

Preface

First, master the fundamentals.
Larry Bird (1957–)

Business Process Management (BPM) is a special field for more than one reason. First of all, BPM is a crossroad of multiple, quite different viewpoints. Business managers are attracted to BPM because of its demonstrated ability to deliver improvements in organizational performance, regulatory compliance and service quality. Industrial engineers see BPM as an opportunity to apply well-trodden manufacturing optimization techniques in the context of organizations that deliver services rather than physical products. Finally, Information Technology (IT) specialists appreciate the fact that BPM provides them with a shared language to communicate with business stakeholders. Furthermore, business process automation technology allows IT specialists to implement and monitor IT systems in a way that is aligned with the vision that business stakeholders have of the organization. In other words, BPM is a boundary-spanning field that serves as a melting pot for otherwise separate communities. For those who have experienced how business managers, industrial engineers and IT professionals often seem to live in different worlds, this shared field of interest is a remarkable opportunity to achieve a joint understanding of the inner workings of a business.

A second special characteristic of BPM is that it is both actively practiced and actively researched. In other words, it is a field where there are both proven and established practices as well as open challenges. Businesses around the world are carrying out BPM initiatives with the aim to, for example, outperform their competitors or meet the demands of regulatory authorities. Academics in fields like computer science, management science, sociology, and engineering are working on the development of methods and techniques to support such initiatives. It is appropriate to see BPM as a “theory in practice” field. On the one hand, practical demands inspire the development of new methods and technologies. On the other hand, the application of these methods and technologies in practice feeds back to the drawing boards in universities and research centers.

After teaching BPM to thousands of students and professionals over the past decade, we strongly feel the lack of a textbook to give a structure to our courses and to allow our audience to study for themselves beyond classwork and homework

assignments. This situation is not due to a lack of excellent books on BPM—in fact there is a good number of them—but rather due to the cross-disciplinary and continuously evolving nature of BPM.

There are excellent treatments of BPM from a business management perspective, most notably Harmon’s *Business Process Change* and Sharp and McDermott’s *Workflow Modeling*. Both of these books provide useful conceptual frameworks and practical advice and should definitely lie in the bookshelves (or better in the hands) of BPM practitioners. However, one needs an introductory background and preferably years of experience in order to truly appreciate the advice given in these books. Also, these books give little attention to technology aspects such as business process management systems and process intelligence tools.

On the other side of the spectrum, other books adopt a computer science perspective to BPM, such as Van der Aalst and Van Hee’s *Workflow Management* and Weske’s *Business Process Management*, both focused on process modeling, analysis and automation for computer scientists. At a more specialized level, one can find a range of books focusing on process modeling using specific languages—for example Silver’s *BPMN Method and Style*.

Against this background, we decided it was time to put together our combined teaching experience in BPM in order to deliver a textbook that:

- Embraces BPM as a cross-disciplinary field, striking a balance between business management and IT aspects.
- Covers the entire BPM lifecycle, all the way from identifying processes to analyzing, redesigning, implementing and monitoring these processes.
- Follows a step-by-step approach punctuated by numerous examples, in order to make the content accessible to students who have little or no BPM background.
- Contains numerous classroom-tested exercises, both inside each chapter and at the end of the chapters, so that students can test their skills incrementally and instructors have material for classwork, homework and projects.
- Relies on a mature and standardized process modeling language, namely BPMN.

In the spirit of a textbook, every chapter contains a number of elaborated examples and exercises. Some of these exercises are spread throughout the chapter and are intended to help the reader to incrementally put into action concepts and techniques exposed in the chapter in concrete scenarios. These “in-chapter” exercises are paired with sample solutions at the end of the chapter. In addition, every chapter closes with a number of further exercises for which no solutions are provided. Instructors may wish to use these latter exercises for assignments.

Most chapters also contain “highlighted boxes” that provide complementary insights into a specific topic. These boxes are tangential to the flow of the book and may be skipped by readers who wish to concentrate on the essential concepts. Similarly, every chapter closes with a “Further Readings” section that provides external pointers for readers wishing to deepen their understanding of a specific topic.

To better serve our readership, we have set up a website to collect course materials: <http://fundamentals-of-bpm.org>. This website includes slides, lecture recordings, sample exams, links to related resources and additional exercises.

The book is designed to support courses of a wide variety. An in-depth course on BPM could cover all chapters in a balanced way. In order to fit the content into one semester though, it may be necessary to sacrifice one or two chapters. If this was required, our suggestion would be to skip Chap. 4 or 10. An introductory BPM course could skip Chaps. 2, 4, 7 and 10 while still providing a consistent picture of the field. A course on process automation for IT students could skip Chaps. 2, 5 and 6. A course on process modeling would focus on Chaps. 2 to 5, and possibly Chap. 9 if the intention is to produce executable process models. Chapters 3 and 4 can be integrated into a broader semester-long course on systems modeling. Finally, a process improvement course for business students might focus on Chap. 3 and Chaps. 5 to 8. Naturally, Chap. 1 could find its place in any of the above courses.

Each chapter can be delivered as a combination of lectures and classwork sessions. Shorter chapters (1, 2, 3, 5, 6 and 10) can be delivered in one lecture and one classwork session. Chapters 4, 8 and 9 may require two lectures and two classwork sessions each. Chapter 7 can be delivered across two lectures and two classwork sessions, or it can be delivered in one lecture and one classwork session by skipping the content on queues and flow analysis.

This textbook is the result of many years of educational practice both at the undergraduate and postgraduate levels in more than half a dozen institutions, including Eindhoven University of Technology (The Netherlands), Queensland University of Technology (Australia), Humboldt University of Berlin (Germany), University of Tartu (Estonia), Vienna University of Economics and Business (Austria) and National University of Colombia. The material in this textbook has also served as a basis for professional training courses delivered to organizations in Australia, The Netherlands and elsewhere. We are grateful to the thousands of students who over the past years have given us constructive feedback and encouragement.

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