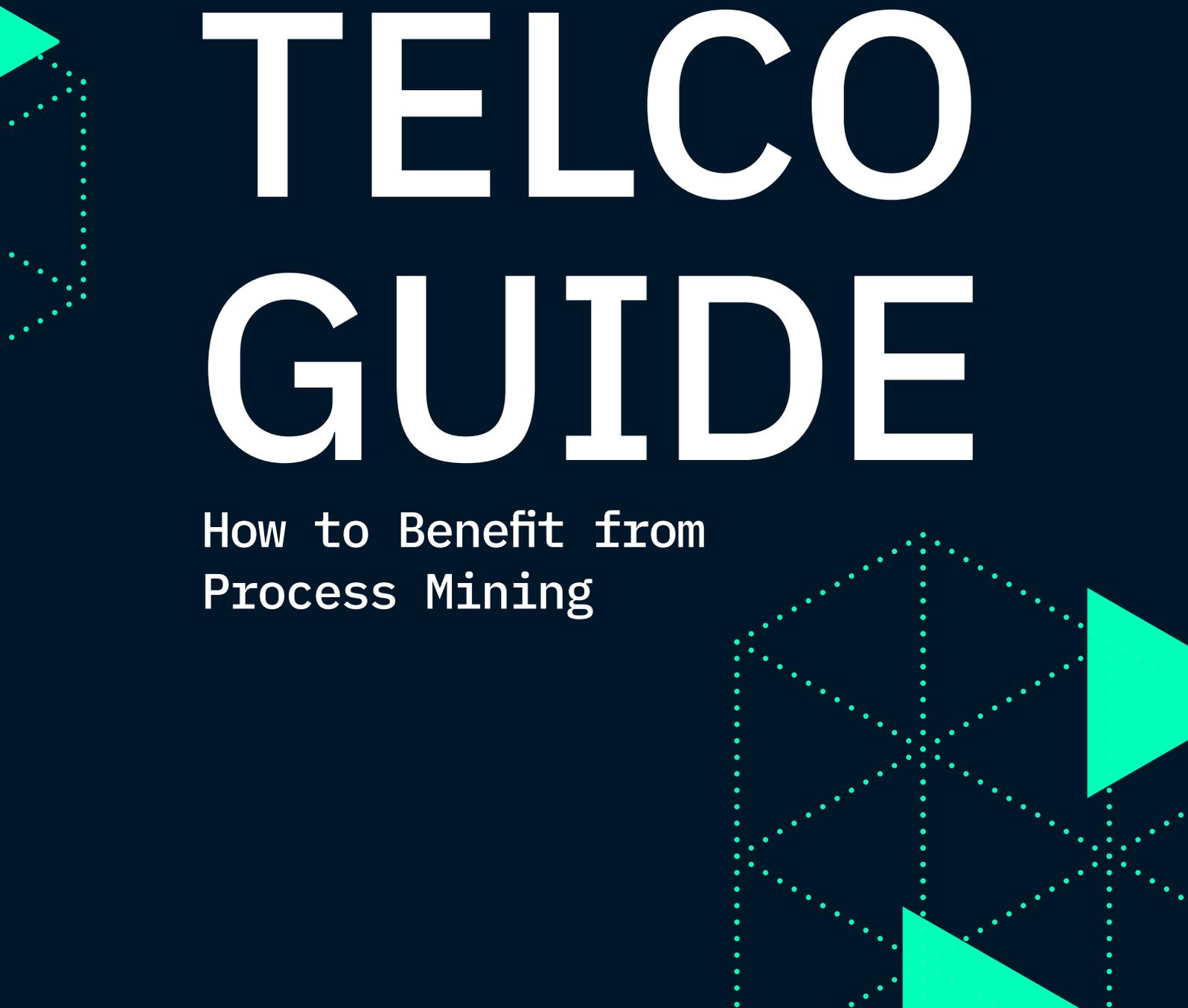


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# TELCO GUIDE

How to Benefit from  
Process Mining



## **TELCO GUIDE**

### **HOW TO BENEFIT FROM PROCESS MINING**

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TELCO GUIDE

# Introduction

Telecommunications is one industry where it is absolutely essential to keep up with changing technology. And that tech is changing rapidly!

With the explosion of IoT-connected devices expected to only accelerate, and the impending arrival of 5G connection speeds, telecom organizations need to stay on top of these emerging technologies if they are to thrive in the coming years.

Process mining is another fast-growing technology sector, one that has the potential to revolutionize the telecommunications industry. That may sound grandiose, but stick with us and we'll explain how this emerging and fast-growing sector of the data science world can help telecoms keep pace with other emerging technologies.

