

BUSINESS PROCESS MINING AN AI TOOLS



Group 2

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What is data mining ?

Process mining is a relatively new field positioned between data mining and computational intelligence on the one hand and modeling and analysis of processes on the other hand. Process mining concerns itself with discovering, monitoring and improving real business processes (as opposed to assumed ones) by extracting knowledge from event logs available in today's systems. This includes (automated) process discovery (i.e., extracting process models from an event log), conformance checking (i.e., monitoring deviations by comparing model and log), social network/ organizational mining etc...

For instance, let us assume that a company has set up different business procedures like order processing or inventory management. These processes create information such as time stamps, actions taken, and resources used during their execution. By using specialized algorithms and techniques, process mining studies can be conducted through which visual representations of these operations are developed.

By examining this data, process mining can reveal elements such as obstacles, unexpected detours on the path and inefficiencies in the process. These revelations help firms see whether their operations are in line with what was expected when they were created. Once they gain this knowledge, organizations can make proper decisions to streamline their operations, minimize expenditures on them, increase efficiency levels and boost customer satisfaction.

Businesses that want to stay competitive in a world that is changing all the time must now prioritize business process optimization. Numerous process mining and automation tools have surfaced in response to this expanding need, providing a range of options for evaluating, displaying, and enhancing operational processes. We look at five of these systems in this comparative overview: Pega, Power Automate, IBM Process Mining, Perceptif AI, and Celonis. With a multitude of options for businesses to optimize their business operations, each software program offers unique features, benefits, and drawbacks. Through a thorough analysis of every application, we may gain a deeper understanding of how they satisfy the demands of businesses for data-driven decision-making and operational efficiency.

Process mining in Power Automate :

Introduction :

Microsoft Power Platform is a suite of cloud-based application development tools designed to help organizations solve complex business problems through customized solutions. It includes Power Apps, Power BI, Power Virtual Agent and Power Automate that we will analyze. Launched in 2016 as Microsoft workflow, this tool has evolved and been integrated with Power Platform to deliver a powerful experience. Then it became an essential tool for automating a wide range of complex tasks, business processes and operations.

Overall, Power Automate helps companies to increase efficiency, minimize errors and improve their workflow by using artificial intelligence. But to fully understand how process mining works, we will analyze the platform, including its features, key benefits and limitations, before developing a specific scenario to show how it functions.

What does the platform look like?

Power Automate has a dozen navigation elements on its interface, including that of process exploration, which we will analyze. To begin with, there are three data integration options. The first suggests the use of external data, while the second suggests a financial process model (already done) and the last suggests a supply chain process (also already done). Beyond these main elements, other models are available depending on the need and the level of technicality/experience of the user. In the case of the creation of a process, there are two possibilities: process mining or task mining. The difference between the two is that for the former, it is simply a business process as a whole, while for the latter, it is a more specific analysis related to an activity or task within the business process. Nevertheless, we will discuss these features in more detail in the second part.

After choosing the third option, a set of graphic visuals and digital contents are available. In order to facilitate their analysis, four sections are presented: Summary, Time Analysis, Map, and Variant DNA.

"Time analysis" represents statistics related to the duration of activities in the process. For example, it provides details on the minimum, maximum, average and total duration of activities and the duration of each activity individually.

The "map" section represents the graphical visualization of the business process in the form of a diagram by offering an overview of it. This section is very useful, as it allows you to identify the strengths, weaknesses and areas for improvement of the business process by having access to the various activities.

The variant DNA analysis shows the different ways in which the business process takes place and how often each variation occurs.

Finally, the summary section presents a summary of the key information of the business process in order to have an overview of its contents. However, depending on the data integrated, more or less headings are available. In the case of "sample accounts receivable", the "summary" and "map" sections are the only ones available. On the other hand, in general, other functionalities exist such as the analysis of activities such as the number of times it is taken over, the analysis of the relationships between activities by identifying the frequency of flows or the analysis of resources to identify which ones are the most solicited in order to optimize their uses.

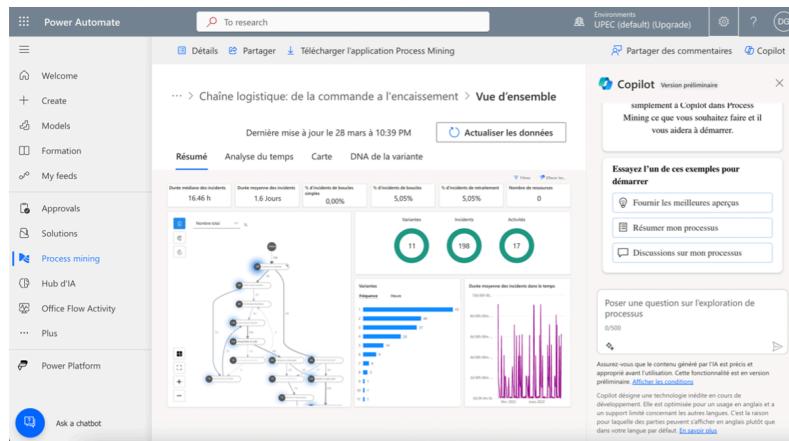
A second essential feature is available in the business process mining tool is copilot. This is the chatbot developed by Microsoft based on artificial intelligence. This is an important asset insofar as it provides additional assistance to the user in order to facilitate his navigation, but above all the interpretation of the results generated. As an example, copilot offers three scripts to start this search: "Provide the best insights", "Summarize my process", "Discussions about my process". In short, Copilot also makes it possible to identify activities that need improvement, to understand how the business process works in the context of its optimization, to evaluate this performance and to analyze the errors identified as well as the points of vigilance to be monitored.

Thirdly, the "data refresh" feature allows changes to be made to the initial database, so it allows you to update it as well as all previously generated content.

Finally, the details page is about managing and presenting process details as well as Power BI workspaces.

So overall, the process mining tool in Power Automate offers the user a set of features aimed at a clear and simple interpretation of the results generated in order to improve the business process in question. As a beginner or expert in the field, the tool suggests a sufficiently developed assistance (in our opinion) to be able to use this tool without any real constraint. In addition, Copilot in process mining makes a considerable difference thanks to its AI-based chatbot from which it is possible to interpret these initial results. It can be an essential guide for amateurs or people unfamiliar with these tools.

Thanks to this first analysis, we know that in order to be able to do process mining on Power Automate, you need to integrate a database relating to the activities of your business process and configure them according to the criteria indicated by the platform. Then, the data will be analyzed and transformed into information that can be used for interpretation and problem solving. Or simply selected the options offered by the platform directly as we have earlier



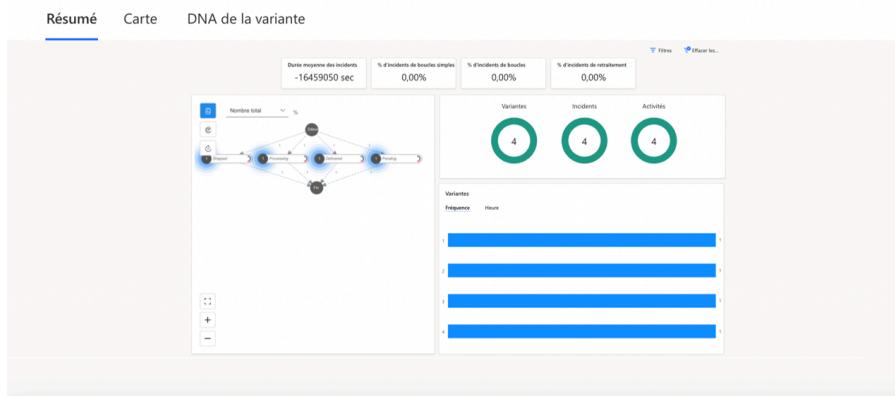
So, for this second part, we will analyze in detail process mining on Power Automate. For this we developed a fictitious scenario following the activity of an international cosmetics brand based in France:

As the sales manager of the MAC shop, an international cosmetics manufacturer, located in the Créteil Soleil shopping center, one of my main missions is to monitor the sales of our products. However, in recent weeks, sales seem to be down, which is not to our advantage. So to better understand the reasons for these declines and remedy this problem, I decided to study the tracking of our sales using the process mining tool on Power Automate. Here is the database I built on Excel in order to get a first overview of the situation.

	A	B	C	D	E	F	G	H	I	J	K
1	Order ID	Timestamp	Scheduled Time	Customer Name	Product Name	Product Code	Unit Price (\$)	Quantity	Total Price (\$)	Status	Process step
2	1001	01/03/2024	01/03/2024	John Smith	Lipstick - Red	P001	10.99	2	21.98	Shipped	Order placement
3	1002	02/03/2024	02/03/2024	Emily Brown	Mascara	P003	12.50	3	37.50	Processing	Order placement
4	1003	03/03/2024	03/03/2023	Michael Lee	Eye Shadow Palette	P004	25.99	1	25.99	Delivered	Order delivery
5	1004	03/04/2024	04/03/2023	Sarah Johnson	Moisturizer Cream	P002	19.99	2	39.98	Pending	Order processing

To transform this data into more relevant information, I integrated this excel file on the process mining tool by naming my process: Mac Sales Tracking.

