SAP Signavio

SAP Signavio Process Intelligence | PUBLIC

Managing Successful Process Mining Initiatives with SAP® Signavio® Process Intelligence

THE BEST RUN SAP

Table of Contents

Process Mining for Company Optimization

When companies worldwide examine organizational efficiency and make efforts to **analyze where and how value is created** – in other words, how processes run – some common questions can arise:

- Why was this customer invoice sent out incorrectly?
- Why did some customers receive their orders two weeks late?
- Why isn't the figure for "number of products sold" the same as the figure for "number of products shipped"?
- Why do my customers complain about customer service despite my company's investment in it?

In many cases, there is a difference between how a company wants to operate and how it actually operates. To bring both views together is the task of process management. In recent years, the analysis of processes has become an increasingly important factor in optimizing a company. After all, improving business processes means adding more value, using less resources, and reducing risk.

At the core of this endeavor is process mining. With process mining, you can look at your company in a way that goes beyond a static, snapshot view. Process mining adds the process perspective to the way you work, including the flow of information, handovers, manual work, or automatic activities. It's the power of knowledge, enabling you to determine how your company operates from a cross-functional point of view.

As a result, you can measure process performance across your business and identify deviations from the way things should be working. You can monitor processes in real time and generate automatic reports on deviations. This makes it easier to pinpoint optimization potential and any related improvement actions, as well as allowing you to compare the effect of your actions over time.

BENEFITS OF PROCESS MINING

Organizations can quickly get started with process mining. With the right people on board and the right project approach, the first results of any process-improvement initiative can often be seen after two to six weeks. Once it's established as part of your daily work, process mining also provides continuous and long-term value. When your company monitors operational processes, changes in how it functions become transparent. Even short-term challenges within a specific area are identifiable.

In essence, process mining allows you to understand your business processes as they currently operate and, therefore, gives you the information you need to improve those processes. The following information offers a process expert's view on how to best introduce process mining to an organization.

Process Mining Scenarios

Process mining is a powerful technology. It introduces visibility and quantifiable numbers to processes that traditional analysis tools can only analyze step-by-step. Process mining can provide the full picture, without interruptions or omissions.

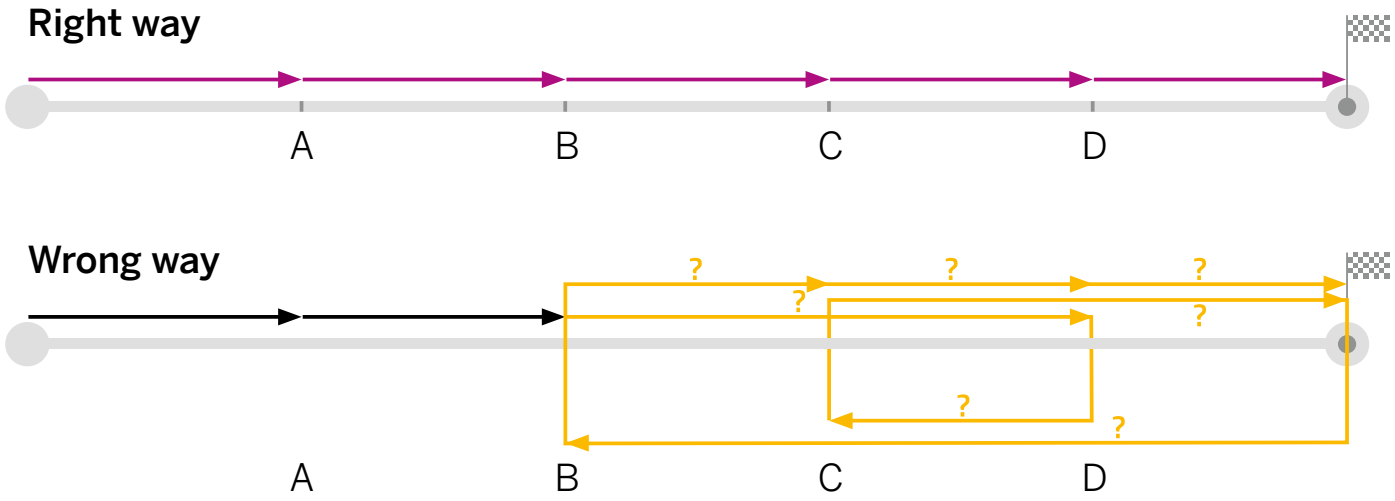
Consider a simple procurement process as an example, such as an employee requesting a new laptop. Following a standard case, the process begins with a purchase requisition from the employee, acknowledged by the employee's manager. This is followed by an order by the procurement department. The laptop is delivered to the employee at some point, and the company receives an invoice. The invoice is checked and is paid on time in accordance with the invoice terms.

