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Process Mining

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Get a digital twin of your business

Capture value from your processes

Turn insights into action

Celonis

2nd Special Edition

Steve Kaelble

About Celonis

Since 2011, Celonis has helped thousands of the world's largest and most esteemed companies yield immediate cash impact, radically improve customer experience, and reduce carbon emissions.

Its Process Intelligence platform uses industry-leading process mining technology and AI to present companies with a living digital twin of their end-to-end processes. For the first time, everyone in an organization has a common language for how the business runs, visibility into where value is hiding, and the ability to capture it. Celonis is headquartered in Munich, Germany and New York City, USA with more than 20 offices worldwide.

Find out more at celonis.com

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Introduction

If the enterprise that you work for is anything like most other enterprises on this planet, it exists to provide products or services. Your ability to do that successfully depends on how well you complete all of the various processes required to connect with your customers, get them to order what you're selling, create that product or service, deliver it, send out the invoice, and collect the payment. Those core processes, plus countless more, are all incredibly complicated.

What makes it even more complicated is the fact that many of these processes take place inside multiple systems and applications, operated by employees in numerous departments. How can you really know whether your complicated processes are as good as they need to be? Even if you're aware of some pain in the process, how do you diagnose and treat it?

Process mining is an increasingly powerful answer to those questions. As the word "mining" implies, it's all about digging for something of value — the dollars, time, and effort hidden inside your processes — and the data that can lead to the solutions you need to succeed.

Process mining is an x-ray of your business processes that can reveal the source of process pain, whether you're aware of that pain or not, and turn it into an opportunity. Process mining sifts through process data that can be found in all of your various transactional systems, from ERP to CRM to SCM and whatever other acronyms you want to throw its way. It maps out how all of the objects that are part of a process interact with one another and flow through the series of events that are part of that process — providing visibility and insights that lead to powerful process improvements.

Through process mining and its sibling task mining, your organization can gain a level of visibility into complex processes that can otherwise be nearly impossible to achieve. Because that view is based on data, not human observation, it's objective. It's a fact-based window into how processes are working, where and why they aren't, what's causing deviations and bottlenecks, and how that impacts your key performance indicators (KPIs).

This important work yields invaluable intelligence about your processes. It's far more than simply fixing process problems. It's seeing new opportunities for adding value and orchestrating solutions, including automating where possible. And it taps into artificial intelligence to further boost process insights and unleash improved practices.

About This Book

Process Mining For Dummies, Celonis Special 2nd Edition, is your introduction to this remarkable way of operating your business. Read on and you'll discover how you can use this technology for transformative process visibility and improvement. You'll learn how it works, why it matters, and how it's so much more powerful than the traditional process improvement approaches that have led up to this point.

You'll go through the steps in the process mining approach, then explore what you can do with the insights that process mining delivers. You'll discover the newest concepts in object-centric process mining that show how process objects interrelate and are impacted by process events. You'll understand how process mining discoveries can lead to greater efficiency, quality, automation, and adoption of emerging technologies such as artificial intelligence, along with lower costs.

And you'll see how process mining supports and enables process intelligence, the missing piece in the modern intelligence stack.

Celonis refers to process intelligence as the connective tissue that links you and your processes, bringing in real-time data, mining and analyzing for insights, planning and simulating improvements, and monitoring for adherence to those improvements. In combination with other technologies, such as automation and AI, process mining can be used to effectively orchestrate and change how businesses operate.

And fear not, this is more than just a fanciful theoretical concept. This book wraps up with tips on adopting process mining and the Celonis Process Intelligence platform for a more successful today

and tomorrow. You'll discover how to assess your company's process maturity, pick a vendor, and carefully evaluate the tools at your disposal.

Foolish Assumptions

What's your interest in process mining? In writing this book, we've made a few assumptions about you, the reader:

- You're working for a decent-size enterprise, in any industry, and you have an interest in improving specific business processes.
- Your role may involve process excellence, perhaps analytics, maybe IT, or you might be a line-of-business leader in an area such as finance or supply chain.
- You'd appreciate some easy-to-digest insights into the magic of process mining platforms.

Icons Used in This Book

Take a look in the margins of this book and you'll see some icons. They're there to catch your attention and let you know that something important can be found there.

REMEMBER

This book isn't terribly lengthy, but we know your time is tight. If you don't have time for every single word, at the very least don't miss the paragraphs marked with this icon.

TIP

The aim here is to provide you with background, insights, and actionable advice. This icon puts the spotlight on tips you may find helpful.

TECHNICAL STUFF

We've tried to sort through the technicalities to make this an easier read, but for those who like techie details, here's a paragraph for you.

WARNING

What could go wrong? If we're talking about core processes (and we are), the stakes are high. This icon points out potential troubles you'll want to avoid.

Beyond the Book

Like we said, this book is full of high-level insights and intriguing concepts, but we recognize it's far from the last word on process mining. In fact, you're likely to come away from this book with a thirst for additional information on the topic.

Please check the following resources for more details about process mining and how it all can work for your enterprise.

- Celonis: Meet Process Intelligence, the connective tissue for business: `https://www.celonis.com/resources/ebook/meet-process-intelligence/`
- Celonis: The Process Mining Buyer's Guide: `https://www.celonis.com/ebook/process-mining-buyers-guide/`
- Celonis: 'In the Process' introductory video series: `https://www.celonis.com/process-mining/in-the-process-series/`
- Celonis: The Insider's Guide to Supply Chain Optimization: `https://www.celonis.com/insiders-guide-to-supply-chain-optimization/`
- Celonis: The Global Process Study: `https://www.celonis.com/process-optimization-report/process-excellence/`
- Process Excellence Network Guide: What is Process Mining?: `https://www.processexcellencenetwork.com/process-mining/articles/what-is-process-mining`
- 2024 Gartner Magic Quadrant for Process Mining Platforms: `https://www.celonis.com/analyst-reports/gartner-magic-quadrant-2024/`

- Process Mining Handbook: Process Mining: A 360 Degree Overview by Prof. Wil van der Aalst, Springer Publishing: https://link.springer.com/chapter/10.1007/978-3-031-08848-3_1
- Process Mining: Data Science in Action by Prof. Wil van der Aalst, Springer Publishing: https://link.springer.com/chapter/10.1007/978-3-662-49851-4_1
- Process Mining in Action: Process Mining in a Nutshell by Lars Reinkemeyer, Springer Publishing: https://link.springer.com/chapter/10.1007/978-3-030-40172-6_1
- Object-Centric Process Mining: Unraveling the Fabric of Real Processes by Wil van der Aalst. Mathematics. 2023; 11(12):2691: https://doi.org/10.3390/math11122691

IN THIS CHAPTER

- Understanding processes and process improvement
- Learning about process mining and task mining
- Discovering the benefits of process mining

Chapter 1
Understanding Process Mining

Your business would be nowhere without employing good processes. Heck, you wouldn't even get out of the house in the morning without following a process.

