立信英文版会计专业系列教材

ACCOUNTING
Information Systems

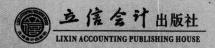
Mawdudur Rahman [美] 莫杜德·拉赫曼/著



GLOBAL

ACCOUNTING Information Systems 会计信息系统

Mawdudur Rahman [美] 莫杜德·拉赫曼/著



图书在版编目(CIP)数据

会计信息系统=Accounting Information Systems: 英文/(美)拉赫曼(Rahman, M.)著.一上海:立 信会计出版社,2011.11 立信英文版会计专业系列教材 ISBN 978-7-5429-2983-9

I.①会··· Ⅱ.①拉··· Ⅲ.①会计信息-财务管理系统-教材-英文 Ⅳ.①F232

中国版本图书馆 CIP 数据核字(2011)第 245347 号

New and revised edition of Accounting information systems: principles, applications, and future directions/ Mawdudur Rahman, Maurice Halladay.

ISBN 0-13-001851-1

Maturials from the Certificate in Management Accounting Examination. Copyring 01972, 1973, and 1974 by the National Association of Accountants are reprinted and/or adapted with permission. Maturials from the Society of Management Accountants Examinations, Copyright 01975, 1976, 1977, 1978, and 1979, are reprinted and/or adapted with permission from the Society of Management Accountants of Canada, Hamilton, Canada,

All rights reserved by the author. No part of this book may be reproduced, in any form or by any means, without permission in writing from the author.

会计信息系统 Accounting Information Systems

出版	发行	立信会计出版社			
地	址	上海市中山西路 2230 号	邮政	编码	200235
电	话	(021)64411389	传	真	(021)64411325
[XX]	址	www. lixinaph. com	电子	邮箱	lxaph@sh163. net
网上	书店	www. shlx. net	电	话	(021)64411071
经	销	各地新华书店			
Eli	刷	上海申松立信印刷有限责任	公司		
开	本	787 毫米×1092 毫米 1/16	;		
Ep	张	33.75 插	页 2		
字	数	530 千字			
版	次	2011年11月第1版			
ED	次	2011年11月第1次			
印	数	1—2 000			
书	号	ISBN 978 - 7 - 5429 - 2983	- 9/ F		
定	价	56.00元			

About the Author

Mawdudur Rahman is a global knowledge leader and a Professor of Accounting at Suffolk University, Boston. He is the Founder-President of



Knowledge Globalization Institute, Boston, USA, the Founder and first director of Suffolk Online MBA program, Editor-chief, Journal of Knowledge Globalization which is a world class refereed journal.

His innovative concept of Knowledge globalization conference has attracted scholars from many different fields. He is currently working in Social Business for poverty alleviation projects. His research interests embrace design and implementation of AIS and MIS, continuous quality improvement, distance learning, change management and global knowledge sharing.

He coauthored three books in AIS and Management Information systems. He contributed a large number of articles to academic and professional journals, and news media globally.

He teaches courses in cost accounting, managerial accounting, AIS and management topics. He did consultation/training projects for corporations, international agencies, foreign governments, and US State and Federal Government agencies, serving on the Boards of non-profit organizations. He has a Ph.D. from Manchester University, England, an MBA from Indiana University, Indiana.

ACKNOWLEDGMENTS (2007 edition)

I wish to extend my sincere thanks to my former colleague and co-author Dr. Maurice Halladay for giving me the permission to use the original version of the book to revise and reproduce it.

During the process of developing the current edition I received help and support from many people. I am grateful to them all. This book is a by-product of a major project supported by a grant from Zayed University, UAE to develop an interactive AIS book. I thank Dean Michael Owen of Zayed University's College of Business Sciences for his support to the project. Though the project was not pursued to its completion, I continued to complete the textbook. I also received generous help from Mohammad Shahidul Islam of King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia. Mohammad Islam assisted me in revising two chapters of the book.

I will remain pleasantly indebted to my wife Rashida. Without her encouragement and support I could not have finished this or any other academic work I have accomplished.

