According to the UK Academy for Information Systems (UKAIS), Information Systems (IS) are the "means by which people and organisations, utilising technologies, gather, process, store, use, and disseminate information" (http://www.ukais.org.uk/about/DefinitionIS.aspx).

This type of definition is very common and has contributed to great confusion on what really constitutes IS as an academic discipline and has led to different fields of science appropriating the term in very different and not necessarily convergent ways. Computer science views "technologies," in the definition above, as software. Therefore, the term IS is often used interchangeably with software in computer science literature. Moreover, a myriad of academic and training programs bear the name of IS when, in fact, these are either programming or software engineering courses. On the other hand, information science focuses on the human processes that "gather, process, store, use, and disseminate information," subsuming IS into information management, knowledge management, and even librarianship. Finally, business and management studies use the type of definition exemplified above to focus on both organizational behavior, business processes, and IS as a management strategy.

However, although IS as a field of research lies in the intersection of these three main fields of computer science, information science, and business studies, its focus is clearly different. IS researchers focus on studying the impact of Information and Communication Technology (ICT) on socio-technical environments that support human activity systems. This focus distinguishes IS research from computer science, that concentrates on the design and development of ICT artifacts, information science that puts emphasis on information and business studies that centers its research around the organizational behaviors.

Nonetheless, IS draws on theoretical propositions, research frameworks, and experiences from all these three disciplines. This inherent multidisciplinary results in both strengths and weaknesses. Firstly, and probably foremost, there are very few pure IS academic departments, which means that IS academics and researchers can be found in a number of different and more main stream departments such as business schools, computer science departments, information schools, psychology departments, or even in more creative academic units, such as schools of arts. This puts IS conferences among the more interesting ones to attend due to rich environment for interchange of ideas, clashing of conceptualizations, and challenging of established theories and perceived truisms from the individual disciplines. Secondly, this diversity brings with it different conceptualizations on what research is, which ontological and epistemological paradigms should be used and which research approaches, methods, and designs are appropriate for the field. Finally, there is little consensus in the field on what exactly are typical research questions in IS.

This scenario may seem at a first glance negative and discouraging. However, quite in the contrary, it has led to a thriving, flourishing, and very adaptive IS research community and enabled a natural co-evolution of research topics and technology. In fact, IS has become probably the most flexible and
adaptive of all research communities. The apparent weakness of not having well-established research questions means that these can continuously evolve to face the challenges of ever changing ICT, ever evolving human activity systems, and even faster occurring societal evolutions. In this sense, IS research, contrary to many other disciplines, will never become obsolete, as it never settles on established theoretical frameworks or dogmatic and epistemologically rigid perceptions research.

However, this evolutive nature of IS as a discipline poses serious challenges to anyone intending to characterize IS research in a book with the nature of ours. First, we need to give voice to different epistemological positions in the field and allow for the traditional dichotomous dialogues such as positivism versus interpretivism, deductive versus inductive, or qualitative versus quantitative. Second, we need to also include those who reject the incompatibility of these traditional opposing positions and propose to integrate them as complementary contributions to the understanding of IS phenomena, such as the proponents of mixed-methods approaches or design research. Finally, we need to create a coherent and understandable structure, so that the reader is able to make sense of these different research voices, positions, and proposals. After much discussion, consultation, and some heated controversy, and with the full awareness that such a structure would never get universal agreement, we finally decided to divide this book into five sections: Positivist and Deductive Approaches; Interpretivist and Social Constructivist Approaches; Case Study Approaches; Mixed-Methods Approaches; Evaluation Research Approaches.

The Positivist and Deductive Approaches section comprises six very different chapters on aspects such as experimental research, survey research, theories of reasoned action, design research, and desktop research.

Chapter 1, titled “Online Survey: Best Practice” and authored by Issa, provides an overview discussion and an example of application of online survey research. This chapter explores advantages, disadvantages, as well as the application of online survey and the functionality of online tools to support it. Finally, the author provides practical recommendations on the adoption of an online survey from the researchers’ point of view.

Connolly’s Chapter 2, titled “eCommerce Trust Beliefs: Examining the Role of National Culture,” presents positivist and deductive research design, using a trust measurement instrument that was beforehand validated in previous research. The study reported applies that survey instrument to two different countries (United States and Ireland) and tries to explore whether and to what extent national culture can manipulate online consumers’ trust in e-commerce services.

Chapter 3, dedicated to snowball sampling and written by Isaías, Pifano, and Miranda, bears the title of “Subject Recommended Samples: Snowball Sampling.” This chapter focuses on sampling strategies for survey data collection, focusing on snowball sampling as a “chain-referral sampling method.” The authors argue that snowball sampling supports the access to hidden subjects that would otherwise not be found and questioned. Isaías et al. contextualize their discussion and insights through the experiences gained when conducting a research project on online behavior of Web 2.0 users.

