

# Preface

*“The proper study of mankind is the science of design.”*

Herbert Simon

*“Engineering, medicine, business, architecture and painting are concerned not with the necessary but with the contingent – not with how things are but with how they might be – in short, with design.”*

Herbert Simon

## Purpose and Motivation of This Book

The creative human activity of design changes the world in which we live for the better. As academic researchers in the field of information systems (IS), the co-authors have observed, studied, and taught design in the development of software-intensive systems for business. We have experienced the difficulties and wicked nature of designing useful systems. More importantly, we have faced classrooms of students with the challenges of how to teach the underlying theories and everyday practices of software system design. These experiences and challenges have motivated us to perform research in the science of design, or design science research (DSR), and to write this book.

We believe that the study of information systems design, both its theory and practice, has become an essential part of the education of IS students and professionals. More and more IS graduate and doctoral programs are beginning to offer graduate-level seminars on design science research. The purpose of this book is to fill a void: the lack of a good reference book on design science research. Most current seminars study a collection of research papers from many sources. Often, these papers are written with differing terminology and research perspectives leading to confusion and misunderstandings for students. Here we provide a consistent approach for performing and understanding design science research while maintaining a diversity of opinions from many thought leaders in the IS design community.

Having worked in the information technology and software design fields as academics and industry consultants, the authors of this book have written from their

extensive experience as educators of design science research. Many chapters of this book are based on a series of seminars that Dr. Chatterjee has taught at Claremont Graduate University. Dr. Hevner's seminal 2004 article in *Management Information Systems Quarterly* journal has had huge impact in the IS field. (Appendix A is a reprint of the Hevner et al. 2004 article in *MISQ*.) It has raised consciousness toward design science as a rigorous and relevant research paradigm and his evangelistic efforts to promote DSR throughout the world has resulted in a heightened awareness of the urgent need for good design research to improve business processes and systems.

In 2006, Drs. Chatterjee and Hevner founded the Design Science Research in Information Systems and Technology (DESRIST) conference which has become a platform for all leading design IS researchers to present their work and a forum to debate the important issues facing the community. We have selected a handful of the best papers that have appeared in this conference over the past 4 years to be included as chapters of the book. In Appendix B, we have provided a list of exemplar research papers in design science as an aid to students for further reading.

It has been our goal to make this book easy-to-read, easy-to-understand, and easy-to-apply. From frameworks to theory to application design, this book provides a comprehensive coverage of the most salient design science research knowledge that is available at the time of this book's publication.

## **Intended Audience**

The material is suitable for graduate courses in information systems, computer science, software engineering, engineering design, and other design-oriented fields. The book is intended to be used as a core text or reference book for doctoral seminars in design science research. The book does not require an extensive background in design and can be appreciated by any practitioner as well who is working in the field of information systems and technology design. IS faculty and industrial researchers who want to further develop their knowledge and skills in the design science research methodology will find it valuable. Each chapter is self-contained with references.

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