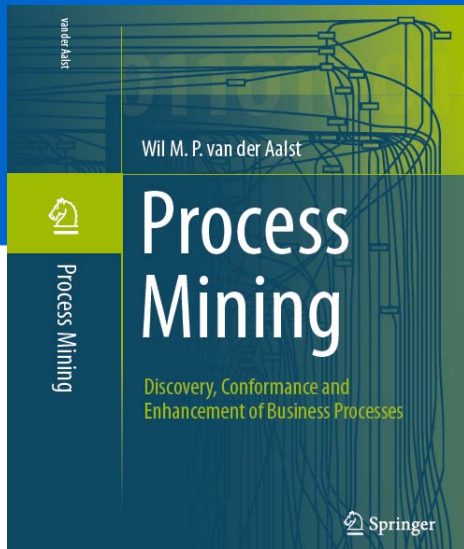


# Process Mining

## Discovery, Conformance and Enhancement of Business Processes

prof.dr.ir. Wil van der Aalst  
[www.processmining.org](http://www.processmining.org)



**TU/e** Technische Universiteit  
Eindhoven  
University of Technology

Where innovation starts

Wil M. P. van der Aalst  
Process Mining

Discovery, Conformance and Enhancement of Business Processes

More and more information about business processes is recorded by information systems in the form of so-called "event logs". Despite the omnipresence of such data, most organizations diagnose problems based on fiction rather than facts. Process mining is an emerging discipline based on process model-driven approaches and data mining. It not only allows organizations to fully benefit from the information stored in their systems, but it can also be used to check the conformance of processes, detect bottlenecks, and predict execution problems.

Wil van der Aalst delivers the first book on process mining. It aims to be self-contained while covering the entire process mining spectrum from process discovery to operational support. In Part I, the author provides the basics of business process modeling and data mining necessary to understand the remainder of the book. Part II focuses on process discovery as the most important process mining task. Part III moves beyond discovering the control flow of processes and highlights conformance checking, and organizational and time perspectives. Part IV guides the reader in successfully applying process mining in practice, including an introduction to the widely used open-source tool ProM. Finally, Part V takes a step back, reflecting on the material presented and the key open challenges.

Overall, this book provides a comprehensive overview of the state of the art in process mining. It is intended for business process analysts, business consultants, process managers, graduate students, and BPM researchers.

**Features and Benefits:**

- First book on process mining, bridging the gap between business process modeling and business intelligence.
- Written by one of the most influential and most-cited computer scientists and the best-known BPM researcher.
- Self-contained and comprehensive overview for a broad audience in academia and industry.
- The reader can put process mining into practice immediately due to the applicability of the techniques and the availability of the open-source process mining software ProM.

Computer Science

ISBN 978-3-642-19344-6



► [springer.com](http://springer.com)



