

Contents

PREFACE	xix
ABOUT THE CD	xxxiii
PART I	
<hr/>	
IS Audit Process	1
CHAPTER 1	
Technology and Audit	3
Technology and Audit	4
Batch and On-Line Systems	9
CHAPTER 2	
IS Audit Function Knowledge	24
Information Systems Auditing	24
What Is Management?	25
Management Process	25
Understanding the Organization's Business	26
Establishing the Needs	26
Identifying Key Activities	26
Establish Performance Objectives	27
Decide The Control Strategies	27
Implement and Monitor the Controls	27
Executive Management's Responsibility and Corporate Governance	28
Audit Role	28
Conceptual Foundation	29
Professionalism within the IS Auditing Function	29
Relationship of Internal IS Audit to the External Auditor	30
Relationship of IS Audit to Other Company Audit Activities	30
Audit Charter	30
Charter Content	31
Outsourcing the IS Audit Activity	31
Regulation, Control, and Standards	32

CHAPTER 3

IS Risk and Fundamental Auditing Concepts	33
Computer Risks and Exposures	33
Effect of Risk	35
Audit and Risk	37
Audit Evidence	39
Reliability of Audit Evidence	39
Audit Evidence Procedures	40
Responsibilities for Fraud Detection and Prevention	41

CHAPTER 4

Standards and Guidelines for IS Auditing	43
IIA Standards	43
Code of Ethics	44
Advisory	46
Aids	46
Standards for the Professional Performance of Internal Auditing	47
ISACA Standards	47
ISACA Code of Ethics	49
COSO: Internal Control Standards	49
BS 7799 and ISO 17799: IT Security	51
NIST	53
BSI Baselines	54

CHAPTER 5

Internal Controls Concepts Knowledge	57
Internal Controls	57
Cost/Benefit Considerations	59
Internal Control Objectives	59
Types Of Internal Controls	61
Systems of Internal Control	62
Elements of Internal Control	63
Manual and Automated Systems	64
Control Procedures	65
Application Controls	65
Control Objectives and Risks	66
General Control Objectives	67
Data and Transactions Objectives	67
Program Control Objectives	68
Corporate IT Governance	69

CHAPTER 6

Risk Management of the IS Function	75
Nature of Risk	75
Auditing in General	76

Elements of Risk Analysis	78
Defining the Audit Universe	79
Computer System Threats	81
Risk Management	83
CHAPTER 7	
Audit Planning Process	88
Benefits of an Audit Plan	88
Structure of the Plan	93
Types of Audit	96
CHAPTER 8	
Audit Management	98
Planning	98
Audit Mission	99
IS Audit Mission	99
Organization of the Function	100
Staffing	101
IS Audit as a Support Function	103
Planning	103
Business Information Systems	104
Integrated IS Auditor vs Integrated IS Audit	104
Auditees as Part of the Audit Team	106
Application Audit Tools	107
Advanced Systems	107
Specialist Auditor	107
IS Audit Quality Assurance	108
CHAPTER 9	
Audit Evidence Process	109
Audit Evidence	109
Audit Evidence Procedures	109
Criteria for Success	110
Statistical Sampling	112
Why Sample?	112
Judgmental (or Non-Statistical) Sampling	113
Statistical Approach	114
Sampling Risk	114
Assessing Sampling Risk	116
Planning a Sampling Application	116
Calculating Sample Size	119
Quantitative Methods	122
Project Scheduling Techniques	125
Simulations	127
Computer Assisted Audit Solutions	128

