MARK G. SIMKIN | JAMES L. WORRELL | ARLINE A. SAVAGE

CORE CONCEPTS OF ACCOUNTING INFORMATION SYSTEMS

Fourteenth Edition

WILEY

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Accounting Information Systems

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In memory of my mother, Selma Simkin (Mark G. Simkin)

Thank you to my parents, Barney and Betty, for your sacrifices, to my wife, Lynn, for your support, and to my son, AJ, for the joys of being a father (James L. Worrell)

For my grandchildren: Archer, Mirabel and Lillianna (Arline A. Savage)

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PREFACE

Accounting is, at its core, an information discipline. In essence, accounting is a set of inter-related components (*system*) that capture, aggregate and transform data about economic events into a meaningful context (information), which is presented to decision makers for consideration and action. Now more than ever, information technologies affect every aspect of accounting, from what data are captured (social media, blogs, sensor data), how data are captured (RFID tagging), where data are stored (cloud based databases), and how data and information are analyzed and presented (data visualization). As technologies advance, so does the accounting profession.

Because most business processes rely heavily on information technology, accounting professionals must understand how people, processes and technologies interact to transform data into decision-useful information, and also how to develop and evaluate internal controls. Business and auditing failures continue to force the profession to emphasize internal controls and to rethink the state of assurance services. As a result, the subject of accounting information systems (AIS) continues to be a vital component of the accounting profession.

The purpose of this book is to help students understand basic AIS concepts. Exactly what comprises these AIS concepts is subject to some interpretation, and it is certainly changing over time, but most accounting professionals believe that basic AIS concepts consist of the knowledge that accountants need for understanding and using information technologies and for knowing how an accounting information system gathers and transforms data into useful decision-making information. In this edition of our textbook, we include the core concepts of Accounting Information Systems. The book is flexible enough that instructors may choose to cover the chapters in any order.

ACCOUNTING INFORMATION SYSTEMS COURSE CONTENT AREA COVERAGE

AIS Applications	5, 8, 9
IT Auditing	4, 10, 11
Database Concepts	14, 15, 16
Internal Control	6, 7
Management of Information Systems	3, 12, 13
Management Use of Information	1, 2, 4, 8, 9, 12, 15
Systems Development Work	12, 13
Technology of Information Systems	All chapters

About This Book

The content of AIS courses varies widely from school to school. Some schools use their AIS courses to teach accounting students how to use computers. In other colleges and universities, the course focuses on business processes and data modeling. Yet other courses emphasize transaction processing and accounting as a communication system that has little to do with the technical aspects of how systems gather, process, or store underlying accounting data.

Given the variety of objectives for an AIS course and the different ways that instructors teach it, we developed a textbook that attempts to cover the core concepts of AIS. In writing the text, we assumed that students have completed basic courses in financial and managerial accounting and have a basic knowledge of computer hardware and software concepts. The text is designed for a one-semester course in AIS and may be used at the community college, baccalaureate, or graduate level.

Our hope is that individual instructors will use this book as a foundation for an AIS course, building upon it to meet their individual course objectives. Thus, we expect that many instructors will supplement this textbook with other books, cases, software, or readings. The arrangement and content of the chapters permits flexibility in covering subject materials and allows instructors to omit chapters that students have covered in prior courses.

Special Features

This edition of our book uses a large number of special features to enhance the coverage of chapter material as well as to help students understand chapter concepts. Thus, each chapter begins with a list of learning objectives that emphasize the important subject matter of the chapter. This edition of the book also includes many new real world Cases-in-Point, which we include to illustrate a particular concept or procedure. Each chapter also includes a more-detailed real-world case as an end-of-chapter *AIS-at-Work* feature.

Each chapter ends with a summary and a list of key terms. To help students understand the material, each chapter includes multiple-choice questions for self-review with answers. There are also three types of end-of-chapter exercises: (1) discussion questions, (2) problems, and (3) case analyses. This wide variety of review material enables students to examine many different aspects of each chapter's subject matter and also enables instructors to vary the exercises they use each semester.

The end-of-chapter materials include references and other resources that allow interested students to explore the chapter material in greater depth. In addition, instructors may wish to assign one or a number of articles listed in each chapter reference section to supplement chapter discussions. These articles are also an important resource for instructors to encourage students to begin reading such professional journals as *Strategic Finance*, *The Journal of Accountancy*, and *The Internal Auditor.*

Supplements

There are a number of supplements that accompany this textbook. One is an instructor's manual containing suggested answers to the end-of-chapter discussion questions, problems, and case analyses. There is also a test bank consisting of true-false, multiple choice, and matching-type questions, as well as short answer problems and fill-in-the-blank questions, so that instructors have a wide variety of choices. In addition, PowerPoint lecture slides accompany the text, and all of these materials can be accessed from the book's companion website at www.wiley.com/college/simkin.

What's New in the Fourteenth Edition?

This edition of our book includes a number of changes from prior editions.