Subsequently, I logged into my account so that I could continue my activities. I then selected the page of my excel file (the only one) that I wanted to process before validating it. The third (optional) step is to transform this data in order to facilitate its processing, however since I don't have any particular changes to apply, I went directly to the fourth step. The last one is to map my data, for these three criteria are essential for the configuration of my future diagram: Incident ID, Activity and Event Start. Thus, I have to select different types of attributes according to the original ones (which correspond to the columns of my excel table) in order to be able to obtain clear and relevant results. For example, for the "Timestamp" columns, I chose to indicate the type "start of the event" because it is a date. After configuring all my attributes, I finally sent my data after which I got my next results available on the summary page. In fact, we can observe four different resources below:



To continue, I decided to use Copilot in order to have a better understanding. Here's the script I wrote to him: *"What can we deduce from these results?"* Here's the answer:

"From the results provided, here is what we can deduce:

1. Process Statistics:

- The process started on March 1, 2024 at 08:30 AM and ended on March 2, 2024 at 09:00 AM, with a total duration of 1 day and 30 minutes.
- There were 4 cases processed in the process, with a total of 4 events and 4 activities.
- The process involves 3 different resources.
- There are no loops or retakes in the process.
- There are 4 different variants observed in the process.

2. Variant Statistics:

- Each variant was observed only once, with 1 case, 1 event, and 1 activity.
- Average variant durations range from -396 hours and 20 minutes to 1 hour.
- All variants have an average usage of 100%.

3. Activity Statistics:

- Each activity was observed only once in each case and event.
- Total and average activity durations range from -396 hours and 20 minutes to 1 hour

From the statistics provided, there is no replay or loop in the process, which is positive. However, the total duration of the process is quite long, with a median of -183 hours and 15 minutes. It might be interesting to analyze "Pending" and "Delivered" activities that have a negative total duration, which may indicate a problem in the process. You may want to consider optimizing these activities to reduce the overall time of the process. »

So, to improve the follow-up of my sales, Copilot suggested three strategies:

1. Business Optimization: Since "Pending" and "Delivered" activities have a negative total duration, you can analyze these activities to identify potential issues and improve them. This could include identifying bottlenecks, optimizing fulfillment and delivery processes, and reducing lead times.
2. Process Standardization: Since there are 4 different variations observed in the process, you may want to consider standardizing the sequences of activities to reduce variability and improve efficiency. This can include establishing clear procedures, training staff, and using process management tools to track and control activities.
3. Continuous monitoring: Use the statistics provided to continuously monitor the performance of the process. Identify deviations from set goals, detect potential issues, and take corrective action quickly. This can include the use of real-time process analysis tools.

However, although it is a considerable help, like most chatbots using artificial intelligence, Copilot gives me very generic and not very precise answers on the maneuvering steps to adopt. Regarding the reading and analysis of the first results generated by the tool, this is a considerable help. On the other hand, in the context of data interpretation, Copilot is limited and insufficient for the development of a real process optimization strategy.

In general, process mining on Power Automate is also very useful, it allows me to transform the information related to the sales of my store in just a few minutes. This is a considerable amount of time that I was able to take advantage of to focus on interpreting the results. Thanks to the first features available, I was able to have an overview of the activities and especially the points of vigilance on which to focus. While I'm not an expert in the field, I've been able to leverage a number of these resources to seek to solve my sales problems through its tracking analysis.

What are the advantages and disadvantages of process mining in Power Automate?

The main limitations of this tool are all related to the usability of the free version. On several occasions during its use, some maneuvers were restricted due to the limitations on the functionalities. For example, some advanced connectors are only available in paid versions, as are the number of active flows, or the scheduled execution feature. However, in my experience as an amateur, these are the only real disadvantages I have been able to identify.

On the other hand, process mining on power automate has important advantages as we have above. The platform may seem complex to use, but after a few desk searches and a few tests it is easy to obtain the first results. It's possible to automate difficult tasks without advanced programming skills thanks to Copilot support and the features offered. It is also a time saver that allows for greater

efficiency. Thanks to this, the user can optimize these activities in the best possible way as well as reduce important errors. Finally, although it is a powerful tool, to benefit from its full potential, it is nevertheless recommended to subscribe to the paid options in order to obtain a more advanced experience.

Process mining in IBM PROCESS MINING :

Introduction:

IBM created a technology called IBM Process Mining to assist businesses in streamlining their business processes more quickly and intelligently. By utilizing data from corporate systems like ERP and CRM, IBM Process Mining seeks to achieve total process transparency. As a result, it is possible to pinpoint inefficiencies and rank automation options based on their significance and anticipated benefit.

With IBM Process Mining, companies can now enhance their intricate workflows and achieve an average lead time reduction of up to 80%. This will help them stay competitive, boost productivity, and save operating expenses. The increasing need on businesses to comprehend and optimize their business processes led to the development of IBM Process Mining. IBM Process Mining strives to assist businesses in identifying inefficiencies, boosting productivity, and streamlining processes by offering a process monitoring and analysis solution.

IBM Process Mining employs three primary categories of process mining methodologies:

Discovery :

Discovery without any prior knowledge or influence, process mining builds a process model from event log data. This kind of process mining is the most popular. Instead of depending just on the qualitative information from interviews, it enables firms to record their real workflows and procedures based on the facts.

Conformance:

Conformance checking is the process of comparing the desired process model with the real process behavior that is recorded in the event log data. Any differences between the planned process and how it is actually carried out are found using this kind of process mining.

Enhancement:

This kind of process mining employs more data to enhance an already-existing process model. It is also referred to as extension, organizational mining, or performance mining. Managers can optimize the current process by using the results of conformity testing, for instance, to locate bottlenecks in the process.

What does the platform look like?

The IBM Process Mining platform has an organized and functional interface, offering clear access to essential functions. Here is an overview of its appearance and main capabilities:

Main Menu:

Home: A summary or dashboard page providing key performance indicators or recent updates.

Assets: A section dedicated to resource or asset management, allowing users to track and manage process-related resources.

Manage Filters: Options allowing users to customize and manage filters used in process analysis.

Add Filter: Allows users to add new filters to refine their analysis.

Updated Process Analysis: An updated section or feature for Process Analysis, with enhancements or new functionality.

Dashboard:

Displays cases and events processed. Shows a breakdown of activities according to different statuses, such as "In progress", "Resolved", "Awaiting approval", etc. It includes key performance indicators, such as the percentage of cases handled or the total number of events.

Additional features:

BPMN Model: A tool for creating and visualising process models that comply with the BPMN (Business Process Model and Notation) standard.

Statistics: Provides statistics on the processes analysed.

Compare: Allows you to compare different processes or versions of processes to identify differences or trends.

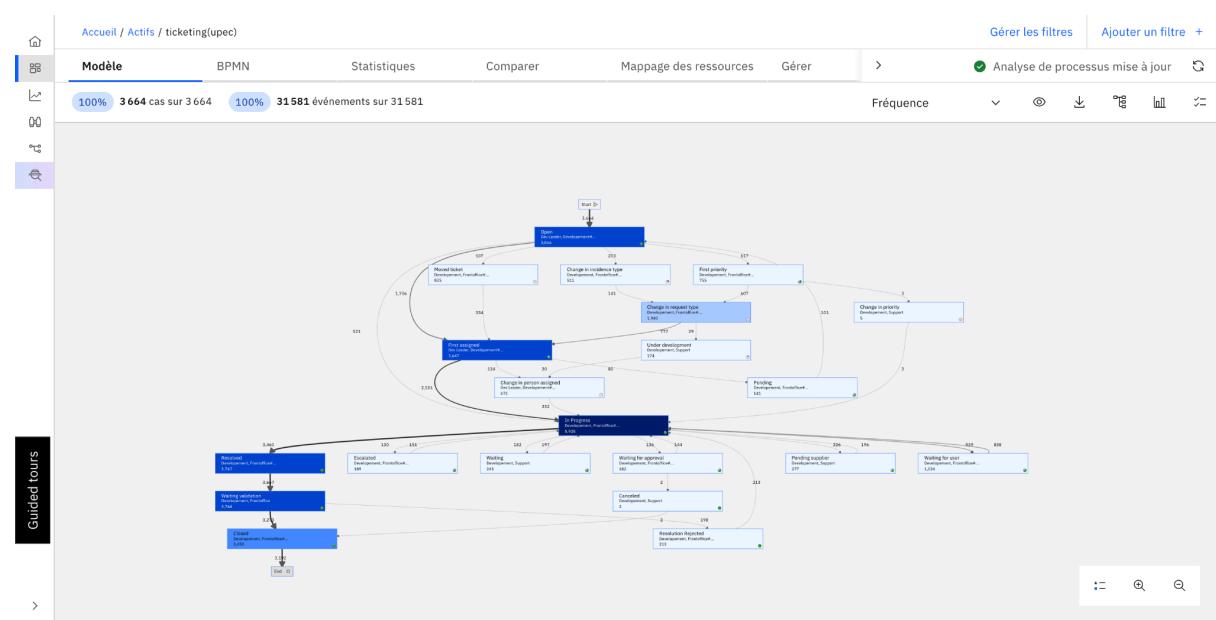
Resource mapping: Used to map the resources involved in processes to better understand workflows.