This chapter explains the importance of processes and the need to always improve them. It defines process objects and events, process mining, task mining, and object-centric process mining. It also details why process mining is so important, and how it's a major upgrade from past process improvement approaches.

Realizing the Importance of Processes

It's so basic that it almost goes without saying: Your business wouldn't get anything done without processes. In fact, the very definition of a process is *the way something gets done*. A process is the series of steps that are taken in a particular order to achieve a specific result.

For plenty of common processes, the details don't especially matter. You expect your employees to wear shoes to work, but who cares which one they put on first? Some processes are important

but uncommon, such as negotiating the lease on your office, which happens only now and then.

Other processes are both super common and super important. Take procurement, or purchase-to-pay. For most businesses, it happens all the time that someone needs to request a product or a service, purchase it, receive it, pay for it, and account for the whole activity from beginning to end. That's a process with multiple steps.

For those in the sales department, there's a lead-to-order process. First your salespeople need to acquire a lead, then make contact, then go through a series of actions to get that potential customer to place an order.

That, in turn, triggers another process, often known as order-to-cash. What happens between the time a customer places an order and the time your business receives payment? Depending on what your business does, manufacturing may be involved, or wholesale acquisition of a product, followed by delivery in either case and, at some point in the process, collection of payment. Instead of a physical product, you may be delivering a service. Whatever the deal, order-to-cash is what your business lives to accomplish.

If your business has a significant customer support function, you likely have processes for incident resolution. There's a way to learn from the customer that a problem exists, then a way to investigate the issue, determine a solution, and resolve the problem.

And few businesses can make any of these things happen without information technology. There are also all kinds of processes within the IT department itself, such as IT service management and application development, or even system migration, which is the process of moving the processes themselves from an old system to a new one.

All that said, for just about any desired result, there are multiple ways to make it happen. If two people set out with the same end goal in mind, it's likely that they'll follow different processes in order to get there. It isn't necessarily a matter of one process being right and the other one being wrong. There is, however, a decent chance that one is more efficient than the other, maybe faster, and perhaps with less potential for error or waste along the way.

REMEMBER

It's in the best interest of the business to standardize the most common, high-volume processes. That's how you ensure things are getting done in the best way possible; it makes it easier to determine when things are going awry; it helps you train employees in the best way to do their jobs; and it enables you to discover value hiding in processes.

REMEMBER

No matter how good a process is, there are always opportunities to make it better. Processes are nearly always subject to change, either formally or on the creative whim of a problem-solver. Your business needs to be able to figure out exactly what's happening in its processes: where things are getting stuck, and what's working best.

A BRIEF HISTORY OF PROCESSES

Processes have been around since the dawn of time, and humans have been giving serious thought to processes for more than a century and a half. One of the early big names in process thinking was an American mechanical engineer named Frederick Taylor, who pioneered a concept known as *scientific management*.

Taylor was so influential, in fact, that his theories became known as Taylorism, which reached its peak influence in the 1910s. His work was all about finding and creating the most economically efficient workflows, in particular to boost labor productivity.

Around that same time, Henry Ford was pioneering the concept of mass production in the automotive business. His first assembly line slashed the time required to build a car, which was achieved by standardizing one process after another, and lining them all up sequentially in a factory.

Car manufacturing continued to be a hotbed for process thinking in the years that followed, with more innovations happening at Toyota. The company built on the ideas of Taylor and Ford, refining new concepts of process efficiency that ultimately became known as *lean manufacturing*.

Efficiency is one key goal of process improvement. Reduction of errors and defects is another, and that's the fundamental purpose of the practice known as *Six Sigma*. This one got its start at Motorola in

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the 1980s, and it's all about reducing process variability to the point that defects are really, really rare.

Today's process mining reflects a powerful combination of process science, which is the intricate study of processes, and data science, which means finding the insights in the data generated by the various parts of those processes. A Dutch professor and computer scientist named Wil van der Aalst led this convergence that's resulted in the cutting-edge practice of object-centric process mining described in this book.

Improving Processes

Process thinking has evolved from an academic pursuit to a business-critical concept, impacting not just manufacturing but businesses of all kinds. In many competitive environments, getting really good at understanding and improving processes makes all the difference between success and failure.

Think of Amazon as an example. When the company introduced same-day shipping, it set a new high bar in the world of online shopping. Amazon's mastery of the processes behind order management and delivery is its biggest differentiator.

Repeatable processes exist to enable four key objectives:

- **Reduce the time** it takes to deliver products and services to customers.
- **Reduce the cost** of delivering those products and services — whether they're monetary costs, labor costs, or environmental impacts.
- **Improve the quality** of the products or services that are delivered, while increasing customer and employee satisfaction.
- **Improve consistency,** so that a process runs in a regular way every time, everywhere, to ensure compliance and dependability.

TIP

Continually improving processes is essential. Here are some fundamental ways of changing processes to make them better:

- **Standardizing:** Making the process as repeatable as possible, and ensuring that the process as-is matches the process as-designed.
- **Streamlining:** Removing redundant or unnecessary activities from the process.
- **Optimizing:** Configuring the process to produce more value, such as improving quality or reducing costs.
- **Automating:** Putting technology in the driver's seat to take action on aspects of the process.

Defining Process Mining

Process improvement of the kind described in the preceding section is a true art. Depending on the process you're studying, it can be quite an involved endeavor to examine, document, and map out the various steps, then pinpoint and eliminate pain points.

REMEMBER

Process improvement is, as a practice itself, always improving. The intriguing improvement that this book is about is known as *object-centric process mining*, a discipline that's getting better all the time.

Object-centric process mining focuses on *objects* and *events* that are part of processes. Consider the process of going to see the doctor. Many objects are involved, including the patient, the doctor, the nurse, the hospital, the receptionist, the medicine to be delivered, and many more. And there's also a series of events, such as making an appointment.

In a business context, an *object* could be a purchase requisition, a sales order, or an invoice, for example. An *event* would be when an invoice is paid.

As these objects interact and events occur, they leave digital traces in the information systems companies use to conduct their business. Process mining extracts valuable knowledge that the information systems produce about all of the objects and the events

inside your company, so you can visualize how your business really runs, and spot the opportunities for improvement.


REMEMBER

Notice the use of the term "objects" in the preceding couple of paragraphs. It's critical enough to be included right in the name of object-centric process mining (OCPM). We offer more detail in the coming pages, but what you need to know now is that stepping into OCPM is like moving from a two-dimensional to a three-dimensional world.

For starters, let's get some terminology down. There are many different *object types*. These types could be an order, an item, a product, a delivery, a patient, an employee, or a machine. Any instance of one of these object types is an object.

An *event* is basically a thing that happens to one or more objects. Placing an order is a kind of event, and a specific order placement is an instance of that kind of event. Producing an item is an event type, packing that item is another event type.


REMEMBER

One more thing — objects and events have lots of unique attributes. One important attribute of an event is its *timestamp*, the record of when it happened.

