computers and the Courts

Computers in Medical Planning and Decision Making 427

Computer-Assisted Diagnosis and Research / Medical History Preparation and Retrieval / Study of Drug Side Effects / Physiological Simulations / Menu Planning

Health Control 431

Physiological Monitoring / Blood Bank Inventory Control / Hospital Drug Control / Control of Laboratory Tests

Hospital Information Systems 432

Planning and Decision Making in Education 433

Curriculum Planning / Planning for Individual Instruction / Class Scheduling

Control in Education 435

Computer-Assisted Instruction 436

Computers and the Humanities 436

Art Authenticity / Authorship Identification / Literary Analysis / Language Translation / Concordance Preparation

Computers in the Fine Arts 439
Computers and Museums 440
Computers and Historical Research 441
Computers and Archaeology 442
Review Questions 442
Introduction to Readings 24 through 27 445

24 Why Data Systems in Nonprofit Organizations Fail, *Regina Herzlinger* 445
25 Congress—The Politics of Information, *Neal Gregory* 452
26 Computer Use in Diagnosis, Prognosis, and Therapy, *Harold M. Schoolman* and *Lionel M. Bernstein* 463
27 Labor Relations Information Delivery in the Public Sector, *Ronald A. Leahy* 475
Case G Why Police States Love the Computer, *Hugh Wiener* 478

Summary of Chapter 8 483
Index 487

Chapter 1

Management Information: Introductory Concepts

Just under 30 years ago, the first general-purpose computer was installed at the U.S. Bureau of the Census. At the time, it was considered little more than a scientific curiosity, and its future use was projected to be limited to a few applications, mostly scientific and statistical in nature. This was a time when the data processing world was preoccupied with tabulating card systems. Few individuals were able to envision the ultimate growth and impact of the computer industry and computer usage in organizations. In a special report in *Dun's Review,* it has been projected that by 1985 there may be as many as a half a million computers installed in the United States.[1] In other words, there will be one computer for every business with over 50 employees. Furthermore, as an industry, the information system business is expected to grow at an annual rate exceeding 20 percent for the next decade, reaching the $82 billion level by 1985.[2]

The whirlwindlike growth of computer usage in many types of organizations

[1]"Management and the Computer," *Dun's Review,* July 1977, p. 65.

[2]Edward W. Pullen and Robert G. Simko, "Our Changing Industry," *Datamation,* January 1977, p. 55.

此为试读,需要完整PDF请访问: www.ertongbook.com