Most companies are aware that, in the real world, not all process instances exactly follow the defined flow (see the figure below). However, most companies are also surprised to see just how much deviation is present across their processes. Taking the example above, a request for a new laptop might include deviations arising from:

- Delays along the process
- Missing consideration of special requests
- Missing approval of the requester's manager
- A lack of company-wide strategic buying, thus missing the opportunity for negotiated rates for the laptop
- Multiple corrections of invoices due to lacking information when placing the order

As possible deviations across different procurement processes are combined, the true cost of deviation quickly becomes apparent. When starting with process mining, most companies are surprised by the potential their processes still hold for improvements in efficiency and compliance.

Figure: Ideal and Nonideal Organizational Processes



PROVIDING INSIGHTS INTO BUSINESS PROCESS FLOW

Process mining can reveal the whole process flow, both at a high level (looking at all instances of a process that have happened), or at a low level (drilling down to the individual order item). In this way, process mining adds a new perspective on processes and uncovers new opportunities for improvement. By comparison, traditional analysis and reporting often focus on individual phases within the process and fail to cover additional information, such as the order of process steps, durations, waiting times, changes, corrections, and the flow across multiple IT systems.

Some companies may already have a mature level of business process management and seek to further improve their performance by adding a new view to the actual processes. Others may merely start with mapping processes. At this stage, the quality and speed of interviews with process experts can be increased by capturing the process as it currently operates and discussing the expected and unexpected process behavior in unison. This leverages both the experience of the organization and the wisdom of the data.

Independent of the individual situation, all these scenarios can be based on a few common goals: measuring deviations from the intended process flow, understanding the necessity of deviations and adjustments, evaluating improvement potential, and gaining insights to form a foundation for action.

FLEXIBLE PROCESS IMPROVEMENT WITH SAP® SIGNAVIO® SOLUTIONS

The vast flexibility of the SAP® Signavio® Process Intelligence solution enables you to make use of the software in multiple scenarios. For example, a typical use case is the need to have a transparent process flow to introduce continuous process improvements. A clear understanding of the process allows for analysis regarding bottlenecks, risks, or missing IT automation.

As you take the the next step, moving from continuous improvement to operational excellence, SAP Signavio Process Intelligence can play a role at various stages of the initiative, including helping you monitor the effectiveness of controls, understand the legacy process in preparation of ERP transformation, and harmonize processes in preparation for broader organizational transformations, such as mergers.

Common Criteria for a Successful Process Mining Initiative

The goal of any process mining initiative will likely vary between organizations, as will the way it is implemented, how long it takes, the individual staff involved, and so on. In short, there is no "one size fits all" when it comes to process mining. However, there are a few common criteria that can be considered good measures of success and that will help any organization benefit from the advantages of process mining.

DEFINE AND SHARE A CLEAR GOAL

Regardless of whether your process mining initiative is a company-wide project or just a small pilot, success is not just a matter of assembling data and a project team. It is vital that the team is working to achieve the same goal and that the data supports this goal. After all, if the criteria for success are not adequately communicated, expectations can hardly be managed.

