

Process Mining belongs to Industrial Digitalization

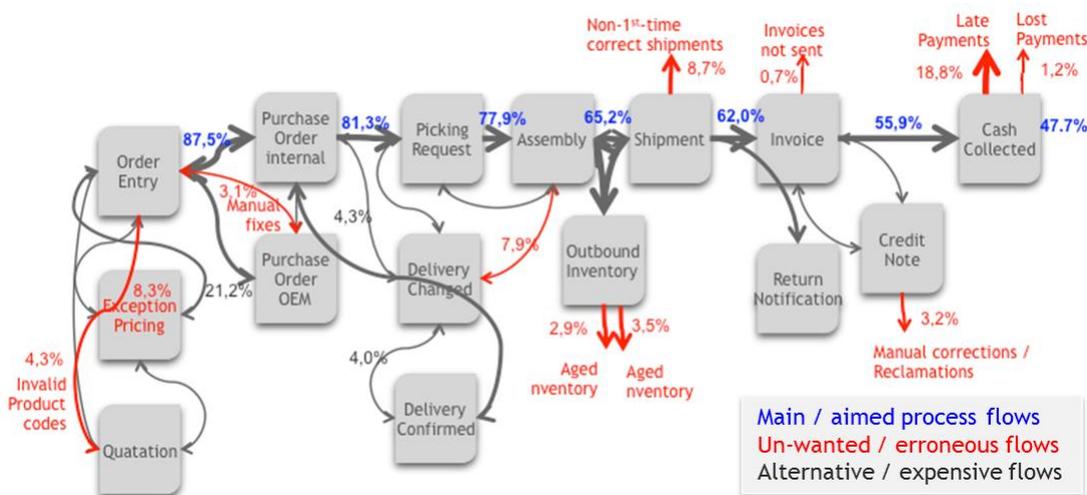
Midagon Industrial Digitalization White Paper



Introduction

Digitalization is about collecting and using data to create business value. Data, reporting and analytics are the backbones of digitalization. One of the emerging trends in industrial digitalization is process mining. It delivers better productivity and higher cost efficiencies by utilizing data and advanced analytics techniques.

What is process mining? It uses business process events for process visualization and analytics. With detailed event data, one can discover the exact flow of the events. One can then compare the results with a company's defined processes and see the deviations. These deviations are potential inefficiency points that require further investigations, for example, by root cause or other advanced analytics methods, or by traditional process analysis methods such as subject matter expert interviews. One of the particular strengths of data-driven process mining is that one can drive process improvement even without having any predefined process definitions in place.



Midagon's process mining projects have revealed in many cases that processes work only at an 80% efficiency level. The uncovered 20% of inefficiencies and the related details have helped customers to focus on the right productivity development actions instead of trying to guess what should be improved. Here is what some of the customers have said:

- "We suspected we had problems here, but now we know."
- "We received real facts and figures, and now it's possible to agree on actions – this is our key change communication instrument."
- "Now we understand the differences in our customer service processes and how these differences cause a bad customer experience and cost us money."
- "After auditing our service delivery processes, we discovered deviations that cost us millions."

The Process and Data Excellence Service (PDE) is an integral part of Midagon's Industrial Digitalization service portfolio. Midagon uses process mining methodology and modern analytical tools to deliver PDE projects. A short, limited scope PDE project is called an "Eye Opener". The deliverables for an Eye Opener – project include process mining results and analysis of findings. The results describe the exact process flow of events through the selected process and where the flow deviates from the defined flow.

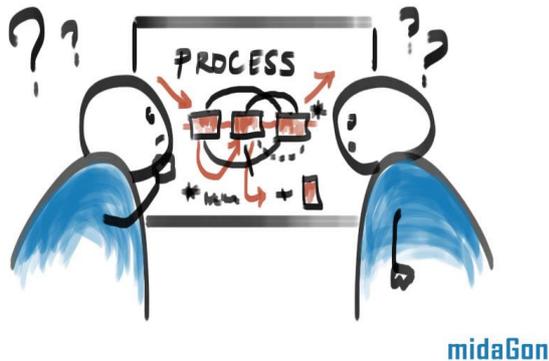
The Midagon PDE Eye Opener is an easy, fast and cost efficient way to test process mining.

Contents

Introduction.....	1
Discovery Starts a Process Mining Project	3
Process Analysis.....	4
Benefits Realization Execution	4
A Success Story	5



Discovery Starts a Process Mining Project



What if you knew that one of your key business processes, such as order-to-cash, was working inefficiently or in the wrong way? You knew that you were losing money or not earning to the maximum business potential due to the abnormalities of the process. At the same time, however, you didn't know where the problems were exactly or the root causes of the problems.

Process Mining is a method that is intended to improve process efficiency with data. Midagon Process and Data Excellence (PDE) service uses Process Mining principles and tools to help customers improve their operations performance, such as productivity and customer experience. PDE has three main steps that go from identifying a problem to implementing a corrective solution. The three steps are:

- Discovery
- Analysis
- Execution

Discovery is the first step in Process & Data Excellence Service. The main objective of discovery is to extract data for analysis and ensure that the data is usable. Discovery can be carried out in two alternative ways. It can be done either by extracting specific data related to a known problem area or by extracting a larger set of data and using analysis techniques to identify patterns of problems based on the data. For example, in a certain analysis project, we extracted all sales orders for a full year to

discover patterns of problems in demand fulfillment. In another case, the problem was already narrowed down to a specific month and only data for that month was extracted for analysis.

