# Business Processes Process Mining & Analytics



#### Process Mining & Analytics

#### Contents

Process Management	3
Business Process Model Notation (BPMN)	
Process Analytics	
Process Mining	
Process Simulation	

#### Introduction

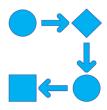
When it comes to improving and analyzing processes our support incorporates a data driven approach to generate clear evidence. By using Process Analytics we can help to ensure process changes can align to strategies and bridge any gaps between what management oversees holistically and what specialists know in terms of details. Given the objective to improve business processes based on data evidence, the right insights into how an organisation's processes actually work are delivered.



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Our support covers a range of topics to enhance controls and for planning of production and business processes.



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## **Process Management**

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# **Business Process Model Notation (BPMN)**

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# **Process Analytics**

Processes are used to structure businesses, services and productions with documentation of logs providing abundance of process data. Each event documented in these logs can be associated to an activity. Such event logs not merely record events, rather logs provide data evidence about the operational process. Process data documented in logs can be subjected to data mining techniques for data exploration and serve to provide information about process weaknesses and bottlenecks.

How can Business Process Analytics be useful for Business Process Management?

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## **Process Mining**

As a sub-area of Process Analytics, Process Mining techniques enable comparing data obtained from observed processes to reference process models and process rule. The discovery of processes authentically derived from data stored in IT systems is an important case in point for Process Mining. A very useful outcome of any process discovery is that an actual process model can be defined and visualized, based on the activities performed by the actors and the use of ressources. Process Mining therefore captures and represents a process that is happening in real terms as opposed to defined processes which are represented by reference models.

**Process Mining** uses an **approach** that relies on real data with emphasis on process discovery and visualization. Process Mining is following a 'bottom-up' approach similar to inductive reasoning. Successful outcomes in applying process mining are measurable as an improvement in process perfomance in terms of time, costs, and quality. **Outcomes** yielded by Process Mining include:

- ➤ Optimally rearranging the number of actors and the amount of ressource allocated to activities.
- ➤ Identifying outlier cases that may require intervention and control of processes.
- Optimizing process activities in terms of time and cost and triggering a partial re-design of process parts.

**Applications** for Process Mining can be found in in functional areas such as Product development, Procurement, and Production. Other application areas exist in Sales, Logistics, Billing, and Services to answer **common questions** about processes such as:

- ➤ What is the average throughput and flow time of cases?
- ➤ Which process paths are overly time consuming and which cases are associated to time consuming paths?
- What is the average service time performed on key activities?

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- ➤ How many people are involved and what ressources are spent in performing particular cases?
- ➤ Which people are working on the same tasks, and which people are working on multiple tasks?
- ➤ Are certain rules identifiable when demonstrating the process?
- ➤ How much time is spent between performing certain tasks?
- ➤ Flow time, the total time for a process instance (case) from creation to end.
- ➤ Service time, the time actually worked on a case or the time spent on an activity.
- ➤ Waiting time, the time spent on a case for waiting for a resource to become available.

Performance with respect to the cost dimension can be measured by

- Ressource utilization, when measured over a certain time period.
- Resource costs, when dependent on ressource utilizaton.

Performance with respect to the quality dimension can be measured by

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#### **Process Simulation**

Simulation of Process Dynamics provides worthwhile insights about potential to enhance design and performance of business and production processes. This entails verifying assumptions of planned process changes prior to go live and demonstrating process behaviour under limiting conditions. In addition, evaluating variations in process design and ressource allocations through simulation is comparatively cost effective

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and allows to narrow down from multiple process alternative to determine the most suitable process variant.

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