Generalized Audit Software	129
Application and Industry-Related Audit Software	130
Customized Audit Software	130
Information Retrieval Software	131
Utilities	131
On-Line Inquiry	131
Conventional Programming Languages	131
Microcomputer-Based Software	132
Test Transaction Techniques	132
CHAPTER 10	
Audit Reporting Follow-up	134
Audit Reporting	134
Interim Reporting	135
Closing Conferences	135
Written Reports	135
Clear Writing Techniques	136
Preparing To Write	138
Basic Audit Report	139
Executive Summary	140
Detailed Findings	140
Polishing the Report	142
Distributing the Report	142
Follow-Up Reporting	143
Types of Follow-Up Action	144
PART II	
Information Systems/Information Technology Governance	145
CHAPTER 11	
Management	147
IS Infrastructures	147
Project-Based Functions	148
Quality Control	154
Operations and Production	155
Technical Services	156
Performance Measurement and Reporting	156
Measurement Implementation	158
CHAPTER 12	
Strategic Planning	164
Strategic Management Process	164
Strategic Drivers	165
New Audit Revolution	166

Leveraging IS	166
Business Process Re-Engineering Motivation	167
IS as an Enabler of Re-Engineering	168
Dangers of Change	168
System Models	169
Information Resource Management	170
Strategic Planning for IS	171
Decision Support Systems	173
Steering Committees	174
Strategic Focus	174
Auditing Strategic Planning	175
Design the Audit Procedures	176
CHAPTER 13	
Management Issues	177
Privacy	179
Copyrights, Trademarks, and Patents	180
Ethical Issues	181
Corporate Codes of Conduct	182
IT Governance	184
Sarbanes-Oxley Act	186
Housekeeping	186
CHAPTER 14	
Support Tools and Frameworks	188
General Frameworks	188
COSO: Internal Control Standards	192
Other Standards	193
CHAPTER 15	
Governance Techniques	196
Change Control	196
Problem Management	198
Auditing Change Control	199
Operational Reviews	199
Performance Measurement	200
ISO 9000 Reviews	201
PART III	
Systems and Infrastructure Lifecycle Management	205
CHAPTER 16	
Information Systems Planning	207

Stakeholders	207
Operations	208
Systems Development	209
Technical Support	210
Other System Users	212
Segregation of Duties	212
Personnel Practices	214
Object-Oriented Systems Analysis	215
Enterprise Resource Planning	216
CHAPTER 17	
Information Management and Usage	218
What Are Advanced Systems?	218
Service Delivery and Management	221
CHAPTER 18	
Development, Acquisition, and Maintenance of Information Systems	227
Programming Computers	227
Program Conversions	229
System Failures	229
Systems Development Exposures	232
Systems Development Controls	233
Systems Development Life Cycle Control: Control Objectives	233
Micro-Based Systems	235
CHAPTER 19	
Impact of Information Technology on the Business Processes and Solutions	236
Impact	236
Continuous Monitoring	237
Business Process Outsourcing	238
E-Business	239
CHAPTER 20	
Software Development	241
Developing a System	241
Change Control	245
Why Do Systems Fail?	247
Auditor's Role in Software Development	249
CHAPTER 21	
Audit and Control of Purchased Packages	251
Information Systems Vendors	252
Request For Information	253
Requirements Definition	254
Request For Proposal	255

Installation	256
Systems Maintenance	257
Systems Maintenance Review	257
Outsourcing	258

CHAPTER 22

Audit Role in Feasibility Studies and Conversions	259
Feasibility Success Factors	259
Conversion Success Factors	263

CHAPTER 23

Audit and Development of Application Controls	264
What Are Systems?	264
Classifying Systems	265
Controlling Systems	266
Control Stages	266
System Models	266
Information Resource Management	267
Control Objectives of Business Systems	268
General Control Objectives	269
CAATS and their Role in Business Systems Auditing	271
Common Problems	274
Audit Procedures	274
CAAT Use in Non-Computerized Areas	275
Designing an Appropriate Audit Program	275

PART IV

Information Technology Service Delivery and Support	277
------------------------------------------------------------	------------

CHAPTER 24

Technical Infrastructure	279
Auditing the Technical Infrastructure	282
Computer Operations Controls	284
Operations Exposures	285
Operations Controls	286
Personnel Controls	286
Supervisory Controls	286
Operations Audits	287