- The book is now organized into three units:
  - *Technology and Accounting in the 21st Century*: chapters discuss the transformative changes that AISs have facilitated to the practice of accounting, such as changes to the profession, the systems that capture financial and non-financial data for decision-making purposes, and the direction of AISs in general;
  - *Managing and Controlling Business Processes with AISs*: chapters cover the various control frameworks, risks and means of implementing internal controls in AISs, as well as the business processes that give rise to financial and non-financial data; and
  - *Designing and Implementing AISs*: chapters cover the development of AISs and databases that support modern AISs.
- A new chapter (*Accounting, Big Data and Data Analytics*) discusses the nature of Big Data, the data analysis process, and data analytics trends in managerial accounting, tax accounting, and assurance and compliance services.
- The book offers expanded and revised coverage of important topics, such as cloud computing, cyber-security, and COSO's pending update to the Enterprise Risk Management-Integrated Framework, as well as updated information on AIS selection, accounting and fraud, e-commerce, ransomware and other threats.
- Database examples and references have been updated to Microsoft Access 2016.
- Updated *Case-in-Points* illustrate the concepts discussed in the textbook and give students a better grasp of the material, while revised end-of-chapter *AIS at Work* features help students better understand the impact of systems in a wide variety of contexts.
- Revised discussion questions, problems, and cases at the end of chapters give instructors more choices of comprehensive assignments for students.
- Revised Test Yourself multiple choice questions help students assess their understanding of the chapter material.
- The end of the book contains an updated glossary of AIS terms.

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Mark G. Simkin
James L. Worrell
Arline A. Savage

CONTENTS

CHAPTER 1 Accounting Information Systems and the Accountant/ 1

1.1 Introduction: Why Study Accounting Information Systems?/ 1
1.2 Careers in Accounting Information Systems/ 2
Traditional Accounting Career Opportunities/ 2
Systems Consulting/ 2
Fraud Examiner or Forensic Accountant/ 3
Information Technology Auditing and Security/ 4
Predictive Analytics/ 5
1.3 Accounting and IT/ 6
Financial Accounting/ 6
Managerial Accounting/ 9
Auditing/ 12
Taxation/ 14
1.4 What Are Accounting Information Systems?/ 14
Accounting Information Systems/ 14
The Role of Accounting Information Systems in Organizations/ 18
1.5 What's New in Accounting Information Systems?/ 19
Cloud Computing—Impact for Accountants/ 19
Corporate Responsibility Reporting/ 20
Suspicious Activity Reporting/ 21
Forensic Accounting, Governmental Accountants, and Terrorism/ 22
Corporate Scandals and Accounting/ 22

CHAPTER 2 Accounting on the Internet/ 32

2.1 Introduction/ 32
2.2 The Internet and World Wide Web/ 33
Internet Addresses and Software/ 33
Intranets and Extranets/ 34
The World Wide Web, HTML, and IDEA/ 35
Groupware, Electronic Conferencing, and Blogs/ 35
Social Media and Its Value to Accountants/ 36
2.3 XBRL—Financial Reporting on the Internet/ 37
XBRL Instance Documents and Taxonomies/ 38
The Benefits and Drawbacks of XBRL/ 38
The Current Status of XBRL/ 40
2.4 Electronic Business/ 41
e-Accounting/ 41
Retail Sales/ 42
E-Payments, E-Wallets, and Virtual Currencies/ 43
B2C, B2B, and C2C E-Commerce/ 46
Electronic Data Interchange/ 47
Cloud Computing/ 48
2.5 Privacy and Security on the Internet/ 51
Identity Theft and Privacy/ 51
Security/ 53
Spam, Phishing, Spoofing, and Ransomware/ 53
Firewalls, Intrusion Detection Systems, Value-Added Networks, and Proxy Servers/ 54
Data Encryption/ 57
Digital Signatures and Digital Time Stamping/ 58

CHAPTER 3 Information Technology and AISs/ 69

3.1 Introduction/ 69
3.2 The Importance of Information Technology to Accountants/ 70
Six Reasons/ 70
The Top 10 Information Technologies/ 71
3.3 Input, Processing, and Output Devices/ 72
Input Devices/ 72
Central Processing Units/ 78
Output Devices/ 80
3.4 Secondary Storage Devices/ 81
Magnetic (Hard) Disks/ 82
CD-ROMs, DVDs, and Blu-Ray Discs/ 83
Flash Memory/ 84
Image Processing and Record Management Systems/ 84
3.5 Data Communications and Networks/ 85
Communication Channels and Protocols/ 85
Local and Wide Area Networks/ 86
Client/Server Computing/ 89
Wireless Data Communications/ 90
Cloud Computing/ 93
3.6 Computer Software/ 93
Operating Systems/ 93
Application Software/ 94
Programming Languages/ 95

CHAPTER 4 Accounting and Data Analytics/ 109

4.1 Introduction/ 109
4.2 Big Data/ 110
Volume/ 110
Velocity/ 110
Variety/ 111
Veracity/ 112
4.3 Analyzing Data/ 112
Data Procurement/ 113
Data Provisioning/ 115
Data Analysis/ 116
Presentation/ 117
4.4 Enabling Technologies and Tools/ 118
Data Access/ 118
Analysis and Data Visualization Tools/ 121
4.5 Data Analytics and the Accounting Profession/ 123

Tax Accounting/ 123
Managerial Accounting/ 124
Assurance and Compliance/ 125

CHAPTER 5 Integrated Accounting and Enterprise Software/ 134
5.1 Introduction/ 134
5.2 Integrated Accounting Software/ 135
Small Business Accounting Software/ 136
Mid-Range and Large-Scale Accounting Software/ 138
Specialized Accounting Information Systems/ 138
5.3 Enterprise-Wide Information Systems/ 139
Enterprise System Functionality/ 140
The Architecture of Enterprise Systems/ 142
Business Processes and ERP Systems/ 145
Benefits and Risks of Enterprise Systems/ 145
5.4 Selecting a Software Package/ 149
When Is a New AIS Needed?/ 149
Selecting the Right Software/ 149