Process mining has gotten very good at tapping into the goldmine of timestamped *event logs* involving many different objects in order to find out about every step in a process. The process of dealing with a sales order, for example, will include events such as when the sales order was created as well as how and when it was taken care of. You can learn a lot about sales department workflows from analyzing these logs, and that helps you to spot deviations and delays.

All of that is great and powerful, but by using the event as your jumping off point, all you'll ever be able to see is that event. If, instead, you start with an object, you can see everything that relates to that object, across processes and departments.


REMEMBER

Think for a minute about an online retail order. The customer has requested four items, one of which is in stock and three of which need to be produced. That's a sales order that leads to four sales order items, and that in turn creates three production orders. Those items may be shipped separately, since one is already in stock. And, at the end of the process, a single invoice is sent.

See how that one order created multiple objects across different systems and departments? OCPM gives a view into that whole complicated situation, allowing insights into how it works, where it doesn't work well, and how it could work better.

OCPM is the new normal when it comes to process mining, and that's the technology we're going to be discussing going forward.

Here are some of the benefits of OCPM:

- **You avoid repeatedly going back to your source systems.** Object-centric event data offers a single, system-agnostic source of truth. This saves time and helps to capture real-life events and objects.
- **You avoid distortions due to the single-case assumption.** Squeezing reality into simple event logs creates distortions. It can unintentionally replicate events (which is known as *convergence*) and it can lead to the loss of causal relations (which is called *divergence*). In traditional process mining, frequencies of activities and information on costs and delays highly depend on the way the data was flattened. If you squeeze multiple object types into a single case notion, you get more complex process models where all structure is lost.
- **You see and understand the interactions between different object types.** Problems live at the intersections of processes and organizational entities. For example, low on-time-in-full scores may be caused by problems in sales, production, procurement, logistics, or elsewhere.

Employing Task Mining

By now you may be thinking, process mining certainly sounds great — but what about those processes or steps that happen outside of transactional systems? In such cases, there are no event logs to mine. Are you out of luck?

Nope. That's where a related endeavor known as *task mining* comes into play. Task mining employs technology to collect user desktop data. Together with process mining, it helps you gain the best possible view into how processes run.

As mentioned in the previous section, your event logs tell you when a purchase order (PO) was created and approved, and when it was fulfilled and dispatched. But it doesn't include some of the details that happened on the computer desktop where that work took place.

Someone filled in the PO, checked the amounts to be sure they were accurate, and matched receipts with invoices. That activity happened outside of the system that actually handles the POs, but it's highly important for understanding the PO process. Task mining puts those insights into the mix (and can add in some ancillary insights such as the fact that the worker had to spend a lot of time digging through emails to find all the information needed to complete the PO task).


REMEMBER

It takes some nifty tricks and technologies to collect this task mining information. Task mining leverages optical character recognition technology, or OCR. It employs natural language processing (NLP). And it's aided by machine-learning algorithms to help it really understand the actions people are taking on their desktops and find the patterns that are impacting business outcomes. Task mining:

- **Captures desktop data:** We're talking clicks and scrolls and other actions, screenshots, and timestamps.
- **Adds in the business context:** This is where OCR comes in, collecting all the text and numbers on the screen to put what's happening into context.
- **Clusters activities:** NLP and artificial intelligence technologies gain an understanding of each action and cluster actions into overarching activities that they're a part of.
- **Matches business data:** Identifying information allows the task mining software to correlate what the user is doing with specific business data in operational systems, which is how you really figure out how actions are impacting business outcomes.
- **Optimizes the process:** All of these insights can then be harnessed to optimize processes and boost business performance.


REMEMBER

The technologies are safe and secure. And they include advanced privacy features to ensure that sensitive data remains hidden, only relevant user interaction data is captured, and only approved people can see the user interaction data.

Understanding Why Process Mining Matters

REMEMBER

Business evolution has made the process environment increasingly challenging to get a handle on. It's more vital than ever to have a holistic understanding of the process landscape. Here's what makes process mining so consequential:

- **You get complete visibility into processes:** It offers a 100% objective, real-time look that's based on IT data.
- **You can quantify the impact:** With a better understanding of the opportunities within your processes, you can demonstrate value before and after you make a change.
- **You can get stakeholders on board:** With data-driven solution suggestions that even have return-on-investment (ROI) attached, it's much easier to get buy-in and alignment.
- **You can set priorities:** Understanding the impact that specific opportunities have on business outcomes helps you prioritize your energy and resources. Don't just pick the low-hanging fruit — go for the tastiest!
- **You can quickly achieve value:** Compared with previous incarnations of process improvement, process mining is easy and fast to implement, which means you'll demonstrate the value much more quickly.
- **You can enable new tech:** By feeding the data unearthed by process mining to technologies, you integrate and make the most of them. New tech may be artificial intelligence today, but who knows what it could be tomorrow?

REMEMBER

Process mining is evolving to enable far greater views into improvement opportunities across interrelated components of business operations. By taking a three-dimensional look at all the diverse objects that interact in a complex process, object-centric process mining generates far greater insights than ever before possible from the volumes of process data that are constantly being created.

IN THIS CHAPTER

- Collecting the data
- Getting analytical
- Discovering potential improvements
- Tracking adherence and the potential payoff

Chapter 2
Exploring How Process Mining Works

Process mining gives you an amazing ability to look under the hood of your company's business processes and really see how they work. How? This chapter gives more detail on the steps involved, from ingesting the data, to illustrating and analyzing the processes, to designing and implementing improvements to those processes, and to continually monitoring to be sure your processes are working the way you intended. The best approach, as shown here, taps into the insights of artificial intelligence.

Gathering the Data

As Chapter 1 explained, business processes these days are quite complex. Your organization's processes likely operate across different systems crunching different kinds of data about the various objects and events involved in the processes. And the processes are run by a big roster of people who are working across multiple departments.

Take a step back and consider an individual business object (for example, a production order or an invoice) that's working its way

through one of those complicated processes. It's moving through these information systems and leaving behind digital clues. These clues are records of each brief stop along the path of this business process, whether it's an invoice on the way from creation to payment, or a customer service ticket being submitted and eventually resolved.

You might think of these clues as being like the proverbial breadcrumbs left along the path in the Brothers Grimm's "Hansel and Gretel." Come to think of it, that's a rather gruesome fairytale — perhaps it's more pleasant to imagine these clues as digital footprints in the sand.

REMEMBER

In any business, a lot of interrelated activity happens all at once, and you can only get a handle on it all if you're able to follow movements of each object separately while also seeing the interactions and relationships.

Take an object like an invoice. Its creation is an event in and of itself — an event that should happen as quickly as possible following delivery. The invoice is then delivered to the customer, which is a second event. If too much time passes, a reminder is sent — an additional event. A payment arrives and is matched to that invoice, so that invoice gets marked as "paid," an event that signals its finale.

Of course, there were plenty of footprints that got planted in the sand before that invoice was even generated, too — the order was created, a product was manufactured and delivered. That series of objects and events led to the creation of the invoice. Those events and objects also informed the details printed on that invoice (and the invoice creation also might have tapped into master data for the customer's contact information).