This ebook was designed to give you an overview of how process mining can assist your telecom organization in its journey toward digital transformation. We've focused on a couple of specific examples of technology that can be deployed today, have a noticeable impact on your customer experience, and deliver a sizable ROI.

### **Topics will include**

- > Process mining for improved customer experience
- > Digital twins and how process mining enables them to better provide solutions
- > Use cases from the telecommunications sector
- > A case study of a major telecom provider using process mining

CHAPTER ONE

# Process mining for customer service excellence

How much do you know about your customer's journey? Has the idea of a "customer journey map" been mentioned in a recent board meeting, and you're not sure what that means or how it can help? A customer journey map is an invaluable tool for improving telco customers' experience. Process mining can help you make that journey map even better.

A customer journey map is an outline of the path your customers take when they interact with your company. The idea is not to shoot for 100% accuracy, but rather to develop a general overview of these customer interactions, from the customer's point of view, to better serve your existing and potential customers alike.

The highlights of a customer journey map are the touchpoints where they interact directly with your employees, your website, or your customer service system. This covers a lot of territory and intersects with several disparate systems, so it can help to break the journey down into familiar pieces.

**A CUSTOMER  
JOURNEY MAP IS  
AN INVALUABLE  
TOOL FOR  
IMPROVING  
TELCO CUSTOMERS'  
EXPERIENCE.**

## The stages of a customer journey closely mirror those of a buyer journey

**Awareness**

**Consideration**

**Decision**

**Retention**

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### **Awareness**

Potential customer knows they're having a problem with their service and begins looking into options for fixing it.

### **Consideration**

Potential customer has decided to change providers, and begins to research specific provider options.

### **Decision**

The customer has chosen you as their new provider and is beginning the process of switching to your company.

### **Retention**

The customer experience doesn't end with the sale. This is the maintenance stage where you continue providing great customer service, reminding them why they chose you.

The key touchpoints your customer will experience through this journey may look something like this (broken down by stage):

### **Awareness stage**

- > Website landing pages found via search engine
- > Corporate social media presence
- > “Contact Us” page, chatbots, or other first contact options

### **Consideration stage**

- > Customer service response time when asking questions
- > How you respond to reviews—both good and not so good (how quickly and how well you respond both matter)
- > Sales team responses to questions or concerns

### **Decision stage**

- > The application/signup process
- > Customer service during this process
- > Follow-up support when activating a new account

### **Retention stage**

- > After going through all the effort to sign new customers, don't ignore their experience afterward, or you risk losing them down the road.

It will help to remember a few things about customer journeys before creating your customer journey map:

- > Understanding context is a major piece of the puzzle. Where are your customers coming from, what are they looking for, and how can you improve their experience with you? You most likely have a handle on your customer profile (if not, ask your marketing department), so the key is figuring out what they're doing and how to make it easier.
- > The question isn't "How do we get more customers?" The question is "How do we allow our customers to do what they need to do, without losing track of our goals?"
- > It's also important to remember that the customer journey may not be linear at all. They may jump in and out depending on numerous factors that are out of your control. What matters is where they're jumping, and how easy it is for them to return to the process.

CHAPTER TWO

# Mapping the customer journey

When it comes to the actual mapping of this journey, data is king. The more data you have, the more you'll learn about your customers' pain points, interactions, touchpoints, and satisfaction with all of the above. Any IT system your customer interacts with, from your website to your CRM and your trouble ticket system, can be mined for data.

You can track touchpoints by following the event log (a sort of digital breadcrumb trail) left by your customers, and connect them with the interactions with your employees to see who's involved and what they did while they were working together.

And it's in this data collection stage that process mining becomes invaluable. The digital bread crumbs left by customer interactions are exactly what process mining uses to create maps of the processes involved. This data (which is anonymous) lets you track the clicks being performed by visitors to your site, including:

- > Click-throughs to landing pages (and where they've come from)
- > Walking through the application process
- > Calls to the Sales department to clarify that process
- > Contacting support via: Chat, Phone, Email and Contact Form
- > A record of the back-and-forth of the above contacts
- > When the customer sets up their portal
- > Sticking points in that process, and subsequent calls to tech support

The list goes on. Every time your customer interacts with your systems, your process mining software will pick it up. That means you'll be able to see where you're losing visitors (if they get lost finding the application form, for example) as well as tracking where and when they get in touch and with which team members they communicate.

**ANY IT SYSTEM  
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CHAPTER THREE

**Telecommunications,  
digital twins, and  
process mining**

Process mining software and its underlying technology help power digital twins. Digital twins (DT) are having their time in the sun, with increasing coverage in even mainstream media about the benefits this suite of technologies is bringing to the business world. And rightly so. Twins allow for advanced modeling and prototyping, as well as real-time site inventory control and predictive maintenance based on the data collected during process mining operations.