CHAPTER 6 Introduction to Internal Control Systems and Risk Management/ 163
6.1 Introduction/ 163
Definition of Internal Control/ 164
Internal Control Systems/ 165
6.2 COSO Internal Control—Integrated Framework/ 165
2013 COSO Report/ 165
6.3 Enterprise Risk Management/ 169
COSO ERM Introduction/ 169
2004 ERM Framework/ 169
2017 ERM Framework/ 171
Risk Governance and Culture/ 172
Risk, Strategy, and Objective Setting/ 173
Risk in Execution/ 174
Risk Information, Communication, and Reporting/ 174
Monitoring Enterprise Risk Management Performance/ 175
6.4 Examples of Control Activities/ 175
Good Audit Trail/ 175
Sound Personnel Policies and Procedures/ 175
Separation of Duties/ 177
Physical Protection of Assets/ 179
6.5 Monitoring Internal Control Systems/ 183
Reviews of Operating Performance/ 183
COSO Guidance on Monitoring/ 183
Operating Performance vs. Monitoring/ 183
COBIT 5/ 184
6.6 Types of Controls/ 186
Preventive Controls/ 186
Detective Controls/ 187
Corrective Controls/ 187
Discerning Between Preventive, Detective, and Corrective Controls/ 187
6.7 Evaluating Controls/ 188
Requirements of the Sarbanes–Oxley Act/ 188
Cost–Benefit Analysis/ 188
A Risk Matrix/ 190

CHAPTER 7 Computer Controls for Organizations and Accounting Information Systems/ 200
7.1 Introduction/ 200
7.2 Enterprise-Level Controls/ 201
Risk Assessment and Security Policies/ 202
Designing a Security Policy/ 202
Integrated Security for the Organization/ 203
7.3 General Controls for Information Technology/ 204
Access to Data, Hardware, and Software/ 204
Personnel Policies to Protect Systems and Data/ 209
Additional Policies to Protect Systems and Data/ 211
7.4 Application Controls for Transaction Processing/ 217
Input Controls/ 218
Processing Controls/ 221
Output Controls/ 223

CHAPTER 8 Accounting Information Systems and Business Processes: Part I/ 234
8.1 Introduction/ 234
8.2 Business Process Fundamentals/ 235
Overview of the Financial Accounting Cycle/ 235
Coding Systems/ 236
8.3 Collecting and Reporting Accounting Information/ 237
Designing Reports/ 238
From Source Documents to Output Reports/ 239
8.4 The Sales Process/ 241
Objectives of the Sales Process/ 242
Inputs to the Sales Process/ 243
Outputs of the Sales Process/ 246
8.5 The Purchasing Process/ 247
Objectives of the Purchasing Process/ 247
Inputs to the Purchasing Process/ 250
Outputs of the Purchasing Process/ 251
8.6 Current Trends in Business Processes/ 254
Business Process Outsourcing (BPO)/ 254
Business Process Management Software/ 256

CHAPTER 9 Accounting Information Systems and Business Processes: Part II/ 266
9.1 Introduction/ 266
9.2 The Resource Management Process/ 267
Human Resource Management/ 267
Fixed-Asset Management/ 270

9.3 The Production Process/ 272
Objectives of the Production Process/ 272
Inputs to the Production Process/ 277
Outputs of the Production Process/ 278
9.4 The Financing Process/ 279
Objectives of the Financing Process/ 279
Inputs to the Financing Process/ 281
Outputs of the Financing Process/ 281
9.5 Business Processes in Special Industries/ 282
Professional Service Organizations/ 283
Not-for-Profit Organizations/ 283
Health Care Organizations/ 285
9.6 Business Process Reengineering/ 287
Why Reengineering Sometimes Fails/ 288

CHAPTER 10 Cybercrime, Fraud, and Ethics/ 296
10.1 Introduction/ 296
10.2 Cybercrime and Fraud/ 297
Distinguishing between Cybercrime and Fraud/ 297
Cybercrime Legislation/ 300
Cybercrime Statistics/ 303
10.3 Examples of Cybercrime/ 304
Compromising Valuable Information/ 304
Hacking/ 305
Denial of Service/ 307
10.4 Preventing and Detecting Cybercrime and Fraud/ 309
Enlist Top-Management Support/ 309
Increase Employee Awareness and Education/ 309
Assess Security Policies and Protect Passwords/ 310
Implement Controls/ 311
Identify Computer Criminals/ 312
Maintain Physical Security/ 313
Recognize the Symptoms of Employee Fraud/ 314
Use Data-Driven Techniques/ 316
Employ Forensic Accountants/ 316
10.5 Ethical Issues, Privacy, and Identity Theft/ 317
Ethical Issues and Professional Associations/ 317
Meeting the Ethical Challenges/ 318
Privacy/ 319
Company Policies with Respect to Privacy/ 320
Identity Theft/ 320