Chapter 4, “Practically Applying the Technology Acceptance Model in Information Systems Research” by Mojtahed and Peng, explores the Technology Acceptance Model (TAM), which is known as one of the best Information Systems approaches to study ICT acceptance and usage. These authors argue the applicability and advantages of this model by presenting and discussing two different UK research projects, one on mobile banking acceptance and another on mobile campus.

Chapter 5, “Designing Personalised Learning Resources for Disabled Students Using an Ontology-Driven Community of Agents” by Nganji and Brayshaw, focuses on the exploration of social artifacts for the disabled, making use of the affordances of new technologies based on the Semantic Web. The
chapter uses a very traditional scientific approach for the design of IS predicated on a very prevalent but increasingly controversial computer science principle of reductionism, i.e. the notion that an IS can be seen as discrete components and the design and evaluation processes focusing interactively and incrementally on subsets of such components. Specifically, the chapter advocates a design process using an ontology-based personalization of learning resources for disabled students.

The last chapter in this section, Chapter 6, titled “Taxonomy of IT Intangibles Assets for Public Administration Based on the Electronic Government Maturity Model in Uruguay,” is authored by Garbarino, Delgado, and Carrillo and presents an example of desktop research using a taxonomy of Information Technology intangible assets for public administration based on the Electronic Government Maturity Model (EGMM). The authors illustrate the application of desktop research through a project aiming at setting up a taxonomy of assets indicators for e-government in order to enable a better quality of public services online.

Section 2 of this book focuses on “Interpretivist and Social Constructivist Approaches” and comprises four chapters in the areas of ethnographic studies, grounded theory, action research, and discourse analysis.

In Chapter 7, “Online Ethnographies,” Isomäki and Silvennoinen offer a comparison and analysis of ethnography, Webnography, network ethnography, cyber-ethnography, and digital ethnography. This very interesting chapter argues that the exponential growth of ICT usage associated to very rapid technological development has fostered the emergence of new research procedures and methods. Therefore, these authors argue that the creation of new applications of ethnography (in this case online ethnography) can be seen as a natural evolution of more traditional strands. The authors use a case comparison method to illustrate their discussion and propositions.

Chapter 8 discusses grounded theory as one of the better established inductive methodologies in use in IS. This chapter, titled “Grounded Theory in Practice: A Discussion of Cases in Information Systems Research,” is authored by Martins, Nunes, Alajamy, and Zhou. The purpose of this chapter is to share insights based on the use of this method in the three case study examples and defend this type of inductive research as an effective methodology to create solid theory based on real contexts of practice and developed from the field.

Chapter 9 presents an example of an action research study. This chapter by Costello and Donnellan is titled “Creating Interpretive Space for Engaged Scholarship.” In this chapter, the authors propose a new form of action research called Dialogical Action Research, which provides an interpretive framework for practitioners who are introducing change in their own organizations. This approach is based on the core concepts of interpretive space and engaged scholarship and is illustrated through the use of an applied research process.

Chapter 10 on “Exploring Higher Education Students’ Technological Identities using Critical Discourse Analysis” by Brown and Hart discusses and reports on the implementation of Critical Discourse Analysis (CDA). The project reported explores the role of ICTs using South African scenarios involving higher education students and their perceptions of the impact of ICTs in their lives. The authors use the method CDA with the objective of gathering more insights and data regarding the social relationships and social identities. The authors propose the use of categorization of discursive types in the text in order to identify explicit, socially negotiated, and hidden meanings.

Section 3 on “Case Study Approaches” focuses on a well establish research practice in IS and comprises two chapters.

Chapter 11 by Gordon, Shankaranarayanan, and Blake, titled “The Role of Case-Based Research in Information Technology and Systems,” focuses on case study research as a method with a significant
part to play in the future of research in IS due to its capacity to create knowledge from practice and to study phenomena in context. The authors present some very interesting examples of case study research in order to emphasize the role of case-based research. Additionally, the authors provide an analysis of abstracts from more than 200 articles that use case-based research by using a latent semantic analysis to identify their trends and anticipate what the role of case-based IS research will be in the coming decades.

Chapter 12 on “Mapping Participatory Design Methods to the Cognitive Process of Creativity to Facilitate Requirements Engineering” by Sulmon, Derboven, Montero, and Zaman presents a user-driven creativity framework that unites various participatory design activities into one combined method. This framework, designed to be accordant with the mental processes of creativity, aims to integrate user involvement, innovation, and vision in the early stages of application requirements, gathering, and concept development. The research project presented in this chapter discusses a mobile language learning case study that demonstrates how an application of the framework resulted in system prototypes and unveiled perceptions of learners and teachers, effectively yielding the necessary in-depth user knowledge.

