



Technology & Suppliers

Celonis: Bringing intelligence to processes across business operations

November 2018

Celonis is a specialist cloud-based process mining and analytics technology provider, whose mission is to "make people more productive by understanding end to end processes for next best actions".

MWD Advisors is a specialist technology advisory firm that shows how digital technology changes work; helping today's innovation, architecture and technology change leaders accelerate their success and manage risk. Our approach combines flexible, pragmatic mentoring and advisory services, built on a deep industry best practice and technology research foundation.

Top takeaways

1

All about making process mining actionable

Celonis' heritage is as a specialist process mining technology provider, but with the release of Intelligent Business Cloud the company is expanding its focus and value. This online platform, licensed by subscription, evolves and brings together Celonis' pre-existing process mining technologies. It packages a broad set of event collection connectors together with process discovery and analytics tools, and an 'Action Engine' : a platform for delivering predictive and real-time 'next best action' task recommendations and alerts, derived from mined process insights, to case workers in business operations roles.

Celonis has grown revenue at least 100% in each of the years since its founding, and employs over 400 people as of November 2018. It has more than 400 customers in 25 countries, including a growing number of the largest companies worldwide – including Siemens, Adobe, Cisco, 3M, Dow Chemical, UBS, Exxon Mobil, Schlumberger, Uber, Merck, Honeywell, General Electric, BASF, Vodafone and Airbus.

2

Explore Celonis if you want to engage your organisation in process improvement

Celonis' venture investment, combined with its strong relationships with enterprise technology providers and its long-standing dedication to customer success, have enabled it to 'break out' of the niche that process mining technology has historically been constrained by. The release of Intelligent Business Cloud, particularly because of the Action Engine capability that brings process insights to people driving day to day business operations, is the latest demonstration of Celonis' capability and its vision.

Celonis is an obvious vendor to talk to if you have a mandate to improve the efficiency and effectiveness of your organisation's business processes – particularly if you want to promote a culture of responsibility and inclusivity, where people work to improve processes and drive change (rather than having change 'done to them').

Introducing Celonis

Celonis is a specialist cloud-based process mining and analytics technology provider. The company was founded in 2011 by an analytics research team based in Munich; the team was approached by a large corporation needing help analysing a very large process log dataset, and decided to build its own analysis tool after researching the existing market and finding that none of the available tools really fitted its needs.

Celonis has grown revenue at least 100% in each of the years since its founding, and employs over 400 people as of November 2018. It has more than 400 customers in 25 countries, including a growing number of the largest companies worldwide – including Siemens, Adobe, Cisco, 3M, Dow Chemical, UBS, Exxon Mobil, Schlumberger, Uber, Merck, Honeywell, General Electric, BASF, Vodafone, and Airbus. In 2016 the company took \$27.5m in its first venture funding round (from Accel Partners and 83North) with a second \$50M round from the same investors in June 2018.

Celonis' customers are typically medium-sized or large enterprises that use the technology to discover, explore and improve the business processes in their operational backbone (Vodafone, for example, used Celonis to make significant improvements to its end-to-end procure-to-pay business process) – although the company is finding that more and more interest is shifting towards processes impacting the customer experience directly. Many of its customers have extensive datasets under management and large teams of users. Its largest customer has over 5,000 users, working across over 60 processes.

In a technology space that's historically been dominated by highly technical, specialist workstation-based tools used as part of an academically-flavoured, niche pursuit, Celonis has stood out since its initial product release. Its mission is to "make people more productive by understanding end to end processes for next best actions", and in line with this Celonis has long had a very strong focus on product usability as well as customer education.

Inside the Celonis offering

Intelligent Business Cloud

In October 2018, Celonis introduced a new cloud-based platform, Intelligent Business Cloud. This online platform, licensed by subscription, evolves and brings together Celonis' pre-existing process mining technologies and now packages the following capabilities:

- **Event collection** – where event data that powers Celonis' process mining algorithms is ingested through a set of prebuilt connectors to popular commercial business applications and suites.
- **Process discovery** – where event data is processed, and the derived end-to-end processes then presented through interactive visualisations that help analysts understand how business processes are being enacted day-to-day.
- **Process analytics** – where as-discovered processes can be mapped to reference process models (imported or created in the tool) for conformance checking, and where analysts can define KPIs and exploring performance related to them, carrying out root-cause analysis to discover the reasons for process variations.
- **Action engine** – where root-cause analyses are used to drive predictive models that then power direct communication with operational business users with highly individualised reminders and recommendations (that are made directly available to operations staff), helping to keep processes on track.

We explore these capabilities more in the sections below.

The Celonis Intelligent Business Cloud app and its component tools run on the AWS cloud (available in all regions), but you can elect to run Celonis' event data processing algorithms on Azure, AWS GovCloud or on premises (as well as on AWS itself).

Since September 2015 the company has also licensed a version of the technology to SAP for resale, called SAP Process Mining by Celonis.