CHAPTER 11 Information Technology Auditing/ 329
11.1 Introduction/ 329
11.2 The Audit Function/ 330
Internal versus External Auditing/ 330
Information Technology Auditing/ 331
Evaluating the Effectiveness of Information Systems Controls/ 335
11.3 The Information Technology Auditor's Toolkit/ 337
Auditing Software/ 337
People Skills/ 340
11.4 Auditing Computerized Accounting Information Systems/ 340
Testing Computer Programs/ 341
Validating Computer Programs/ 342
Review of Systems Software/ 343
Validating Users and Access Privileges/ 344
Continuous Auditing/ 345
11.5 Information Technology Auditing Today/ 347
Information Technology Governance/ 347
The Sarbanes–Oxley Act of 2002/ 347
Auditing Standard No. 2201 (AS 2201)/ 349
ISACA Information Technology Assurance Framework/ 350
IIA's Global Technology Audit Guides and Guide to the Assessment of IT Risk series/ 351

CHAPTER 12 Documenting Accounting Information Systems/ 358
12.1 Introduction/ 358
12.2 Why Documentation is Important/ 359
12.3 Primary Documentation Tools/ 362
Data Flow Diagrams/ 363
Document Flowcharts/ 368
System Flowcharts/ 372
12.4 Other Documentation Tools/ 377
Program Flowcharts/ 378
Decision Tables and Decision Trees/ 379
Software Tools for Graphical Documentation and SOX Compliance/ 381
12.5 End-User Computing and Documentation/ 383
The Importance of End-User Documentation/ 383
Policies for End-User Computing and Documentation/ 385

CHAPTER 13 Developing and Implementing Effective Accounting Information Systems/ 398
13.1 Introduction/ 398
13.2 The Systems Development Life Cycle/ 399
Four Stages in the Systems Development Life Cycle/ 399
Systems Studies and Accounting Information Systems/ 401
13.3 Systems Planning/ 401
Planning for Success/ 401
Investigating Current Systems/ 403
13.4 Systems Analysis/ 403
Understanding Organizational Goals/ 403

Systems Survey Work/ 404
Data Analysis/ 406
Evaluating System Feasibility/ 406
13.5 Detailed Systems Design and Acquisition/ 408
Designing System Outputs, Processes, and Inputs/ 409
The System Specifications Report/ 412
Choosing an Accounting Information System/ 413
Outsourcing/ 416
13.6 Implementation, Follow-Up, and Maintenance/ 417
Implementation Activities/ 417
Managing Implementation Projects/ 419
Postimplementation Review/ 421
System Maintenance/ 422

CHAPTER 14 Database Design/ 434
14.1 Introduction/ 434
14.2 An Overview of Databases/ 434
What Is a Database?/ 435
Significance of Databases/ 435
Storing Data in Databases/ 437
Additional Database Issues/ 439
14.3 Steps in Developing a Database Using the Resources, Events, and Agents (REA) Approach/ 442
Step 1—Identify Business and Economic Events/ 443
Step 2—Identify Entities/ 444
Step 3—Identify Relationships/ 444
Step 4—Create Entity–Relationship Diagrams/ 445
Step 5—Identify Attributes of Entities/ 446
Step 6—Convert E-R Diagrams into Database Tables/ 447
14.4 Normalization/ 449
First Normal Form/ 449
Second Normal Form/ 450
Third Normal Form/ 451

CHAPTER 15 Organizing and Manipulating the Data in Databases/ 462
15.1 Introduction/ 462
15.2 Creating Database Tables in Microsoft Access/ 463
Database Management Systems/ 463
Using Microsoft Access/ 463
Creating Database Tables/ 464
Creating Relationships/ 466
15.3 Entering Data in Database Tables/ 468
Creating Records/ 468
Ensuring Valid and Accurate Data Entry/ 469
Tips for Creating Database Tables and Records/ 472
15.4 Extracting Data from Databases: Data Manipulation Languages (DMLs)/ 473
Creating Select Queries/ 473
Creating Action Queries/ 477
Guidelines for Creating Queries/ 478
Structured Query Language (SQL)/ 478
Sorting, Indexing, and Database Programming/ 479

CHAPTER 16 Database Forms and Reports/ 490
16.1 Introduction/ 490
16.2 Forms/ 490
Creating Simple Forms/ 492
Using Forms for Input and Output Tasks/ 496
Subforms: Showing Data from Multiple Tables/ 497
Concluding Remarks about Forms/ 498
16.3 Reports/ 498
Creating Simple Reports/ 499
Creating Reports with Calculated Fields/ 502
Creating Reports with Grouped Data/ 504
Concluding Remarks about Reports/ 506

Glossary/ (Available online at http://www.wiley.com/college/simkin)

Index/ 516

Chapter 1

Accounting Information Systems and the Accountant

After studying this chapter, you will be able to:

1. *Describe* the significant impact of information technology (IT) on the accounting profession and *explain* why you need to study accounting information systems.
2. *Identify* career opportunities that combine accounting and IT knowledge and skills.
3. *Explain* how IT influences accounting systems.
4. *Give examples of* how financial reporting is changing with advances in IT.
5. *Give examples of* how accountants use business intelligence for decision-making.
6. *Identify* what is new in the area of accounting information systems.
7. *Distinguish* between terms such as "systems," "information systems," "information technology," and "accounting information systems."

"*In the accounting profession, for example, firms working with clients that own large mineral deposits or mining operations can now use drones to fly over the area, taking thousands of pictures and measurements. CPAs can then use that data to provide exact estimates of holdings. "Their balance sheets and their assets are literally sitting on the ground," and drones can quickly calculate inventory estimates by flying over the area …* "

Ovaska-Few, S. 2017. Drones set to invade accounting profession. CPA Insider, *Journal of Accountancy* (January 23): Available online.

