

# Preface

In this book, software technology and the myriad issues that surround its dissemination and use are examined from a number of relevant perspectives. This is especially timely, as the importance of software in the overall industrial economy grows, and as the software industry undergoes important transformations. The tremendous success of the Internet is noteworthy in forever changing the structure of the industry, the applications of software, and software business models.

Most books on software focus on software technology or development methodologies. To be successful, software professionals need to appreciate the context of software in the real world. Other professionals like managers, lawyers, and economists with an interest in software and its uses and impacts need to appreciate more deeply the technical aspects of software, at least those relevant to their own context. All these professionals need a vocabulary and common frame of reference to interact more deeply on software. This book addresses this need by explaining the characteristics of software in its context, emphasizing both technical and non-technical issues and relating the two.

The software industry can't be fully appreciated outside of the context of what precedes and what follows development. Conceptualizing what it does, the needs it serves, and its impact are important predecessors to development. Many issues follow software deployment, including provisioning, operations, use, maintenance and upgrade, customer service, and coordinated organizational changes and management challenges. Thus, an overall goal of the book is to integrate the pre- and post-development activities with software development and technology.

The growing importance and special characteristics of software make it an increasing area of activity for our governments, and an interesting topic of study for the social sciences, law, and business. We capture the most important issues raised by the growing importance of software in the management, policy, and legal arenas, and relate them to the characteristics of software technology and business models.

The overarching theme of the book is that software is different. It is different from information goods in terms of its economic properties: although it shares some characteristics with information goods, with material goods, and even with services, it mixes these characteristics in unique ways. It is different from a legal perspective, as evidenced by the increasing attention to software-specific issues in legislation and the courts, including patents, copyrights, civil liberties, and antitrust. It is distinctive among technologies and in its industrial and business challenges in numerous ways. The single most prominent objective of this book is to explain how software is different.

In summary, software touches many professional lives. This leads to many interrelated and overlapping perspectives on software, technical and non-technical. Following introductory chapters, the book is organized around the perspectives of the user, software engineer, manager, industrialist, lawyer or policy expert, and economist, as well as the overlaps and relationships among these perspectives. The objective of the book is to capture the key issues and concerns of each profession relating to software, to understand the characteristics of the software technology as well as the various business relationships and processes that surround software that impact these issues and concerns, and then explain these characteristics of software in a way that you the reader can understand, even if you happen not to be a technologist. Note that each chapter is not written primarily to serve the needs of the associated professions; indeed, that chapter is likely to be rather superficial to an expert. Rather, the chapters are in total intended to convey a comprehensive view of software to the benefit of practitioners of each and every perspective. The book is primarily about software, so we make no attempt to be comprehensive in our treatment of

the surrounding issues; rather, we explain them in sufficient detail to be able to relate them substantively to software. We do attempt to be reasonably comprehensive in explaining software itself, and in an accessible way, while avoiding numerous detailed technical issues of keen interest to technologists but less relevant from other perspectives.

The software industry has always undergone rapid change, but arguably this change has been never more swift than today, principally because of the Internet. We firmly believe that software would benefit from more in-depth research in economics, management, policy and legal disciplines. For example, the opportunities surrounding the growing role of the service provider as an intermediary between software and the user are poorly understood but are nevertheless being very actively pursued. If you are a scholar interesting in studying software-related issues, we aim to empower you by explaining those arcane-but-relevant characteristics of technology and processes. Most of all, by understanding and targeting how software is different, we hope that your scholarship will add more significant value. As additional aids, a list of specific research and discussion issues is included at the end of each chapter and a glossary of the most important terms is included at the end.

We are sensitive to the issue that since one co-author is an employee of Microsoft Corporation, the book may promulgate a Microsoft-centric view of the software world. As this is not our intention, we have given equal weight to numerous examples from across the software industry and attempted to represent alternative viewpoints on many controversial issues rather than advocating a single viewpoint.

If you are a technical professional, you should also have a deeper appreciation and understanding of the many non-technical processes, relationships, and issues that surround software. If you have an interest in molding the technology in ways that make it more useful and successful, enhance its positive outcomes and mitigate its possible problems, then you should find this book a helpful starting point.

This book is in part an outgrowth of a course taught at the University of California at Berkeley in “Strategic Computing and Communications Technology” mixing engineering, information management, and business administration students. It should prove useful in similar classes that examine the industrial and economic considerations of software, in business, economics and law courses, and in courses for software professionals.

The book has an associated Web site at URL [mitpress.mit.edu/??](http://mitpress.mit.edu/??), where supplementary materials like hyperlinks to resources referenced in the book, more detailed or analytical write-ups, and presentation slides are posted. This should be particularly valuable to instructors using this book.

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