Preface

Purpose of This Book

This book is based on my previous book titled *Process Improvement and Organizational Learning: The Role of Collaboration Technologies* (1999, Idea Group Publishing). Among the revisions (some extensive) that led to this new book is the inclusion of evidence from studies of business process improvement and e-collaboration issues conducted in the US in the past seven years. In most cases, the new evidence has been added to and integrated with the evidence already summarized in the previous book. Here, I discuss several new issues regarding the impact that e-collaboration technologies have on business process improvement and knowledge sharing.

I have written this book around two main theses. The first is that business process improvement, a key element of the most influential management movements since the 1980s, can be considerably improved by the use of information technology. I argue that distributed and asynchronous e-collaboration technologies; such as e-mail, computer conferencing, and Web-based groupware systems, are likely to play a major role in this improvement.

The second thesis set forth in this book is that business process improvement affects organizational knowledge sharing (a key component of what is generally referred to as organizational learning) in a non-linear way, and that the use of e-collaboration technologies can boost this influence by increasing the breadth and speed of knowledge dissemination in organizations. To lay the groundwork for the development of this thesis, I explore the relationship among the concepts of data, information, and knowledge. I do so by looking at how

these abstract entities affect our lives. These concepts are then used as the building blocks to define knowledge sharing and organizational learning.

This book is primarily based on my experience facilitating and researching over 100 business process-focused organizational development projects, including a three-year project where more than 38 process improvement groups were facilitated with the support of e-collaboration technologies in three different countries. Here, I look into the relationship between e-collaboration technology use, business process improvement success, and knowledge sharing effectiveness.

Key findings in connection with effects of e-collaboration technologies on business process improvement groups are discussed in this book. Among those findings are the following: the use of e-collaboration technologies appears to increase the number of simultaneous business process improvement groups that can be conducted in an organization; it also seems to decrease the organizational cost of business process improvement groups; and, moreover, it appears to have a neutral (or, at least, non-negative) effect on the quality of the outcomes generated by business process improvement groups.

A related finding regarding knowledge sharing is that the use of e-collaboration technologies seems to have a positive impact on how much knowledge is disseminated across the organization, and how fast that happens when those technologies are used in combination with catalyst efforts such as business process improvement.

The above findings may seem a bit academic at first glance, but they have vast applications in business. For example, improvements regarding business process improvement efficiency mentioned above can be translated into significant savings in the implementation of business efforts aimed at quality and productivity improvement, such as the following:

- Quality management certification programs based on standards by the International Organization for Standardization (ISO) like the ISO 9000 family of standards.
- Industry-specific accreditation efforts, such as those that universities and colleges undergo to obtain accreditation of their educational programs by the Association for Advance Collegiate Schools of Business (AACSB) and the Southern Association of Colleges and Schools (SACS).
- Process-specific certification efforts, such as those undergone by large information technology defense contractors and other software develop-

ment organizations that bid for large contracts, in connection with the Software Engineering Institute's Capability Maturity Model (CMM), which classifies information technology organizations at levels 1 to 5 (5 being the best) according to their adherence to CMM's prescriptions.

- Quality improvement efforts based on specific methodologies such as the Six Sigma methodology, to which much praise has been directed recently by the leaders of large and influential companies such as Honeywell, General Electric, and Lockheed Martin.

The findings summarized above suggest that the use of e-collaboration tools, if done properly, can reduce the cost and increase the speed of efforts aimed at ISO 9000 and CMM certification, AACSB and SACS accreditation, and Six Sigma implementation. And these are just a few of the certification and accreditation schemes that have found widespread adoption in particular industries.

Moreover, the specific finding that the use of e-collaboration technologies seems to have a positive impact on the speed and breadth of organizational knowledge dissemination may be put into practice to support key business efforts that are becoming increasingly common, such as knowledge transfer between subsidiaries of the same company, whenever new technologies and/or methods are developed; parent and acquired businesses in post-merger situations; and main company and contractor, in strategic outsourcing partnerships.

