Preface

The constantly changing landscape of Crisis Management challenges experts and practitioners to stay apprized of the field’s most up-to-date research. That is why Information Science Reference is pleased to offer this three-volume reference collection that will empower students, researchers, and academicians with a strong understanding of critical issues within Crisis Management by providing both broad and detailed perspectives on cutting-edge theories and developments in the field. This collection is designed to act as a single reference source on conceptual, organizational, managerial, and technical issues, as well as provide insight into emerging trends and future opportunities within the discipline.

Crisis Management: Concepts, Methodologies, Tools, and Applications is organized into six distinct sections that provide comprehensive coverage of important topics. The sections are (1) Fundamental Concepts and Theories, (2) Organizational and Social Implications, (3) Managerial Impact, (4) Tools and Technologies, (5) Utilization and Application, and (6) Emerging Trends. The following paragraphs provide a summary of what readers may expect from this invaluable reference tool.

Section 1, “Fundamental Concepts and Theories,” introduces this work with a discussion of the basic prevention and recovery strategies in Crisis Management scenarios. The opening chapters describe cyber security methods and other topics crucial to an information-dependent society. Computer System Attacks by Zhang Ning provides an overview of digital assaults on information systems, while An Overview of Cryptography by Ehsan Vahedi, Vincent W.S. Wong, and Ian F. Blake discusses methods of preventing such attacks. The latter half of this section discusses topics ranging from network security to economics to recovery from natural disasters. Of note are the chapters Lessons from Major Incidents Influencing and Influenced by Telecoms Failures by Chris W. Johnson, which discusses the impact of failures in the communication network, US Financial Crisis Critique and the Statistical Predictability of a NYSE Portfolio by Gerry Wyman, which reviews some of the causes of the recent economic crisis, and Relief Distribution Networks, by Soumia Ichoua, which explores logistical methods for effective response to natural disasters. In all, the chapters in this section provide an effective overview of the primary crises and methodologies that will be covered in greater depth throughout this three-volume reference.

Section 2, “Organizational and Social Implications,” continues the discussion with a look into the human perspective on Crisis Management and disaster recovery techniques. The first chapter, Paradise to Peril by Scheljert Denas is indicative of this focus, providing a personal account of two hurricanes that struck the southeastern United States in recent years. Subsequent chapters explore topics such as humanitarian relief efforts (Challenges of Civil Military Cooperation/Coordination in Humanitarian Relief by Graham Heaslip and Sociotechnical Uses of Social Web Tools During Disasters by Liza Potts), security in both physical and digital infrastructures (Information Security in Data and Storage Grids through GS3 by Vincenzo Daniele Cunsolo, Salvatore Distefano, Antonio Puliafito, and Marco Scarpa and Cyber Security in Liquid Petroleum Pipelines by Morgan Henrie), and ethics as a preventa-
tive measure (Rethinking Ethics Education in Business Schools in the Post-Financial Crisis Epoch by Vlad Vaiman and Throstur Olaf Sigurjonsson). The human impact of a crisis, whether environmental, digital, or financial, can often take the highest toll, and the chapters in this section aim to mitigate, if not prevent, such a tragic cost.

Section 3, “Managerial Impact,” explores some of the many ways managers and leaders can respond to, if not prevent, situations requiring Crisis Management. The chapters in this section pertain to decision makers from every field and level of experience, starting with a discussion of managerial training through advanced methods in crisis response. Notable chapters include Nonparametric Correspondence Analysis of Global Risk Management Techniques by Kenneth David Strang, which studies the risk management and crisis prevention techniques most used by leaders from around the world. Multilingual Crisis Knowledge Representation by Aviv Segev investigates some of the challenges managers face in organizing communication between relief workers of different nationalities or languages, and The Effect of Crises on Leadership by Nazmi Çesmeci, Süleyman Özkaynak, and Deniz Ünsalan describes how crisis situations can serve as a crucible for new leaders, testing them in ways that help organizations to grow as a result of the natural disaster or economic crisis. Finally, Incident Command Situation Assessment Utilizing Video Feeds from UAVs by John McGuirl, Nadine Sarter, and David Woods investigates one of the many modern technologies that leaders can use to manage crisis situations, a topic that will be covered in greater depth in the next section.

Section 4, “Tools and Technologies,” describes some of the cutting edge technologies used in Crisis Management. The section begins with several chapters on the use of geospatial systems in organizing relief efforts, locating survivors, and modeling disaster areas after the fact, including Using an Agent-Based Behavior Modeling for Finding Humanitarian Relief Center Location in an Earthquake Zone by Numan Celebi, Eliciting Local Spatial Knowledge for Community-Based Disaster Risk Management by Valentina Spanu and Michael Keith McCall, and Spectrum Sensing in Emergency Cognitive Radio Ad Hoc Networks by Sasirekha GVK and Jyotsna Bapat. The next chapters, notably Soft Computing Modeling of Wild Fire Risk Indices by L. Iliadis and T. Betsidou and Planning for Hurricane Isaac using Probability Theory in a Linear Programming Model by Kenneth David Strang, investigate the use of computer modeling techniques to learn from natural disasters and predict those that have yet to occur. Finally, this section closes with a discussion of wireless sensor and network technologies that can be used to secure information systems and mobile networks in a variety of situations.

Section 5, “Utilization and Application,” builds on the tools described in the previous section to explore some of their potential uses for Crisis Management. The section begins by examining the recent financial crisis through chapters such as Economics & Practical Applications for Applied Trauma Theory by David S. Bathory and General Outlook on Financial Structure and Capital Adequacy of ISE-30 Companies during Economic Crisis (2008-2009) by Deniz Umut Erhan and M. Ugur Akdogan. Next, strategies for environmental disasters are discussed, such as Risk Management in a Pandemic Crisis at a Global Non Profit Health Care Organization by Drew Sugaretty and Media Management in Disaster Events by Eleonora Benecchi and Vincenzo De Masi. The closing chapters then discuss digital security and crisis response through contributions such as ICT Resilience as Dynamic Process and Cumulative Aptitude by Paul Theron and City Networks in Cyberspace and Time by Andrew Boulton, Lomme Devriendt, Stanley D. Brunn, Ben Derudder, and Frank Witlox. These three fields—financial, environmental, and digital—are intricately linked, and the best crisis prevention systems will take all three into account, as the chapters in this section attest.

As a comprehensive collection of research on current findings related to the development of interdisciplinary technologies, Crisis Management: Concepts, Methodologies, Tools, and Applications provides researchers, administrators, and all audiences with a complete understanding of the latest advances, applications, and concepts in Crisis Management. Although the primary organization of the contents in this multi-volume work is based on its six sections, offering a progression of coverage on the important concepts, social issues, administrative considerations, technologies, applications, and emerging trends, the reader can also identify specific content by utilizing the extensive indexing system found at the end of each volume. Given the vast number of issues concerning usage, successes and failures, policies, strategies, and applications of Crisis Management in countries around the world, Crisis Management: Concepts, Methodologies, Tools, and Applications addresses the demand for a resource that encompasses the most pertinent research on the technologies being employed to globally bolster the knowledge and implementation of Crisis Management.