Process Mining

van der Aalst

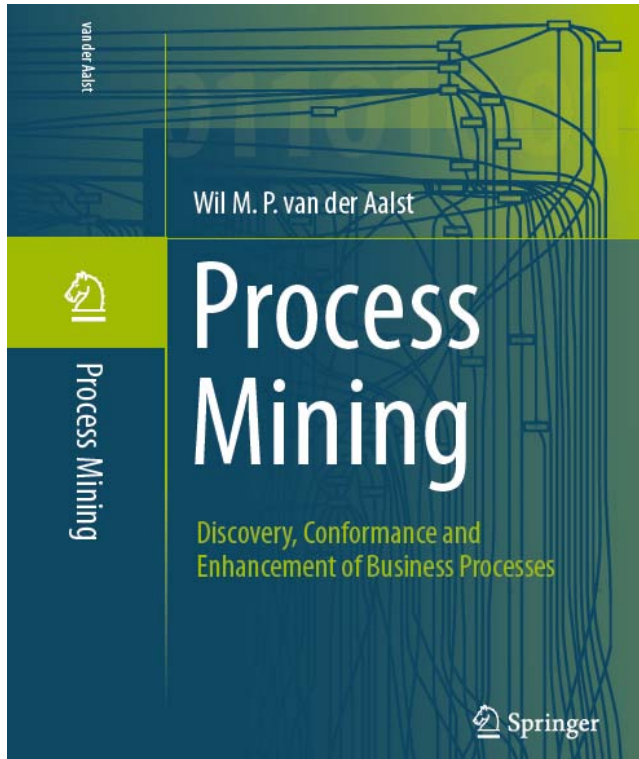
Wil M. P. van der Aalst

# Process Mining

Discovery, Conformance and  
Enhancement of Business Processes

 Springer

# Overview



Chapter 1  
Introduction

## *Part I: Preliminaries*

Chapter 2  
Process Modeling and  
Analysis

Chapter 3  
Data Mining

## *Part II: From Event Logs to Process Models*

Chapter 4  
Getting the Data

Chapter 5  
Process Discovery: An  
Introduction

Chapter 6  
Advanced Process  
Discovery Techniques

## *Part III: Beyond Process Discovery*

Chapter 7  
Conformance  
Checking

Chapter 8  
Mining Additional  
Perspectives

Chapter 9  
Operational Support

## *Part IV: Putting Process Mining to Work*

Chapter 10  
Tool Support

Chapter 11  
Analyzing “Lasagna  
Processes”

Chapter 12  
Analyzing “Spaghetti  
Processes”

## *Part V: Reflection*

Chapter 13  
Cartography and  
Navigation

Chapter 14  
Epilogue

# Acknowledgements

- Thanks to all people that contributed to ProM and the promotion of process mining.
- Thanks to all organizations that provided data and supported our process mining research.
- Thanks to the following individuals:

