5TH EDITION

Managing and Using Information Systems

A Strategic Approach

KERI E. PEARLSON
KP Partners

CAROL S. SAUNDERS
University of Central Florida
Dr. Theo and Friedl Schoeller Research Center for Business and Society

JOHN WILEY & SONS, INC.

About the Authors

Dr. Keri E. Pearlson is president of KP Partners, an advisory services firm specializing in creating business leaders skilled in the strategic use of information systems and organizational design in the Web 2.0 world. Dr. Pearlson is an entrepreneur, teacher, researcher, consultant, and thought leader. She has held various positions in academia and industry. She was a member of the information systems faculty at the Graduate School of Business at the University of Texas at Austin, where she taught management information systems courses to MBAs and executives. She held positions at the Harvard Business School, CSC, nGenera (formerly the Concours Group), AT&T, and Hughes Aircraft Company. While writing this edition, she was also an Adjunct faculty member at Babson College, in Wellesley, MA, and elected the first President of the Austin Area Society of Information Management chapter.

She is co-author of *Zero Time: Providing Instant Customer Value—Every Time, All the Time* (John Wiley & Sons, 2000). Her work has been published in numerous places including *Sloan Management Review, Academy of Management Executive, and Information Resources Management Journal*. Many of her case studies have been published by Harvard Business School Publishing and are used all over the world. She currently writes a blog on issues at the intersection of IT and business strategy. It's available at www.kppartners.com.

Dr. Pearlson holds a Doctorate in Business Administration (DBA) in Management Information Systems from the Harvard Business School and both a Master's Degree in Industrial Engineering Management and a Bachelor's Degree in Applied Mathematics from Stanford University.

Dr. Carol S. Saunders is professor of Management at the University of Central Florida in Orlando, Florida, and Schoeller Senior Fellow (2012) at the University of Erlangen-Nuremberg. She served as General Conference Chair of the International Conference on Information Systems (ICIS) in 1999 and Telecommuting in 1996. She was the chair of the ICIS Executive Committee in 2000. For three years, she served as editor-in-chief of *MIS Quarterly*. She has received the Association of Information Systems (AIS) LEO award for lifetime accomplishments and is a Fellow of the AIS.

Her current research interests include the impact of information system on power and communication, overload, virtual teams, virtual worlds, time, sourcing, and inter-organizational linkages. Her research is published in a number of journals including *MIS Quarterly, Information Systems Research, Journal of MIS, Communications of the ACM, Academy of Management Journal, Academy of Management Review, Communications Research*, and *Organization Science*.

Contents

Introduction **1**

The Case for Participating in Decisions about Information Systems **3**
What If a Manager Doesn't Participate? **6**
Social Business Lens **8**
Skills Needed to Participate Effectively in Information Technology Decisions **9**
Basic Assumptions **11**
Economics of Information Versus Economics of Things **17**
Summary **19**
Key Terms **20**
Discussion Questions **20**
Case Study I-1: Terry Cannon, MBA **20**
Case Study I-2: Anyglobal Company Inc. **22**

▸ **CHAPTER 1** The Information Systems Strategy Triangle **23**

Brief Overview of Business Strategy Frameworks **26**
Brief Overview of Organizational Strategies **33**
Social Business Lens: Building a Social Business Strategy **34**
Brief Overview of Information Systems Strategy **36**
Summary **37**
Key Terms **38**
Discussion Questions **39**
Case Study 1-1: Lego **39**
Case Study 1-2: Google **41**

▸ **CHAPTER 2** Strategic Use of Information Resources **44**

Evolution of Information Resources **45**
Information Resources as Strategic Tools **47**
How Can Information Resources Be Used Strategically? **51**
Social Business Lens: Social Capital **64**
Strategic Alliances **64**
Risks **66**
Co-Creating IT and Business Strategy **68**
Summary **69**
Key Terms **70**

Discussion Questions **70**
Case Study 2-1: Groupon **71**
Case Study 2-2: Zipcar **72**

▶ **CHAPTER 3** Organizational Strategy and Information Systems **74**

Information Systems and Organizational Design **78**
Social Business Lens: Social Networks **85**
Information Systems and Management Control Systems **85**
Information Systems and Culture **89**
Summary **95**
Key Terms **96**
Discussion Questions **96**
Case Study 3-1: The Merger of AirTran by Southwest Airlines: Will the Organizational Cultures Merge? **97**
Case Study 3-2: The FBI **98**

▶ **CHAPTER 4** Information Systems and the Design of Work **100**

Work Design Framework **102**
How Information Technology Supports Communication and Collaboration **104**
How Information Technology Changes the Nature of Work **104**
Social Business Lens: Activity Streams **113**
How Information Technology Changes Where and When Work Is Done and Who Does It **116**
Gaining Acceptance for IT-Induced Change **128**
Summary **130**
Key Terms **131**
Discussion Questions **132**
Case Study 4-1: Trash and Waste Pickup Services, Inc. **132**
Case Study 4-2: Social Networking: How does IBM Do It? **133**

