appian

Process Mining Guide

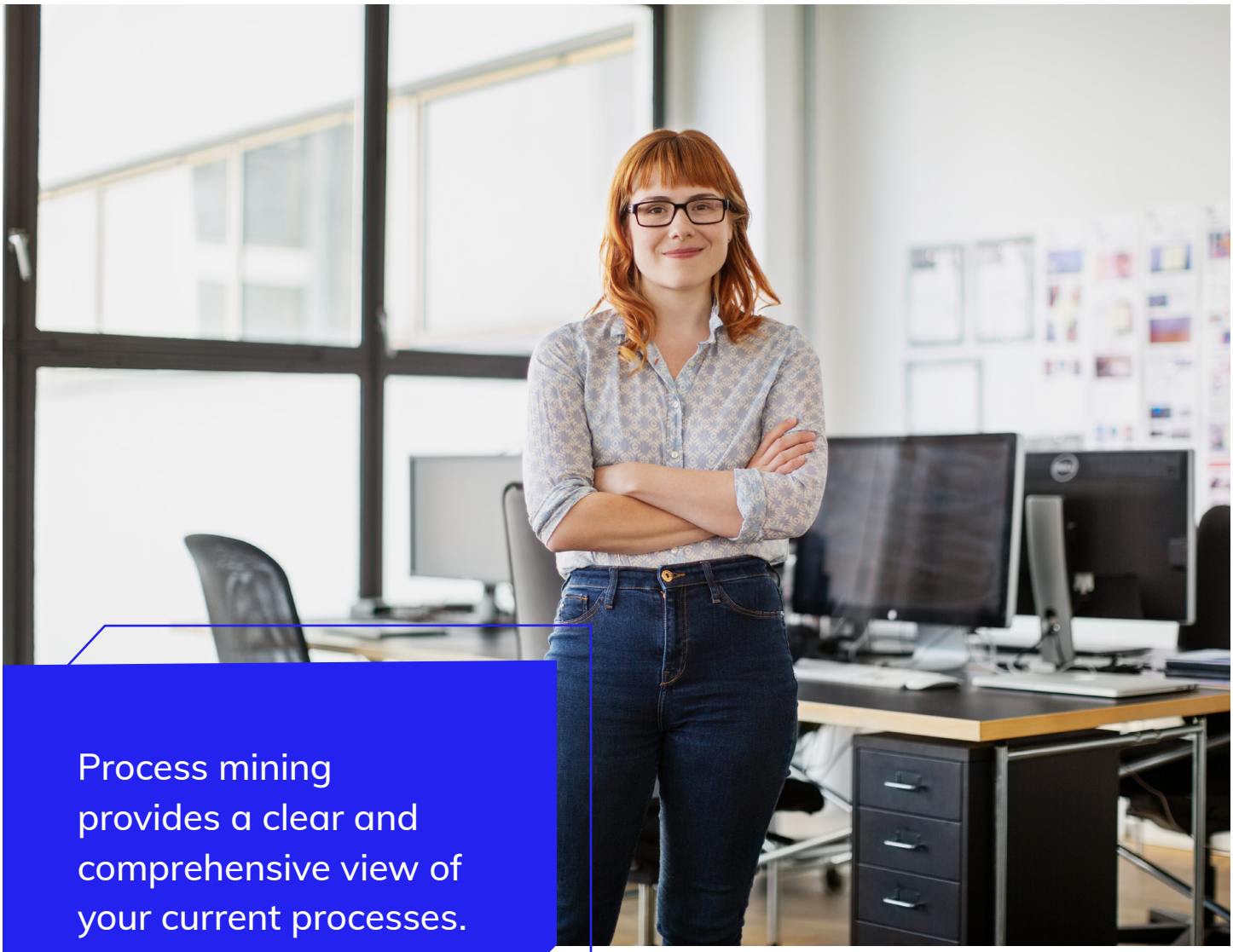
A targeted approach to business process optimization.

Contents

What is process mining?

Every business process consists of a series of steps and tasks that need to be carried out—either by humans or technology—in order to deliver a desired outcome. Processes can be as (seemingly) simple as receiving and reconciling payments for goods sold, or as complex as managing a multi-tier supply chain to support manufacturing operations.