Manage: Provides management options for processes or associated data, enabling users to take action to optimise operations.

Activity Frequency:

Presents a graph showing the frequency of activities, with the ability to zoom in to see details or zoom out to get an overview.

Overall, the IBM Process Mining platform interface is designed to provide a clear and intuitive user experience, enabling users to effectively analyse, manage and optimise business processes.



Logging in to the platform: Users generally need to log in using their login details or by creating an account if they don't already have one.

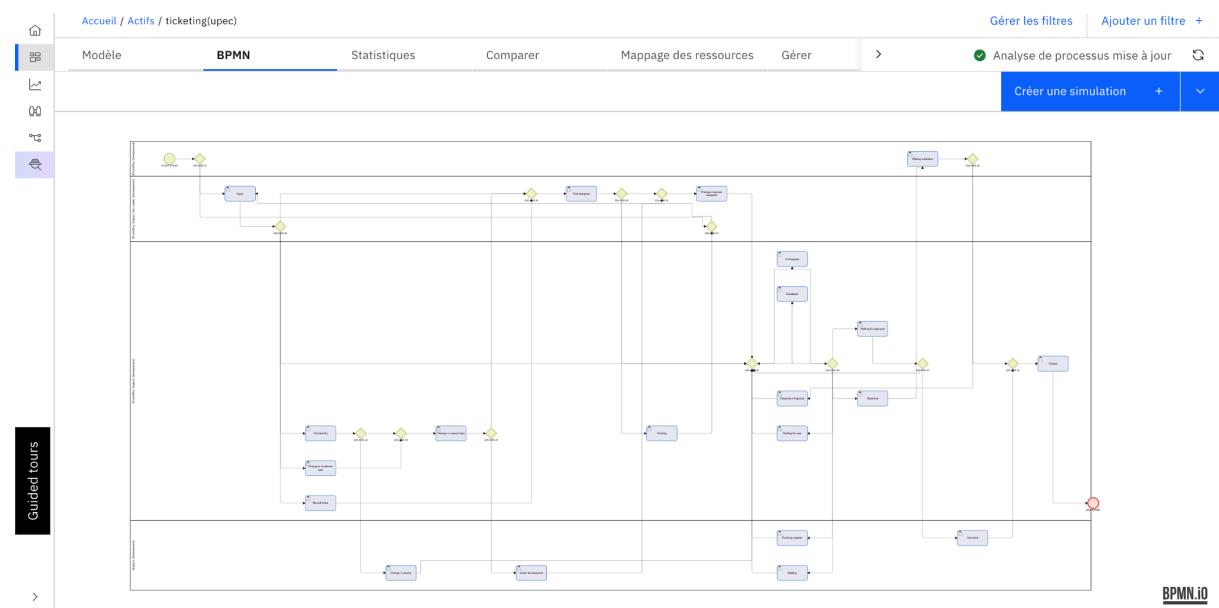
Data selection: Users may have the option of selecting a dataset or loading business process data to start the analysis.

Filter configuration: Users can configure filters to refine the data they wish to analyse. These filters can be based on different criteria such as date, process type, managers, etc.

Process visualisation: Once the data has been loaded and the filters configured, users can visualise the business processes using flow diagrams or other visual representations. This visualization helps users to understand process steps, interrelationships and potential inefficiencies.

Process analysis: Users can explore data in depth to identify trends, patterns, bottlenecks and opportunities for process optimisation.

Use of additional features: it also include access to advanced features such as process comparison, simulation, BPMN modelling, detailed statistics, etc.



Generate reports and insights: Users can generate custom reports or insights from the analysed data to share the results with other stakeholders or to make strategic decisions.

Experimentation: Users can also use it to try out different functionalities, test hypotheses or explore new scenarios without risk.

How to use it ?

Using IBM Process Mining, we were able to obtain some insightful knowledge about our business's processes. To begin, we gathered event log data from our systems, which essentially tracked every action that took place there.

Following the data collection, we prepared and cleaned it into a CSV file so that we could import it into IBM Process Mining. The software created a flow model of our process automatically when we uploaded the CSV file, representing the actions with a color scale.

After that, we used a variety of views to analyze our processes, including frequency, rework, duration, and cost. The frequency view helped us identify the most frequent activities in our process, which may have been good candidates for automation or improvement. The rework view showed us where

bottlenecks were causing delays in the completion of our instances. The duration and cost views helped us identify the steps in our process that took the longest and cost the most money.

By lowering these complexities, we were able to identify the happy path of our process, or the way we intended it to function. The model details supplied more information for analysis, including activity complexity and relation complexity.

Additionally, we employed filters to analyze certain cases that met a requirement or to generate different scenarios of our procedures. This enabled us to comprehend how a particular circumstance or stage affected the process as a whole. Furthermore, our process was converted into a BPMN model by IBM Process Mining, which we could import into our mapping application for documentation with ease. Because of this, less time was needed for manual mapping.

Moreover, the program produced our processes' business rules and the choices made for each of the several pathways automatically. This helped us comprehend how our systems were operating better. Ultimately, we employed the analytics perspective to monitor and record each of our procedures. It offered modifiable dashboards including widgets to examine certain deviations from our operations.

All in all, we discovered IBM Process Mining to be a really helpful instrument for learning about our company procedures and seeing areas for development. It assisted us in streamlining our operations and making informed choices using data.

Key intervention where AI acts :

AI is used in IBM Process Mining at several crucial stages, including:

With the automated process model generation AI creates a visual process model automatically based on event data obtained, allowing people to rapidly comprehend how their process flows. As a result, manually mapping procedures takes less time and effort.

During the analyzing processes Artificial Intelligence offers several perspectives, including frequency, recovery, duration, and cost views. The most frequent, longest, and most expensive actions as well as bottlenecks may all be found with the use of these perspectives. In order to optimize their operations, users are empowered to make well-informed decisions.

On the discovery of business rules, AI is capable of autonomously identifying the rules that control various operations. Thanks to this, users may identify areas that require modification and understand the reasoning behind particular process decisions.

The use of data filtering, AI allows users to apply filters based on a wide range of criteria, such as case characteristics, actions, processes, etc. This makes it simpler for users to identify the parts of their process that require modification and to locate those opportunities.

AI provides configurable dashboards that enable real-time process tracking and monitoring. Consequently, users may instantly discover problems and breaches of performance requirements and take the necessary corrective action.

Taken together, artificial intelligence in IBM Process Mining helps users identify areas for improvement, obtain a better grasp of their processes, and make informed choices to maximize their operations. Financial savings, enhanced productivity, and heightened client contentment.

Potential software users :

A multitude of stakeholders greatly benefit from the comprehensive insight into business processes that IBM Process Mining contributes to. The application is used by internal teams to map, analyze, and comprehend real processes, including business analysts and process owners. These teams may optimize procedures, boost output, and save operating expenses by detecting inefficiencies and bottlenecks and making well-informed judgments. Likewise, the analytics furnished by IBM Process Mining might be utilized by investors and other external stakeholders to evaluate the operational well-being of the enterprise and arrive at better investment choices. In order to increase process efficiency, IT teams may also profit from seeing potential for automation and system integration. Last but not least, management consultants utilize IBM Process Mining to give their customers data-driven suggestions that boost their operational efficiency and competitiveness in the market. Businesses can make strategic decisions based on a thorough knowledge of their operational processes thanks to IBM Process Mining, which is, in essence, a transformation catalyst.

Software advantages :

Businesses aiming to enhance their operational efficiency and optimize their processes may reap several noteworthy advantages by implementing IBM Process Mining. Teams may detect inefficiencies and bottlenecks by thoroughly understanding each process's real operation thanks to this tool's full process visibility. Businesses may successfully concentrate their optimization efforts and promote a continuous improvement culture by using this capacity to precisely identify sources of waste and possibilities for improvement. Additionally, IBM Process Mining helps businesses lower risk and improve the likelihood that they will successfully implement organizational transformation by allowing data-driven decision making and offering fact-based analysis. This technology facilitates seamless cooperation across various departments and systems inside the organization, increasing productivity and the overall competitiveness of the enterprise. Its simple connection with other tools and systems further adds to this effect. For businesses looking to maximize their productivity and be flexible in a dynamic business climate, IBM Process Mining is a crucial tool.