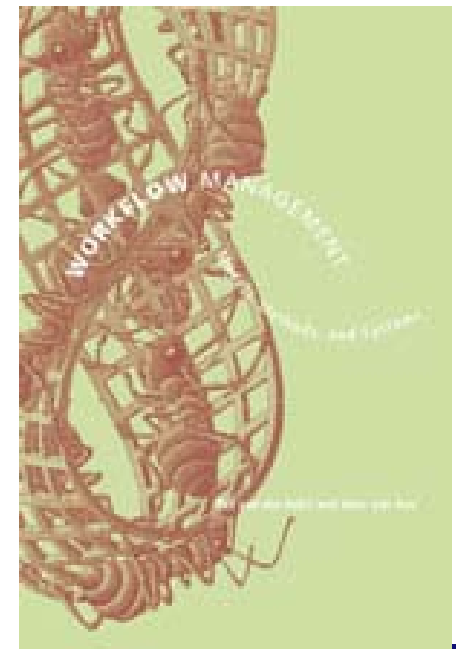
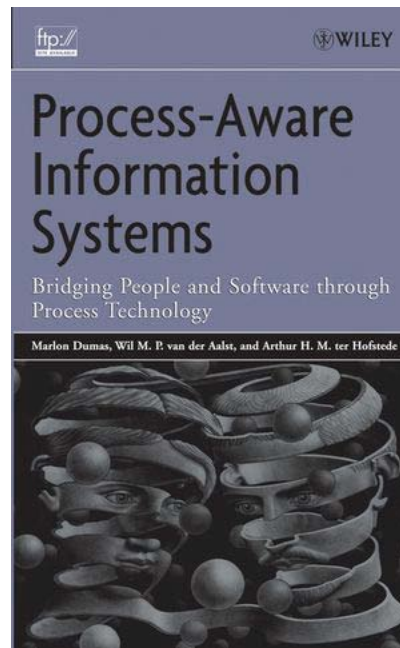
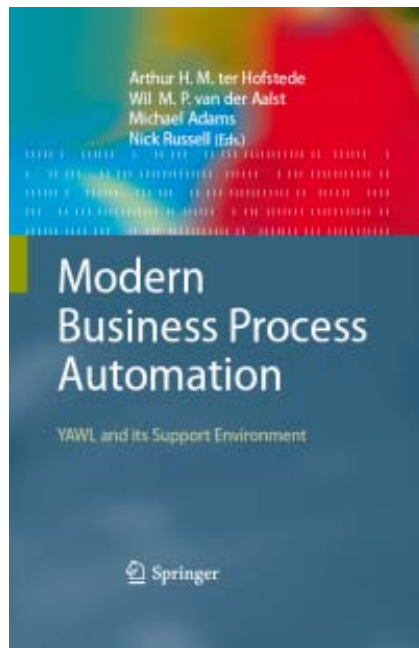
Boudewijn van Dongen, Eric Verbeek, Ana Karla Alves de Medeiros, Minseok Song, Christian Günther, Anne Rozinat, Carmen Bratosin, R.P. Jagadeesh Chandra (JC) Bose, Ronny Mans, Maja Pesic, Joyce Nakatumba, Helen Schonenberg, Arya Adriansyah, Laura Maruster, Joos Buijs, Piet Bakker, Huub de Beer, Tobias Blickle, Andrea Burattin, Riet van Buul, Toon Calders, Jorge Cardoso, Josep Carmona, Alina Chipaila, Francisco Curbera, Marlon Dumas, Schahram Dustdar, Paul Eertink, Dyon Egberts, Dirk Fahland, Diogo Ferreira, Walid Gaaloul, Stijn Goedertier, Adela Grando, Gianluigi Greco, Dolf Grünbauer, Antonella Guzzo, Kees van Hee, Joachim Herbst, Arthur ter Hofstede, John Hoogland, Ivo de Jong, Ivan Khodyrev, Thom Langerwerf, Massimiliano de Leoni, Jiafei Li, Ine van der Ligt, Zheng Liu, Niels Lohmann, Peter Hornix, Fabrizio Maggi, Jan Mendling, Frits Minderhoud, Arnold Moleman, Marco Montali, Michael zur Muehlen, Jorge Munoz-Gama, Mariska Netjes, Andriy Nikolov, Mykola Pechenizkiy, Carlos Pedrinaci, Viara Popova, Silvana Quaglini, Manfred Reichert, Hajo Reijers, Remmert Remmerts de Vries, Stefanie Rinderle-Ma, Marcello La Rosa, Michael Rosemann, Vladimir Rubin, Stefania Rusu, Eduardo Portela Santos, Natalia Sidorova, Alessandro Sperduti, Christian Stahl, Keith Swenson, Nikola Trcka, Kenny van Uden, Irene Vanderfeesten, George Varvaressos, Marc Verdonk, Sicco Verwer, Jan Vogelaar, Hans Vrins, Jianmin Wang, Teun Wagemakers, Barbara Weber, Lijie Wen, Jan Martijn van der Werf, Mathias Weske, Michael Westergaard, Moe Wynn, Bart Ydo, and Marco Zapletal.

# More books

- **Modeling Business Processes: A Petri Net-Oriented Approach**

Wil van der Aalst and Christian Stahl

<http://mitpress.mit.edu/catalog/item/default.asp?ttype=2&tid=12548>



# Pointers

The ProM logo consists of the word "ProM" in a white, sans-serif font. The "P" is significantly larger than the other letters. The text is set against a dark blue rounded rectangular background.

IEEE Task Force on  
Process Mining

- ProM Software: [prom.sourceforge.net](http://prom.sourceforge.net)
- Process mining: [www.processmining.org](http://www.processmining.org)
- ProM 5 series nightly builds: [prom.win.tue.nl/tools/prom/nightly5/](http://prom.win.tue.nl/tools/prom/nightly5/)
- ProM 6 series nightly builds: [prom.win.tue.nl/tools/prom/nightly/](http://prom.win.tue.nl/tools/prom/nightly/)
- Converting logs (MXML-based) [promimport.sourceforge.net](http://promimport.sourceforge.net)
- XES: [www.xes-standard.org](http://www.xes-standard.org) and [www.openxes.org](http://www.openxes.org)
- Papers et al.: [vdaalst.com](http://vdaalst.com)
- IEEE Task Force on Process Mining: [www.win.tue.nl/ieeetfpm/](http://www.win.tue.nl/ieeetfpm/)