Inefficiencies within these processes can be detrimental to your business. To minimize or eliminate inefficiency, you first need a clear and comprehensive view of all the activities taking place within your current processes. Without this insight, it would be impossible to pinpoint the areas where optimization would have the greatest impact. Gaining these insights, however, can be difficult. Most business processes require multiple individuals and systems to carry out the necessary activities. Traditional process discovery has therefore required extensive, manual analysis, which can be time-consuming, error-prone, and potentially costly to your organization.

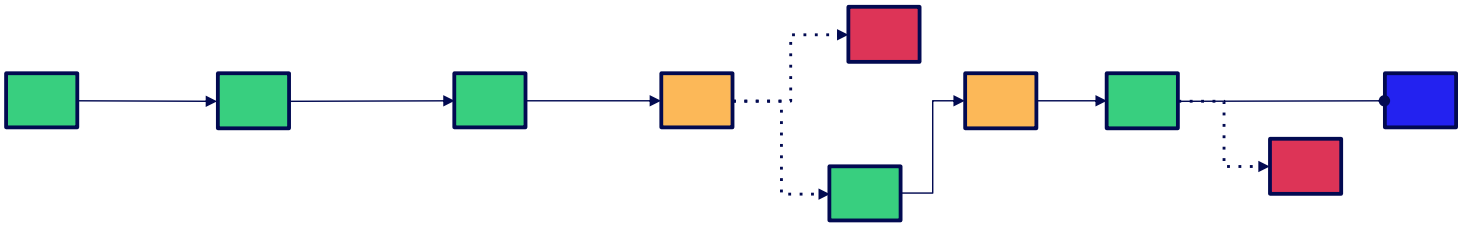


Process mining provides a clear and comprehensive view of your current processes.

With process mining, you can gain end-to-end process visibility much more efficiently and accurately. Process mining tools gather and interpret your process data and present it in a visual format that makes it easy to quickly identify the areas that need attention. They do this by analyzing event logs, which are digital records of each activity executed within a process. Event logs include information about the activity, such as a description, a timestamp of when the activity took place, and an ID number that's unique to a specific process. Examples of event log activities include scanning the barcode of a package in transit, entering patient test results in a hospital portal, or receiving an incoming call at a call center.

Event log data is run through a process mining tool and presented in a visualization resembling a flow chart, which clearly shows the entire process, including any skipped or added process steps or paths. This makes it easy to see the potential problem areas—for example, where overly long processing or idle time slow the process or where deviations from the ideal process could be causing compliance issues.

Process mining makes it easier for you to discover and eradicate the inefficiencies that negatively impact your business. And once you've taken steps to eliminate inefficiencies, process mining can gauge the success of your efforts and monitor for additional optimization opportunities.



Step 1: Define what is to be measured and why.

Before starting a process mining project, it's important to assess whether you have the right foundational pieces in place.

- Is process data available, and does it include timestamps?
- Do you have support from management and sufficient resources for the project?
- Are the relevant stakeholders involved? These could be process and data owners, specialists and system experts, or decision makers.

Once you've determined the viability of the project, you can define what you hope to achieve from your analysis. At this point, it may be helpful to create a reference or target process model. This is an optimized version of the process that represents the desired ideal state. It will be used as the basis of comparison once your actual process has been mapped.

Specify what you hope to learn from your process analysis.

Here's an example:

How well does the process perform?

Focusing on KPIs such as processing times, number of process runs and variants, and error rate can help in evaluating process performance.

Does the process meet your requirements?

If the process is not delivering the desired outcome or your users are struggling to manage their workloads, process mining could provide valuable insights to correct these issues.

What is the optimization potential?

Eliminating bottlenecks, process loops, or inefficient process flows can have a far-reaching impact on the business. It could result in a better user experience, faster time to market, increased customer satisfaction, and improved compliance.