Software limitations :

IBM Process Mining has several drawbacks to take into account, despite the fact that it provides numerous advantages in terms of process transparency, inefficiency detection, and ongoing development. First of all, the tool depends on the availability and quality of event log data from business systems like CRM and ERP. The accuracy of IBM Process Mining's analysis and suggestions may be impacted if the data is erroneous or incomplete. Additionally, even though the platform is designed to be adaptable and simple to use, there are situations where connection with other business systems might be challenging and call for customization. Additionally, while the tool provides features for process analysis and optimization, it could be lacking some of the more sophisticated features found in other process mining tools, which would restrict the analysis and simulation options available for certain use cases. Lastly, even though the benefits could outweigh the expenditure, some businesses, especially SMEs, may find IBM Process Mining too costly.

Conclusion :

Based on comments from previous users, I believe that IBM Process Mining has both advantages and disadvantages. The platform is renowned for its user-friendly interface, versatility, and ease of setup. The low-code/no-code methodology facilitates effortless customization, and it often integrates well with systems like SAP and Oracle. Nevertheless, challenges may surface upon first deployment, necessitating adjustments. The accuracy of analysis can also be impacted by issues with data availability and quality. The tool may not have all of the sophisticated features available in other process mining systems, even though it does provide more process transparency and optimization

chances. Considering these challenges, IBM Process Mining is regarded as a potent instrument for gaining a comprehensive understanding of processes and pinpointing potential for automation. Even while there may be benefits that outweigh the expense, some businesses may find it to be too costly. In summary, IBM Process Mining is regarded as a reliable solution; yet, its adoption can necessitate installation and customization to each organization's unique requirements.

Overview of the PEGA platform

Introduction :

PEGA is designed to simplify and automate complex business methods within companies. It offers a unified platform that combines business behavior management (BPM), robotic process automation (RPA) and artificial intelligence (AI) to provide solutions for case management, advertising and marketing, sales and customer service.

Identifying the equipment to have for the usefulness of AI statistics mining:

PEGA Predictive Analytics Director: This tool allows users to create, manage and install predictive analytics that improve decision making. It is based on artificial intelligence that examines information and selects trends or styles.

PEGA Customer Decision Hub: This is a sophisticated AI and selection platform that optimizes customer engagement in real time. It uses predictive and adaptive analytics to personalize client interactions.

PEGA Robot Studio: Although PEGA Robot Studio is mainly used for system automation, it can be used to automate data collection and processing for record mining. Can work with various programs and databases and extract relevant records.

PEGA Data Scientist Workspace: While specific details about this workspace may also vary, PEGA commonly offers integrated environments that allow scientists to effectively paint facts on AI projects, along with record mining, predictive modeling, and statistical analysis.

Integrations and APIs: PEGA provides powerful APIs for integrating external AI and fact analysis services. This allows users to expand their statistics mining talents by using various specialized devices in addition to those integrated into PEGA.

Reporting and Analysis Tools: The platform offers advanced reporting and analysis capabilities that visualize insights gained through record mining tactics. These tools help in decision-making by transforming raw statistics into understandable information.

PEGA AI Decision Making: At the core of its platform, PEGA integrates artificial intelligence skills that enable smart choice automation. This consists in recommending movements based on extracted and analyzed records.

In precision, PEGA provides an inclusive and extensible suite of fact mining and AI applications, facilitating selection automation, engineering optimization and advanced customer engagement. The platform stays consistent and often adds new capabilities to meet the automation and statistics desires of corporations.

Explanations of the steps of process mining and the intervention of AI

The screenshot shows the PEGA APP STUDIO interface with the application 'My Pega Trial' selected. The left sidebar includes options like Overview, Case Type, Data, Channels, Explore Data, Library, Users, and Security. The main area displays a table titled 'Case Types' with four entries:

Case Types	Type	Referenced Data Objects
My_Pega_Trial_Workflow_FINAL_ONE	Standard	⋮
My_Pega_Trial_Workflow_Objects	Standard	⋮
My_Pega_Trial_Workflow_Objects\$	Standard	⋮
UPEC	Standard	⋮

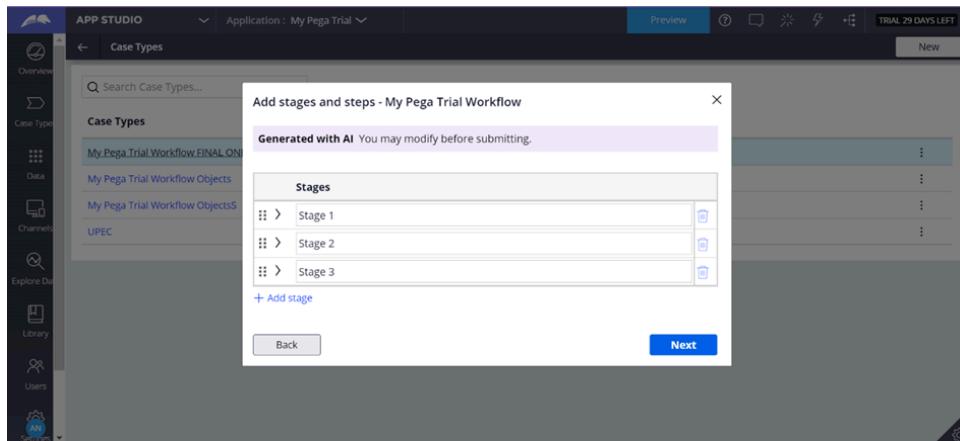
Step 1: Creating a Case Type in PEGA

First, we have to begin by creating a case by defining the process steps using the design interface. Then, configure the workflow rules and necessary data to accurately represent the case type (I will give more details in the other steps about the workflow)

The screenshot shows the 'Create Case Type' dialog box over the APP STUDIO interface. The dialog has fields for 'Case Type name' (with AI suggestions: 'My_Pega_Trial_Workflow_Objects') and options for 'Build Life Cycle and Data Model?' (radio buttons for 'Use standard template' and 'Use AI to suggest a life cycle and data model', with the latter selected). There is also an 'Advanced' link. At the bottom are 'Cancel' and 'Next' buttons.

Step 2: Integrating AI within PEGA's Application

In the second step, PEGA seamlessly integrates AI capabilities within its application. PEGA's AI algorithms are employed to generate the name of the case type based on the defined process steps and context. Furthermore, the AI within PEGA suggests a template and lifecycle for the case type



Step 3: Creating Steps and Stages with AI Assistance

In the third step, AI plays a pivotal role by suggesting a structured framework for steps and stages creation. Leveraging AI capabilities, PEGA intelligently proposes a cohesive structure for organizing steps and stages within the case type. This AI-driven assistance ensures that the workflow is optimized for efficiency and effectiveness, facilitating smoother case management processes.

Review AI suggested fields for My Pega Trial Workflow X

Generated with AI You may modify before submitting.

Suggested fields

Name*	Type	ID*	
First Name	Text (single line) ▾	FirstName	Delete
Last Name	Text (single line) ▾	LastName	Delete
Email Address	Email ▾	EmailAddress	Delete
Phone Number	Phone ▾	PhoneNumber	Delete
Date of Birth	Date only ▾	DateOfBirth	Delete
Address	Text (paragraph) ▾	Address	Delete
City	Text (single line) ▾	City	Delete
State	Text (single line) ▾	State	Delete
Country	Picklist ▾	Country	Delete
Zip Code	Text (single line) ▾	ZipCode	Delete

Step 4: Customizing the Template with AI Guidance

In the fourth step, AI provides valuable guidance by showcasing a customizable template tailored to the case type. PEGA's AI presents a versatile template that can be easily modified according to specific requirements and preferences. This AI-driven feature streamlines the customization process, empowering users to adapt the template to their unique needs with ease and efficiency.

Case life cycle
View: Steps, Personas, Data, Releases (All) ▾

Stage 1

Stage 1

+ STEP

Stage 2

+ PROCESS

Stage 3

+ PROCESS

Personas & Channels

+ PERSONA + PERSONA + PERSONA

Data & Interfaces

+ DATA + DATA + DATA

Step 5: Manual Workflow Design

In the fifth step, the workflow design is manually crafted by users. While AI has facilitated earlier stages, here, users engage directly in shaping the workflow according to their precise specifications. This hands-on approach ensures alignment with specific business processes and requirements, enabling users to fine-tune the workflow to optimize efficiency and effectiveness.

