Preface

Human Computer Interaction (HCI) has its roots in the main areas of industrial engineering, human factors and cognitive psychology with the focus on the development of user-friendly IT. Traditionally, the research in this area has emphasised the technological aspect of this relationship (the *Computer*). More recently, other aspects concerning the organizational, social and human context also began to be considered (the *Human*). Today, one can say that any attempt to facilitate the relationship between the machine and the user must consider not only the technological perspective (e.g., promote the usability) but also, for instance, the way the user is going to use the technology and his or her purpose as well as the social and cultural context of this use (the *Human* and the *Computer*).

Another issue that should be considered in this interaction is the impact that information systems/technology may have on humans and organizations. There is general consensus that the adoption of any IT/IS brings change. Furthermore, IT/IS and organizations have a mutual influence on each other, meaning that this technology affects organizations and that organizations necessarily affect, for instance, the design, the choice and the management of those systems. The adoption of an IT/IS is, thus, mediated by factors that will influence the interaction between the sectors involved. It is also generally agreed that the adoption of a certain IS by different organizations does not give rise to the same changes; that is, the same technology might engender different impacts and these differences are due not to the characteristics of the technology itself, but to the characteristics of the context and the relationships that are established among all the factors involved.

It is already possible to find in the literature some models to help to assess the impact of the adoption of the technology. One could summarize all the contributions of these models by saying that the factors that should be considered in this process are (Sarmento, 2002, 2003): (1) Technological factors, including

the characteristics of the technology that is going to be adopted and the technology already existing in the organization; (2) Structural factors, including the organizational design, the complexity, the number of hierarchical levels, the number of departments, the centralization or decentralization of power and decision making, the coordination of tasks, the formalization of procedures, the design of tasks and jobs and the degree of specialization; (3) Social and individual factors, including the multidisciplinary work teams, their distribution in time and space, their education, training, work satisfaction, skills and individual characteristics; (4) Political factors, including who decides on the kind of technology to adopt, its design and implementation, who is going to use it, its purposes and objectives; and (5) Cultural factors, norms, rules, reaction to change and organizational learning capacity.

These factors cannot be analysed in isolation as they interact with each other, influencing the effects of the adoption and use of the new IT. Moreover, it is not possible to say that one factor is more important than the other because the result of an interaction depends on the relation that is established among all the factors involved, over a period of time.

Another issue that should be considered is the understanding of the technology that is going to be implemented. This means that sometimes it is not enough to just consider the arguments advanced by the seller or reported on the leaflets to acknowledge the advantages and benefits of the technology. It is necessary to know the impacts on several organizational domains, for instance, in the coordination of the processes, in the internal communication or in the management of organizational knowledge. Furthermore, organizations must also be aware that changes might not happen in the way they expect. Some changes may not happen at all while others may occur unexpectedly.

Taking the roots of HCI, and the way it has evolved in the last few years, we wanted this book to cover the different perspectives and point towards some directions for further research. This book is divided in five sections. The first section, "Tools to Improve Usability and Web Design" deals, precisely, with the more technological aspect concerning the interaction between human and machines. Subjects such as the usability and the Web design are discussed in those chapters. Section II, "Internet and End Users' Concerns," includes three chapters reporting on the importance of users and their characteristics. Section III, "IT and Issues Regarding Human Resources Management," comprises chapters debating the needs of management of human resources engendered by the adoption of new IT. Section IV, "Human and Organizational Issues Regarding IT Adoption and Use," discusses the importance of the consideration of human aspects when choosing and adopting technology and how

neglecting these might lead to the failure of IT adoption. Finally, in Section V, "Case Studies of Human and Organizational Issues Regarding IT Adoption and Use," we present some empirical projects that were carried out to study the impact of IT adoption and the reasons beneath some examples of IT failure.

The following is a brief description of each section and the chapters included in them.

Section I presents and discusses some tools that can be used to improve usability and Web site design.

In the first chapter, "Service-Oriented Human Computer Interaction and Scripting," Neil McBride and Ibrahim Elbeltagi propose the concept of service-oriented human computer interaction (HCI), in which HCI derives from service design, dialog is driven by customer needs and perceptions, activities are considered and the service interaction dialog is aligned with the computer dialog. Furthermore, the authors suggest that the use of scripts can be a valuable tool to enable the development of human-computer dialogs, because it aligns more with the expectations and needs of the customers, enabling the service to meet some of the criteria of service-oriented HCI.

In Chapter II, "User Acceptance of Online Computer Games: Comparing Two Models in a Field Study," Yuan Gao examines two models for predicting user acceptance of online computer games. These models are the technology acceptance model and the consumer behaviour model, based on marketing and advertising research. The chapter describes an empirical research method to test these models. Findings suggest that product presentation has influence on the acceptance of the technology, including online computer games.

In Chapter III, "Web-STAR: Development of Survey Tools for Use with Requirements Gathering in Web Site Development," Jonathan Lazar, Adam Jones and Kisha-Dawn Greenidge introduce the Web-STAR (Survey Tool for Analyzing Requirements) project; this offers a standardized survey tool, which developers can use to determine the user requirements for existing or new Web sites. Chapter III also provides a background for requirements gathering and its challenges, followed by a discussion on the relevance of Web usability and the need for surveys and toolkits that aid the development process. Finally, the progress of this project is discussed.

Section II addresses issues related to end users' concerns in an Internet context.

Chapter IV in this section, "The Use of Query Operators and Their Effect on the Results from Web Search Engines," by Bernard J. Jansen, discusses the use of query operators such as Boolean and phrase searching to improve searching performance. The author reviews the existing literature on this subject and tests his assumptions by examining the effects of query structure on the documents retrieved by Web search services. Findings show that approximately 66% of the results were identical regardless of how the searcher entered the query, suggesting that the use of complex queries is generally not worth the effort for the typical Web searcher.