Event Collection

A library of connectors provides out-of-the-box connections into popular business applications and suites (including applications from Salesforce, ServiceNow, SAP, Microsoft, Oracle, OpenText, Atlassian and Google). It's also possible to add your own custom data sources and create event correlation logic to combine process data across multiple systems.

You can configure event data collection tasks to run continuously in the background, creating a 'drip feed' of event data as it occurs; or you can configure event collection to run on a scheduled basis.

Celonis doesn't place any limits on the amount of event data you can collect and ingest into the Intelligent Business Cloud. As an indication: at the time of writing one customer hosts nearly 1bn records on the platform, and pushes around 60m new records into the platform daily.

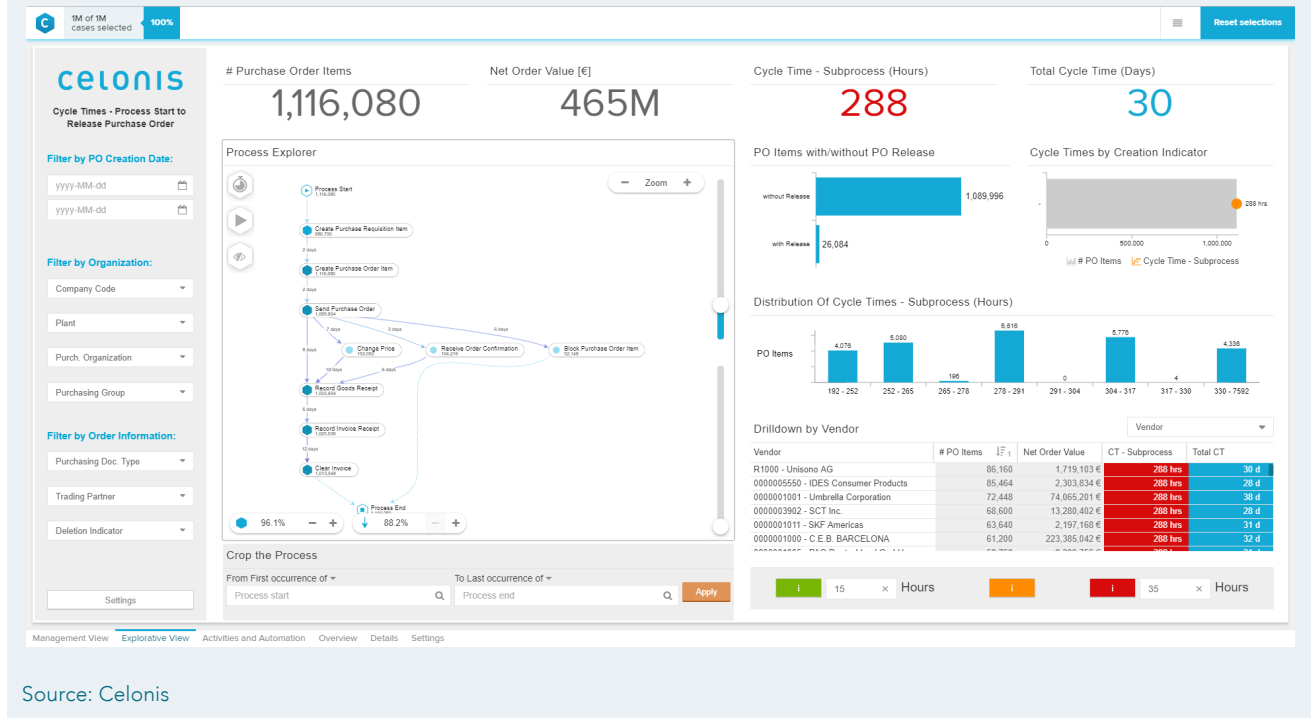
Process Discovery

Celonis' core process mining technology analyses data ingested through its event collection capability (above), providing visualisations to users to help them understand the day-to-day reality of operations.

Analysts use the Process Discovery capability to gather log data from source software systems, create visualisations of the flow of work through those systems, and then explore process patterns to uncover situations that cause errors and inefficiencies or exacerbate risks (see figure 1).

Starting by exploring the most frequent activities and connections – the so called "happy path" – analysts can drill down to explore process variants that are expressed in subsets of the log data and analyse how these variants differ from each other. Often, of course, what at the highest level can seem like a set of process cases following a 'happy path' in fact hides many process variants that reflect significant process rework, steps being missed or tasks being completed out of order, and so on.

Figure 1 Process discovery with Celonis



Process Analytics

This is a machine-learning powered analytics technology layer that provides automated analyses to help guide users in their explorations.

One of the key analyses available relates to process conformance checking. Here, an analyst either imports a BPMN diagram, or creates one in the Intelligent Business Cloud, that represents a business process reference model. The technology shows the extent to which actual process execution follows the model. Algorithms analyse the level of match between the reference model and the case paths it reconstructs from log files, and also help with root-cause analysis by highlighting any particular case features that are correlated with violations (for example, if orders that include a particular product are a common feature in order processing that diverges from the standard model).