Case life cycle
View: Steps, Personas, Data, Releases (All) ▾

Stage 1

Stage 1

Capture vehicle information
Post to pulse
Generate registration
notification of submission

+ STEP

Stage 2

Stage 2

General review
Commercial review
Gouvernement review

+ STEP

Stage 3

Stage 2

+ STEP

Personas & Channels

+ PERSONA + PERSONA + PERSONA

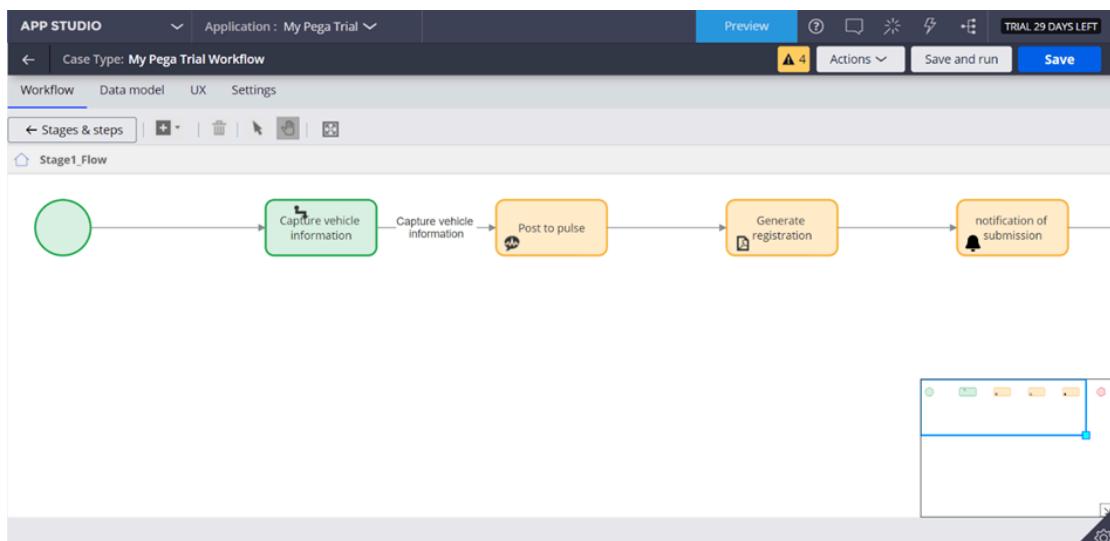
Data & Interfaces

+ DATA + DATA + DATA

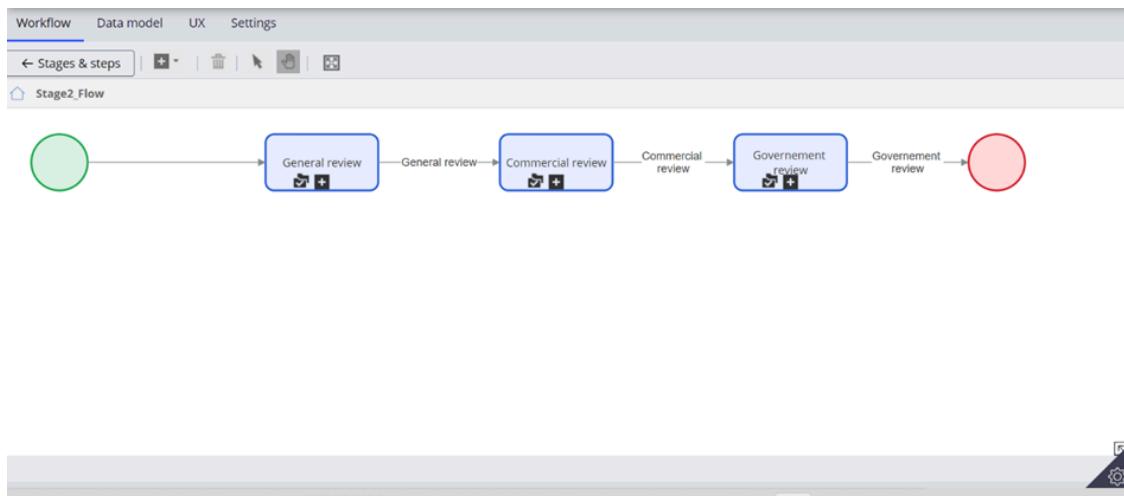
Result of the workflow once created :

There is the representations of the different steps of the workflow :

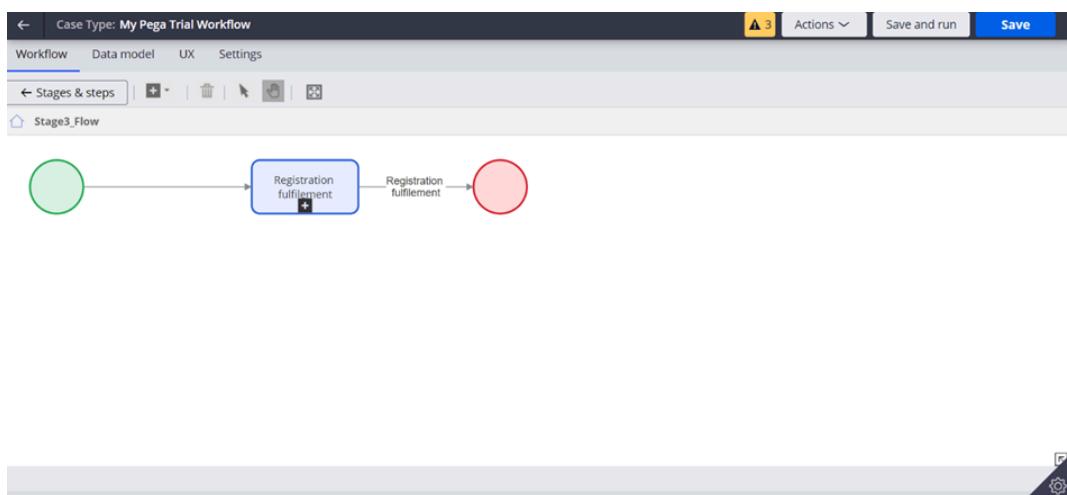
Workflow step 1



Workflow step 2 :



Workflow step 3



Part 2: Subjective Perspective

User: Potential Data Analyst

Potential Advantages of the Software as per My Imperatives:

If I were a potential data analyst, I would perceive this software as a potential asset in my toolkit for analysis. It seems to offer a plethora of advanced features to explore, visualize, and analyze business process data. The software's ability to automatically detect patterns and trends in the data appears promising for quickly identifying bottlenecks and process optimization opportunities. Moreover, the integration of artificial intelligence could facilitate predicting future performance and optimizing data-driven decisions, which would be extremely valuable in my potential role as a data analyst.

Potential Limitations of the Software:

However, while it seems extremely powerful, this software may have its potential limitations. It may not be able to analyze unstructured data types or particularly huge datasets, for example. Furthermore, although the sophisticated AI skills appear promising, it's important to remember that the quality of the input data will have a significant impact on the accuracy of the outcomes. It may also be difficult for me as a new user or for people without prior process analysis knowledge due to the intricacy of some capabilities, which may call for a high level of technical competence.

Ease of Access through No-Code and Lack of Explorative Tutorials:

Moreover, it appears that this software offers notable ease of access through its "no-code" approach. This means that I could potentially create complex analyses and data visualizations without needing advanced programming skills. However, I would have liked to see more explorative resources such as explanatory tutorials or detailed documentation to help me get started more easily. These resources could significantly facilitate my onboarding experience with the software and accelerate my initial learning curve.

Potential Personal Perspective:

I'm excited to investigate the possibilities this program offers as a prospective data analyst. I think the program may be a useful tool for my data analysis work, even if I could first have some difficulty learning all of its functions. It is quite tempting to explore business process data in depth and extract insightful information that will help you make wise decisions. To get the most out of it, I will strive to improve my technical abilities while keeping in mind the program's possible restrictions. In the end, I'm hopeful that this program will have a favorable effect on my ability to function as a data analyst.

Process mining in CELONIS

Introduction:

Alexander Rinke, Bastian Nominacher, and Martin Klenk founded Celonis in 2011 in response to the growing need for corporate operations improvement. The creators created process mining technology in response to the growing complexity of corporate operations. This technology uses data from information systems to provide real-time insights into how these processes are really carried out. In order to enable businesses, detect bottlenecks, make better decisions based on data and achieve more efficiency and effectiveness in their operations, Celonis has had a vision. In keeping with that, Celonis has expanded its capabilities and provided clients with more complete solutions by making calculated acquisitions, such as purchasing a process mining company. With its strong solutions to assist businesses in optimizing their operations and reaching their maximum potential, Celonis has emerged as a global leader in business process transformation since its founding.

Description of the platform

Celonis utilizes Artificial Intelligence extensively in its process mining technology, facilitating all aspects of business process management. The following are the essential AI-informed functions that provide the platform with a competitive edge: Celonis Action Engine, Process Intelligence, Smart Automation, Generative AI, and the Sailfin Accounts Receivable App Suite.

These artificial intelligence (AI) powered features in Celonis greatly improve the accuracy and speed of process insights, boost the effectiveness of process automation, and raise employee happiness and productivity.

Celonis is powered by process mining technology, which lets businesses see and understand their real business processes. This analysis relies on data from IT systems to identify inefficiencies, obstacles, and deviations from the planned process flow. This foundational capability forms the base upon which AI-driven features like the Action Engine and Process Intelligence build, offering seamless integration between identifying process inefficiencies and providing AI-generated solutions.

Software Tools

Celonis also offers full-screen components, such as the Case Explorer, Process Explorer, and the Conformance Checker, which enable users to conduct in-depth analyses of specific cases or processes. These tools align with the AI functionalities by allowing users to thoroughly explore the data and insights generated by AI, thus providing a comprehensive understanding of process performance and improvement opportunities.