TECHNICAL STUFF

In the world of object-centric process mining, objects are grouped by type, and many different objects may have the same object type. Some object types are: customer, supplier, machine, order, product, container, claim, payment, complaint, request, and many more. Objects are instances of these types — for example, a particular supplier or a specific order.

Similarly, each event has an event type, which is also called an activity (we can use the terms *event type* and *activity* interchangeably). Some of the many event types include approve request, cancel order, send payment, take blood test, skip container, and activate account.

Events are instances of these event types, and each event has one timestamp. In traditional process mining, each event needs to refer to precisely one case. A case is a process instance identified by a case ID. Object-centric process mining generalizes this, allowing an event to refer to any number of objects.

The old-fashioned way of ingesting this kind of data would be exporting event logs one by one, over and over again, so they can be imported by the process mining tool. The most advanced process mining uses real-time data ingestion.


TIP

Your process mining tool or platform should be able to bring in process data from any source. It needs to connect to on-premise data, cloud-based enterprise resource planning and customer relationship management systems, data warehouses, and many other sources.

The platform should make extraction and ingestion as seamless and easy as possible, and also include ways to customize extraction. And it should include task mining capabilities so it can integrate process data from desktop activity that doesn't get tracked in digital systems.

Analyzing the Processes

Process mining, and in particular object-centric process mining (OCPM), works best when all that ingested data is standardized and turned into a graph. Celonis refers to it as a *Process Intelligence Graph*, a system-agnostic visualization of how a business runs, built with business objects and events.


REMEMBER

The graph is an end-to-end visualization of the process, following every step that every object has taken from beginning to end. All of those journeys come together into one visualization, a chronological sequence of events that some people refer to as a *digital twin*.

Remember that there are different ways to get from A to B. Maybe most of those footprints in the sand are pretty much in the same place for each case, but now and then a path takes a step to the left or right.

TECHNICAL STUFF

In process mining, those slightly different paths from beginning to end are known as *variants*. There may be hundreds or thousands of different variants that show up on the process map that process mining creates. Those that don't seem to follow the standard or accepted path are known as *deviations*.

The first step in gaining value from process mining is the process analysis step. A process mining solution visualizes and validates process flows, showing how the many objects and events in the system interact, and helping point in the direction of value opportunities within and across processes.

Process analysis is where you start to dig into the root causes of process inefficiencies and quantify how they're impacting your key performance indicators. Here are some of the questions that you're asking at the analysis stage:

- Where are the bottlenecks in the process and what's causing delays?
- Which resources are overloaded?
- Which activities are skipped most often?
- Which resources create deviations?

Dashboards in your process mining solution should be able to spot variations that you may not have even been aware of. That's incredibly powerful, but is really only the beginning. After all, finding out about problems is one thing, but discovering solutions is even better.

REMEMBER

The best process mining solution will offer recommendations on what to fix, powered by algorithms, expert insight, machine learning, and large language models built specifically for this purpose. Today's artificial intelligence can take natural language requests and turn them into process insights based on a full understanding of your processes and the root causes of the problems you're trying to solve.

Process intelligence from your actual process data can connect with AI capabilities to uncover value opportunities — and chart the path toward realizing them.

Process intelligence is about fixing problems, but more than that it's also about preventing them and preparing for problematic scenarios. True intelligence into your processes allows simulations

into how changing conditions such as volume, resources, and working schedules will impact process performance.

Looking at it another way, it's an opportunity to digitally try out process improvements and automations before you implement them.

Improving Processes

Process mining isn't just a means for fixing existing problems. It's also a way to capture new value through process improvement, adding insights and abilities to existing tools and systems.

TIP

Look to a process mining solution to trigger automation. It should be able to facilitate system connections and build better workflows, with ready-made applications that add value quickly.

Meanwhile, artificial intelligence helps to ensure automations live up to their potential. Sophisticated AI can examine process data and contextualize it with process knowledge, improving upon simpler rules-based automation systems.

In addition, as you build up your wealth of process intelligence through process mining, you can start to compare process performance across different dimensions. That helps pinpoint stellar performers or identify problematic patterns, and ultimately apply lessons and best practices from one place to another — across teams, business units, or geographies, for example.

Monitoring Processes

All of the insights in the world are worthless if they aren't fully implemented and followed. The next piece of the process mining puzzle is monitoring to track performance and adhere to optimized processes. It's the way to stay process-smart going forward.

REMEMBER

Your process mining initiative has to identify and establish ideal paths in order to be sure you're remaining on those paths. Think of it kind of like overlaying a stencil of the target processes right on top of a visualization of live processes as they're running. At one glance, you can see deviations and figure out their root causes.

That's vital information, but there's even more value in a good monitoring capability. Process improvement works best when everyone can really appreciate its value, and your solution should be able to spell that out in actual numbers.

Take Celonis' Transformation Hub as an example: It can create a value report tallying exactly how much value you've generated through process mining. It also adds up the value still waiting to be realized through new opportunities that process mining has discovered.

Managing Processes

Process mining is an invaluable window into how your processes work (or don't) and how to make them far better. The best of all worlds is the ability to really fit these insights and improvements into the full management of your processes.

REMEMBER

Process management is all about building process design and governance capabilities into one powerful platform. That should include enriching the platform with your own enterprise's institutional knowledge, in order to determine process relationships and really understand your organization's structure, enterprise architecture, and the way processes impact the customer experience.

This comprehensive process management includes building a full enterprise map that includes teams, systems, processes, and policies. It takes into account regulatory and compliance documentation, too, as that helps design processes.

With full-scale process management, every employee has a personalized repository of processes and how they fit into the operation. That helps employees understand steps that impact them, and is incredibly valuable for onboarding.

IN THIS CHAPTER

- Moving from insights into action and automation
- Winning through gaining process intelligence

Chapter 3
Making the Most of Process Mining

As powerful as process mining's insights can be, they're only truly valuable if they inform the way your business operates. This chapter describes how process mining fits into the bigger picture of running your business. It shows how insights can lead to real improvements in business performance, and how artificial intelligence and machine learning can help keep the transformation rolling. And it outlines how adopting a process intelligence platform can bring all of these powers together for the greatest impact.

Turning Insights into Automation

Automation certainly seems like a Holy Grail of process improvement and enterprise productivity. Given that human capital is among your enterprise's biggest expenses, any way you can reduce human effort within a process workflow is going to be an exciting opportunity.

Some might think this is a way to reduce your staffing level, but that's not necessarily the point. When it comes to automation, the

first priority for most companies is to augment their employees' work so they can be more productive. Indeed, research conducted by Celonis has found that respondents' top goal for process improvement is to "increase productivity," not "reduce costs."

One way automation helps employees get more done is by reducing the time it takes to complete a process. As for other key measures such as reducing waste, improving quality, and cutting costs, automation can boost those important metrics, too, when it's done well.

All that sounds great, but the reality is, most enterprises have a long way to go when it comes to automating processes. Various researchers have found that the majority of businesses are working on automating processes, but only a fraction have really succeeded to their satisfaction.