1.1 INTRODUCTION: WHY STUDY ACCOUNTING INFORMATION SYSTEMS?

This chapter begins by answering the question "why should you study accounting information systems?" There are so many reasons, but one of the most important is because of the special career opportunities that will enable you to combine your study of accounting with your interest in computer systems. In today's job market, accounting employers expect new hires to be computer savvy. A large number of specialized and highly compensated employment opportunities are only available to those students who possess an integrated understanding of accounting and information systems and can bring that understanding to bear on complicated business decisions.

Think about it. When is the last time you went into a bank, filled out a piece of paper to withdraw cash from your bank account, and then stood in line waiting for a

teller to help you? When is the last time you went to a travel agency to ask someone to find you an airline ticket for your spring break vacation to Florida or the Virgin Islands?

Or when is the last time you stood in line to fill out paperwork for the courses you wanted to take for next semester? Most likely, the answer to each of these questions is "never." And that is because of information technology (IT). Information technology is so pervasive today that it is nearly impossible to do anything that does not in some way involve technology. So ask yourself the question "how can you possibly be a successful accountant if you do not have a basic understanding of how technology influences the profession?"

1.2 CAREERS IN ACCOUNTING INFORMATION SYSTEMS

Our introductory remarks to this chapter suggest a variety of reasons why you should study **accounting information systems (AISs)**. Of them, perhaps the most interesting to students is the employment opportunities available to those who understand accounting, information systems, and the applicable technologies.

Traditional Accounting Career Opportunities

Certainly, a number of traditional accounting jobs in corporate and public accounting are available to those who choose to study accounting and information systems. Technology plays a very strong role in public accounting and auditing, internal auditing, managerial accounting, fraud examination, and taxation. Recognizing the importance to accountants of knowledge about IT and information systems, the American Institute of Certified Public Accountants (AICPA) developed a new designation, the **Certified Information Technology Professional (CITP)**, that accountants can earn with business experience and if they pass an examination. This certification signifies superior knowledge in IT, information systems, and specialized information management systems.

Case-in-Point 1.1 The AICPA has an Information Management and Technology Assurance (IMTA) Section that supports CPAs who offer assurance services and information management support for their clients. This section provides access to resources to help CPAs understand how the use of data and reports from information systems can lead to better business decisions. Members also gain an understanding of how they can use IT and information systems skills combined with financial insight to evaluate technology risks.[1]

Employer demand is high for employees with a combination of accounting and IT/systems skills. For example, in 2017 in the corporate world, financial systems administrators generally earned between $61,250 and $84,000, while project managers ranged from $80,250 to $110,250, and managers from $98,000 to $130,750.[2]

Systems Consulting

A consultant is an outside expert who helps an organization solve problems or provides technical expertise on an issue. **Systems consultants** provide help with issues

[1] American Institute of Certified Public Accountants, accessed from www.aicpa.org, March 2017.
[2] Robert, H. 2017. "Salary guide for accounting and finance," accessed from www.roberthalf.com, March 2017.

concerning information systems—for example, by helping an organization design a new information system, select computer hardware or software, or reengineer business processes so that they operate more effectively.

One of the most important assets a consultant brings to the job is an objective view of a client's organization and its processes and goals. Students who are skilled in both accounting and information systems are particularly competent systems consultants because they understand how data flow through accounting systems as well as how business processes function. Systems consultants can help a variety of organizations, including professional service organizations, public and private corporations, and government agencies. This broad work experience, combined with technical knowledge about hardware and software, can be a valuable asset to CPA clients. Because it is likely that a newly designed system will include accounting-related information, a consultant who understands accounting is particularly helpful. Many systems consultants work for large professional service organizations, such as Accenture, Protiviti, or Capgemini, as well as for the consulting divisions of CPA firms. Others may work for specialized organizations that focus on the custom design of AISs.

Consulting careers for students knowledgeable in AISs also include jobs as **value-added resellers (VARs)**. Software vendors license VARs to sell a particular software package and provide consulting services to companies, such as help with their software installation, training, and customization. That is, VARs are individuals who take a product and add value to the product for their customers, which might include services such as strategic planning, system design and implementation, technical support, database development, and other similar services. A VAR may also set up a small one-person consulting business or may work with other VARs and consultants to provide alternative software solutions to clients.

Fraud Examiner or Forensic Accountant

Due to increased concerns about terrorism and corporate fraud, forensic accounting and fraud examination are important area for accountants to study and develop their skills. An accountant can acquire the **Certified Fraud Examiner (CFE)** certification by meeting the qualifications of the Association of Certified Fraud Examiners (ACFE). To become a CFE, an individual must first meet the following qualifications: have a bachelor's degree, at least 2 years of professional experience in a field either directly or indirectly related to the detection or deterrence of fraud, be of high moral character, and agree to abide by the bylaws and code of professional ethics of the ACFE. If a person meets these requirements, then she or he may apply to sit for the CFE examination.

You might be asking yourself what sort of professional experience might be useful if you wish to satisfy the 2-year requirement for certification. Not surprisingly, these jobs may be located within CPA firms across the United States, as well as within international public accounting firms. Other such positions might include working for at business organization as an internal auditor, with a valuation expert in a law firm, with an FBI or CIA agent, or as an auditor for Medicaid, Medicare, or many other government organizations.