Some examples of a clear and achievable goal might be:

- Identifying key differences between country X and country Y
- Reducing process duration to 25 days
- Increasing process automation by 15%

A goal can also be a problem description, for example:

- Identify the top three priorities for process improvement
- Align processes between organization A and organization B

INVOLVE THE RIGHT PEOPLE AT THE RIGHT TIME

A crucial key to success is making sure you involve the right people. Equally important is bringing people up to speed on the project at the right time. This may be at different stages for different people and almost certainly will mean different levels of engagement, but everyone involved should share a common commitment to the project and be aligned with the project goals. Usually, each process mining project includes someone in each of the following roles, though sometimes multiple roles may be held by the same person:

- **Project sponsor:** Typically, the project sponsor is responsible for the process being analyzed. For example, if the procurement process is under inspection, the chief procurement officer, or the process owner of your organization's procure-to-pay process, is likely to be the project sponsor. If not, they will certainly be one of the key stakeholders.
- **Process expert:** The process expert knows the different variations of the process and usually already has a general sense of how the process is executed. Process mining supplements this by introducing an additional focus on facts, rather than feelings, thereby driving process analysis and improvement. The process expert should initiate the discussion around interesting findings from the data, investigate unexpected outcomes, and monitor the success of any actions taken.
- **Business analyst:** The person in this role works closely with the process expert; in fact, both roles could potentially be filled by the same person. In either case, the business analyst should drive the process analysis and initiate a discussion around the insights gained through the process mining project.
- **Data expert:** The "footprint" of any given process that exists in an organization's IT landscape needs to be extracted and transformed so that it can provide answers to questions about the way that process is performing. Therefore, a data expert who knows both the process and the IT system is required. The main activities of the data expert are the adaptation and configuration of process mining to the requirements of an organization's IT landscape through a connector, as well as data extraction and transformation for customized processes or systems.

A NOTE ON CONSULTANTS

It can be tempting to rely on external consultants when embarking on a large-scale process mining initiative. Although some of the roles outlined below could be filled by a consultant, this is by no means a requirement. After all, an effective process mining initiative collects your own data using your own IT landscape, interrogates your own processes, and ultimately shapes your own business. With effective planning and the right software support, process mining is a task that any business has the capacity and capability to take on alone.

COMMUNICATE AND COLLABORATE

When analyzing any organizational process, a deep understanding of the subject matter is usually required. It is rare to find an organization where this understanding is limited to only one or two staff members. Although it's true that some staff may hold specialized technical knowledge, other staff from entirely different business areas may interact with a given process in a very different way and therefore have a unique perspective on how the process could be improved.

Furthermore, every company has its own "special tricks" and historical workarounds that have been introduced over time. To interpret KPIs and process deviations correctly, companies should consider these alterations and behaviors as part of the evaluation. In many cases, there are reasonable explanations for unexpected process variations that can be better understood when the people responsible for the changes are consulted.

In other words, the success of a process mining initiative also depends on a common, discussion-based interpretation of the insights. In turn, any corrective actions should be considered on the basis of debates and discussions among colleagues that enable them to express their different views and arrive at a collaborative solution.

CASE STUDY

A midsized software company was seeking to introduce a new central ERP system but was stuck at the point of assessing its current processes. Previous attempts to overcome this blockage by interviewing key users and process owners in fit-gap workshops had taken up significant amounts of time and led to several unproductive discussions about minor (and rare) situations while leaving out other important variations of the process.

Using the SAP Signavio Process Intelligence solution to assess the current process situation, including process flow and variations in elements of the process, the company was able to build a common understanding of its processes, leading to a new round of workshops that were more focused on the important points. This led to faster, clearer, less-emotional, and more-accurate conversations.

TAKE ACTION AND MEASURE RESULTS

Insights and findings about processes are interesting to someone, but unless they are interpreted and given meaning, the result is simply information. The analysis becomes meaningful only when actions are defined and undertaken based on those insights. After the actions have been implemented, the effect can be measured by analyzing and monitoring the process again so that the impact of the actions can be calculated, controlled, and, if necessary, replicated. Therefore, any process mining initiative requires some way of gathering the information (for example, using the SAP® Signavio® Process Manager solution) and then some way of disseminating that information for use by management and staff in formulating actions in response (for example, using the SAP Signavio Process Collaboration Hub solution).

CREATE A GOOD ROLLOUT PLAN

Starting with a manageable part of the overall process landscape avoids long project durations and helps ensure quick results. Depending on the complexity of both the process and the IT systems involved, the first process chosen for process mining should fulfill a few requirements.

Specifically, the process should be clearly defined, with a beginning and end and a series of identifiable steps in between. The process should also be part of your organization's core business and one that is executed frequently. Procurement, customer support, logistics, or sales processes often work well. Less suitable are processes that seldom run or feature very little automation or IT support requirements.