ACKNOWLEDGMENTS (first edition)

We wish to extend sincere thanks to our students, who have critically reviewed the materials in this text as we developed them and tested them in the classroom environment. Special thanks go to our graduate assistants Andrea Demetroulakos, Laurie Reichwein, and Mary Ann Ida, who have actively contributed their artistic and editorial talents to this project; to Sara Leefman, manager of the Suffolk University Faculty Resource Unit, who has provided essential secretarial support; to Myra Lerman, who has corrected our sometimes tortured syntax; and to Dean Richard McDowell of the Suffolk University School of Management for making the necessary time and resources available to us to complete this work. Our special thanks are also due to Julie Warner, Barbara Grasso, and their editorial staffs, which's careful attention made this publication possible.

Permission has been received from the Institute of Management Accounting of the National Association of Accountants to use questions and/or unofficial answers from past CMA examinations.

PREFACE

This book provides an introduction to accounting information from the accountant's perspective. In my search for AIS text book to use in undergraduate and graduate courses to teach students across different countries. I discovered a number of excellent books on the subject those emphasize computerized information systems and use accounting applications liberally. These texts are more appropriate for a course in systems analysis than for accounting. It is sometime difficult to use these books indifferent cultures given specific examples from one culture only.

This textbook is designed to assist students in understanding the rationales for developing different forms and types of accounting information; the relationships between and among accounting departments, information services departments, operating departments, and staff agencies of private and public sector organizations; and the several support modes available via emerging computer technologies, along with their capabilities, limitations, and liabilities. It incorporates examples and applications from different cultures.

The book is divided into four parts.

Part I consists of three introductory chapters. Chapter 1 covers the uses of accounting information. This chapter is particularly useful in broadening the perspective of undergraduate students. Beginning accounting students tend to compartmentalize learning according to the content of courses offered in the different branches of accounting. Chapter 2 provides an overview of the systems approach to analyzing organizations. We find that the systems view clearly represents both the static and dynamic elements of organizations. Chapter 2 uses systems concepts to define the AIS, to provide a distinction between the AIS and its computerized components, and to examine those environmental factors that facilitate AIS success or constrain its development. Chapter 3 briefly reviews basic accounting principles. We have found this to be especially useful for our in-service MBA students, who have relatively weak accounting

preparation or who have been away from academia for some time. It is not intended to be a comprehensive accounting review, but rather emphasizes fundamentals. The chapter establishes the basic procedures followed in a manual accounting system and illustrates how these are accomplished via automated procedures available to large and small organizations.

Part II identifies and discusses the essential components of AIS and the interfaces among them. This section focuses on the static features of the AIS. Chapter 4 deals with the primacy of the accountant in the human-machine relationship. Chapter 5 provides an overview of the hardware available to support accounting requirements. Chapter 6 reviews the levels of software and the generation of software that activates the hardware. Chapter 7 investigates the capabilities and limitations of different data storage configurations.

Part III turns to the more dynamic aspects of the AIS. Chapter 8 considers the relative merits of batch and on-line processing techniques. This is the dynamic of the AIS in the short run-the use of existing capabilities. Chapters 9 and 10 outline the alternatives open to the accountant faced with the need to acquire additional capabilities, given the reality that accounting information requirements change over time. Chapter 9 describes the traditional application development life cycle. Chapter 10 is devoted to more innovative methods of developing or procuring the necessary software for accounting support.

Part IV deals with the practical day-to-day considerations in using AIS to support the needs of management. This section provides an in-depth understanding of the roles of the AIS in supporting management's requirements and objectives at all levels in the organizational hierarchy. The issue of control is emphasized throughout these chapters. Chapter 11 describes control perspectives in an organization and deals with different operating control frameworks. Chapter 12 is devoted internal controls in accounting, to highlighting the Chapter 13 introduces AIS role in management control. Chapter 14 incorporates new materials to the AIS subject areas and provides guidance for future directions. Chapter 15 is devoted to the current issues in AIS.

Contents

Part 1 Introduction

CLIOII		
apter 1	Accounting Information Systems — An Overview	. 3
	Introduction ·····	• 4
	Objectives of Financial Accounting	. 6
	Objectives of Managerial Accounting	. 8
	AIS and MIS ·····	10
	Attributes and Principles of Accounting Information	11
	Users of Accounting Information Systems	17
	The Roles of Accountants in the AIS	19
	Systems Concepts and the AIS	20
	The Computer and Accounting Information in Historical Perspective	26
	Summary	28
	Review Questions, Discussion Questions, and Problems and Cases	29
	Suggested Readings	32
apter 2	AIS and Its Environment	34
	Introduction	35
	Elements of A Systems Definition	35
	Systems in Action ·····	44
	A Systems Definition of the AIS ·····	49
	Defining the Computer Assisted Accounting Information System (CAAIS)	52
	The Internal Environment	54
	The External Environment	58
	Summary	65