Celonis' tools also make it easy for you to bring data that reflects key business information values (such as vendor data, purchase amounts, material groups, purchasing organisations and payment terms in an exploration of a procure-to-pay process, for example) into your analysis, and it's also possible to visualise that in the context of variants. This helps with root-cause analysis, and also helps you understand the business impacts of problems.

A 'social analytics' feature also makes it straightforward to explore and analyse process performance based on the identities of the individuals and teams carrying out tasks (so you can understand where there might be training gaps, for example).

Individual analysts can create and configure their own reports and assemble their own dashboards; it's possible to create highly-customised analyses here – and what's more, prebuilt analyses for common use cases are available off-the-shelf from the Intelligent App Store.

Action Engine

Action Engine takes output from process analytics to create predictive models, and executes those models in the context of in-flight process cases. Based on regression analysis against historical cases, Action Engine predicts likely outcomes, and then makes highly individualised recommendations and presents alerts to people working on cases – with the aim of ensuring that in-flight cases reach their conclusion as effectively as possible – and thereby delivering optimal business outcomes.

Action Engine can deliver its work recommendations and drive actions in two specific ways:

- Recommendations by email (or other tools, like Slack). Action Engine can send emails alerts to case workers to highlight the most recent recommendations to them, explaining with each recommendation how taking the associated action will help them achieve a relevant KPI.
- Recommendations in an inbox app. You can configure a web-based tasklist app for case workers, where each user's inbox presents a tailored set of work recommendations and signals.

Each task that Action Engine presents can embed a link that will take the user direct to the application in question (today, among others, links to SAP, Oracle, ServiceNow, Microsoft Dynamics and Salesforce are supported). Alternatively, Action Engine can be linked to a Robotic Process Automation (RPA) platform, in which case Action Engine invokes a RPA bot to assist with the execution of the task in question.

To summarise Action Engine in a different way: it behaves rather like a workflow engine and application – but instead of being configured to distribute tasks according to a programmed process model, it presents recommended tasks based on the use of machine learning algorithms to predict the 'next best action' in a given situation – always ensuring the most optimal business outcome.

Intelligent App Store

The Celonis Intelligent App Store, first introduced as the Content Store in 2015, is a collection of apps and connectors that customers can install right from within the system and use in order to jump-start their process mining efforts. Built largely from assets created within customer engagements, the Intelligent App Store currently contains over 300 specialised analysis templates that include predefined process KPIs, preconfigured analyses, and associated 'skills' (models and scripts) for the Action Engine. Customers can install apps directly from the App Store without having to download any content.

There's also a library of over 60 connectors and extractors. These cover sources like application suites from SAP, Oracle, Microsoft Dynamics, ServiceNow and Salesforce and many others, as well as common RDBMSs (including Oracle, SQLServer, DB2, PostgreSQL, Ingres and MySQL).

Consulting services

Although Celonis offers consulting services for customers, it's typically focused principally on helping customers run pilot projects, explore its technology and transfer knowledge and skills. Most implementation work, where not carried out by customers themselves, is carried out by Celonis' partners. Over 80% of Celonis' revenue comes from software licensing.

Partners

Celonis has more than 100 partners and several strategic partnerships, spanning technology providers (e.g. SAP, Salesforce, ServiceNow), technology-focused systems integrators and more business-focused consultancies.

SAP is among Celonis' core partners, and SAP Process Mining by Celonis drives a significant amount of revenue for Celonis. KPMG and Deloitte are the company's two most significant consulting partners today.

One other partner ecosystem worth highlighting relates to Robotic Process Automation (RPA). Celonis works alongside RPA vendors to help customers first explore their business process landscapes to understand areas that are likely to be most amenable to automation with RPA; and second, to trigger the actions of RPA bots directly through the Action Engine (where automated RPA actions look to be the best way to improve processes). Celonis is vendor-agnostic, but currently works most closely with Automation Anywhere, Blue Prism and UiPath.

Packaging and pricing

Celonis licenses its software according to the number of processes an organisation wants to analyse and monitor. In addition to software licensing, customers typically license the App Store to speed up implementation and adoption and leverage pre-defined content; and the Celonis Training Cloud to train users on the software.

Recommendation

Celonis' venture investment, combined with its strong relationships with enterprise technology providers and its long-standing dedication to customer success, have enabled it to 'break out' of the niche that process mining technology has historically been constrained by. The release of Intelligent Business Cloud, particularly because of the Action Engine capability that brings process insights to people driving day to day business operations, is the latest demonstration of Celonis' capability and its vision. Celonis is an obvious vendor to talk to if you have a mandate to improve the efficiency and effectiveness of your organisation's business processes – particularly if you want to promote a culture of responsibility and inclusivity, where people work to improve processes and drive change (rather than having change 'done to them').