Once a first process (or part of a process) is analyzed and first insights are gained, the process can be enhanced with more detail or a different start or end point, and further processes can be analyzed.

Four Steps to Process Mining Best Practices

A best-practice approach to introducing a process mining project into your organization that addresses the success criteria and prevents some of the common pitfalls contains the following four steps:

- **Step 1:** Define your scope
- **Step 2**: Prepare your data
- **Step 3:** Generate your insights
- **Step 4:** Measure your results

The time taken to implement each step depends on the organization, the process, the IT system, and the availability of the required project team members. A typical process-improvement initiative can see first results after two to six weeks, whereas complex processes that cross many IT systems might take up to three months, or longer.

In parallel with each of these steps, change management techniques are critical, including empowering key users. On-the-job training and coaching, in combination with a short software training session, comprise a strong foundation for ensuring that process mining becomes part of your employees' daily work. This approach also allows for follow-up actions and long-term process improvement.

STEP 1: DEFINE YOUR SCOPE

Many of the criteria for a successful process mining project are directly related to the initial planning phase of the project, which ultimately forms the basis for all further action. This step usually consists of one or more workshops, involving all stakeholders of the project, as described above. During the workshops, the following items are agreed upon.

Objective of the Project

What should be the result of the process mining initiative? What are the most important outcomes and benefits expected by each member of the team? In short, there is a need for clarity regarding why the project is being undertaken before defining the detailed process and the relevant data required.

Process Details

This stage includes defining all steps between the start and end of the process undergoing analysis. SAP Signavio Process Manager can be used to visualize the process, with the "QuickModel" tool in SAP Signavio solutions often proving especially useful in workshop environments. If a process model already exists, it can be used to review the process during the workshop.

However, the granularity of the analysis does not necessarily match the granularity of the process model. This could mean, for example, that too many manual steps that are not required to achieve the goal are included in the process model, or the model is created for a high-level abstraction of the process and an analysis on that level cannot offer the required insights. In these cases, it might be more appropriate to aim for a level of detail equivalent to the process analysis created using process mining.

Data Requirements

Based on the process details defined above, the relevant business documents need to be identified, as well as the storage location for these documents and their storage format (for example, systems, tables, reports, and so on). Of course, the process defined for an initial project can always be enhanced, adapted, or enriched by further KPIs. From a project point of view, starting with a small and precise scope enables quick success. This smaller scope can be either within the process itself or within the organization.

For example, in a procure-to-pay process, the focus may start on the invoice-checking sub-process, or it may begin with examining each instance that the process is run in a specific geographic area. Starting small and securing an early "victory" provides a positive platform from which to tackle a greater number of larger or more-challenging optimization activities at a later stage.

STEP 2: PREPARE YOUR DATA

Once the scope is clarified, the technical preparation starts. Process owners often dread this step and perceive it as a significant challenge. However, project experience indicates that complicated technical challenges rarely arise. A clear definition and communication of data requirements, coupled with early involvement of IT staff, should simplify matters and speed things up. This second step involves three related tasks:

- Data extraction
- Transformation into process mining structure (reconstructing the chain of events)
- Transfer of the data to the process mining software

There are two technical integration scenarios that can be considered to complete these tasks: the use of a software connector or the definition of the extract, transform, and load (ETL) queue. Keep in mind that the outcomes of this project phase are independent of the chosen technical solution.

A NOTE ON CONNECTORS

In the context of process mining projects, a connector is a piece of software that enables the corporate IT landscape to talk to a process mining product. A connector is specifically developed for an IT system and enables process mining for the core processes supported by the system. Both regular data extraction and relevant data transformations are performed by the connector. SAP Signavio solutions offer a variety of standard connectors and an API for new connectors to be built by customers or partners.

However, depending on the unique IT landscape of a specific company, a standard connector might be insufficient. For those scenarios, other means of data extraction are available. These may range from extracting the data manually, to ETL processes, to custom connector implementations. The complexity and effort required for these alternatives depend on the IT system and process scope. Experience suggests that this can normally be defined and developed within a few weeks.