The aspect of process analytics incorporates tools for analyzing business operations, supported by machine learning components and various design elements for data representation. The integration of AI enhances these analytics capabilities, offering deeper insights and predictive analysis to guide decision-making. The Celonis platform also provides a section named "Studio" where we can modify the template they provided us.

Celonis's ability to create and customize key performance indicators (KPIs) is amplified by AI's predictive capabilities, allowing organizations to set more informed based on intelligent estimations.initiatives, highlighting the symbiotic relationship between process mining technology and AI.

The suite of security features ensures the safety of business data, a critical component as AI and process mining technologies access and analyze sensitive information.

Managing permissions and accounts is crucial for maintaining security and confidentiality, managing access to the wealth of process data and insights generated by AI and process mining technology.

The integration of Celonis's process mining technology with its AI-driven capabilities illustrates a powerful platform for enhancing business process management, not only identifying inefficiencies but also leveraging AI to recommend and implement solutions, driving significant value for businesses.

How to use the application?

Here are the steps we can follow to try to use the Celonis application:

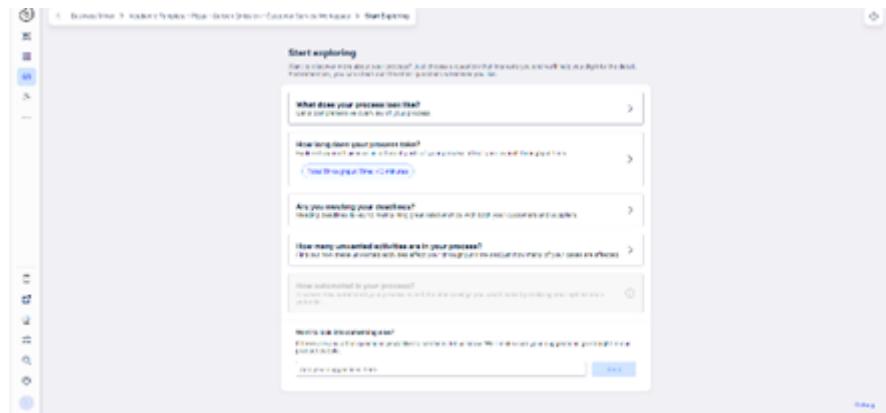
Business Miner:

- 1- Select your process: Customer Service, it is here important to precise that we use a template that Celonis provided us. (see appendix). In our process we can see the precision of standard KPIs, the automatization, the on time, throughput time and unwanted activities of our process.
- 2- Choose your data: The data used in our process lives in a data Model. Therefore, to begin our analysis we choose the academic template named: Pizza – Carbon Emission. However, it is possible for any user to upload their own data model files via google sheet and or CSV/XLSX file.
- 3- In our case the name of our entire process is “Academic Template- Pizza- Carbon Emission Customer Service Workspace”. With this information we proceed to create a new process workshop with AI integrated.

To help us discover the process, Celonis provides us questions to help us begin our analysis. We can either choose a question that the software is proposing, here is a quick look of the questions:

- What does your process look like?
- How long does your process take? (Total throughput time 43min)
- Are you meeting your deadlines?
- How many unwanted activities are in your process?
- How automated is your process?

Nonetheless, we can ask any questions that suit our specific situation.

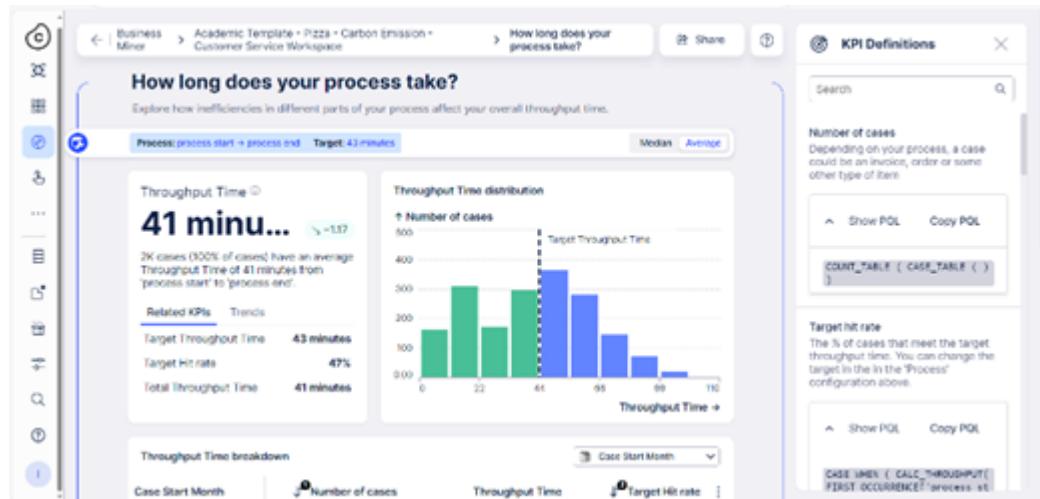


4. When we talk about process mining, the performance of the process is crucial. That is why Celonis is providing KPI definitions, here are a few examples:

Number of Cases: This KPI indicates the total volume of work handled by the process. A higher number suggests a significant workload or transaction flow. However, without additional context regarding capacity or available resources, it's hard to assess if the figure meets expectations. It's essential to consider the overall operational context when evaluating this KPI.

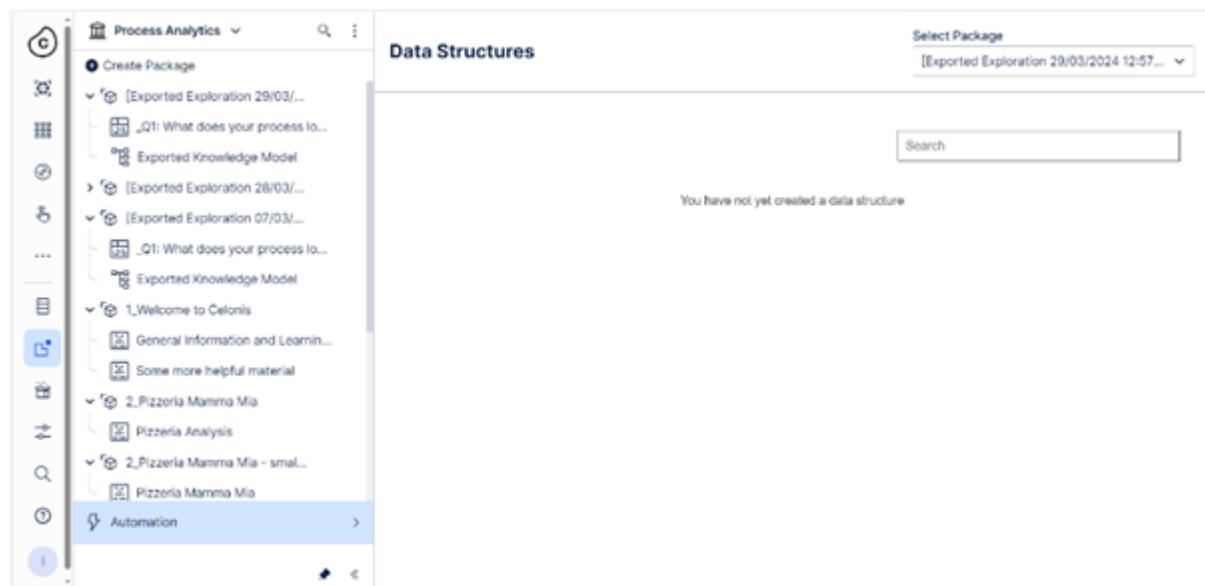
Target Hit Rate: With a 47% success rate, it implies that more than half of the cases fail to meet the 43-minute processing target. This may point to delays or areas needing improvement within the process. Investigating cases exceeding the target could uncover patterns or common issues, indicating systemic problems.

Target Throughput Time: Set at 43 minutes, this KPI establishes expectations for the time needed to complete a case from start to finish. Since only 47% of cases meet this target, the process appears to struggle with meeting time expectations, possibly due to bottlenecks, resource issues, or inefficiencies at certain stages.

