

Analytics for Information Systems

MATHEMATICS & COMPUTER SCIENCE

RESEARCH INTEREST

Investigation of methods, techniques and tools for the **analysis of processes**. Process analytics refers to the *systematic extraction of insights* in processes by *analyzing the event data* stored during the execution of said processes.



Each time two or more activities are performed to reach a certain goal, fundamental principles of processes apply and hence we are interested in the analysis of data from:

- administrative information systems
- logistic systems
- process management systems
- any system where clear 'case' notions are present

We actively **maintain and develop** several (open-source) software packages:

- ProM (process mining and process analysis)
- Declare (workflow management)
- CPN Tools (model-based analysis, simulation)



SCIENTIFIC STAFF

Prof. Boudewijn van Dongen (head of the group)
Process analytics and conformance checking

Dr. Dirk Fahland
Process mining on multi-dimensional data

Dr. Marwan Hassani
Real-time process mining

Prof. Hajo Reijers
Case management, configurable process models, social BPM

Dr. Renata Medeiros de Carvalho
Process mining for adaptable models

Dr. Natalia Sidorova
Analysis of human-centric processes

Furthermore 15 PhDs are working on various Data Science projects

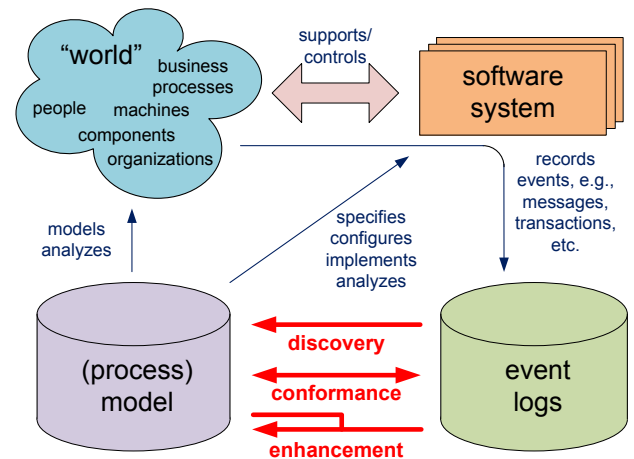
SUCCESS STORIES

The group closely collaborates with various software vendors, consultancy firms and end-user organizations. An example of this was the CoSeLoG project in which 10 municipalities and 2 software vendors participated. Applying process mining on selected processes revealed certain key employees for which no back-up was available.

The group also organizes the yearly business process intelligence challenge where a real-life data set is published and analyzed by contestants. One of the datasets described loan applications, where it was found that for loans totaling to € 63.000 no approval was registered, while the loan was granted.

The work of the group on workflow patterns also influenced industry standards such as BPMN.

Furthermore, two spin-offs in the area of process mining (Future Process Intelligence and Fluxicon) demonstrate the practical relevance of the groups' research.



PROJECT EXAMPLES

Process mining in logistics *Vanderlande*
Analyzing event data to improve the performance of package handling systems and warehouse automation systems, both online and offline.

BPR4GDPR EU H2020

Novel process mining techniques for an online and adaptive enabling of GDPR compliance for small and medium sized enterprises.

Real-Time Customer Journey Optimization

BrandLoyalty

Data science research on real-time process-centric consumer journey analytics for operational excellence during loyalty programs.