For some projects, a continuous data integration between the transactional system and process mining is not required in a first step. In that scenario, data can be extracted and transferred to the process mining tool manually, and a regular data load is set up at a later point in the project lifecycle.

Of course, before extraction can take place, the relevant data must be identified. The required data is derived from the process and process-related questions in step 1. Unfortunately, IT systems are usually organized by business documents rather than by processes. For example, there tends to be one data source for all sales orders and another for all invoices, and so on. These actual sources of data need to be identified. Typically, these are as follows:

- Database tables of transactional systems (for example, ERP and CRM)
- Analytical data (for example, reports, business intelligence, and data lakes)
- Log files (for example, audit logs and change logs)
- Comma-separated value files and other data

After the data is extracted, it is transformed into a chain of events. The data is structured into instances of a process execution, called cases. These cases can determine information such as the order referred to in a particular invoice and the invoice to which a payment belongs. The case is enriched with time-stamp information that shows which activity (for example, creation, approval, and so on) was executed at what time for a specific case. The sum of all this information makes up the event log, the main data structure for process mining that is transferred to the process mining software.

These steps (extract, transform, and load into the target) are performed by the connector or ETL. The procedure is therefore scheduled regularly, usually daily, so that up-to-date process information is available whenever needed.

STEP 3: GENERATE YOUR INSIGHTS

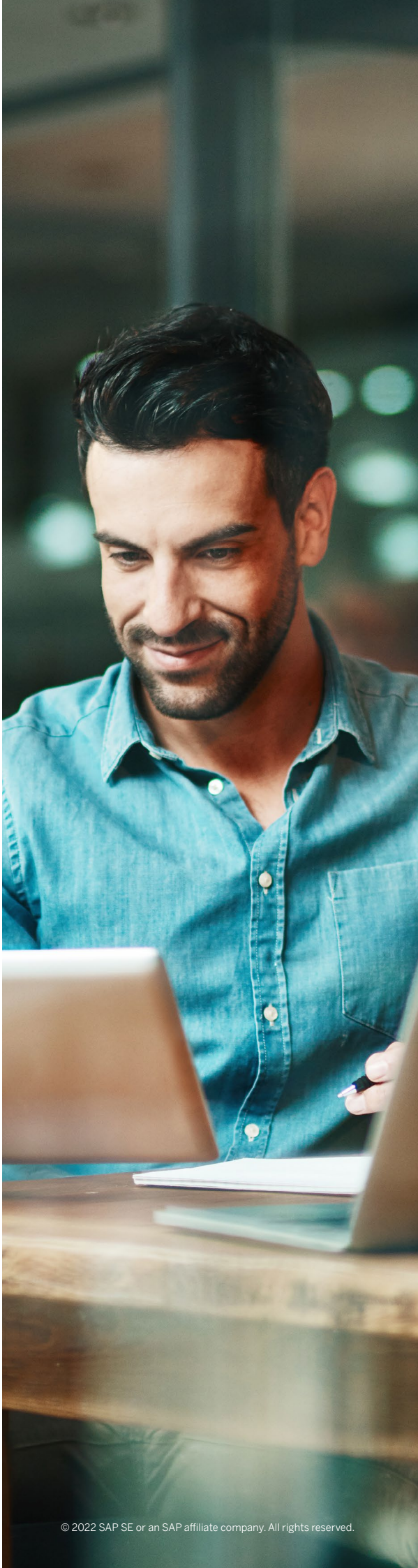
After the technical and nontechnical preparation steps have been performed, the data is ready for process mining. This is the start of the exciting phase of the project as the process experts begin to analyze the identified processes. You can start at a high level of the process flow, then drill down to analyze the different parts of the process. By comparing different process information, factors influencing KPIs across the whole organization can be identified, and their impact can be quantified.

On many occasions, the process experts might need to go back to the key users from different departments to understand why a specific phenomenon appears. The outcome of this project step is a clear understanding of the process flow, metrics, bottlenecks, and optimization potential.

COLLABORATIVE INVESTIGATIONS WITH SAP SIGNAVIO SOLUTIONS

The SAP Signavio Process Intelligence solution offers more than process monitoring. Investigation functions provided by SAP Signavio solutions enable detailed follow-up on any unexpected process behavior, using a documented, story-like process analysis. Each investigation answers a single process question and is structured into different chapters that cover subsections of the process.