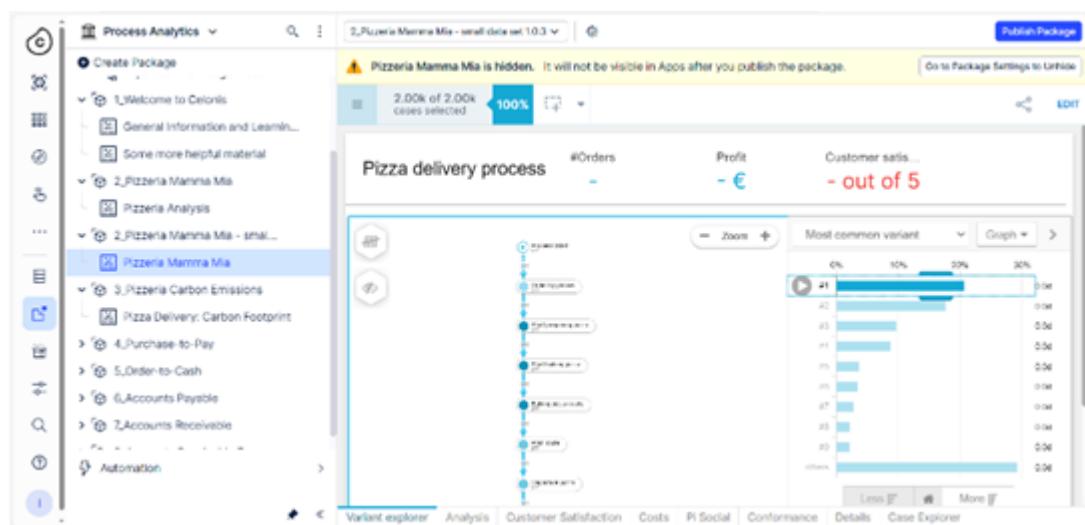


As mentioned above, since our access is not extended as much as we would like, we only can look at limited content, but in the section “Studio”, we can modify the template that the application is providing.

In this section, is where we can see the automatization being executed, however since our access is limited, we can not see the process through.



5. What is interesting with the celonis software, is that they show the process analytic of our pizza delivery process template. What you can see from this screenshot is a display of all the tabs usable for the process analytics.



AI Application :

In the Celonis platform, artificial intelligence (AI) fundamentally transforms process mining by leveraging advanced algorithms for in-depth data analysis, predictive analytics, and process optimization. Here are key moments where we think AI is involved:

First we have the In-depth Analysis Tools (Case Explorer, Process Explorer, Conformance Checker): AI functionalities are in these tools to enable users to explore and analyze data and insights generated by AI. This integration allows for an understanding of process performance and the identification of improvement opportunities.

Then Process Analytics: The platform utilizes machine learning components to analyze business operations. This integration offers deeper insights and predictive analysis, thereby augmenting the decision-making process. The AI-driven analytics capabilities facilitate a nuanced understanding of business processes and predict future trends, enabling preemptive action and optimization.

KPI Creation and Customization are a key part of the process: AI's predictive capabilities are explicitly utilized for creating and customizing KPIs, enabling organizations to set objectives and benchmarks based on intelligent estimations. This suggests that AI models predict outcomes and performance metrics, guiding the setting of realistic and informed KPIs.

Process Discovery and Analysis In the step-by-step guide, AI integrated workshops for creating new processes indicate that AI is used to analyze the process data (like in the Pizza – Carbon Emission Customer Service Workspace), assisting in the discovery and understanding of process flows, automation levels, and inefficiencies.

The platform's ability to propose and answer specific questions about the process, such as automation level or unwanted activities, hints at AI's role in natural language processing and understanding, enabling users to interact with the software in a more intuitive and insightful manner.

Automatization and Process Analytics Visualization: Although access was limited, the mention of automatization and the display of process analytics for the pizza delivery process template suggests that AI algorithms are at work in analyzing process data and presenting it in an understandable and actionable format.

Potential Users:

The greatest benefit of using the Celonis Process Mining comes from the detailed insight into the process. With this tool, an internal team, such as business analysts or process owners, can easily map, analyze, and understand the actual, existing workflow in a company. Such internal teams can identify inefficiencies and deterrents to make decisions logically for streamlining processes for further enhanced productivity, reduced operational costs, etc. Similarly, the analytics provided by Celonis give outside investors an idea of the operational health of a company, whereby the investment process becomes more judicious. For example, IT teams benefit from the application in identifying areas that allow for automation and system integration, thereby optimizing process efficiency. In addition to this, management consultants use Celonis Process Mining to advise clients on how to boost operational effectiveness based on data, with a view of improving their competitive standing in the market. In other words, Celonis Process Mining essentially provokes transformation, since it enables companies to make their strategic decisions based on an all-around understanding of operational processes.

Advantages and limitations

Celonis Process Mining applies AI technologies and bequeaths a robust suite of benefits onto an organization willing to streamline their operational processes. That said, naturally, it comes with its suite of drawbacks, just like any other advanced tool. Here is a detailed look at the benefits and drawbacks of using Celonis Process Mining.

Advantages Advanced Process Analytics: With AI, Celonis enables companies to get deep insights through analysis and visualization of real workflows, thereby pinpointing inefficiencies behind the struggle in processes, bottlenecks, and compliance issues, which might not be visible *prima facie*.

Data-Driven Decision Making: This supplies business enterprises with information-based insights to help make timely decisions on the way to optimize processes, cut down on costs, and improve productivity towards a more agile and responsive operational framework.

Increased Productivity: It helps in eliminating and making the processes efficient, which ensures Celonis the streamlining of the workflows towards increased productivity and operational efficiency.

Automation Opportunities: The AI from the company recommends the place within the processes where Robotic Process Automation (RPA), among others, can be injected for saving time or to free employees from boring operations that bring errors and reduce it.

Strategic Investment Insights: This assists any investor and the outside world to look at the company with the help of Celonis, which gives them perspective about the operational health and efficiency of the company, leading towards strategic decisions while making investments in the company.

Limitations

Implementation Complexity: Poorly implementable without the profound know-how of current IT infrastructure and processes. It thus puts organizations without such expertise in a strait: it may be daunting for them to make use of and harness the full potential of the product that is Celonis Process Mining.

Data Quality and Availability: Celonis operational efficiency is based on the quality of data and availability of complete datasets to be analyzed. Poor quality data and incomplete datasets would naturally lead to poorer insights and jeopardize the quality of decision-making. Implementation of process mining tools like Celonis often demands huge changes within the organization with regard to its processes and workflows. Resistance from employees and management towards the required change in certain elements of the organization may hamper proper implementation and use of the tool within the organization. **Cost factor:** In this way, the cost drivers of the Celonis Process Mining may be costs associated with licenses, implementations, and maintenance, especially for small and medium-sized enterprises (SMEs) or those with little maneuver space in IT budgets. **Over-Reliance on Technology:** The danger will be over-reliance on Celonis by the organization for operational decisions and thus probably oversight of key human and expertise elements in equal measures for the processes improvement.

From my personal experience, since I cannot have access to every tab because I am limited, I found it difficult to truly explore the entire.

Conclusion:

Celonis dominates the process mining arena with its utilization of artificial intelligence, along with progressive analytics, to enable customers to significantly boost their operational efficiency. The enterprise software platform contains user-friendly tools such as the Action Engine and intelligent automation, which help make analysis from even the most complicated datasets accessible and actionable. On the other hand, it can be quite challenging to transition to Celonis, considering that there is a steep learning curve for somebody not fairly conversant with process mining, and it requires quality data to make any sense out of it. A cheaper solution shall be considered in terms of price and

the suitability of the overall IT environment it will be operating in, which can be a struggle for smaller organizations. However, bearing all these obstacles, Celonis comes with the following advantages: leveraging the capability of uncovering detailed process insights, it provides predictive analytics capability in order to derive intelligent business strategies and drive automation opportunities; it is an invaluable tool for companies striving towards operational excellence and competitive advantages.

Process Mining using PERCEPTIF AI :

Introduction to the platform Perceptif AI

The application is called "Perceptif AI", it is a software for exploration, analysis and automation of processes. According to their LINKEDIN profile, the company is established in 2023 in Singapore. Nevertheless, we can see that their other social networks were created in 2021 (x and Facebook). The team is composed of 9 team leaders and 4 advisors, but the founders are not clearly distinguished.

Perceptif's overall goal is to help companies achieve better business results.

This platform uses big data and artificial intelligence to measure, process, arrange, and manage processes in real time with digitized data and improve business performance, while saving and saving resources.

Part 1: Objective Perspective

At first glance, it is a software with a very simplified and minimalist interface, which makes it easy to use the platform.

The dashboard splits into 3. The right-hand side "News" describes the new products in the field of Process Mining.

At the top left, there is a section that brings together the total number of teams created, the number of users, the number of streams as well as the amount of data stored on the application in GB.

Just below that, you can see the recently edited folders.

Finally, at the top right of the screen, there is an icon that can be clicked to save new team members with "add".

Finally, it is also possible to create a new stream on the "create a new stream" icon right next to the "add" icon.

When you click on "create a new stream", you can create and analyze a business process. Services such as google sheet are made available to add data. It is also possible to drop a file directly by dragging it into the interface.

On the left side of the screen, there is a fold-out tab. The part we are interested in is called "process", it includes the "catalog" and "canvas" part.

Catalog gives an overview of the teams created; it is also possible to create others in this section.

Below that, you also have access to "project test team" which allows you to create projects and have access to the projects already created, and to see which data streams are integrated and what business process models if there are any.

Previously we explained that the process part is divided into the "catalog" that we explained earlier, now let's talk about the "Canvas" part. There are 3 possibilities: create a new business process, compare processes, and select from the process library.