However positive the above findings may sound, they can only become reality if some precautions are taken by organizations. This book discusses several of these precautions and lays out a blueprint to conduct e-collaboration technology-supported business process improvement and knowledge sharing. The book also includes a detailed description of a tested methodology to guide the work of e-collaboration technology-supported business process improvement groups.

From a broad perspective, my goal with this book is to help managers, as well as students who are pursuing a management career, to prepare their (future and present) organizations to survive and thrive in the Internet era. This is the era where, more than ever, the fittest organizations are those able to master the art of efficient and effective acquisition and use of data, information, and knowledge.

Organization of This Book

This book is made up of 11 chapters, one appendix, a reference section, and a glossary. The content presented in the chapters flows in such a way to introduce the reader to fundamental ideas, to develop and support with evidence the two basic theses of this book, and finally, to offer some advice to organizations on how to implement them. Chapters I through IV are more introductory in nature. The remaining chapters build on extensive empirical evidence, mostly collected in previous projects led by the author. The appendix provides a basic reference on statistical analysis techniques for those who "hate" statistics. Below is a summary of each chapter's content.

Chapter I offers an introduction and motivation for the book. It introduces several topics that will be discussed in more detail in later chapters. Among those topics are the evolution of management ideas and the related evolution toward e-collaboration technologies, the roots of business process improvement ideas, the trend toward knowledge fragmentation, the role of business process improvement with regard to knowledge sharing, the effect of e-collaboration technology support on business process improvement groups, the e-collaboration paradox, and the success factors associated with e-collaboration technology-supported business process improvement groups.

Chapter II offers a historical review of the fields of organizational development and e-collaboration. This review focuses on major historical events and does not restrict itself to academic issues. As such, several of the major management developments are discussed, from Adam Smith's division of labor approach in the 1700s to Hammer and Champy's reengineering movement in the 1990s. Subsequently, the chapter describes the main technological developments that led to the emergence of e-collaboration tools as significant tools for organizational improvement and organizational learning. In this chapter, I attempt to build a link between the commercial establishment of computing technologies and the organizational development ideas that became popular in the same period. This should help readers understand how technologies that enable e-collaboration have evolved vis-à-vis the development of major management ideas, and get situated in the topical discussion that will be expanded in further chapters.

In spite of the recent popularity that the business process concept has gained, I believe it is a fundamental idea behind several previous management movements, including the total quality management, organizational learning, and business process reengineering movements. Therefore, I use Chapter III to

discuss the concept of business process in the context of the management movements just mentioned. I also describe several popular views of processes, with particular attention to the data and workflow views.

Chapter IV is also an introductory chapter. It discusses three fundamental concepts referred to throughout the book—data, information, and knowledge. This chapter is particularly important because of the rather confusing way in which these terms are used in the academic as well as the more popular senses. Here, I offer new conceptualizations that suggest that data is a carrier of information and knowledge, and that while information is eminently descriptive, knowledge's nature is mostly predictive. Although these conceptualizations are heavily based on previous theoretical frameworks from cognitive science and artificial intelligence, I try to eliminate technical jargon as much as possible and explain my views through examples involving simple day-to-day situations.

Chapter V presents and discusses empirical evidence that supports one of the core theses of this book, which is that business process improvement, when viewed as a meta-process, affects knowledge sharing in a positive way (the term "meta" is used to refer to a high-level process through which process improvement is sought). This chapter does not discuss any direct effect that e-collaboration technologies may have on people (this is done later). Rather, it targets a specific group process—the business process improvement meta-process—and shows that this group process (with or without technology support) leads to increased knowledge communication and sharing in organizations.