The AICPA also offers the Certified in Financial Forensics (CFF) designation for CPAs who want to specialize in the area of Forensic Accounting. The knowledge base for this certification includes computer forensic analysis. A forensic accountant with an IT background is very helpful in the investigation of cyber crime and breaches in cyber security.

Fraud examiners and forensic accountants use software data analytical tools like ACL Analytics and IDEA Data Analysis to analyze large quantities of data and to

Job Title	Salary Range
Fraud Investigator	$39,551–91,715
Senior Internal Auditor	$53,424–90,613
Internal Auditing Manager	$74,441–111,778
Internal Auditor	$42,971–76,480
Senior Auditor	$50,848–95,600

FIGURE 1-1 Examples of job titles and pay range for Fraud Examiners and Forensic Accountants. Source: 2017 Salary guide for accounting and finance, www.roberthalf.com, accessed March 2017.

perform advanced digital forensics. The objective is to reduce fraud risk and to detect fraud.

The salary ranges and possible job locations are varied. Most positions will likely be located in larger metropolitan areas, but may also be found in mid-sized cities. From the chart for 2017 (Figure 1-1), you can see the salary ranges for several types of positions.

Essentially, fraud occurs where there are weak internal controls or when a manager or employee circumvents the internal controls that are in place. A more detailed explanation of internal controls is contained in Chapters 6 and 7.

Information Technology Auditing and Security

Information technology (IT) auditors focus on the risks associated with computerized information systems. These individuals often work closely with financial auditors to assess the risks associated with automated AISs—a position in high demand because almost all systems are now computerized. Information systems auditors also help financial auditors decide how much time to devote to auditing each segment of a company's business. This assessment may lead to the conclusion that the controls within some portions of a client's information systems are reliable and that less time needs to be spent on them—or the opposite. Due to the growing need for this type of auditor, we devote an entire chapter to IT auditing—Chapter 11.

IT auditors are involved in a number of activities apart from assessing risk for financial audit purposes. Many of these auditors work for large CPA firms, such as Ernst & Young, PwC, Deloitte, or KPMG. Figure 1-2 identifies a partial listing of the types of services offered by Ernst & Young.

Assurance Services

- Financial statement attestation
- Internal control reporting
- Assess procedures and controls concerning privacy and confidentiality, performance measurement, systems reliability, outsourced process controls, information security

Business Risk Services
Fraud Investigation and Dispute Services
Technology and Security Risk Services
Specialty Advisory Services

FIGURE 1-2 A sample of the many types of services offered by Ernst & Young LLP, one of the largest international professional service organizations.

IT auditors might be CPAs, or they might be licensed as **Certified Information Systems Auditors (CISAs)**—a certification given to professional information systems auditors by the **Information Systems Audit and Control Association (ISACA)**. To become a CISA, you must take an examination and obtain specialized work experience. Many CISAs have accounting and information systems backgrounds, although formal accounting education is not required for certification. IT auditors help in documenting and evaluating IT controls.

According to the ISACA website, there is a growing demand for employees who have IS audit, control, and security skills. The CISA certification is therefore in high demand because CISA employees are highly qualified, experienced professionals who provide the enterprise with certification for IT assurance that has global recognition. These employees have proficiency in technology controls. They demonstrate competency in standards and practices, organization and management, processes, integrity, confidentiality, availability, and software development, acquisition, and maintenance. They also demonstrate a commitment to providing the enterprise with trust in and value from its information systems.[3]

Case-in-Point 1.2 According to Cindy Wyatt, Managing Member at Insyte CPAs, LLC in Birmingham, Alabama, who herself has passed the CISA certification examinations, "Technology is paramount in today's business environment. Accountants who understand information technology controls are far more effective in their careers, and thus, far more valuable to the organizations they serve."

Sometimes the best way to assess the risks associated with a computerized system is to try to penetrate the system, which is referred to as **penetration testing**. These tests are usually conducted within a systems security audit from which the organization attempts to determine the level of vulnerability of their information systems and the impact such weaknesses might have on the viability of the organization. If any security issues are discovered, the organization will typically work swiftly to correct the problems or at least mitigate the impact they might have on the company. But what if someone else penetrates an organization's systems? That is commonly called "hacking" and is usually a very serious problem for any company. We cover hacking in more detail in Chapter 10.

Case-in-Point 1.3 In 2013 and 2014, Yahoo Inc. had its systems hacked, affecting over a billion user accounts. The hacker(s) penetrated Yahoo's network and were able to steal user names, email addresses, dates of birth, telephone numbers, and encrypted passwords. Yahoo disclosed that it had spent $11 million in legal fees and $5 million to investigate the breach and patch the security holes. The CEO, Marissa Mayer had to also forego her 2016 cash bonus of around $2 million and her 2017 equity award of no less than $12 million.[4]

Predictive Analytics

What you will soon learn from studying this book, and hopefully through reading professional accounting journals, is that the accounting profession is constantly changing. To be successful as an accounting professional, you will need to stay abreast of these

[3] The Benefits of CISA, accessed from ISACA (www.isaca.org), March 2014.