▶ **CHAPTER 5** Information Systems for Managing Business Processes **135**

Silo Perspective versus Business Process Perspective **137**
Building Agile and Dynamic Business Processes **142**
Changing Business Processes **143**
Workflow and Mapping Processes **145**
Enterprise Systems **148**
Social Business Lens: Crowdsourcing Changes Innovation Processes **161**
Summary **162**
Key Terms **163**
Discussion Questions **163**
Case Study 5-1: Santa Cruz Bicycles **164**
Case Study 5-2: Boeing 787 Dreamliner **165**

▶ **CHAPTER 6** Architecture and Infrastructure **167**

From Vision to Implementation **168**
The Leap from Strategy to Architecture to Infrastructure **170**
From Strategy to Architecture to Infrastructure: An Example **177**
Architectural Principles **180**
Enterprise Architecture **180**
Virtualization and Cloud Computing **183**
Other Managerial Considerations **185**
Social Business Lens: Building Social-Mobile Applications **192**
Summary **192**
Key Terms **193**
Discussion Questions **193**
Case Study 6-1: Enterprise Architecture at American Express **194**
Case Study 6-2: The Case of Extreme Scientists **195**

▶ **CHAPTER 7** The Business of IT **197**

Organizing to Respond to Business Demand: A Maturity Model **198**
Understanding the IT Organization **199**
What a Manager Can Expect from the IT Organization **199**
Managing IT Activities Globally **203**
What the IT Organization Does Not Do **205**
Chief Information Officer **206**
Social Business Lens: Community Management **208**
Building a Business Case **209**
IT Portfolio Management **213**
Valuing IT Investments **215**
Monitoring IT Investments **218**
Funding IT Resources **222**
How Much Does IT Cost? **226**
Summary **231**
Key Terms **233**
Discussion Questions **233**
Case Study 7-1: Troon Golf **234**
Case Study 7-2: Balanced Scorecards at BIOCO **235**

▶ **CHAPTER 8** Governance of the Information Systems Organization **236**

IT Governance **237**
IT Governance and Security **244**
Social Business Lens: The Consumerization of Technology **248**
Decision-Making Mechanisms **248**
Governance Frameworks for Control Decisions **251**
Summary **257**

Key Terms **257**
Discussion Questions **257**
Case Study 8-1: IT Governance at University of the Southeast **258**
Case Study 8-2: The Big Fix at Toyota Motor Sales (TMS) **259**

▶ **CHAPTER 9** Information Systems Sourcing **261**

Sourcing Decision Cycle Framework **262**
Social Business Lens: iCloud **274**
Outsourcing and Strategic Networks **283**
Summary **284**
Key Terms **285**
Discussion Questions **285**
Case Study 9-1: Crowdsourcing at AOL **285**
Case Study 9-2: Altia Business Park **286**

▶ **CHAPTER 10** Managing IT Projects **288**

What Defines a Project? **290**
What is Project Management? **292**
Project Elements **295**
IT Projects **301**
IT Project Development Methodologies and Approaches **303**
Social Business Lens: Mashups **311**
Managing IT Project Risk **312**
Summary **319**
Key Terms **320**
Discussion Questions **320**
Case Study 10-1: Implementing Enterprise Change Management at Southern Company **321**
Case Study 10-2: Dealing with Traffic Jams in London **322**

▶ **CHAPTER 11** Knowledge Management, Business Intelligence, and Analytics **325**

Knowledge Management, Business Intelligence, and Business Analytics **327**
Data, Information, and Knowledge **330**
Knowledge Management Processes **335**
Business Intelligence **335**
Competing with Business Analytics **336**
Components of Business Analytics **338**
Big Data **340**
Social Analytics **342**

Social Business Lens: Social Graphs **344**
Caveats for Managing Knowledge and Business Intelligence **345**
Summary **345**
Key Terms **346**
Discussion Questions **346**
Case Study 11-1: Stop & Shop's Scan It! App **347**
Case Study 11-2: Business Intelligence at CKE Restaurants **348**

▶ **CHAPTER 12** Using Information Ethically **350**

Responsible Computing **352**
Corporate Social Responsibility **356**
PAPA: Privacy, Accuracy, Property, and Accessibility **359**
Social Business Lens: Personal Data **363**
Security and Controls **369**
Summary **371**
Key Terms **372**
Discussion Questions **372**
Case Study 12-1: Ethical Decision Making **372**
Case Study 12-2: Midwest Family Mutual Goes Green **375**

Glossary **377**

Index **387**