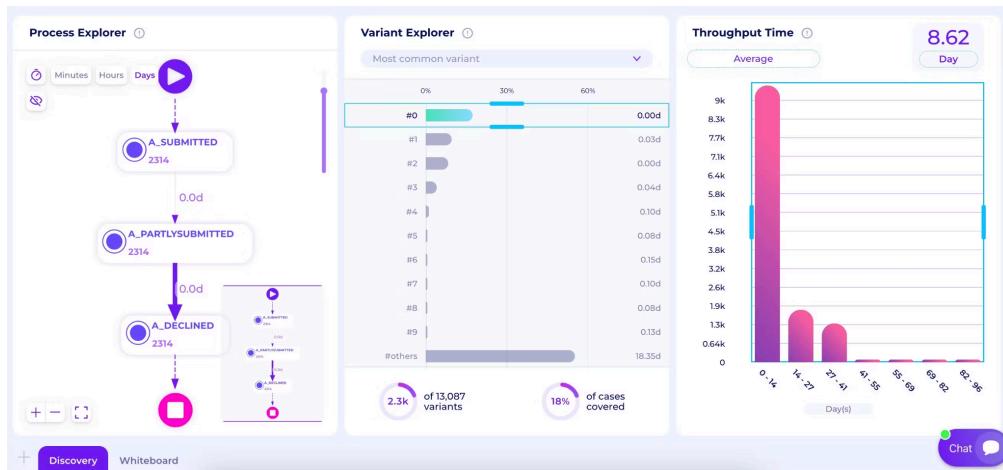
How to use it :

Step 1: To start with, you need to create a team. This can be one or more people.

Step 2: After creating a team, you can start a project. Projects contain information about a functional area or focus for the team. You can upload or connect data within a project. By clicking Upload file, you can bring a new data stream with information for analysis.

Step 3: The data set there we're going to use is of a loan process for a retail bank with over 30,000 records from their loan application system. We are going to analyze the process efficiency. At this point you fill in your basic information, stream name and stream prescription. Then you have to upload your CSV file. Our files are uploaded and now you can add your column type. Now just hit save and you will be redirected to the workspace where you can now see the result of your input data.

Step 4: Then, Perceptif AI minds the data to provide the access process flow and reflect what's happening in the business. You have the Process Explorer on the left, where Perceptif also highlights the most common paths or variance



Step 5: In the middle of the screen you have the variant explorer. From all the load application data perceptif , highlights the most common process path.

Key intervention where AI acts :

When using Perceptif AI, there are different times when artificial intelligence is used.

The case of artificial intelligence use starts from the moment you have entered the data in the platform for it to be analysed; processes are derived from this data.

Then, after steps 4 and 5 of the data, one encounters the intervention of artificial intelligence supporting the process in optimization and automation toward reaching business goals. That means that they include variants in process discovery, analytics in processing time, and even proposals for cutting costs to make the operation more effective.

Finally, when importing data from Excel and CSV, both the system and the AI take it upon themselves to categorize categories, such as timestamp events, for instance. Always with a view to facilitating the process of creation and diminishing the exigency of manual intervention.

The use of artificial intelligence in such fields, therefore, reduces time wastage and processing time for processes that, in general, prove to be time-consuming and erroneous when done by man. Automation based on artificial intelligence reduces this risk.

Part 2: Subjective Point of View

Evidently, the platform may become such powerful support for IT teams that aim at automation and optimization in business processes. Easily, it takes in data from different sources and may visualize processes as they happen to make it recognizable, inefficiencies, and bottlenecks, as one would. However, this poses a problem with respect to process analysis for the unversed and is highly critical to the quality of the imported data. This can be a very big challenge when either data is not well organized or complete.

One of such tools, indispensable for imagining a work of a management consultant, is Perceptif .AI, as it has opportunities to come to his or her help and provide quite clear insights for optimizing the process. It also results in better collaboration and management of the improvement initiatives. Respectfully, that has to be considered a really valid analysis of the tool, but further improvement with personalized recommendations or even some analytical-based advice provided for users to make the most out of the procedure. Moreover, it's a pretty new platform so people have to learn to use it, and there is not a lot of reviews about it to learn.

In summary, Perceptif .AI offers several valuable upsides amid business process analysis and optimization. A very good mix of simplicity in interface and advanced features of visualization makes it one of the most value-laden choices for IT teams and management consultants. Nevertheless, the efficiency of these techniques is data-dependent, and there still remains room for better effectiveness through offering well-based suggestions and solution-based for optimization of the process. None would argue that this instrument has great potential to support analysis and change of business processes. Thus, Perceptif .AI will really get a huge value in the light of growing operational efficiency.

Conclusion:

Founded in Singapore in 2023, Perceptif AI has become a pioneer solution for businesses to optimize their processes based on data analysis and automation. The platform enables ease of data analysis through simple yet powerful insights that allow exploration, processing, and even management of processes in real time to allow ways for significant improvements in performance and operational efficiency. "It heralds the revolutionary potential that Perceptif AI's flexibility, enabling users to create and analyze business processes easily, and strategic use of artificial intelligence to best optimize these processes hold in the field of business process automation.

On the other hand, it is very prudent to note that the big success of the application will be largely dependent on the quality and organization of the data to be fed into the application. While Perceptif AI opens the doors for the powerful opportunities in process visualization and optimization, badly structured or even incomplete datasets are still at the table of being coped with. So, it is crucial for this platform to boost its performance by paying attention to the data preparation process. All of these challenges aside, the future for Perceptif AI looks very promising, since the innovation and continuous improvement at the heart of its delivery will surely turn into a key tool for Management Consultants

and IT Teams en route to Operational Excellence. Ultimately, Perceptif AI becomes representative of the interbreeding of emerging technology with operational requirements so intricate; it promises a redefinition of the business approach towards optimizing processes.

Comparative study of:

Power Automate, Perceptif AI, IBM Process Mining, Celonis and PEGA

<u>Software</u>	<u>Features</u>	<u>Customization and flexibility</u>	<u>Ease of use</u>	<u>AI integration</u>	<u>AI stage of process</u>	<u>Assets</u>	<u>Limits</u>
Power Automate	Power BI Sharepoint Office 365 Microsoft 365	Customization : Not on the free version Flexibility: Yes	Yes: Clear platform with a range of features	Yes	End of process: Support for interpreting result	Time saving Better optimisation of activities Reduction of errors Ease of use and intuitiveness Support for Copilot	Few features in the free version
Perceptif AI	Process mapping, alerts, process intelligence dashboard	Attribute selection and data addition, details on the free version not provided.	Intuitive interface, training support, and knowledge base.	Analysis and optimization throughout the process.	Continuous, from start to finish.	Detailed process analysis, visualization of variants, identification of improvements.	Not well known because it's new. More personalized recommendations.
IBM process mining	Process transparency, inefficiency detection, ongoing development	High: Offers full process visibility and precise identification of waste and improvement opportunities	Yes, with organized interface and main capabilities clearly accessible	Yes, at various crucial stages of process analysis	Throughout process lifecycle	Data-driven decision making, fact-based analysis, seamless cooperation across departments and systems	Dependence on data quality and availability, potential complexity in system integration, lack of advanced features compared to other tools, cost may be prohibitive for some businesses

Celonis	Predefined processes, task mining, machine learning	Customization : Not on the free version Flexibility: Yes	No: Lots of features that needs advanced knowledge	Yes	From beginning to the end, everything is based on AI	Advanced process analytics, data driven decision making, automation opportunities	Few features in the free version
Pega	configure workflows, user interfaces to match your business processes. customize fields, layouts, and styles	Customization : Not on the free version Flexibility: Yes	Yes it is quite simple because of the "no code" aspect	Yes	Pega's AI features operate throughout the entire process lifecycle.	documents, images, templates, and reusable components, automation, data analytics	Not very well known hard to find tutorials

Conclusion:

The comparative analysis of Power Automate, Perceptif AI, IBM Process Mining, Celonis, and Pega software concludes by highlighting the many features, degrees of customization, usability, AI integration, and process stage of each product. With a range of solutions for businesses to optimize their business operations, each program offers pros and cons of its own.

The two things that set Power Automate apart are its straightforward integration with other Microsoft products and its support for IA at the end of the process. However, the free version's functionality is restricted. Although its novelty may provide adoption challenges, Perceptif AI offers an easy interface and supports learning. IBM Process Mining is distinguished by its process transparency and ability to pinpoint inefficiencies; yet, it may be expensive and necessitates careful data integration. Celonis offers advanced analysis, however its free edition is also limited. Finally, although being less well-known and somewhat lacking in training resources, Pega offers a great deal of flexibility with its "no code" approach.

While all software options have a lot to offer organizations, which one to choose will rely on a number of factors, including the size of the company, the goals of the organization, and the resources available for training and installation. Businesses should carefully consider each choice to see which best satisfies their goals for business process optimization.