[4] Seetharaman, D. and R. McMillan. Yahoo CEO Marissa Mayer takes pay cut over security breach. March 1, 2017, *Wall Street Journal*, accessed March 2017.

changes, or better yet get out in front of some of the expected trends in the profession. One of those trends that we want to alert you to is the rapidly growing opportunities in the field of predictive analytics, which is the result of the tremendous amount of data that is now available within organizations (e.g., data warehouses, which offer opportunities for data mining). In the future, this is the most likely area where you can add value—by being able to analyze that data and make useful business predictions for your clients.

You might be surprised to learn that a number of accounting jobs already require this type of skill set—for example, jobs such as client service analyst, quantitative analyst, risk analyst, and financial planner and analyst (responsible for preparing the annual plan and long-range or 5-year plan for a company and usually reports to the CFO).[5] So what exactly is predictive analytics, and what does this type of professional do? The predictive analytics professional uses a variety of skills and abilities, ranging from statistical analysis, data modeling, and data mining used by management to make predictions about the future.

This might require a mind shift for some accounting majors. Rather than seeking an MBA degree or an MS in accounting, consider an MS degree in analytics or business analytics. There are now over 100 such degree programs in the United States, offering full-time, part-time, and online delivery. So that you can appreciate the strong demand for this new type of credential, the first MS in Analytics program was available in 2007, and around 25% of these programs just started since 2016.[6] If you go to the website at footnote 6, you can find the universities that offer these programs, the length of each program, the cost, and the curriculum. You might also be interested in the 2016 median starting salary of $87,700 *with no experience* (see Institute for Advanced Analytics, MSA Infographic, analytics.ncsu.edu, accessed March 2017).

1.3 ACCOUNTING AND IT

IT is pervasive and impacts every area of accounting. Instantaneous online access is available via mobile communication devices such as cell phones, iPads, smartphones, and so on, which enable activities to take place anytime, anywhere. For example, managerial accountants can complete important work tasks while traveling in the field, auditors can communicate with each other from remote job sites (while auditing the same client), staff accountants can text message one another from various locations, and tax experts can download current information on tax rulings.

Figure 1-3 provides an overview of the major areas within the field of accounting impacted by information technology. This section of the chapter considers the influence of IT on each of them.

Financial Accounting

The major objective of the **financial accounting information system** is to provide relevant information to individuals and groups *outside* an organization's boundaries, for example, investors, federal and state tax agencies, and creditors.

[5] icrunchdata.com, accessed March 2014.

[6] "Survey of graduate degree programs in analytics," Institute for Advanced Analytics, analytics.ncsu.edu, accessed March 2017.

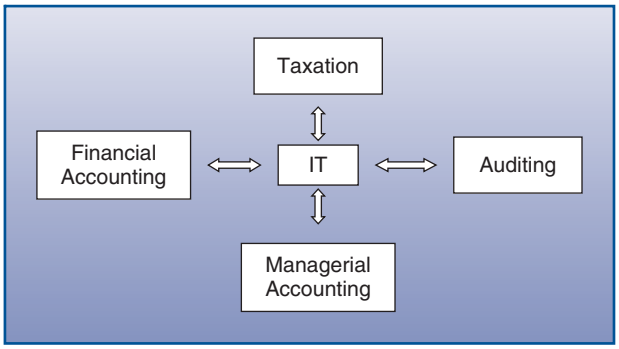

FIGURE 1-3 Overview of the major areas of accounting impacted by information technology.

Accountants achieve these informational objectives by preparing financial statements such as income statements, balance sheets, statements of stockholders' equity, and cash flow statements. Of course, managers *within* a company might also use these financial reports for planning, decision-making, and control activities. However, for most decisions within the firm, managers likely use managerial accounting reports.

Recall from your introductory financial accounting course that an organization's financial accounting cycle begins with analyzing and journalizing transactions (e.g., this data is captured when a business event occurs that has a monetary impact on the financial statements) and ends with its periodic financial statements. Accounting clerks, store cashiers, or even the customers themselves input relevant data into the system that stores these data for later use. In financial AISs, the processing function also includes posting these entries to general and subsidiary ledger accounts, preparing a trial balance from the general ledger account balances, and preparing financial statements.

Nonfinancial Data. The basic inputs to, and outputs from, traditional financial accounting systems are usually expressed in monetary units. This can be a problem if the AIS ignores nonmonetary information that is also important to users. For example, an investor might like to know what the prospects are for the future sales of a company, but many financial AISs do not record information such as unfulfilled customer sales because such sales are not recognizable financial events for accounting purposes, even though they represent important business events. The AIS is a subset of the management information system of an organization, which also stores important nonfinancial information about organizational resources, business events, and agents (customers, vendors, banks, etc.) in databases precisely because they are relevant to the decision-making processes of their users.

Inadequacies in financial performance measures have encouraged companies to consider nonfinancial measures when evaluating performance. Some of the advantages include the following: (1) nonfinancial measures can provide a closer link to long-term organizational strategies; (2) drivers of success in many industries are "intangible assets" such as intellectual capital and customer loyalty, rather than the "hard assets" that are recorded on balance sheets; (3) such measures can be better indicators of future financial performance; and (4) investments in customer satisfaction can improve subsequent economic performance by increasing revenues and loyalty of existing customers, attracting new customers, and reducing transaction costs.[7]

[7] Ittner, C. and D. Larcker. "Non-financial performance measures: What works and what doesn't," December 6, 2000, Knowledge@Wharton (knowledge.wharton.upenn.edu), accessed March 2017.