Review Questions, Discussion Questions, and Problems and Cases 65

	Suggested Readings	- 69
Chapter 3	The Accounting Systems	· 70
	Introduction	· 71
	The Structure of the Accounting Systems	· 71
	The Accounting Cycle ····	· 75
	Computerized Accounting Systems	· 75
	Summary ····	102
	Review Questions, Discussion Questions, and Problems and Cases	102
	Suggested Readings ····	108
David O		
Part 2		
The AIS: Components		
Chapter 4	The Human Component of the AIS	111
	Introduction ·····	112
	Human Involvement in an AIS ·····	113
	Managerial and Behavioral Aspects of the Human Side of an AIS $\cdots\cdots$	125
	Dysfunctional Behavior and Motivation ····	130
	Summary ····	136
	Review Questions, Discussion Questions, and Problems and Cases $\cdots\cdots\cdots$	138
	Suggested Readings ·····	144
Chapter 5	The Hardware Component	
	Introduction	146
	Input Characteristics and Devices	147
	Central Processing Unit Characteristics	157
	Secondary Storage Devices ·····	163
	Output Characteristics and Devices ·····	169
	Data Communications Characteristics and Devices	
	Summary	181
	Review Questions, Discussion Questions, and Problems and Cases	182
	Suggested Readings ····	185

<u> </u>		
Chapter 6	The Software Component	186
	Introduction	187
	The Operating System	188
	General Purpose Software	191
	Applications Software ······	202
	Summary ·····	215
	Review Questions, Discussion Questions, and Problems and Cases	216
	Suggested Readings ·····	219
Chapter 7	The Data Component: Characteristics, Storage, and Retrieval	221
	Introduction ·····	222
	The Nature of Data ·····	223
	Data Structure ·····	226
	Database Structures ·····	234
	Data Update and Retrieval ·····	241
	Database Management ·····	247
	Data Versus Information ·····	252
	Summary ····	253
	Review Questions, Discussion Questions, and Problems and Cases	254
	Suggested Readings	257
Part 3		
The Dynamics of the	: AIS	
Chapter 8	Processing Principles and Practices	261
	Introduction ·····	262
	Computer Operations	262
e.	A CAAIS Example ·····	270
	Data Processing Issues	279
	Control Issues in the CAAIS ·····	281
	Security and Privacy in Computer Processing	285
	Summary ····	289
	Review Questions, Discussion Questions, and Problems and Cases	290

•		
Con	iter	หร

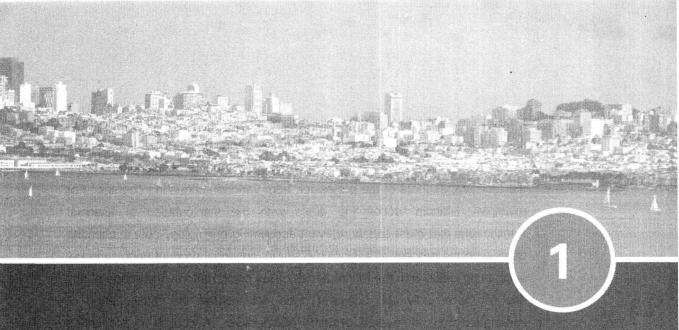
	Suggested Readings	29
Chapter 9	The Traditional Software Development Life Cycle	29
	Introduction	29
	The Context for the Traditional Life Cycle	29
	The MIS Master Plan ·····	299
	The Software Development Life Cycle (SDLC)	303
	Summary ····	332
	Review Questions, Discussion Questions, and Problems and Cases	333
	Suggested Readings ·····	337
Chapter 10	AIS in Operation: Revenue Cycle	339
	Introduction ·····	340
	Accounting Transaction Processing Cycles	340
	Controls in Organizations	342
	Core Controls	343
	A Control Framework: Operating Controls	349
	AIS in Operation: Revenue Cycle ·····	351
	Framework for Revenue Cycle	352
	Elements of the Revenue Generating Subsystems	359
	Operating Controls in Revenue Cycle	360
	Summary ····	362
	Review Questions, Discussion Questions, and Problems and Cases	363
	Suggested Readings ····	368
Part 4		
The AIS at Work		
Chapter 11	AIS in Operation: Expenditure Cycle, Cash Control, Payroll and	
	Inventory	371
	Introduction	
	Expenditure Cycle for Purchases	
	Control of Cash Transactions	