Section 4 addresses the controversial use of triangulation of methods and mixed-methods approaches. This section reflects an increasing awareness of the complementary use of different data collection methods that resulted in growing trend in IS Research to adopt this type of research design. This section includes four chapters.

The purpose of chapter 13, “Combining Research Paradigms to Improve Poor Student Performance” by Goede, Taylor, and van Aardt, is to present an action research approach using methods representing different research paradigms in the different phases of the project. The authors illustrate their propositions through the use of a project aiming at developing a blended learning environment for computer science students at a South African university. At different stages of the project, the research used informal discussions, questionnaires, and Web-log analysis. The argument for using mixed methods is developed by discussing established research paradigms and their utilisation in the problem environment and reflecting how these were integrated in the action research process implemented.

Chapter 14 discusses “Experiences in Applying Mixed-Methods Approach in Information Systems Research” and is authored by Peng and Annansingh. These authors use two different research projects that used mixed-methods approaches to illustrate and justify how quantitative and qualitative research methods can be combined in order to study one specific phenomenon. This chapter also provides useful guidelines and proposals to aid IS researchers when selecting and designing a mixed-methods research as well as providing more precise and meaningful insights regarding this type research design.

Chapter 15 provides a mixed-method research approach to evaluate Web 2.0 tools and their application in educational environments. The chapter by Holland and Howell is titled “Examining Web 2.0 e-Learning Tools: Mixed Method Classroom Pilot” and uses a combination of observation and surveys to determine adequacy of emergent Web technologies, levels of student satisfaction in using them, and finally, an assessment of the levels of usage. It represents a good example of mixed-methods making use of observation as a data collection method, which is particularly useful in IS research.

Chapter 16 offers yet another significant combination of research methods that is both innovative and very different from the other research designs presented in this section. This chapter presents a combination of analytical evaluation methods and empirical evaluation methods. The chapter authored by Luján-Mora and Masri focuses on aspects of Web accessibility and is titled “Evaluation of Web Accessibility: A Combined Method.” Accessibility has been both a topical and a very politicized issue in IS research for the last decade, but the authors take a very technical and neutral view of the problem, that makes this chapter a very interesting one to read.
Section 5, “Evaluation Research Approaches,” comprises four chapters.

Chapter 17, “Information Systems Evaluation: Methodologies and Practical Case Studies” by Chen, Osman, and Peng, seeks to identify, examine, and discuss the most common and established methods currently in use in Information Systems (IS) evaluation. It looks at the process of evaluation from different angles, specifically in terms of its nature and the corresponding strategies that can be adopted. The authors presented four case studies in order to demonstrate how different IS evaluation procedures can be put into practice.

In Chapter 18 by Covarrubias, Bordegoni, Cugini, and Gatti presents an evaluation research method of a haptic guidance device to support people with disabilities in sketching, hatching, and cutting shapes. This haptic guidance device has been used as an input system for tracking the sketching movements. The chapter, titled “Supporting Unskilled People in Manual Tasks through Haptic-Based Guidance,” is an excellent example of a very specific purpose criteria-based evaluation that is very common in IS.

Chapter 19, “Integrated Methods for a User Adapted Usability Evaluation” by Shirogane, Yashita, Iwata, and Fukazawa, proposes a usability evaluation process by integrating two well-established methods and one that is original and proposed by the authors. The authors propose this combined methodology to trace operation histories of the target software. Specifically, the research focuses on employing automatic usability evaluations to identify problems ranging from common errors to more complex aspects of efficiency and learnability.

Chapter 20 by Martin, Flood, and Harrison is titled “A Protocol for Evaluating Mobile Applications” and presents a process for the evaluating of interaction design and outlines a protocol for capturing a snapshot of the present state of the applications in existence for a given field in terms of both usability and functionality. In addition, the protocol was designed to be able to create a list of features offered by existing applications and allow new application (such as mobile technologies) developers to establish the current state-of-the-art before embarking on new product development.

To conclude this already very long introduction, we would like to make one final remark. This book aims at illustrating the current diversity and richness of research in the area of IS. It works well as a window into the world of IS, and it aims at shedding light on the theoretical and methodological discussions in the field today. However, due to the evolutive nature of IS research, it should not be taken as a definitive contribution, but one that reflects current trends and opinions. We are sure that in 10 years’ time, a similar book could include a different structure and contain very different chapters, both in terms of the nature of the research designs used and, certainly, in terms of the socio-technical contexts being addressed.

Finally, we would like to thank all the authors in the book, apologize for the many reviews and the very strict demands made on their contributions, and congratulate all for the group effort that resulted in this book.

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