Several professional associations now formally recognize that nonfinancial performance measures enhance the value of purely financial information. For example, in 1994 a special committee of the AICPA recommended several ways that businesses could improve the information they were providing to external parties by including management analysis data, forward-looking information such as opportunities and risks, information about management and shareholders, and background information about the reporting entity. Similarly, in 2002, the American Accounting Association (AAA) Financial Accounting Standards Committee recommended that the *Securities and Exchange Commission (SEC)* and the *Financial Accounting Standards Board (FASB)* encourage companies to voluntarily disclose more nonfinancial performance measures.

There are several suggestions that are important to keep in mind if a company chooses to collect metrics around nonfinancial performance measures. For example, keeping track of the information, such as using a dashboard, is very helpful. (We discuss dashboards in more depth in the next section of this chapter and in Chapter 5.) Also, limiting the number of measures is important so that a company remains focused on those that are truly critical to the performance of the company. And finally, management should closely monitor the nonfinancial performance measures to make sure that they are relevant to the company's success.

Case-in-Point 1.4 The ThyssenKrupp company uses nonfinancial performance indicators to monitor sustainability, innovations, employees, environment and climate, and corporate citizenship. The company summarizes their goal in the following statement. "Our performance is reflected not only in our financial results, but also in the sustainability of our actions. We develop efficient solutions that conserve resources and protect the climate and the environment. For this we need capable employees—so we place strong emphasis on training and development and health and safety."[8]

Real-Time Reporting. Another impact of IT on financial accounting is the timing of inputs, processing, and outputs. Financial statements are periodic, and most large companies traditionally issue them quarterly, with a comprehensive report produced annually. With advances in IT that allow transactions to be captured immediately when the business activity occurs, the AIS can produce financial statements almost in real time. Of course, some of the adjustments that accountants must make to the records are not done minute-by-minute, but a business can certainly track sales and many of its expenses continuously. This is especially useful to retailing executives, many of whom now use dashboards.

Interactive Data and XBRL. A problem that accountants, investors, auditors, and other financial managers have often faced is that data used in one application are not easily transferable to another. This means that accountants may spend hours preparing spreadsheets and reports that require them to enter the same data in different formats over and over. **Interactive data** are data that can be reused and carried seamlessly among a variety of applications or reports. Consider, for example, a data item such as total assets. This number might need to be formatted and even calculated several different ways (e.g., at cost, net realizable value, book value, replacement value) for reports

[8] ThyssenKrupp, A.G., "Non-financial Performance Indicators," Online Annual Report 2010/2011, accessed March 2017.

such as filings with the SEC, banks, and performance reports. With interactive data, the data are captured in the database only once and can be used wherever needed.

Interactive data require a language for standardization that "tags" the data at its most basic level. As an example, for total assets, this would be at the detail level for each asset. **Extensible business reporting language (XBRL)** is the language of choice for this purpose. As of 2010, the SEC requires public companies to file their financial reports in XBRL format. In addition, many companies, software programs, and industries are beginning to incorporate XBRL for creating, transforming, and communicating financial information.

We will discuss cloud computing later in this chapter, but at this point, we want to make you aware of this technology with respect to XBRL. XBRL Cloud made a viewer available that allows anyone to examine SEC XBRL financial filings, and it is called the XBRL Cloud EDGAR Dashboard.[9] When a filing is posted on the SEC website, XBRL Cloud takes the information and adds a new line to the Dashboard that indicates the name of the filing company, the form type and date filed, the percentage of extended elements, the creation software that was used to prepare the filing, and free validation checking. A description of some of the Dashboard's features can be found at xbrl.squarespace.com. We discuss XBRL in more detail in Chapter 2, and you can learn about the current status of XBRL at www.XBRL.org.

Case-in-Point 1.5 The Federal Deposit Insurance Corporation (FDIC) insures bank deposits over a specific amount. FDIC wanted to create an Internet-based Central Data Repository that stored all the quarterly data they received from more than 7,000 banks. They convinced their software vendors to incorporate XBRL to standardize the data. The tagged data that the FDIC receives from banks now has improved accuracy and can be published and made available to users much more quickly than before.[10]

Managerial Accounting

The principal objective of managerial accounting is to provide relevant information to organizational managers, that is, users who are internal to a company or government agency. Cost accounting and budgeting are two typical parts of a company's managerial accounting system. Let us examine each of them in turn.

Cost Accounting. Due to globalization, decentralization, deregulation, and other factors, companies continue to face stiff competition. The result is that companies must be more efficient and be more adept at controlling costs. The **cost accounting** part of managerial accounting specifically assists management in measuring and controlling the costs associated with an organization's various acquisition, manufacturing, distribution, and selling activities. In the broadest sense, these tasks focus on the *value added* by an organization to its goods or services, and this concept remains constant whether the organization is a manufacturer, a bank, a hospital, or a police department.

Take health care for an example. Although much controversy still surrounds the health-care legislation that was signed into law in 2010, there is one fact that most currently agree upon—the health care industry is a very large portion of the US economy and it is growing rapidly as the "baby boomer generation" reaches retirement age.

[9] See https://edgardashboard.xbrlcloud.com/edgar-dashboard. Accessed March 2017.
[10] Improved business process through XBRL: A use case for business reporting, Federal Financial Institutions Examination Council, White Paper, January 31, 2006. Accessed from XBRL.org in March 2017.