One of the big reasons that automation hasn't delivered is that many companies have been "automating blind." Enterprise systems are so complex and fragmented that it's challenging to identify which areas of a process are the best candidates for automation.

WARNING

Just as important, those dynamics make it hard to know the best way to automate the process. Automation can reduce waste and increase efficiency, but that's not a given. If you take a process that's broken or inefficient and automate it, all you've found is a way to do something badly, but do it faster. And if you hard-code automations into your systems, you might end up having to recode them every time the process changes.

This is a common pitfall when it comes to certain types of automation, such as *robotic process automation* (RPA). RPA bots are great at automating simple data-entry tasks, but they're not highly intelligent or flexible, so when other circumstances in the process change, RPA automations don't always change with it. That causes things to break. A 2023 process optimization report from Celonis found that 58% of businesses use RPA to help with their processes — those businesses need to avoid an "automate first, ask questions later" approach. In fact, they should do the exact opposite. Automation shouldn't be the first step in process improvement; it should only come after you use process mining to understand your processes.

TIP

Artificial intelligence (AI) and machine learning (ML) technologies offer a lot of promise for finding ways to do automation right and ensure that change happens more smoothly. Indeed, one McKinsey study has predicted that generative AI tools will introduce a whole lot of automation in the next several years, causing as many as 12 million occupational shifts in the U.S. workforce by 2030. However, organizations struggle to use AI in an enterprise setting because there's no way to contextualize the information stored in systems of record like SAP, Oracle, and Salesforce. This is where a process intelligence platform comes in so useful: It connects your process data to AI so you can actually benefit from the technology's spectacular developments.

The platform's ability to do so is powered in part by both predictive and generative AI:

- **Predictive AI learns from historical data and uses it to predict the likelihood of future events.** Process mining uses this kind of AI to anticipate and prevent process problems and also find the root causes of problems that happen.
- **Generative AI helps process mining solutions interact with humans more easily and efficiently through natural language processing and generation.** Using the right platform, you can ask things like: "Give me three recommendations for improving working capital" and get the answer you need right away. In doing so, GenAI puts the power of process mining into the hands of many team members who aren't necessarily experts.

TIP

Begin process mining before automation and you'll do yourself a doubly big favor. First, it helps find the right solution for fixing what's wrong (hint: it's not always automation). Second, it points out what parts of which process would work fantastically with automation.

In short, process mining and automation go together like peanut butter and jelly, or strawberries and chocolate. The sum of the parts really is a lot better than either component on its own. Automation for automation's sake isn't worth much, but process mining insights also aren't worth much if you don't fully act on them.

As those annoying TV commercials proclaim: "But wait, there's more!" Process mining can add in not just the all-important insights, but also incredibly valuable oversight. You're best off when process mining not only informs the creation of your automation, but also monitors its implementation in order to continually improve it. That's where automation based on AI and machine learning can really change this game. It yields a system flexible enough to adapt and learn over time.

Achieving Process Intelligence

To get a good understanding of how process mining can really make a difference in and across your business operations, it's helpful to take a look at how it works in practice as part of a process intelligence platform.

REMEMBER

Object-centric process mining can yield incredibly valuable intelligence about business processes. These kinds of insights are so key, in fact, that Celonis refers to the Process Intelligence Platform, and we'll offer examples of that technology so you can see how it works in practice.

This platform brings together several technologies. It ingests data from diverse systems across the company, employs the benefits of process mining, and folds in task mining and process modeling, machine learning, and artificial intelligence. In the case of Celonis, this wisdom is topped off with process improvement knowledge informed by learnings from thousands of implementations.

The Celonis platform is powered by the Process Intelligence Graph, which is composed of object-centric event data and process knowledge. Every company creates its own Process Intelligence Graph, which helps you understand how objects and events interact, how processes are interconnected, and how to improve the way your business runs.

IN THIS CHAPTER

- Getting better at core functions
- Improving the order-to-cash process
- Enhancing purchase-to-pay

Chapter 4
Seeing Process Mining in Action

Process mining certainly sounds like a fantastic concept. But in real-life terms, how can it help your organization truly get better at everything you set out to do? This chapter explores a variety of use cases to see what you can achieve through process mining, intelligent analysis, and the kinds of operational enhancements that come from the implementation of process mining.

Improving Core Functions

If you're like a lot of people, you've gotten pretty good at managing processes with the tools at hand, as well as working to improve them. In some cases, that means mapping and capturing processes with spreadsheet software, maybe a presentation app or a diagramming tool.

WARNING

These older approaches to process improvement, though, are time consuming and labor intensive. Just capturing the information to map involves a lot of people, gathered in meetings or work sessions or interviews. They scratch their heads and remember

details about how things work, they interject with their opinions and theories, you map, and then you try to figure out the lessons and solutions.

REMEMBER

Process mining is a real game-changer. It takes over much of that hands-on work, removes the subjectivity, and gets incredibly insightful information straight from your transactional systems.

Order-to-Cash Use Cases

Getting the order-to-cash process right is absolutely vital to the success of your organization. As with so many pieces of the operational puzzle, this process touches lots of other pieces. Order-to-cash has everything to do with order management and accounts receivable, but is also deeply integrated with sales, finance, and supply chain operations. All kinds of objects are in motion here.

Improving order management

Let's take a look at how process mining can help out with order management. Here are some key performance indicators (KPI) areas where problems are common, with some thoughts about why they happen and how process mining solves the problem.

Inventory management

Your aim is to keep stock as low as possible, but still be there faithfully for everything that production and fulfillment requires. With process mining, you get the visibility and insights needed to identify patterns related to late supply deliveries, tweak lead times, and update reorder points based on changes in demand.

On-time delivery

Your process mining efforts may identify delays in the area of credit checks, which might be taking too long and slowing down order processing. You might discover that even your regular customers who have a great history of paying on time are having their orders held up for credit approval.

TIP

Machine learning, on top of process mining, can help predict which customers are most likely to pay on time. For those good customers, you can safely skip the credit check and speed up their orders by days.

Cost per order

Process mining may find a bunch of manual rework caused by incorrect price information. That rework raises the cost per order. A deeper dive into the findings reveals that some of the master data is out-of-date.

There's a solution for that, too. Process mining spots those inconsistencies in contract pricing, so you can fix — manually or automatically — the pricing according to the correct contract.

Net promoter score

This metric is wildly important because it's about getting positive word-of-mouth from your customers. They're not so positive if they get an order confirmation with a delivery date, and then the delivery date gets changed.

If your process mining expedition identifies that problem, your platform should provide a solution. Typically, delivery dates are based on standard lead times, but supply chain issues can mess up the ability to meet those standards. Your process intelligence platform should be able to spot areas likely to be affected by supply chain issues, and either automatically provide a more realistic delivery date, or escalate the order to a manager who can find a way to expedite it.