The content of an investigation can be as unique as the process question itself, and investigations can be shared with other staff members to help ensure collaborative process analysis. Results and follow-up actions are documented directly next to the finding, meaning the discussion can be simultaneously data-driven and collaborative while ensuring the path to insights is not lost.



STEP 4: MEASURE YOUR RESULTS

When all questions are clarified and the necessary insights are achieved, it's time to act. Use your findings to identify specific opportunities for improvement and determine the exact steps you need to implement to take advantage of those opportunities. The process-improvement opportunities are simulated and tested for their effects, and the process changes are documented, communicated, and implemented.

In the meantime, continuous monitoring and reporting of the core metrics of the process are established. Behavior changes, improvements, and upcoming bottlenecks can thereby be identified, analyzed, and reported. Therefore, a process-improvement initiative is never really "complete," as further improvements and projects can be kick-started from this point, while the process lifecycle is controlled.

Depending on the goals that the process mining initiative set out to achieve, successful improvements could range from reduced time to complete a particular process to an increased level of automation for repetitive tasks, fostering a "preferred supplier" relationship for a specific material or improved customer experience through faster delivery times. No matter the goal, simply making a change to the business process involved is only part of the story.

The next step, which may occur days, weeks, or even months after process improvements have been made, is to extract the new data, see what has changed, and assess whether the changes have resulted in more-efficient and more-effective processes. Some key questions might include the following:

- Are the revised processes working as they should?
- Are there any unexpected "knock-on effects" impacting other processes?
- Have the revised processes revealed challenges in other, unrelated processes?
- Have the processes themselves changed since they were revised?
- Is the operating environment the same? Have any requirements changed or new regulations been introduced?
- How can I further improve the process? How can I measure it?

Answering these questions allows organizations to move beyond the original goals of their process mining initiative to tackle the ongoing work of addressing issues of lesser importance that nonetheless create significant costs or inhibit further revenue growth. At this stage, process mining can be used in an iterative way, helping organizations build increasingly detailed records of their business data.

This is also the point at which many organizations realize the true value of taking a process-driven approach to the way they work. Being able to pinpoint exactly which business processes are operating as they should, which ones aren't, and why can sometimes lead to a powerful conceptual shift: from process mining as a project tool to process mining as a way of doing business.

The ideal state is to be able to identify and eliminate future issues before they have a significant impact on the business. This may be achieved by establishing a clear understanding of the way each process should work and immediately responding to variations as and when they occur.

THE NEXT STEPS WITH SAP SIGNAVIO SOLUTIONS

The SAP Signavio Process Intelligence solution offers tremendous benefit by enabling organizations to visualize an existing process, foster data-driven discussions, and take corrective action based on meaningful insights. However, to see the improvements over time, monitor the adaptation of a new ERP system after the system is live, or continuously measure the performance of revised processes, process mining needs to be more than a project tool.

Therefore, the SAP Signavio Process Transformation Suite offers more than just process mining. The suite combines the insights of process intelligence with the ability for organizations to design and model their own improved processes using the SAP Signavio Process Manager solution. They can then automate those processes using the SAP Signavio Process Governance solution. The SAP Signavio Collaboration Hub solution underpins this work by allowing for real-time sharing and interaction between staff working on a process-improvement initiative.

Conclusion

Every organization is made up of processes. In an ideal world, these processes all run smoothly, interact neatly, and work together in service of the organization's overall goal. Sadly, we do not live in an ideal world. Too often, businesses are left wondering why their processes are not working as they should, how they can evaluate the enormous amount of data that feeds into and is generated by their processes, and how they can make process improvements across their entire organization.

Process mining is the answer. While it cannot offer a "one-size-fits-all" solution, a process mining initiative implemented using the four steps outlined in this document – define your scope, prepare your data, generate your Insights, and measure your results – gives you a clear understanding of the way your business works and helps you implement change that matters.

FIND OUT MORE
For more information, visit us **online**.

SAP Signavio

Follow us

www.sap.com/contactsap

Studio SAP | 81643enUS (22/03)

THE BEST RUN SAP