Chapter V, "Interactive Proxy for URL Correction," by Kai-Hsiang Yang, addresses the issues of Uniform Resource Locator correction techniques in proxy servers, based on personal browsing access logs, to meet the different users' needs. According to the research undertaken, users will no longer be too concerned with the URL (whether it is correct or not) because even when the URL entered is incorrect, they will be taken to the desired Web page.

In Chapter VI, "Emerging Practices and Standards for Designing Business Web Sites: Recommendations for Developers," Carmine Sellitto and Andrew Wenn report some of the emerging technical design aspects of information delivery that a developer should consider in the implementation of business Web sites. These authors recommend a Web site design framework that encompasses some of the more technically based features associated with accessibility, proper html encoding and metadata elements. Some aspects concerning information quality are also discussed.

Section III deals with IT and human resources management issues.

Chapter VII of this section, "A Framework for Defining E-Business IT Skills Portfolio," by Susy Chan and Abdulraham A. Mirza, discusses some of the consequences of organizational change arising from the adoption of an e-commerce or e-business model. For instance, there is the need for a new IT skills portfolio. Based on a literature review, authors propose a framework that will help to guide the development of a desired skills portfolio for e-business transformation. The chapter concludes with a research agenda.

In Chapter VIII, "Issues in End-User Behavior," Murray E. Jennex describes some action research undertaken to solve a problem concerning the high level of engineering time that was spent performing IS functions. This research contributes to the identification of issues that affect system development, use of programming standards, documentation, infrastructure integration and system support.

In Chapter IX, "Employee Perceptions of Outsourcing of Information Technology Operations: An Empirical Investigation," Lynda Roberson Louis describes a study carried out to investigate the perceptions of employees directly involved in IT outsourcing and correlates these perceptions with factors identified in previous studies. The human factors evaluated are job security, benefits and compensation, morale, productivity, training and skills, and career opportunities. The author proposes a *modified management outsourcing adoption model* as a tool for use in management action plans to incorporate employee perspectives into the outsourcing phases, potentially leading to better agreements that benefit all parties involved.

The human and organizational issues regarding IT adoption and use are addressed in **Section IV**.

Chapter X in this section, "Surfacing Occupational Threats to IT-Enabled Change: A Neglected Role for Organization Development?" by Joe McDonagh, discusses some of the challenges that have emerged as a result of IT implementation. Although recognizing that it is the technical and economic considerations that are uppermost, during IT implementation, the author concludes that it is the human and organizational factors that should be considered to be responsible for IT failure. Results show that there is a need for a more integrated approach to the introduction of IT in organizations.

In Chapter XI, "Human Factors in the 'System Selection' Stage of Library Automation," Nasrine Olson discusses issues that are relevant in the field of library and information science. The author then describes qualitative research to study how and why library workers make their choices of automated library systems. Results show that more emphasis on human issues regarding IT adoption should be considered.

In Chapter XII, "Stressing Office Technology's Non-Technical Side: Applying Concepts from Adaptive Structuration Theory," Huub J. M. Ruël introduces the concepts of *spirit* and *appropriation* from Adaptive Structuration Theory. A framework is developed and applied. Results show that if users have a clear image of the spirit of the IT, it will be better incorporated in their daily tasks. Based on the results, the author draws some recommendations for IT implementation and use.

Chapter XIII, "Expanding the Information Carrying Capacity of the New Media in the Context of Virtual Teams" by John D'Ambra and Zixiu Guo, considers the role of computer-mediated communication (CMC) in supporting the work of virtual teams. After a discussion concerning the characteristics of CMC,

the author presents a framework to help to study the effective use of CMC within organizations.

In Chapter XIV, "Change and Challenge: Managing the E-Business Organization," John Mendonca describes the characteristics of e-business with its impact in organizational management, focusing on four dimensions: how organizations manage and control processes and projects, organizational design, technology transfer management and changes to the nature of work. The author considers that understanding the challenges and adopting new management styles and techniques are critical success factors for the organization.

Section V, the last section, presents some case studies dealing with the human and organizational issues regarding IT adoption and use.

Chapter XV in this section, "Data Quality and Work Alignment: Do IT Professionals Think Differently?" by Latif Al-Hakim and Hongjiang Xu, provides some theoretical background for data quality and its relation to work alignment. A theory of data quality alignment is developed and applied in four case studies. Results show that the quality of data is the most common source of business failure, as this aspect is mostly neglected by the organizational actors involved.

In Chapter XVI, "Human Issues and Computer Interaction: A Study of a U.K. Police Call Centre," Steve Clarke, Brian Lehaney and Huw Evans describe a project developed with an action-research approach to solve some of the problems that arose after the implementation of a call centre. Authors conclude that the difficulties that were being experienced by these police officers were due to human issues that were not taken into consideration during the call centre implementation.

In the last chapter, Chapter XVII, "The Role of Group Learning in Implementation of a Personnel Management System in a Hospital," Tatyana Bondarouk and Klaas Sikkel propose an implementation model of collaborative technologies, which is regarded as a learning process, with the following activities—collective acting, collective reflecting, knowledge dissemination, sharing understanding and mutual adjustment. This model is then applied in a longitudinal case study. Conclusions show that group-learning processes do play an important role during adoption of a new collaborative technology such as groupware systems. This group-learning process emerges immediately after the introduction of the new system and will influence the success or failure of its use.

The chapters in this book are a selection of some of the articles presented at the 2003 IRMA International Conference held in Philadelphia. They were all blind reviewed for acceptance in the conference and in this volume. I really hope that they will be enriching and inspiring and that the reader will enjoy reading them as much as I enjoyed preparing them.

References

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