The Discovery step serves two purposes. The first purpose is when the feasibility of Process Mining to solve operational performance problems is still unclear. This is called an Eye Opener. The purpose of the Eye Opener is to verify the suitability of data and other needed inputs to answer the questions related to the assumed process inefficiencies. The scope of an Eye Opener project is limited, which reduces the time needed to deliver results to days or weeks at a maximum. Data used in the project can be extracted manually from different source systems such as ERP or CRM, and expert resources needed from the customer and Midagon are limited.

The second alternative to perform the Discovery is when the customer is relatively certain that there are problems in selected processes. The Discovery step is intended to pinpoint the exact process problem areas for detailed analysis. In this case, the scope of the project is wider. Data sources can be integrated with the analytical Process Mining tools that are used. The amount of data used in Discovery is larger, the time needed is longer and the use of expert resources from the customer and Midagon is more extensive. The results are, however, more accurate.

Typical application areas for process mining are order-to-cash, sourcing and customer service processes. These process areas are normally well-digitalized and data is readily available, through the use of modern ERP, CRM and other IT systems. In our experience, data quality is also good in most of these cases. Customers are often unnecessarily worried about their data and in almost all Midagon projects, data quality has been better than initially assumed.

The Discovery clarifies the flow of events through selected processes. The target is to find deviations between assumed and real process

flows. For example, potential problem areas are unexplained loops between process phases and process flows that exit the examined process in the wrong place.

The Discovery step of PDE does not deliver final answers to process efficiency problem questions. The Discovery either helps in evaluating Process Mining's suitability to study the inefficiencies of selected processes or enables the pinpointing of process problem areas for more detailed analysis.

The Midagon PDE Eye Opener is a fast and cost efficient way to understand how to use Process Mining to increase operational efficiency of business processes.

Process Analysis



Process analysis is a part of the Midagon Process and Data Excellence (PDE) service. The service's first step is a process mining discovery, described above. The analysis phase of the service looks deeper into the identified problem areas and uncovers the reasons and drivers of the problems. Only when the root causes are known in detail, can you heal the underlying "disease" rather than try to remedy the symptoms of the problems.

There are many potential problem areas. A process can have tight bottlenecks that slow it down, thereby causing unnecessary delays in the overall process performance. There can be unexpected process loops that are almost never ending. Events are passed back and forth in the process several times. This also lowers process

performance. Process events can also go missing. There are leaks in the process and events exit the flow in strange places. This leads to situations where delivered products are never billed, for example. Earnings are lost forever and not just delayed. As customers, most of us are familiar with waiting, as something happens in the process. This waiting is often a pure inefficiency of the process and only creates a bad customer experience.

What's next after identifying the problems and their root causes? The true value is in fixing the problems and improving the process performance. The bottlenecks must be opened, unnecessary process loops removed and strange process exit points closed. All of this is done in process development projects that focus on removing the problems and improving the process flow.

Benefits Realization Execution



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For the maximum benefit realization, the projects first require prioritization based on calculated business cases. The improvement actions that are easy to implement and deliver fast value should be done first. Fast results create trust in the overall success of the improvement projects. Trust is needed when more challenging and risky improvement projects are delivered taking more resources and costing more money. In many cases, simply making sure that you invoice everything that you deliver, will finance the improvement project.

The Midagon Business Benefits Realization approach should be applied to the process performance improvement projects. The approach is a comprehensive methodology to improve the project success rate. It takes business fundamentals into account and tracks down project success throughout the project's execution. In the execution phase of the Business Benefits Realization, Midagon's extensive project management tool library is utilized to its full extent. The use of the tools and Midagon's very experienced program and project managers help deliver excellent project execution results.

When you worry about your processes' performance and suspect significant business process related problems, Midagon can help you. Midagon's Process and Data Excellency service using process mining methodologies will help you to uncover underlying process performance problems and their root causes. The Business Benefits Realization approach, mature project execution tool library and experienced program and project managers help you to fix the business process related problems and to deliver continuous return on your process development investments.

A Success Story

Industrial Digitalization changes organizations and companies with accelerating speed. Digitalization is a threat and opportunity at the same time. It challenges current business practices but also creates new business opportunities.

In 2015, Midagon started cooperation with a logistics service provider to investigate the new opportunities that digitalization provides for logistics process development. The first step was to set up a process mining environment for process data advanced analysis. Compared with a traditional process development methodology, data based process mining speeds up the identification of process related problems and helps in finding fact-based best practices to first

uncover the root causes of the problems and then to solve the problems.

The logistics service provider decided to analyze its distribution processes to identify the concrete key steps and activities of "a perfect" distribution process in the field. The baseline was a defined target process. The discovery phase focused on comparing the baseline and the actual process in the field. Deviations between the two were recorded and their root causes were analyzed. Based on the analysis, results development actions were planned and implemented. The progress and results of the implementation were followed up in monthly process measurements and analysis against pre-defined KPI's. The results were normalized, such as the impact of weather conditions, to keep the results of the original analysis and the follow up analysis comparable.

A key result of the development project was a new baseline process description that better matched the requirements and actions in the field. The new baseline process was taken in active use as well. To measure process efficiency and to identify further development needs, monthly process reporting was established. A continuous fact-based decision capability was deployed successfully.

Midagon delivered the process mining service and the monthly reporting to the logistics service provider as a service (the Midagon Process and Data Excellency Service). Thanks to the service based approach, results were delivered fast and no upfront IT investments were required from the customer. In fact, the service delivered concrete and tangible financial value to the customer in just a few weeks after ramping up the service. In addition, the customer saved time and money as they didn't have to study all relevant analysis methods and the use of related tools themselves. The Midagon consultants were available to interpret the analysis results and to advise the customer on how to plan and manage the process development projects, all the way from planning to implementation and deployment.



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