An extensive discussion of the direct and indirect effects that e-collaboration technologies are likely to have on business process improvement and knowledge sharing is provided in Chapter VI. This is one of the core chapters of the book and addresses both of the two main theses of this book. Most of the chapter is about e-collaboration technology effects in connection with business process improvement. The emphasis is on asynchronous e-collaboration technologies, particularly those based on the electronic mail paradigm. At the end of the chapter, a discussion about the impact on knowledge sharing is also presented. This discussion builds on evidence presented earlier in the book, as well as new evidence introduced in this chapter.

Chapter VII provides a discussion of the results summarized in the previous chapter, and puts forth a curious picture that seems to plausibly explain those results (which would appear to be somewhat puzzling at first glance). The picture is characterized by two competing phenomena associated with the use

of e-collaboration technologies; phenomena that are collectively referred to here as the "electronic collaboration paradox."

(a) People seem to consistently perceive face-to-face communication (as well as communication that incorporates key elements of the face-to-face medium, such as the ability to use non-verbal cues like tone of voice and body language to convey ideas) to pose fewer obstacles to effective communication than other, particularly electronic, media.

(b) When groups conduct collaborative tasks using e-collaboration technologies, they often present the same level of performance or even perform better than groups accomplishing the same tasks face-to-face, which is contradictory with notion (a).

The curious phenomena above are presented as reasons why e-collaboration technologies should be used according to certain prescriptions (discussed later in the book), since their unwise utilization may lead to more problems than benefits.

While the evidence presented in the previous chapters suggests an overall positive impact of e-collaboration technologies on business process improvement and knowledge sharing, it does not address success factors related to the use of e-collaboration tools to support business process improvement and knowledge sharing groups. This is done in Chapter VIII, based on the discussion previously presented in connection with behavioral effects of e-collaboration technologies. This chapter presents a careful success/failure analysis of several e-collaboration technology-supported groups, which leads to the identification of a few critical success factors. The chapter discusses the appropriateness of e-collaboration technology support in incremental and radical business process improvement situations, and shows that e-collaboration technology support may become a trap to organizations if not properly employed.

Chapter IX summarizes the findings discussed in previous chapters, particularly those presented in connection with behavioral effects of e-collaboration technologies, and whose discussion is expanded in later chapters. This summarization relies in part on a graphical model depicting an integrated view of e-collaboration technology support effects on distributed business process improvement groups and knowledge sharing. This chapter also presents a number of "realistic" recommendations for organizations trying to avoid much of the self-servicing advice often seen in popular business publications.

Chapter X provides a detailed description of MetaProi, the group methodology I used to facilitate several of the groups analyzed in this book. I expect this chapter to be instrumental in similar future initiatives by the readers. MetaProi is a new approach for business process improvement, which by necessity is based on previous books and papers on the topic. MetaProi's focus is both on the quality *and* productivity of business processes. The methodology was designed so that it can be conducted through electronic as well as face-to-face meetings. One detailed example of an electronic discussion based on MetaProi is provided at the end of this chapter.

Chapter XI provides a summarized and structured description of 12 cases of e-collaboration technology-supported business process improvement, where e-collaboration is utilized at different degrees (in some cases, together with face-to-face collaboration). The e-collaboration tool used is an electronic mail system with list-distribution capabilities, which is ideal for the purposes of this book because it represents a widely used and relatively cheap type of e-collaboration technology that just about any organization can easily adopt. Since these cases served, together with other cases and experiences, as the basis for several of the ideas in the book, I think that they will also be useful to readers who want to draw additional conclusions based on raw data.

The appendix discusses several statistical analysis techniques used in the book. The goal of this appendix is to explain, in simple terms, what the several statistical analysis techniques mentioned in the book mean. While mentioning the techniques in other chapters of the book lends credibility to the arguments presented there, and provides a basis on which experts can evaluate those arguments, it can also lead to some confusion, especially among readers who are not very familiar with those statistical analysis techniques. This appendix is an "antidote" against that potential confusion. Some of the statistical tests that are briefly covered include comparison of means tests (e.g., the T test), correlation tests (e.g., the Pearson correlation test), and distribution trend significance tests (e.g., the Chi-squared goodness-of-fit test).