

Preface

Revolution and evolution are common in the areas of information systems development (ISD) and databases. New concepts such as agile modeling (AM), extreme programming (XP), knowledge management, and organizational memory are stimulating new research ideas among researchers and prompting new applications and software from practitioners. This volume, *Research Issues in Systems Analysis and Design, Databases and Software Development*, is a collection of state-of-the-art research-oriented chapters on information systems development and databases. This volume does not only serve the research purposes of researchers and academicians, but it is also designed to provide technical professionals in the industry with understanding of the capabilities and features of new ideas and concepts in information systems development, databases, and forthcoming technologies.

Keeping with the high standard of previous volumes in the *Advances in Database Research* series, we carefully selected and compiled 10 excellent chapters written by well-known experts in the areas of information systems development and databases. A short description of each chapter is presented below.

Chapter I, “Agile Software Development in Practice,” explores agile information practices of information systems development and argues that their history is much longer than what is generally believed today. It takes an interpretive and critical view of the phenomenon. This chapter reports an empirical study on two companies that apply an XP-style development approach throughout the information systems development life cycle.

Chapter II, “Understanding Agile Software, Extreme Programming, and Agile Modeling,” discusses the state of research in extreme programming and agile modeling. This chapter also examines research in agile software development. It first presents the details of agility, XP, and AM, including a literature review, followed by an identification of gaps in the literature and a proposal for possible future studies.

Chapter III, “Adaptation of an Agile Information System Development Method,” presents the work practice in dealing with the adaptation of an agile information systems development method in the ISD department of one of the leading financial institutes in Europe. This chapter also introduces the idea of method adaptation as an underlying phenomenon concerning how an agile method has been adapted to a project situation in the case organization.

Chapter IV, “Matching Models of Different Abstraction Levels: A Refinement-Equivalence Approach,” discusses the reuse of models, which assists in constructing new models on the basis of existing knowledge. It proposes the concept of refinement equivalence and emphasizes its use for the purpose of validating a detailed application model against an abstract domain model in the context of a domain analysis approach called application-based domain modeling.

Chapter V, “On the Use of Object-Role Modeling for Modeling Active Domains,” discusses how the object-role modeling (ORM) language and approach can be used for integration, at a deep and formal level, of various domain-modeling representations and viewpoints, with a focus on the modeling of active domains. The chapter argues that ORM is particularly suited for enabling such integration because of its generic conceptual nature; its useful, existing connection with natural language and controlled languages; and its formal rigor.

Chapter VI, “Method Chunks to Federate Development Process,” proposes an approach that consists of federating the method chunks built from the different project-specific methods in order to allow each project to share its best practices with the other projects without imposing on all of them a new and unique organization-wide method.

Chapter VII, “Modeling and Analyzing Perspectives to Support Knowledge Management,” introduces a generic modeling approach that explicitly represents the perspectives of stakeholders and their evolution traversing a collaborative process. This chapter also describes a Web-based information system that uses the perspective model and the social-network analysis methodology to support knowledge management within collaboration.

Chapter VIII, “Modality of Business Rules,” discusses one way to model deontic rules, especially those of a static nature. A formalization based on modal operators is provided, and some challenging semantic issues are examined from both logical and pragmatic perspectives.

Chapter IX, “Lost in Business-Process Model Translations: How a Structured Approach Helps to Identify Conceptual Mismatch,” discusses the problem of translating between process modeling languages. It argues that there is conceptual mismatch between modeling languages stemming from various perspectives of the businesses-process management life cycle that must be identified for seamless integration.

Chapter X, “Theories and Models: A Brief Look at Organizational Memory Management,” introduces theories and models used in organizational memory. This chapter provides a brief review of the literature on organizational memory management and further presents a basic framework of theories and models, focusing on the technological components and their applications in organizational memory systems.

The 10 chapters in this volume provide a snapshot of the latest research in the areas of information systems modeling, systems development, and databases. This volume is a valuable resource for scholars and practitioners alike.

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