

Process Mining

A step-by-step guide to optimize your processes.



Define



Measure



Analyze



Improve



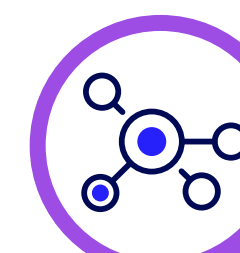
Monitor



Define

Define the problem, goal, stakeholders, and critical process output.

- 1 Process Selection.**
 Select the process to be analyzed. Consider the following criteria:
 - **Data availability:** Is enough process data with time stamps available?
 - **Management:** Is there support from management? Are sufficient resources available?
 - **Potential:** Where can the biggest improvements be made? Which process offers the most added value for customers?
- 2 Integration of a reference model.**
 Determine whether a reference model of the process already exists. If no model exists yet, it can be created here manually or generated in **Step 8**.
- 3 Process-related questions.**
 Specify the question or questions to be answered in the process analysis.
 - How good is the process performance?
 - How standardized/automated is the process?
 - Does the process meet your requirements?
 - What is the optimization potential?
- 4 Relevant stakeholders.**
 Ensure that all process participants are involved in the project.
 - Process owner and process manager.
 - Specialists and system experts.
 - Data owner.
 - Decision makers.
- 5 Process KPIs.**
 Define the KPIs relevant for the analysis in your business domain to make sure the relevant data is being included in the next step of data extraction:
 - Processing times.
 - Number of process variants.
 - Number of process runs.
 - Error rate.



Measure

Extract and transform the data.

- 6 Data and data sources.**
 Check which process data is available. Where is it located? How can it be used?
 - Data type/format.
 - Storage location: system/database.
 - Mapping of time stamps to activities.
- 7 Data extraction and transformation.**
 For a process mining analysis, the process data must be prepared as event logs. Check whether the log files contain at least the following: case ID, activity name, start and end times. Additional attributes are optional.
- 8 Data import and processing.**
 Load the transformed data into the tool. It automatically generates a model of the actual process (model discovery). If no reference model was available in **Step 2**, create a model of the target process in the process mining tool.



Analyze

Pinpoint problem areas using process data.

- 9 Model enhancement.**
 Model enhancement describes the analysis and evaluation of the generated process model based on the following factors:
 - Process duration.
 - Frequency of unexpected process steps.
 - Distinctive process sequences.
- 10 Conformance checking.**
 In conformance checking, the generated actual model is compared with the target model (**Step 2** or **Step 8**). Use this to detect deviations and check conformity.
- 11 Root cause analysis.**
 The process-mining-supported root cause analysis studies concrete process deviations in detail. Use it to identify problematic attributes, patterns in deviations, and indicators for effective optimization.
- 12 KPI Analysis.**
 Evaluate your process data using dashboards that provide visualizations of the relevant KPIs (**Step 5**).



Improve

Develop and implement solutions.

- 13 Addressing the issues.**
 Based on your findings, determine which optimization measures best suit your needs. Examples include:
 - Business process automation.
 - Additional training.
 - Greater standardization and harmonization.
 - Implementation of new/additional IT systems.
 - Adaptation and optimization of process flaws.
- 14 Solution implementation.**
 Work with the team and all relevant stakeholders (**Step 4**) to put your solutions into practice.
- 15 New reference model.**
 Replace your earlier reference model (**Step 2** or **Step 8**) with the current, optimized process. This will be your new reference model and serve as the basis for comparison during future optimization efforts.



Monitor

Test solutions for long-term usability.

- 16 Success of goal achievement.**
 You can gauge the success of your optimization efforts by revisiting the questions asked in **Step 3**:
 - Has process performance improved?
 - Have all the desired corrections been made?
 - Are the process runs meeting expectations?
 - Have you maximized all optimization potential?
- 17 Evolution of the new process.**
 It's important to reevaluate your newly optimized process. We recommend the following steps:
 - Re-extract the process data and feed it back through the process mining tool.
 - Analyze the current process against the KPIs defined in **Step 5**.
 - Compare the new, optimized process against the latest version of the reference model.