Above all else, digital twins share with process mining a focus on increased visibility. They allow the organization itself, along with partners, to see what is happening at every stage of every process. That has huge ramifications for the telecommunications sector, especially right now as a confluence of factors is causing major waves throughout the industry.

### **Three key factors have combined to overwhelm existing operations teams**

#### **1 The proliferation of Internet of Things (IoT) enabled devices.**

It's estimated that by 2025 IoT will multiply the number of connected devices by upwards of 10x.

#### **2 The development of 5G networking speeds.**

This is going to put unknown strain on existing network equipment.

#### **3 The opening of additional bandwidth on the spectrum.**

Again, this will tax existing infrastructure, though the extent is not yet known.

## CHAPTER FOUR

# Bring the power of a digital twin into the telco sector

A DT can greatly assist in bringing these diverse factors under better control, enabling a telecommunications company to stay ahead of the curve. Each of these areas can greatly benefit from a digital twin, be it in real-time remote site inventory control, predictive maintenance, or advanced prototyping in an updated sandbox.



**Network design.** The big wins here are the ability to keep an accurate inventory of deployed networking assets and change management. IoT-enabled digital twins allow telcos to closely track their existing infrastructure, which in turn vastly speeds up the process of rolling out expansions, upgrades, and modifications. Furthermore, the machine learning aspect of a digital twin enables advanced analysis of use patterns, network anomalies, and fault predictions; which in turn, enable more efficient change management procedures to be put in place.



**Tower management.** Tower locations have a huge assortment of equipment on site: antennae, battery backups, security cameras/alarms, aircraft warning systems, and power generators to name a few. All of this equipment can be difficult to maintain, especially when the tower is located in a remote area. By installing IoT sensors, collecting the resulting data via process mining and directing it into a digital twin, remote technicians can closely monitor each piece of equipment and react to issues quickly or even proactively.



**Field service management.** The same data stream coming in from tower locations allows field service staff to head into the field armed with far more data about what awaits them than has ever been possible. No longer will their vehicles need to be fully stocked for any eventuality; rather, the technicians can simply stock themselves with the appropriate

parts and supplies for each run, drastically cutting overhead.



**DevOps programming.** Previously, DevOps would work in a “sandbox” environment, that is, a backup copy of the existing network environment. The caveat to this approach is, once this backup copy is created, the only way to update it to account for upgrades, additions, or any other changes, is to make an entirely new backup. Now, DevOps can create their development environment in the digital twin, so they can work on a constantly updated virtual copy of the existing network.

## CHAPTER FIVE

# Different types of digital twins for different net positives

Saying digital twin is a bit of a misnomer, as there are multiple types of twins. Each comes with its own set of strengths, and when combined to form a unified twin of an entire company they show the true power of this technology. There are three primary types of digital twin that can benefit a communication service provider (CSP):



**Network twin.** Allowing modeling of existing network infrastructure, this twin can help predict failure points during times of extremely high network usage such as during natural disasters. This twin is also useful in that it can incorporate everything from weather patterns to the location of street furniture to fully take into account the possible impacts these things can have on signal strength and overall network health.



**Customer twin.** Having a virtual model of the buyer persona for the company can help alert a telco to specific incidents that may impact that user. For one example: gamers who are active in the early hours of the morning can be alerted to possible disruptions to their service due to scheduled maintenance. This enables the telco to keep these customers up-to-date, which in turn can head off support issues down the line.



**Process twin.** These twins model all of the backbone business processes that keep the organization running smoothly. Everything from HR, customer service, inventory tracking, and dispatching service technicians comes under this heading. Being able to analyze the volume of support calls against technician staffing, for example, can help bring overhead down by reallocating people to the shifts that see the highest volume of calls.

WHEN THESE  
THREE TYPES OF  
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PROTOTYPE,  
AND SUPPORT  
THE ENTIRE  
OPERATION.

## Case study Digital twins in action

A telco that services a wide swath of rural land in the midwestern United States has just been notified by their digital twin's AI that some of the equipment at a remote tower location may be approaching failure. They use this information to schedule predictive maintenance on this location.

Then, since they know they have a large base of users who are often up into the wee hours of the morning gaming, they send an advance email to that group of customers, alerting them specifically to the possible impact on their connection during the expected outage window, and suggesting some tips for how to prepare.

In addition to that email notification, the telco also sends a more standard maintenance alert to the remainder of their customers in the affected area, so they are aware of what's going on overnight. This group won't see any particular impact, as the repairs will be complete before they're up the next morning.

