

TITLE:
Fundamentals of Business Process Mining
(Tutorial Proposal discussed with Tamás Koltai)

Keywords: Business Process Management, Process Mining, Event Log Data

Topic(s): Information Systems in Operations, Managing Change in Operations, Empirical Modelling and Simulation

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Presenters:

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- Prof. dr. ir. Hajo Reijers, Department of Computer Sciences, Vrije Universiteit Amsterdam, The Netherlands

Goal and objectives

Business Process Management (BPM) is a discipline that aims to understand and improve operational business processes within corporate settings. Researchers that are active in this field draw from the computer and organization sciences, as well as from operations research for the development of new methods, techniques, and technologies.

The overall goal of this tutorial is to raise an interest for the BPM discipline among OR researchers, in the hope that this may lead to cross-fertilization between the related fields and an exchange of ideas. Specific objectives are:

- To explain the broad scope of BPM and its main artefacts and frameworks, e.g. the BPM lifecycle, the devil's quadrangle, the redesign orbit, and the process model;
- To explain and demonstrate the state-of-the-art in process mining, in particular related to the purposes of process discovery, performance analysis, and enhancement.

For each of these objectives, we will ground our tutorial in the theory that is presented in Dumas, La Rosa, Mendling, and Reijers (2018). This reference is the revised version of a textbook that is in use at more than 200 universities worldwide to teach BPM to undergraduate and graduate students.

Proposed Structure

We propose to organize this tutorial in two sessions of 45 minutes each, leading to a total tutorial duration of 1.5 hour. The sessions are structured as follows:

1. Introduction to BPM
 - a. The process view on organizations (15 minutes)
We explain the process-centered view on organizations.
 - b. BPM as a discipline (15 minutes)
This part deals with the history of BPM, its main tenets, and its approach to process management and improvement according to a lifecycle perspective
 - c. The phases of BPM (15 minutes)
We will address each of the typical phases in a BPM project, explain the main activities and challenges during those phases, the artefacts involved, and the relation between the phases

2. Process mining as BPM instrument
 - a. Basic principles (15 minutes)
This part discusses the main principles behind process mining techniques and its value for managing and analyzing business processes. In particular, the notion of an event log is explained.
 - b. The alpha-algorithm (15 minutes)
Treatment of the fundamental process mining technique, along with a discussion of its limitations.
 - c. Advanced process mining (15 minutes)
A presentation of the state-of-the-art process mining techniques, as well as its application in corporate settings

Short bios

Jan Mendling is a full professor with the Institute for Information Business at Wirtschaftsuniversität Wien (WU Vienna), Austria. His research areas include Business Process Management, Conceptual Modelling and Enterprise Systems. He is member of the editorial board of three international journals, one of the founders of the Berlin BPM Community of Practice (<http://www.bpmb.de>), organizer of several academic events on process management, and member of the IEEE Task Force on Process Mining.

Hajo Reijers is a full professor in Computer Science at the Vrije Universiteit Amsterdam, as well as a part-time, full professor in Computer Science at Eindhoven University of Technology. Previously, he was active as managing consultant and R&D manager. The focus of his academic research is on conceptual modeling, process innovation, workflow management, and simulation. He has taught to students on these topics at all academic levels and provides training to practitioners at the TIAS Business School.

References

Dumas, M., La Rosa, M., Mendling, J. and Reijers, H.A. (2018), *Fundamentals of Business Process Management*, Springer Verlag, 2nd edition, Berlin.