Fixing accounts receivable

Now let's take a look at similar issues in the world of accounts receivable. Here are some typical KPIs where things can go awry, and how process mining can uncover the underlying issues, so that you can address them.

Days sales outstanding (DSO)

Customers are paying late. But why? Process mining identifies a failure to identify at-risk payments before they get out of hand.

The solution discerned through process mining is to automatically identify high-risk customers based on their likelihood to pay. The potentially troublesome ones are escalated to the support team, and that escalation is flagged in the customer relationship management (CRM) system, so the team can make sure everything is in order before the payment is due.

Time to invoice

You can't get paid if you don't first send out the bill. Process mining often finds that that invoices are taking too long to create and send.

This is a job for automation. The process mining analysis finds that invoices aren't being created as soon as possible after delivery. The solution is to automatically trigger invoice creation within 24 hours of goods delivery.

Perfect invoice rate

You also may not be paid if your invoice has errors, such as the wrong billing address or customer identification. Process mining helps to identify invoices using incorrect master data.

Then your process intelligence platform can automatically review contracts and historical data to recommend appropriate updates to master data. The platform can either notify the master data team, or automatically modify the invoice if the confidence level is deemed high enough.

Purchase-to-Pay Use Cases

You can't sell stuff (or provide services) if you don't first acquire stuff, so it's well worth ensuring that your purchase-to-pay processes are up to speed, too.

TIP

There are two primary parts to this puzzle — procurement and accounts payable.

Improving procurement

Here's a look at how you can focus on some of the most important procurement KPIs through the wizardry of a platform such as Celonis Process Intelligence.

Processing time of purchase requisitions

Your teams can ask for something, but the procurement process can get held up right at the starting gate. A common issue

that process mining might pinpoint is a high volume of free-text requisitions. This happens when requisitioners manually create a request rather than picking a standard vendor with pre-negotiated contract terms.

The solution that emerges from this process mining exercise is a machine learning model that can automatically convert a free-text purchase requisition to a purchase order (PO). Or it might recommend that the requisitioner select the same item from an existing catalog rather than straying from the standard.

Inbound on-time delivery rate

Once the order has been processed, now you're at the mercy of the supplier to make the delivery on-time. In the meantime, you make plans for when the item will arrive. Process mining finds that, all too often, supplier deliveries are later than you expected. But why, and what can be done?

Analysis may show that the master data related to your internal planning parameters isn't correct, causing you to make assumptions that are just not realistic. A process intelligence platform can fix those faulty parameters to reflect reality. Or, the platform might notify the planning team that there may be a systemic issue of which they're not yet aware. Either way, you're caught off-guard a lot less often.

Spend under management

The opposite of spend under management is maverick buying. Too many people are out shopping without someone looking over their shoulder to be sure they're shopping wisely. Your KPI may indicate this is a problem, but it takes some good process mining to figure out why it's happening.

Perhaps what's happening is that requisitioners are trying to speed up a purchase, or maybe buy from a preferred vendor, so they're trying to get around the established internal processes. This unmanaged spending can be costly. A process intelligence platform can notify category managers of repeat offenders, reject maverick purchases, block platform access, and even contact those vendors that are repeatedly fulfilling maverick purchases.

Getting a better handle on accounts payable


TIP

This is a very important function. As outlined earlier, the accounts payable (AP) department needs to be the master of potentially competing interests. On one hand, it needs to maintain positive supplier relationships by paying in a timely manner. But not so timely as to unnecessarily eat up working capital. Here are some prominent KPIs with thoughts on how process mining can help.

Days payable outstanding

Process mining will show you if payments are going out earlier than necessary. And it may reveal that it's happening because invoices are being posted before the due date, and payment runs are moving forward with these too-early invoices included.

Your process intelligence platform can help you resolve these issues by automatically checking and applying contracted payment terms, so that invoices don't post before they need to. It can also notify the supplier of the discrepancy, to keep relations smooth.

Paid-on-time rate

In this case, your KPI is showing too many invoices being paid late — the question is why? Process mining discovers that price changes are slowing things down. Suppliers may be using outdated prices when invoicing, and when they do, it takes extra processing time to resolve the matter.

The solution from the right platform is to automatically check and apply contracted pricing. And if the suppliers have invoiced incorrectly, the platform can automatically notify them, to prevent future problems and keep them in the loop.

Touchless invoice rate

You want as many invoices as possible to sail through without human intervention, but your KPI reveals a lot are not. Process mining shows there are often incorrect or missing fields, perhaps because of master data issues, or maybe errors on the part of the vendor.

TIP

Your platform steps in to identify discrepancies in invoice fields, comparing the PO, the invoice, and historical data. It can automatically update erroneous fields based on the PO and historical data, without bothering your people.

Back Office and IT Use Cases

IT teams have their own useful use cases for process mining.

System migration

IT wants to be on-time and on-budget when embarking on a system migration, but that's challenging when process mapping is manual, fit-gap analysis is subjective, and user adoption is subpar. Process mining can automatically create an objective end-to-end process map, visualizing every variant of every process as it actually happens in the IT systems.

TIP

With the data, the platform can compare the as-is with the to-be, spotlight the deltas and figure out why they're happening. It can generate a ranked list of fit-gap deltas to assess. This solution can also spot feature underutilization, so that you can assess what needs to be migrated and what doesn't. In this way, object-centric process mining can help control cost and scope, as well as minimize risk and disruption. It can also be used for end-to-end testing, monitoring and help improve user adoption post-migration, and monitor success of the business case.

IT service management

The IT team spends a lot of time fielding service tickets, and the clients it services want to get those tickets handled as quickly as possible. Process mining can help uncover slowdowns within IT service management and help you figure out what to do about them.

Process mining can, for example, identify areas that would benefit from a *shift left* that allows solutions to happen earlier in the resolution process. It can cut down on multi-hops and find ways to resolve tickets on the first touch. It can help IT service management meet SLA requirements by opening up faster process paths. It can even spot places where a simple refund would

cost less than a resolution, which saves money and reduces the backlog of service tickets.

Front Office Use Cases

Your interactions with customers are vital to your success — both during the sales process and delivering customer service. Here's how process mining can help make interactions memorable for all the right reasons.

Sales opportunity management

Closing the deal is what your salespeople are aiming to do every day, but they may not be performing at full potential. Process mining can help boost sales opportunity management in a number of ways.


TIP

Machine learning and artificial intelligence, as part of a process intelligence platform, can point sales toward opportunities that are most likely to close. The right solution can spotlight actions that close pipeline gaps and accelerate pipeline progression.

The platform can also reduce the sales cycle time by removing manual steps from the quote process. And it can leverage better data for greater forecast accuracy.

Customer service

The better your customer service, the more likely it is that your customer will come back for more, as well as recommend that others patronize your business. A process intelligence platform checks into your transactional systems to find out where resolution times are slowing down needlessly.


TIP

You can find out which service case attributes are linked to the greatest delays, where incidents may be handled by multiple agents, and where self-service solutions are breaking down. Improving self-service saves time for your agents and makes customers happier, and happier customers mean higher net promoter scores.