And finally, the company can add a staff member to the graveyard shift on the appropriate day, since the analytics AI in their twin has also told them to expect an uptick in complaint tickets coming in, despite all these efforts at preemptive notification.

This theoretical case shows how each of the three types of digital twins work together to provide the information needed to predict when maintenance is going to be needed, whom it will affect, and how they can prepare in advance for any additional unforeseen consequences.

Along with enabling digital twins, process mining has many other features that make it attractive to telcos. Among these is the improvements that can be brought to existing customer service processes. After all, without customers all the other benefits become less meaningful.

CHAPTER SIX

# It's all about the data

When you combine the data from your process mining with more general analytics from your website, you're well on your way to having the data you need to begin piecing together your customer journey map. There will be other steps along the way, like conducting customer interviews or surveys, to see how your developing map matches up with what the customer is actually experiencing.

A word of caution: Be careful with website analytics. Just because a user stays on a page for a long time doesn't mean they're enjoying the content. They may be lost and looking for a contact option. This is the data filled in by those interviews/surveys.

This is another place the process mining data comes in handy: By helping you identify what pages people are on when they contact support, you can narrow down the pages that need to provide a better user experience.

### **A brief example of a telco customer journey**

Unhappy Ulrich is having some problems with his small business phone service. His telco provider is having constant network outages and he can't get a straight answer from their support team. This drives him to research options online. Here he finds your content

talking about some of the reasons for network outages and what your company is doing to proactively stop them from affecting your users.

From here Ulrich reads through your subscription options, develops some questions, and uses your chat option to reach out to customer support. After a conversation with one of your representatives, who impresses Ulrich with their knowledge of your plan options as well as being generally pleasant to talk to, he decides to switch providers.

At this stage, the representative connects Ulrich with a sales specialist who walks him through the application process, explaining how to port his existing phone numbers over, what to expect in terms of downtime during the switch, and sets up an appointment with a technical support representative to get things started.

And finally, once Ulrich is up and running, a follow-up call comes in from that original salesperson, checking on his satisfaction with the process as a whole, your service specifically, and to see if he has any questions.

You can see from this brief example that there are any number of touch points, points of possible failure, and points where Ulrich may drop out of the journey, only to return again later. And you can see how process mining can get you well underway toward the goal of understanding each touchpoint and how it impacts that journey. Each of Ulrich's contacts with your website, customer service call center, sales team's CRM tool, technical support ticket system, and finally client account can be a source of important data to help you compile the most accurate customer journey map possible, with the ultimate goal of each customer going home happy with their service experience.

CHAPTER SEVEN

**Case study:  
More perfect  
purchase orders**

A major European cellular provider recently recognized major issues with its purchasing process. The company turned to process mining to find and eliminate the root causes. For a sense of scale, this service provider has nearly 500 million customers spread across almost 100 countries around the world. With assets numbering in the 10s of millions and purchase orders of nearly a million a year spread over that territory, the company was striving for transparency so that anyone, anywhere could access the information they needed to make a strategic decision.

The first major process mining success: improving the company's "perfect purchase order" numbers, that is, how often the company got an order right the first time. Before the initiative, this number was sitting just over 70%. The goal was an attainable 10% increase to 80%. In just under six months, they had hit 85%, surpassing even the most optimistic predictions. In addition, they dropped their cost per PO by 11% and saw a 20% improvement in time-to-market numbers.

Perhaps the most impressive results came from their invoice automation initiative. The information uncovered and analyzed by their process mining project allowed for a "touchless invoicing" rollout that has led to their invoice automation rate jumping from 13% all the way to 40%.

These drastic improvements are par for the course when a large telco organization is able to streamline workflows by unearthing inefficiencies and eliminating bottlenecks in their processes. And considering that this company had over 10 terabytes of data spread over their ERP system, Sharepoint document management system, and a relational database that served as their main repository, these results are all the more dramatic.

With the coming sea-change predicated on the emerging technologies of AI, data science, and the myriad sub-specialties like process mining, existing industries like telecommunications need to be primed and ready to adopt these technologies. Process mining is a solid first step in that direction, enabling the visibility and transparency into business processes necessary to streamline the decision-making process. And that's a great start for any business looking to keep pace with the current technology market.

# Try Minit

Minit is robust enterprise-grade Process Mining software with a rich 360° collection of dashboards and process performance indicators. Whether you are focused on reducing operational costs, shortening customer feedback time, taking advantage of new revenue streams, or optimizing old ones, Minit Process Mining reveals an otherwise invisible map towards process improvement. Get in touch with our team to learn how it can help deliver effective business process improvement at your organization.

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