CHAPTER 25

Service Center Management	289
Continuity Management and Disaster Recovery	289
Managing Service Center Change	293

PART V**Protection of Information Assets 295****CHAPTER 26**

Information Assets Security Management	297
What Is Information Systems Security?	297
Control Techniques	300
Workstation Security	301
Physical Security	301
Logical Security	301
User Authentication	302
Communications Security	302
Encryption	302
How Encryption Works	303
Encryption Weaknesses	304
Potential Encryption	305
Data Integrity	305
Double Public Key Encryption	306
Steganography	307
Information Security Policy	308

CHAPTER 27

Logical Information Technology Security	310
Computer Operating Systems	310
Tailoring the Operating System	311
Auditing the Operating System	312
Security	313
Criteria	314
Security Systems: Resource Access Control Facility	314
Auditing RACF	315
Access Control Facility 2	316
Top Secret	317
User Authentication	318
Bypass Mechanisms	319

CHAPTER 28

Applied Information Technology Security	321
Communications and Network Security	321
Network Protection	323
Hardening the Operating Environment	324
Client Server and Other Environments	325
Firewalls and Other Protection Resources	326
Intrusion Detection Systems	329

CHAPTER 29

Physical and Environmental Security	330
Control Mechanisms	332
Implementing the Controls	336

PART VI

Business Continuity and Disaster Recovery	337
--------------------------------------------------	------------

CHAPTER 30

Protection of the Information Technology Architecture and Assets: Disaster Recovery Planning	339
Risk Reassessment	341
Disaster—Before and After	341
Consequences of Disruption	343
Where to Start	344
Testing the Plan	345
Auditing the Plan	346

CHAPTER 31

Insurance	349
Self-Insurance	353

PART VII

Advanced IS Auditing	355
-----------------------------	------------

CHAPTER 32

Auditing E-commerce Systems	357
E-Commerce and Electronic Data Interchange: What Is It?	357
Opportunities and Threats	358
Risk Factors	362
Threat List	363
Security Technology	363
“Layer” Concept	363
Authentication	364
Encryption	364
Trading Partner Agreements	366
Risks and Controls within EDI and E-Commerce	366
Nonrepudiation	367
E-Commerce and Auditability	368
Compliance Auditing	369
E-Commerce Audit Approach	370

Audit Tools and Techniques	371
Auditing Security Control Structures	372
Computer Assisted Audit Techniques	372
CHAPTER 33	
Auditing UNIX/Linux	374
History	374
Security and Control in a UNIX/Linux System	377
Architecture	377
UNIX Security	378
Services	379
Daemons	380
Auditing UNIX	380
Scrutiny of Logs	381
Audit Tools in the Public Domain	381
UNIX passwd File	382
Auditing UNIX Passwords	383
CHAPTER 34	
Auditing Windows	385
History	385
NT and Its Derivatives	386
Auditing Windows 23	388
Password Protection	389
File Sharing	390
Security Checklist	391
CHAPTER 35	
Foiling the System Hackers	393
CHAPTER 36	
Investigating Information Technology Fraud	397
Pre-Incident Preparation	399
Detection of Incidents	401
Initial Response	401
Forensic Backups	403
Investigation	404
Network Monitoring	404
Identity Theft	405

APPENDICES

APPENDIX A	Ethics and Standards for the IS Auditor	407
	ISACA Code of Professional Ethics	407
	Relationship of Standards to Guidelines and Procedures	408
APPENDIX B	Audit Program for Application Systems Auditing	410
APPENDIX C	Logical Access Control Audit Program	432
APPENDIX D	Audit Program for Auditing UNIX/Linux Environments	446
APPENDIX E	Audit Program for Auditing Windows XP/2000 Environments	454
Index		463

<http://www.pbookshop.com>

<http://www.pbookshop.com>