Industry-Specific Use Cases

The beauty of process mining is that it can be applied to any process, not just the ones we've covered that are considered core to almost any business. There are plenty of ways process mining can be used to improve industry-specific processes.

In banking, process mining can unearth insights about the "know your customer" process. Seeing how the process really runs, teams can reduce operating costs at the same time as improving the customer experience and meeting anti-money-laundering regulations.

For the energy industry, process mining can ensure reliable production, thanks to streamlined plant maintenance built on cross-system visibility, improved master data accuracy, and intelligent prioritization.

In healthcare, process mining can do a lot for patients and practitioners alike. One example is revealing the patterns that lead to "no show" appointments. Understanding the root cause, teams can change the timeliness of their communications to boost attendance rates and therefore avoid wasted time and improve the experience for all.

Supporting Strategic Initiatives

Beyond the specific cases outlined earlier, many organizations see the value of process mining as a strategic solution to support wider-ranging initiatives. Many companies have set out enterprise-wide initiatives such as digital transformation and sustainability, and you might be surprised to learn how process mining can contribute to these efforts.

Digital transformation

Few businesses these days can ignore the critical need for digital transformation. It's a competitive world, and having the best product on the market is only part of the story. If it's easier to do business with your competitors, or faster, you may be sunk.

REMEMBER

This is a strategic initiative for which process mining can be absolutely essential. Because digital transformation is about improving your processes, you'll never get there without first understanding your processes. You need visibility into where you are today, and process mining provides that visibility.

That current-state understanding, in fact, is what helps you build the business case for digital transformation in the first place. It becomes the benchmark on which the success of your transformation can be assessed. And it provides the roadmap for transformation in the most efficient, effective way.

Pursuing sustainability

Many organizations have placed a high priority on sustainability, and as it happens, a great place to start is within existing processes. Procurement is a big one — you need sustainable practices that cascade through the supply chain.

You'll never get there without closely following data. As noted elsewhere, process mining can play a vital role in procurement, including ensuring that your spending is targeted toward the right suppliers that you've identified in your sustainability program. In this aspect, it isn't just about controlling costs — it's about ensuring that you're staying on track in this important strategic aim.

With the right platform, you can boost sustainable spend under management on the procurement side, while minimizing waste in logistics, warehouse, and production processes — now you're cutting down negative environmental impact across the entire value chain.

IN THIS CHAPTER

- Evaluating your options
- Rating your process maturity
- Finding expert assistance

Chapter 5
Getting Started With Process Mining

If your organization isn't yet benefiting from process mining, there's no time like the present to get started! The sooner you tap into this powerful technology, the sooner you can move your processes further toward their full potential.

This chapter outlines your game plan for going down this path. You have options to consider regarding your overall approach, and you'll benefit from some self-examination of your organization's process maturity. The good news is, you don't have to set forth on this journey alone — this chapter gives advice on assistance you can seek as you choose vendors.

Exploring Your Options

REMEMBER

The first thing to ponder is the nature of your process mining project. There are three basic options for adopting process mining:

- **Standalone process mining project:** This is essentially a discovery-only approach. Your process mining expedition collects the data and generates insights, and then your organization works to figure out what to do with those insights.

- **Process mining enhancement approach:** In this concept, your process mining initiative is loosely connected with other initiatives. Automation, for example, can turn some of your insights into actions.
- **Platform approach:** This is the most all-in concept. Process mining is embedded into a wider platform that knows how your business processes are interconnected, how your business runs, and how to make it run even better. This is the approach taken by the companies that are adopting Celonis Process Intelligence across multiple departments and processes.

Research suggests that companies are moving toward the more involved and sophisticated options. These days at least two-thirds of organizations adopting process mining are following either the enhancement or platform approach. It's also possible to take it a step at a time — you can start small with a single process, then expand the effort to other processes and systems.

The question is, which approach best suits your organization's needs? Keep on reading for additional insights.

Assessing Process Maturity

One key consideration as you plan your deployment is an honest assessment of where your organization is when it comes to process maturity. The further along you are in the stages outlined below, the readier you are for the platform approach.


REMEMBER

Following are some detailed thoughts about the four stages of process maturity. Your aim is to figure out which stage sounds the most like where your enterprise is at right now, then select a deployment that really fits with your level of organizational, process, and technological maturity.

Stage 1: Developing process understanding

In this stage, your organization has process knowledge that's largely dispersed, and largely opinion-based.

At this point, you may be conducting whiteboarding sessions to better understand your processes. You may be manually mapping

processes, which is a great start, but you're probably finding it rather slow and tedious — so much so that by the time you get a process fully examined, it has already evolved into something else. As for key performance indicators (KPIs), you have them, but they tend to be siloed across fragmented systems.


TIP

Where does process mining fit in for enterprises at this level of process maturity? It's a fantastic way to develop a greater understanding of processes, and it's a whole lot faster and easier.

Stage 2: Standardizing processes

Established process owners are in place, as well as targets that these owners are working toward. In fact, KPIs have been consolidated into end-to-end metrics, with more integrated reporting.


TIP

By this stage, your standardization is benefiting from a more objective view into processes. Implement process mining here and you'll be well on the way to even greater standardization.

Stage 3: Optimizing processes

Outcomes are really starting to show the benefit. Process champions have emerged.


REMEMBER

In Stage 3, your organization is implementing process-specific optimizations. From a technology perspective, you have deployed and integrated digital point solutions. You'll really benefit from process mining here, too, as it will continue to drive even greater optimization.

Stage 4: Innovating process improvement

There's strong integration between insights and innovative actions by the time you hit this highest level of maturity (but only about 5% of companies are here today). If you're here, your organization has implemented a full center of excellence approach toward embracing true process intelligence.


REMEMBER

You're benefiting from intelligent actions and automations across processes. Your organization has added more and more enterprise systems, and your technology now includes the connective tissue that connects you to your processes, your teams to each other, and emerging technologies to your business. By this stage, process mining is an integral part of your daily business operations.

Seeking Assistance

Process mining is among the fastest-growing categories of enterprise software. More than half of the Fortune 500 is already onboard, and they're reaping great benefits in terms of business outcomes and a high return on investment. It's no surprise that you'll find a number of vendors ready to help you on your journey. How do you narrow the choice to the right partner?


TIP

Start by asking prospective vendors a lot of questions. You want a full understanding of their proposed technology and its capabilities, because you need a proven methodology to gain the best value. You want to learn more about each vendor's track record, including how well its delivery approach works and its ability to handle technological complexity — including large data volumes across multiple source systems, for example.

Learn more about the vendor's innovation roadmap. You should be sure that their technology is headed in the same direction as yours, and that their product includes the cutting-edge capabilities we've talked about so far, especially object-centric process mining, AI, and machine learning. And get a good look at the ecosystem to gauge the vendor's success. You'll benefit from a mature ecosystem that has partners who can align closely with your requirements.

Asking the right questions

With all that in mind, here's a checklist of questions to ask. (Also be sure to explore Chapter 6 for even more depth into the capabilities you need to consider.)