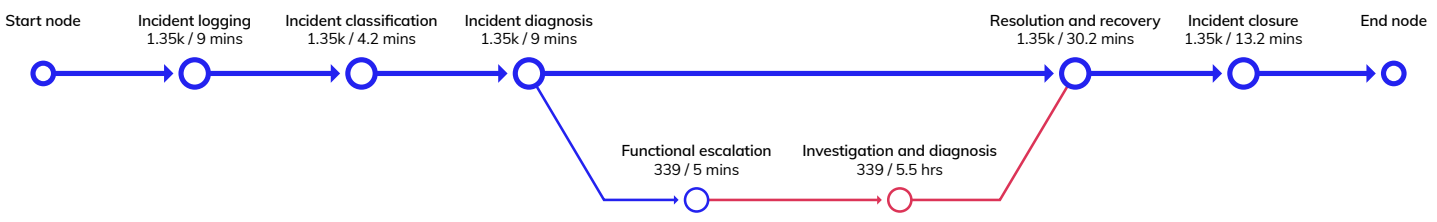
Step 2: Dig into the data.

First, the process mining tool will extract process data and load it into event logs. This is done by categorizing the data according to a unique identifier. This identifier could be an order number, a customer ID, or, as seen here, an incident number. All activities taking place within a specific process should have the same identifier.

The log files also contain activity descriptions and timestamps. Additional attributes can be included, but it's important to focus efforts only on those data points that will be most likely to help you reach your optimization goals.

Unique ID	Event	Timestamps		Contextual Factors	
Case ID	Activity	Start	Complete	Classification	Country
Incident1	Incident logging	2022-01-04 11:26	2022-01-04 11:35		Germany
Incident1	Incident classification	2022-01-04 11:35	2022-01-04 11:37	Mail	
Incident1	Initial diagnosis	2022-01-04 11:51	2022-01-04 12:03		
Incident1	Resolution and recovery	2022-01-04 16:09	2022-01-04 16:50		
Incident1	Incident closure	2022-01-04 16:51	2022-01-04 16:59		
Incident2	Incident logging	2022-01-04 12:21	2022-01-04 12:39		Germany
Incident2	Incident classification	2022-01-04 12:40	2022-01-04 12:42	Mail	

Once the data has been extracted into event logs, the process mining tool transforms it into a visualization that maps the actual process from start to finish.



Step 3: Analyze and evaluate the results.

The resulting visualization can be used in a variety of ways to inform the next best actions.

- **Conformance checking:** If a reference model was created in step one, it can be compared to the actual process to help pinpoint the areas most in need of optimization. For example, you may find that users are skipping or duplicating process activities or executing unplanned activities.
- **Model enhancement:** Information about the actual process delivered by the process mining tool is used to extend or enhance the target or reference model. For example, the tool may uncover bottlenecks or unplanned process sequences that can be eliminated from the model to make it a better representation of the ideal process.
- **Root-cause analysis:** Studying concrete process deviations in detail can help you identify problematic areas or patterns in the deviations.

Step 4: Monitor and optimize.

Process mining is just the beginning. The next, and perhaps most important, step is to go from knowing to doing by translating the insights obtained through process mining into action. This requires a targeted plan for implementing optimization measures.

The process mining tool should include dashboards and other reporting features to help you monitor the ongoing performance of your operation and visualize the relevant inputs for your KPI measurements to drive continuous improvement.

How will you address the need for optimization in your processes?