385
387
390
393
394
401
402
403
414
421
423
427
lvisory
427
447
448
449
450
452
452
453
453 456
453 456 457 464
453 456 457 464 465
453 456 457 464 465 472
453 456 457 464 465 472 473
453 456 457 464 465 472 473
453 456 457 464 465 472 473 474

Contents

	Strategic Management ·····	482
	AIS in Corporate Planning	484
	Decision Support Systems (DSS)	486
	Artificial Intelligence (AI) and Expert Systems (ES)	495
	Summary	499
	Review Questions, Discussion Questions, and Problems and Cases	501
	Suggested Readings ·····	506
Chapter 15	Current Issues in Accounting Information Systems	508
	Introduction ·····	509
	Web Accounting	510
	Enterprise Resource Planning (ERP)	515
	Financial Supply Chain Management (FSCM)	518
	Benefits of Financial Supply Chain	522
	Other Innovative Technologies in Accounting Transactions Processing	524
	Summary ····	527
	Review Questions, Discussion Questions, and Problems and Cases	529



Introduction

Chapter 1 Accounting Information Systems — An Overview

Chapter 2 AIS and Its Environment

Chapter 3 The Accounting Systems

A course in accounting information systems deals with the multiple facets of accounting, and integrates organizational aspects relevant to the design, operation, and use of accounting information. Students of accounting learn the technical aspects of the profession from various accounting courses. For example, financial accounting deals with the manipulation of financial transactions that must satisfy relevant accounting principles; cost accounting deals with the process of assigning costs to individual product units, and tax accounting deals with the technicalities of tax computation. The scope of any one of these individual subjects does not include the manipulation of information from an overall systems perspective. A course in accounting information systems is an evolving subject. It is not solely a data processing course, nor is it limited to computer-assisted functions. It requires a multidisciplinary perspective on the design, implementation, and use of machine-processed information.

An accounting information system integrates accounting techniques with data processing hardware and software, managerial decision-making processes, and human behavior and motivation. Thus the subject matter of the course relies on tools, techniques, and theories from other subjects in a business curriculum. The study of AIS helps students to relate different accounting functions to a common base and to use the knowledge acquired from other subject areas. More specifically, it helps them to:

- 1. Identify effective ways to report and communicate financial information
 - 2. Identify efficient techniques of data manipulation
- 3. Satisfy organizational needs and environmental constraints in accounting reporting
- 4. Understand the distinction between data processing and an accounting information system
 - 5 Relate more effectively to other people, departments, and functions
 - 6. Develop a broader organizational outlook

01

Accounting Information Systems — An Overview

Chapter Outline

Introduction

Objectives of Financial Accounting

Objectives of Managerial Accounting

AIS and MIS

Attributes and Principles of Accounting Information

Users of Accounting Information Systems

The Roles of Accountants in the AIS

Systems Concepts and the AIS

The Computer and Accounting Information in Historical Perspective

Summary

Review Questions, Discussion Questions, and Problems and Cases

Suggested Readings

Introduction

We live in an era of interesting changes and challenges. Information technology is defining our modes of life and ways of thinking. It is opening endless opportunities to expand our intellectual, academic and professional visions. It is no wonder that today we study accounting information systems not only emphasizing the mechanics and functions of accounting but also incorporating the opportunities in innovative applications of IT. AIS have truly become information systems for decision making and control because of increasing applications of information technology.

Accounting is a service function. It provides financial information to people inside and outside the organization. Organizations provide information to people within the organization who need information for management decision making. People external to organization also need accounting information. These information are provided as regulatory requirements like filing to the SEC (US Securities and Exchange commission) or for business decisions relevant to the organization, like external financing for the organization. Users like financial analysts, investors, researchers rely on the publicly available information e.g., annual reports. A well developed accounting systems meet the needs of all these different kinds of users.

The accounting profession has evolved slowly, over a long period of time. Control and audit-ability have been the hallmarks of this evolution. Automated information systems have burgeoned in modern society at a rate unparalleled by any comparable technological development in history. Rapid change, technological obsolescence, and exponential expansion have been the hallmarks of this revolution. The study of AIS is an exercise in understanding how these two apparently