Checking the capabilities

- "Is your technology a standalone process mining tool? Or does it also provide automation capabilities?"
- "Will I be able to extract real-time data into your platform? Will this require a third-party ETL (extract, transform, and load)?"
- "Is it possible to store all events and objects in a single data model or is it necessary to extract data for each process or question?"

Evaluating the track record

- "What is the typical deployment time?"
- "Do you offer pre-packaged software that matches our use cases?"
- "Please share stories of reference customers — enterprises in a similar industry with a similar technology complexity."

Inquiring about innovation

- "What is your product roadmap? As your product evolves, which new capabilities will our enterprise be able to benefit from?"
- "Can you offer tangible examples of how machine learning will be used?"

Exploring the ecosystem

- "How extensive is your solution's ecosystem? Can a partner deploy the solution on our behalf?"
- "What are your cloud security accreditations?"
- "What data governance do you have in place?"

Asking others for insights


TIP

You can put lots of questions to potential vendors, but there are plenty of others to check in with, too, as you explore your options. Here are some places to turn:

- **Reference customers:** Your potential vendor should be able to provide you with the contact info of other customers. Your best bet is to speak with customers in an industry similar to yours, or with similar use cases.
- **Customer webinars or events:** If you look around, you're likely to find webinars, panel discussions, and related events in which enterprises sit around and tell their stories. The closer you get to the kinds of use cases that are common in your world, the better off you'll be.

- **Market analysts:** These experts often conduct webinars about the state of the market. You can hear their perspectives as well as details about customer adoptions. Reach out to the analysts you respect the most to learn about their upcoming events.
- **Technological experts:** Webinars are great, but you get the most direct, pertinent answers if you can get a briefing directly from a market expert. Ask your potential vendors who they would recommend contacting.
- **Technical reports:** The internet is full of analyst reports and whitepapers on all parts of the market and technological innovations. You can buy reports from analysts, and vendors may offer them, too.

IN THIS CHAPTER

- Improving and automating processes
- Checking out desktop activity
- Fitting in with existing technologies
- Keeping everything safe and secure

Chapter 6
Ten (or So) Capabilities to Seek from Process Mining

Read on for some thoughts about what to look for as you evaluate the solution that will serve your business best. Here are a baker's dozen capabilities you need to think about before making a final decision.

Connecting with All Data

It's very important to select a process mining solution that can bring data together, in real time, from all of the necessary sources to create a complete picture of your processes. This should include "homegrown" and nonstandard systems, spreadsheets, and other files where process data is stored, along with external data sources.

Ingesting the Data

Once you've identified the data for process mining, you have to get the data into the system, which means critical prerequisites are data preparation, cleaning, and transformation. With that in

mind, be sure to check out the suitability of the potential vendor's extract, transform, and load module (ETL). It must meet your data scope.

Checking Out Prebuilt Connectors

Most of the data you'll be using for process mining lives in standard systems, such as SAP, Oracle, and Salesforce. But keep in mind that multisystem is the future in the world of information technology. Your process mining solution needs to work with all the right systems, and work with them easily. That means prebuilt connectors to load data fast, ready-made dashboards, and analyses already created for you.

Focusing on Objects and Events

The most powerful insights come from the ability to visualize and analyze complex relationships between objects (such as invoices, sales orders, and materials) and events (such as invoice creation or changes to sales orders) — across interconnected processes.

Look for a solution that can analyze processes from an object-centric perspective. It's the key to extracting the most intelligence and insight from process data.

Excelling at Process Discovery

The process has been mined and the data is in the system. Now the insights can start to happen. How good will the insights be that are generated by your process mining technology? It depends.

Pay close attention to the analytics features of the platform, the accessibility to business users, and the availability of preconfigured analytics (such as root cause analysis and process simulation). Carefully evaluate each factor to ensure everything is as exceptional as possible, adequately customizable, and easy to use.

Analyzing Complex Processes

The ability to visualize a process is table stakes when it comes to process analytics. You'll need conformance checking and benchmarking tools to compare process performance against the gold standard. Some vendors go above and beyond with advanced features such as process simulation and cross-process analysis.

Enhancing the Processes

Keen insights are absolutely vital, but they're still only part of the story. What good are insights if you can't easily use them to improve your processes?

The ability to take full advantage of the insights you generate from process mining is probably the most important feature of all. At the end of the day, you must be able to enhance your process, or all you've done is conduct an exercise in gloom and frustration. You'll find this capability built into only a few solutions.

Automating the Process

A key part of enhancement is automation. Whenever you can, you want to remove the need for human actions, and replace them with automated fixes and activities.

By combining process mining with automation, you're able to improve and accelerate processes. What will serve your needs best are no-code integrations with ERP systems, cloud tools, and custom software.

Mining for Tasks

As you know, parts of your processes take place outside of transactional IT systems. They often take place on a user's desktop, perhaps in apps such as spreadsheet or email software. Task mining lets you capture these off-system activities to help improve your process understanding. This, too, is only offered by a small handful of vendors.

Integrating with Existing Tools

The last thing you want to do is create a complicated new process to learn on top of everything else.

With that in mind, check to see whether process mining can be integrated with your existing technologies such as business intelligence, integration platform as a service, and robotic process automation. Consider how process mining feeds your existing and incoming artificial intelligence tools. Pair your tools smartly and you can enable AI anywhere in the stack with the help of process mining.

Ensuring Security and Compliance

It's in the headlines just about every morning — another organization held captive to ransomware or embarrassed by a sensitive data breach. Don't make the headlines! Sensitive data must be stored and handled securely, whether you keep it on-premise or in the cloud. Your process mining vendor must have strong security policies and accreditations.

Accessing Training and Support

The vendor you choose should provide free and comprehensive training for your team, plus services to help you successfully get up and running. The vendor should be ready to help your teams adopt process mining successfully.

Connecting with Partners

You probably already work with consulting partners that help you select, deploy, or manage your IT systems. Make sure that your process mining vendor works with those partners, too, and that the vendor offers guidance and certifications to your partners.

Look for a process mining vendor that has a lively and active partner ecosystem, including services partners, technology partners, and independent software vendor partners who are actively building and extending the core solution.

Embark on a transformative journey to process excellence

Processes are the lifeblood of organizations, but they are highly complex and hard to see from end to end, making it difficult to improve them. The solution? Process mining — a vital tool for process visibility and improvement.

Process Mining For Dummies provides helpful explanations and practical guidance for getting started with this transformative tool. Dive in to discover how to analyze the way your processes run, and how to find and capture the value hiding in them.

Find out how to connect data in any system in real time to process mining tools, create rich visualizations of your processes that help you pinpoint issues, and use the insights provided by process mining to improve and ultimately transform your business.

Inside...

- Connect data to a process mining tool
- Gain total visibility into processes
- Explore process mining use cases
- Reveal value opportunities
- Transform process insights into action
- Improve productivity, optimize costs, and more
- Design your process optimization strategy

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