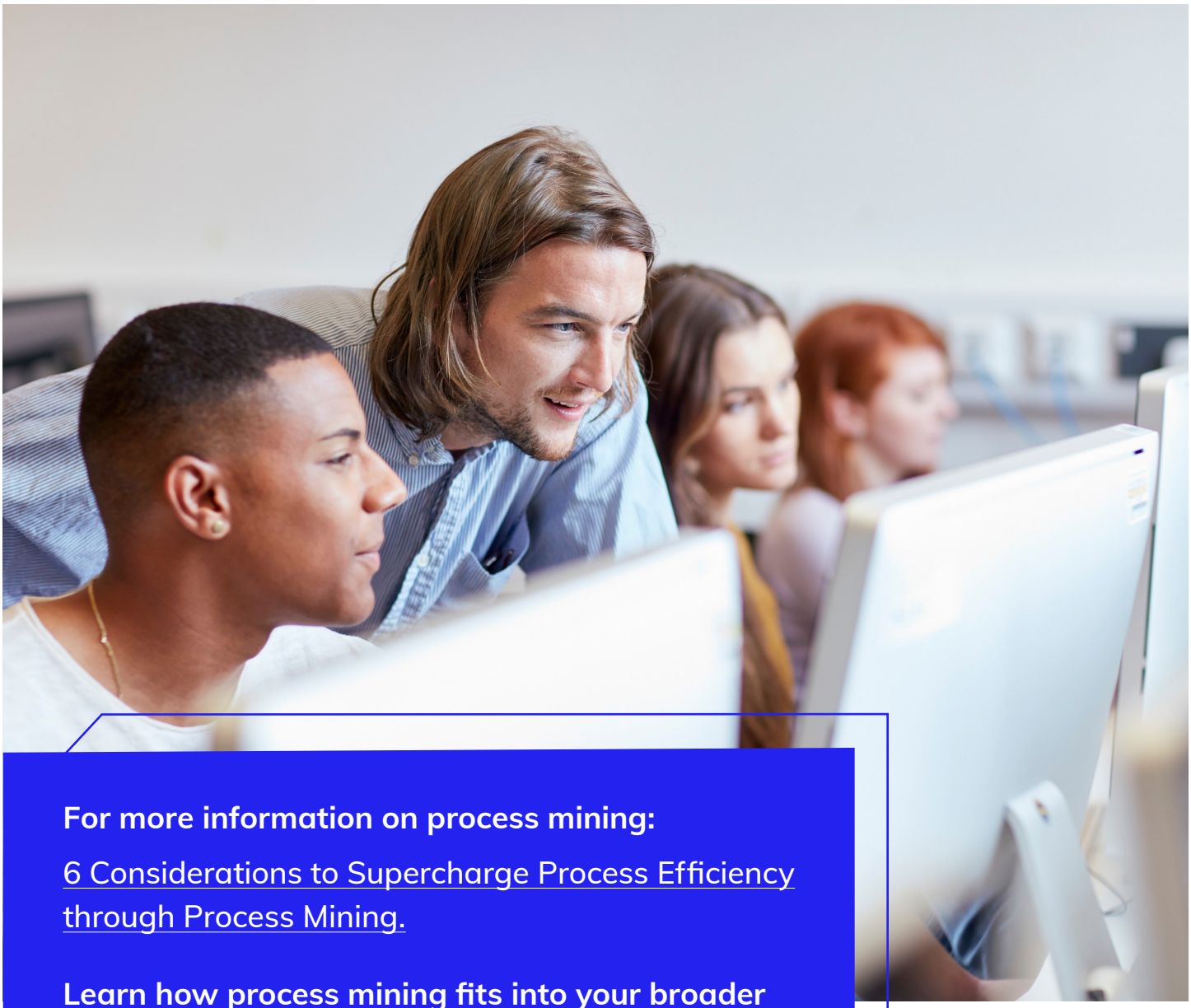
- Increased training for staff.
- Investment in supplemental IT systems or replacement of outdated technology.
- Greater standardization and harmonization of processes.
- Implementation of process automation using tools such as artificial intelligence (AI) or robotic process automation (RPA).

What comes after you've implemented optimization measures?

- Re-extract the process data and run it through the process mining tool to gauge the success of your efforts.
- Measure your new process against KPIs set at the beginning of the project.
- Revisit the questions you addressed in step one:
  - How well does the process perform now?
  - Does the new process meet your requirements?
  - Is there further optimization potential?
- Monitor performance to continuously improve your process.

Conclusion and additional resources.

Process mining provides a clear and comprehensive view of your current processes to eliminate inefficiencies and continuously improve your operations. It is a critical component of any effective business process management strategy. With insights derived from process mining, you can optimize your processes in ways that deliver real value to your organization and your customers.



For more information on process mining:

6 Considerations to Supercharge Process Efficiency through Process Mining.

Learn how process mining fits into your broader business process management (BPM) initiative:

The BPM Guide.

appian

Appian is a software company that automates business processes. The Appian Platform includes everything you need to design, automate, and optimize even the most complex processes, from start to finish. The world's most innovative organizations trust Appian to improve their workflows, unify data, and optimize operations—resulting in better growth and superior customer experiences. For more information, visit **www.appian.com**. [Nasdaq: APPN]

Follow Appian: