

# Building a Healthy Transformation Pipeline through Hybrid Process Mining

How to achieve greater scale and value from process transformation programs

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# Introduction

Organizations today are compelled to build agile and resilient business models to remain competitive amid a dynamic business environment. COVID-19 has further driven the need for digital transformation to ensure business resilience. This push has led enterprises across industries to embark on a transformation journey to make their processes more efficient and automated. While earlier transformation programs focused on reducing costs and improving operational efficiencies, the rise in competition has shifted the focus toward enhancing the customer experience and driving business model innovation.

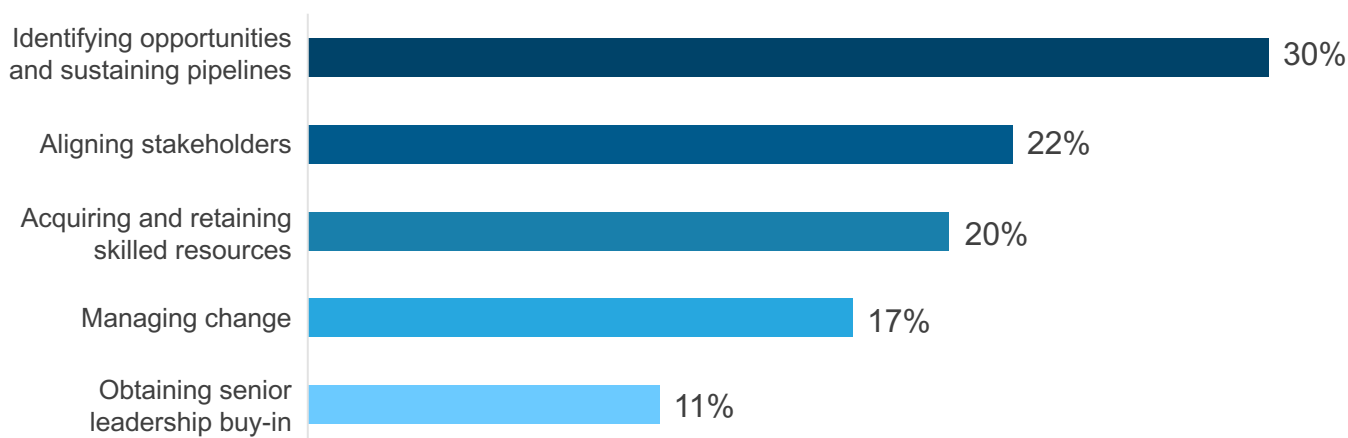
Many enterprises are still in the early stages of their process transformation journeys. While several challenges are inhibiting scale and value realization, our recent survey of over 100 organizations revealed that identifying opportunities and sustaining a pipeline is the biggest challenge, as illustrated in the exhibit below.

This is not surprising, as a large majority of organizations rely heavily on manual techniques, such as “the interview approach”, to fill their pipelines. Such techniques are highly inefficient and fail to address the four key elements of a healthy transformation pipeline: scaled discovery of as-is processes, comprehensive identification of transformation opportunities, holistic Rol analysis to prioritize opportunities, and continuous monitoring to measure impact and identify future opportunities.

## EXHIBIT 1

### Biggest challenges in scaling automation initiatives

Source: Webinar on Accelerating Intelligent Automation in Enterprises, Everest Group (2020)



Process mining is an emerging technology that can fulfill the needs of a healthy transformation pipeline. It uses data from enterprise systems and/or desktop activities to discover as-is processes, identify improvement opportunities, and monitor performance. It can help overcome the limitations of manual discovery techniques and assist organizations in scaling and realizing greater value from their process transformation initiatives.

This research empowers enterprises with insights and guidance on the role of process mining solutions in enabling the key aspects of a healthy transformation pipeline.

**The study focuses on the following topics:**

- The need for process transformation
- Barriers to large-scale adoption and value realization
- Building a healthy pipeline and associated challenges
- The role of process mining solutions in overcoming challenges
- Key success factors

## The need for process transformation

Despite today's digital-first world, many enterprises continue to have legacy business models that rely heavily on manual operations. They are not only prone to human errors and inefficiencies but also lack proper mechanisms to monitor process performance and ensure compliance. Over time, this leads to unwanted process variances and inconsistencies. Consequently, organizations face challenges such as poor stakeholder experience, compliance-related issues, the lack of agility and flexibility to handle unpredictable demand fluctuations, a high-cost structure, and business continuity risks. Business disruptions due to COVID-19 have further exposed the inherent drawbacks that plague these models.

Historically, transformation programs relied on levers such as labor arbitrage, ERP, and Lean Six Sigma, and were aimed at cost savings and improving operational efficiencies. Recently, organizations have been increasingly adopting next-generation levers such as digital technologies and design thinking to keep pace with rapidly evolving customer expectations, increasing regulatory pressure, and disruptive business models. COVID-19 has accelerated this trend by forcing millions of knowledge workers across the world to shift to remote working constructs.

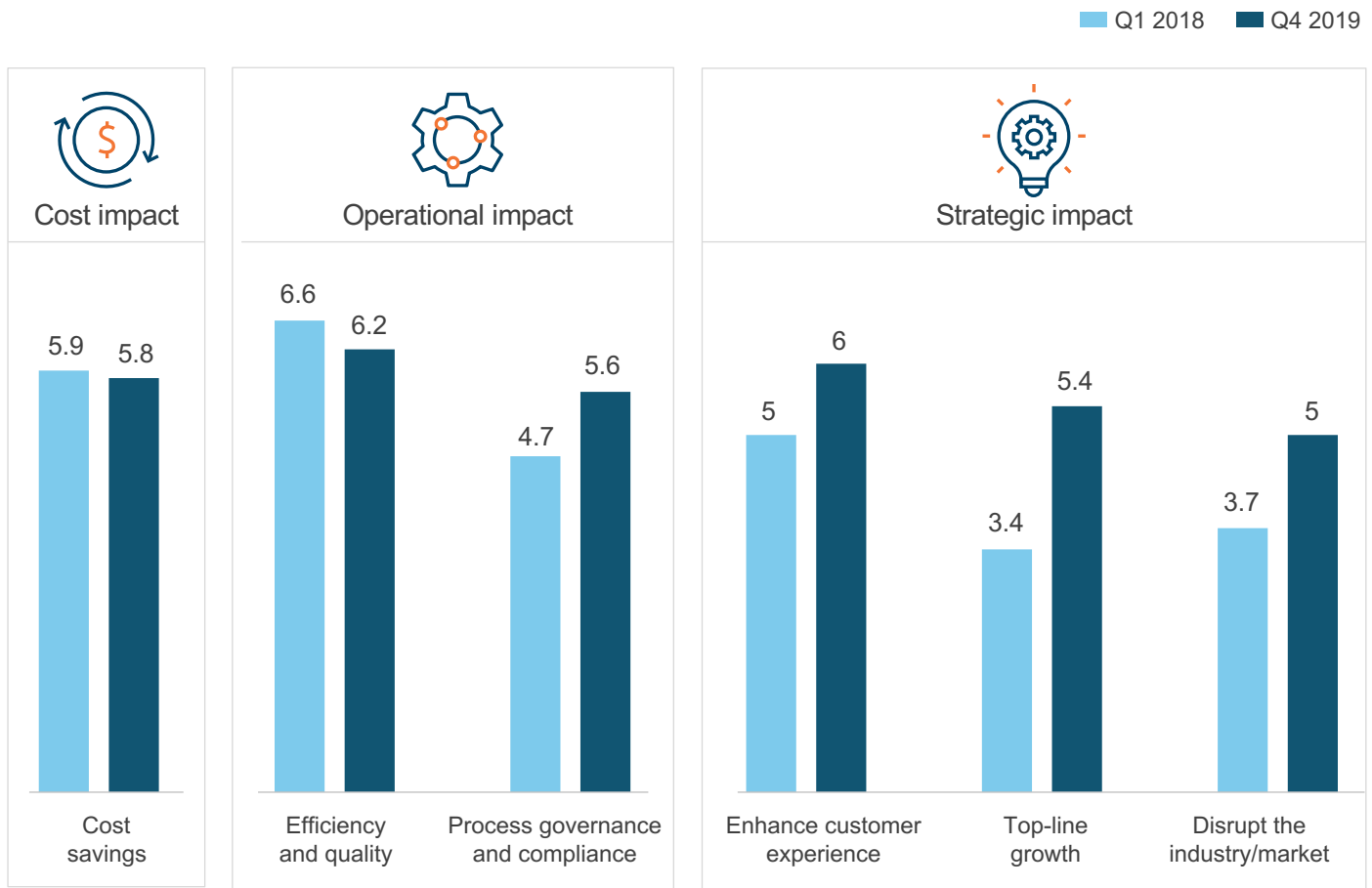
The new operating model amplifies the demand for digital interactions and automation more than ever and is making organizations realize the importance of next-generation technology levers to increase business resilience.

Constantly evolving market dynamics and the growing awareness and adoption of digital levers are expanding the focus beyond cost and operational efficiencies to strategic objectives such as superior customer/stakeholder experience, top-line growth, and new business models, as showcased in Exhibit 2. However, to achieve the desired outcomes and strategic benefits, organizations need to scale their digital initiatives beyond siloed projects to enterprise-wide programs.

**EXHIBIT 2**

Drivers for digital adoption in operations (on a scale of 1-7, with 7 being the highest)

Source: Everest Group (2021)



## Barriers to large-scale adoption and value realization

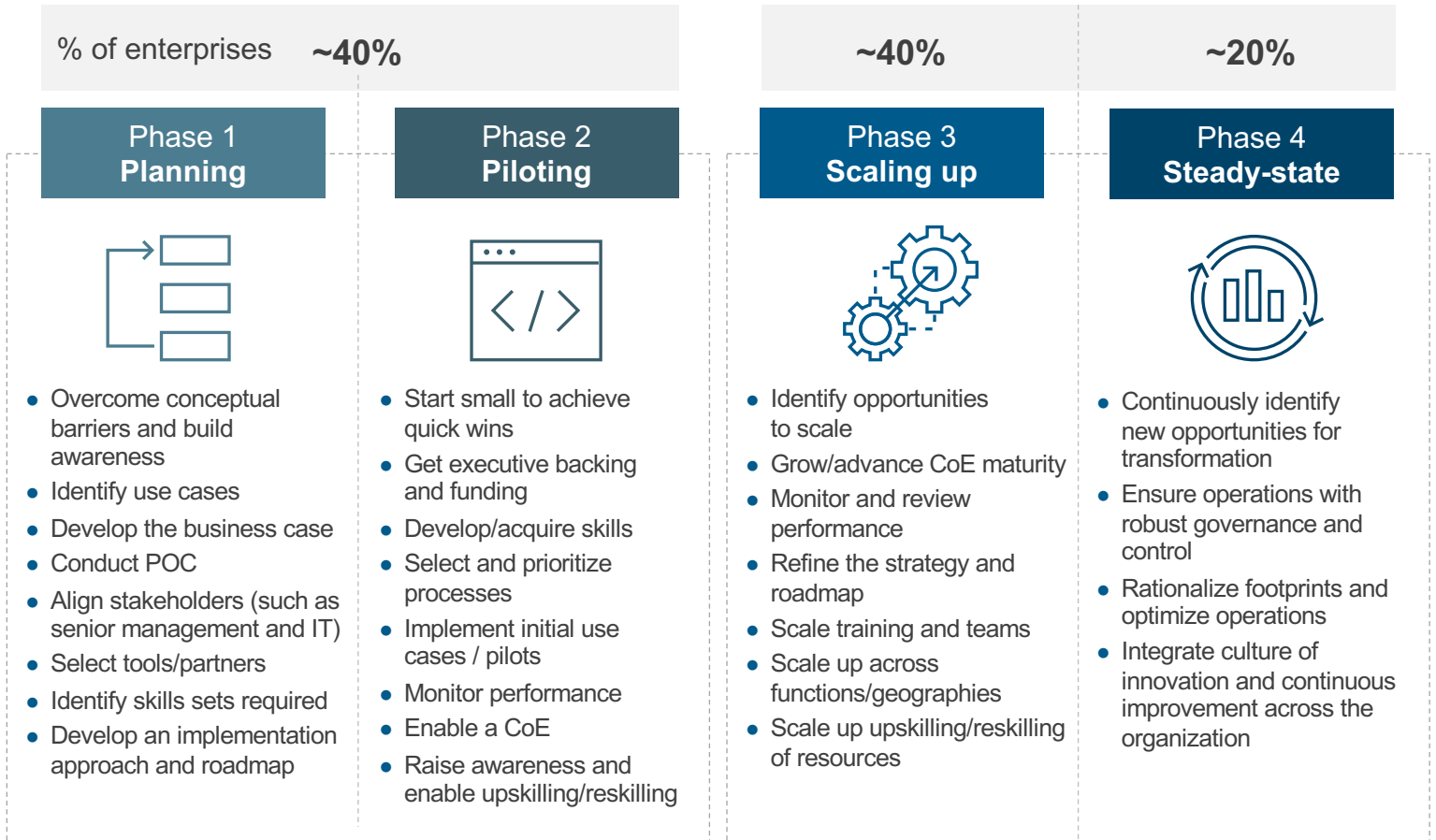
A typical enterprise process transformation journey follows four key phases, as depicted in Exhibit 3. While many enterprises have successfully piloted initiatives for low-complexity use cases, they continue to struggle with scaling these projects to enterprise-wide programs. Consequently, the value realized from these initiatives remains much lower than their overall potential.

The lack of a healthy pipeline of transformation opportunities is the top-most barrier to scaling such initiatives. Without a healthy pipeline, organizations merely have big goals and the urgency to change but no clear roadmap for success.

**EXHIBIT 3**

Four phases of process transformation programs

Source: Everest Group (2021)



## Building a healthy pipeline and associated challenges

The key to scaling transformation initiatives is building and maintaining a healthy pipeline of opportunities. This can be achieved by the following four-step approach. Each element of a healthy pipeline feeds the next, helping create a continuous cycle of opportunity discovery, prioritization, and value realization:

### 1. Scaled discovery of as-is processes

The first step toward building a healthy pipeline is to have an accurate and fact-based approach to discover as-is processes at scale. A complete picture of the as-is state requires process discovery at two levels of operational granularity:

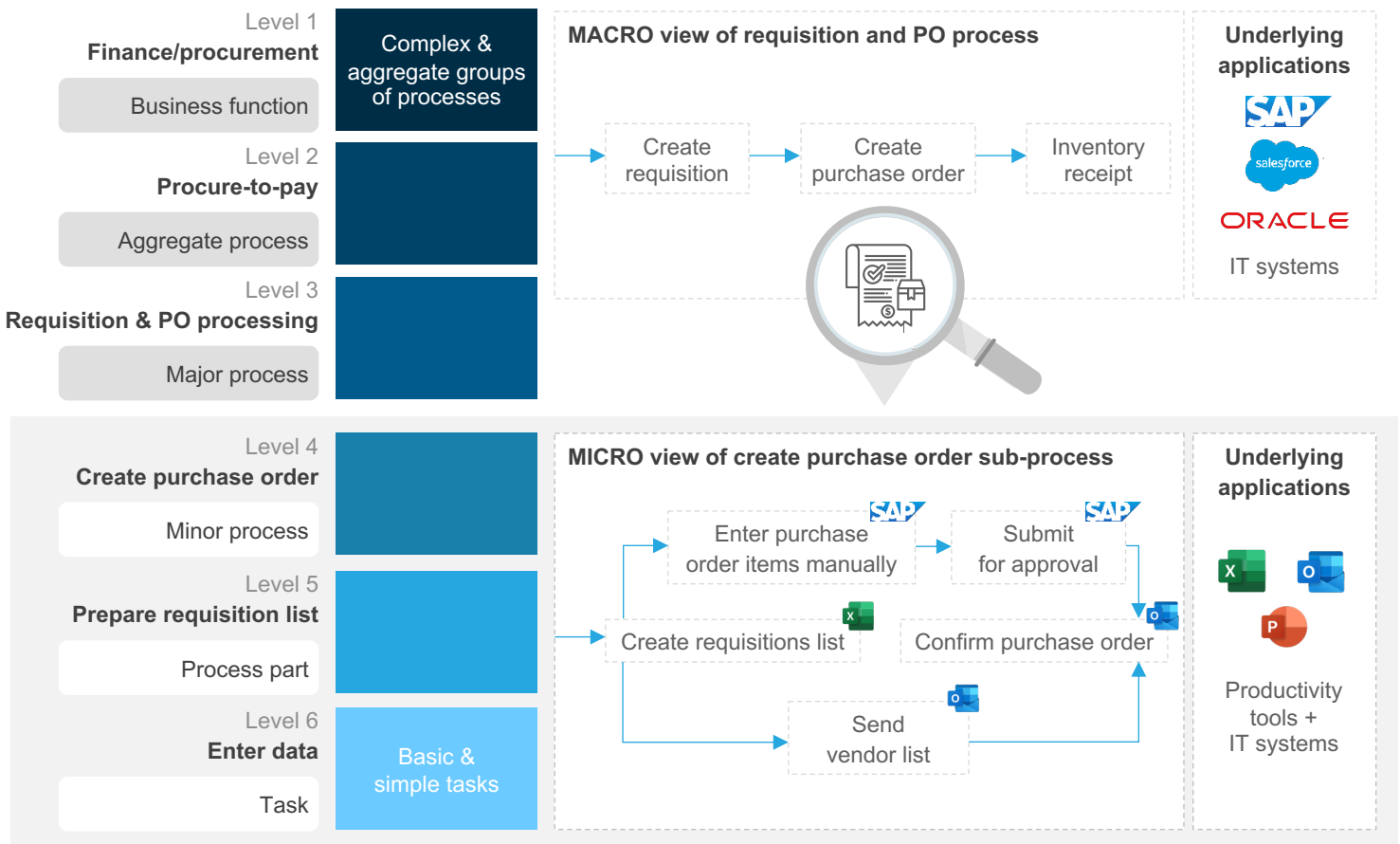
- **The macro-level view**, which provides overall visibility into all the key process steps performed using enterprise IT systems such as ERP, CRM, and SCM. It provides overall visibility into key process performance metrics and KPIs within an end-to-end business process. It also helps understand the key steps in a process, identify bottlenecks, and determine broader process optimization opportunities
- **A micro-level view**, which provides granular visibility into end-user activities/tasks, especially those performed outside enterprises' IT systems using productivity tools such as MS Excel, Outlook, and PPT. It helps identify task-level improvement opportunities and analyze their impact on overall process performance

The exhibit below provides a snapshot of the macro and micro views of the requisition and purchase order process within the finance/procurement function. To obtain a complete picture of the as-is process, it is essential to understand how user activities/tasks roll up to broader organization workflows and vice versa. This is a key enabler and precursor to conducting a comprehensive analysis of process transformation opportunities – the next step in building a healthy pipeline.

**EXHIBIT 4**

Macro and micro views of the F&A process

Source: Everest Group (2021)



**2. Comprehensive identification of transformation opportunities**

The second step in building a healthy pipeline is to have the ability to identify process improvement potential in an integrated manner. This includes process standardization, re-engineering, and automation opportunities.

While a stand-alone automation approach can help make some tasks more efficient and drive quick cost savings, it typically fails to deliver transformational benefits. In fact, automating poorly designed, non-standardized, and broken processes can amplify inefficiencies and result in heavy technical debt. Moreover, process simplification and standardization alone can create significant business impact even before automation.

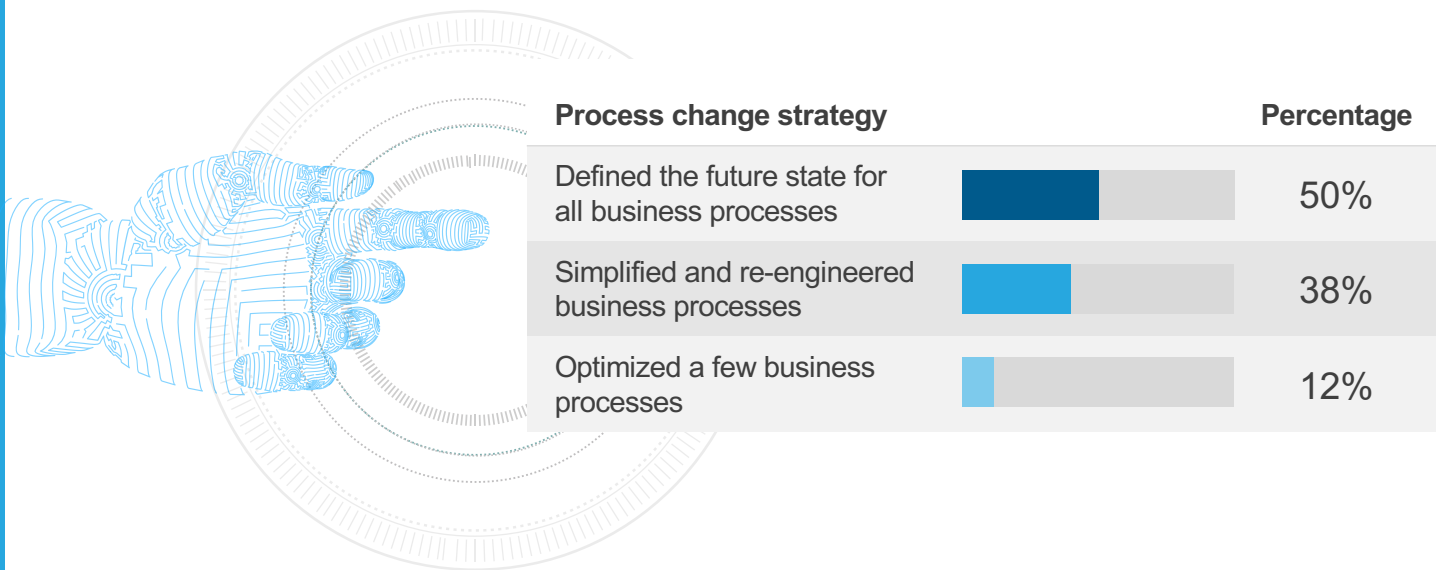
Our research indicates that many best-in-class adopters of intelligent automation (i.e., those who have achieved superior scale and value realization) simplify and re-engineer their processes for better automation results, as illustrated in the exhibit below.

Hence, it is important to combine both process improvement and automation levers to enable transformational value and scale.

## EXHIBIT 5

### Changes made to processes by best-in-class automation adopters

Source: Everest Group's Enterprise Intelligent Automation Pinnacle Model™ Assessment 2019



### 3. Holistic view of RoI

After identifying transformation opportunities, an organization should prioritize them by evaluating the associated RoI. While doing that, it is important to look beyond cost savings and factor in associated operational (e.g., quality, speed, and efficiency) and strategic (e.g., customer/stakeholder experience and top-line growth) benefits. As the drivers of automation adoption become more strategic, enterprises should align their transformation roadmaps with their key organizational objectives and priorities. This alignment also helps drive senior leadership buy-in and action.

### 4. Continuous monitoring of ongoing initiatives for feedback

Building and maintaining a healthy pipeline also implies the ability to continuously monitor the impact of the implemented initiatives. Tracking and monitoring helps understand the actual RoI/impact achieved vis-à-vis initial expectations. The impact achieved can also be leveraged to make the initial use case stronger and richer – allowing expansion to broader processes and business lines. Hence, it creates a continuous feedback mechanism that helps validate and refine an organization's transformation roadmap.



## Challenges in building a healthy transformation pipeline

Most enterprises rely on manual or traditional process discovery techniques to identify transformation opportunities and feed their pipelines. These manual/traditional techniques include interviews with operational SMEs and the stakeholders responsible for process execution. Process analysts collate and analyze the information gathered to build a process flow and identify bottlenecks for improvement. While it is the most common way to get started, there are significant gaps in manual approaches that fail to deliver on the requirements of a healthy pipeline. These include:

- Time- and resource-intensive nature of manual techniques
- Difficulties in identifying the right mix of stakeholders and SMEs, and their subsequent availability
- Resistance from operational SMEs and stakeholders in providing details about their day-to-day operations
- Subjective, incoherent, and biased or opinionated details, instead of factual information
- Inability to capture all variations due to sample-set limitations and time constraints
- Lack of documentation and in-depth information about existing processes
- Inability to monitor processes on a continuous/ongoing basis



Earlier, we used an interview-based approach to understand and document processes. It did give us an idea about the number of activities traveling to different paths. But we were not sure if it was a true process or only a theoretical one.

– Global head of digital automation at a leading global investment banking and financial services firm

## The role of process mining solutions in overcoming challenges

Process mining solutions provide a technology-driven approach to address the challenges in building a healthy pipeline. These solutions collect and leverage data from enterprise systems and users' desktop activities for process discovery and intelligence. Various data-based analysis techniques, such as data mining and machine learning, are used to derive insights from the digital process data.

**The key characteristics of process mining solutions that make them a better option than manual techniques are:**

- They follow a fact-based approach, with limited reliance on human bias and opinions
- They provide faster time-to-value
- They facilitate operational transparency
- They are scalable across a variety of processes
- They provide actionable insights on an ongoing basis

For these reasons, enterprises are increasingly adopting process mining solutions to discover, monitor, and improve their processes. The exhibit below showcases the various applications of process mining solutions.

**EXHIBIT 6**

Key applications of process mining solutions

Source: Everest Group (2021)

Process mining use case summary



**Process discovery**

Discover as-is processes and its variants in the form of process maps



**Process monitoring**

Monitor process KPIs in near real-time, identify bottlenecks, and measure RoI of improvement initiatives



**Process transformation**

Identify use cases and opportunities to transform the process through automation and re-engineering



**Process conformance**

Compare as-is processes with input reference model(s) to identify deviations and non-compliant cases



**Process simulation**

Visualize to-be state of processes and predict the impact and RoI of change initiatives across different scenarios



**Workforce intelligence**

Insights around user productivity, application usage, and resource utilization

## Types of process mining solutions

Existing process mining solutions can be classified into two categories: classic process mining and desktop process mining. The classification of these tools is driven by the type of process data collected, the insight derived from the collected data, and the associated use cases the insights support.

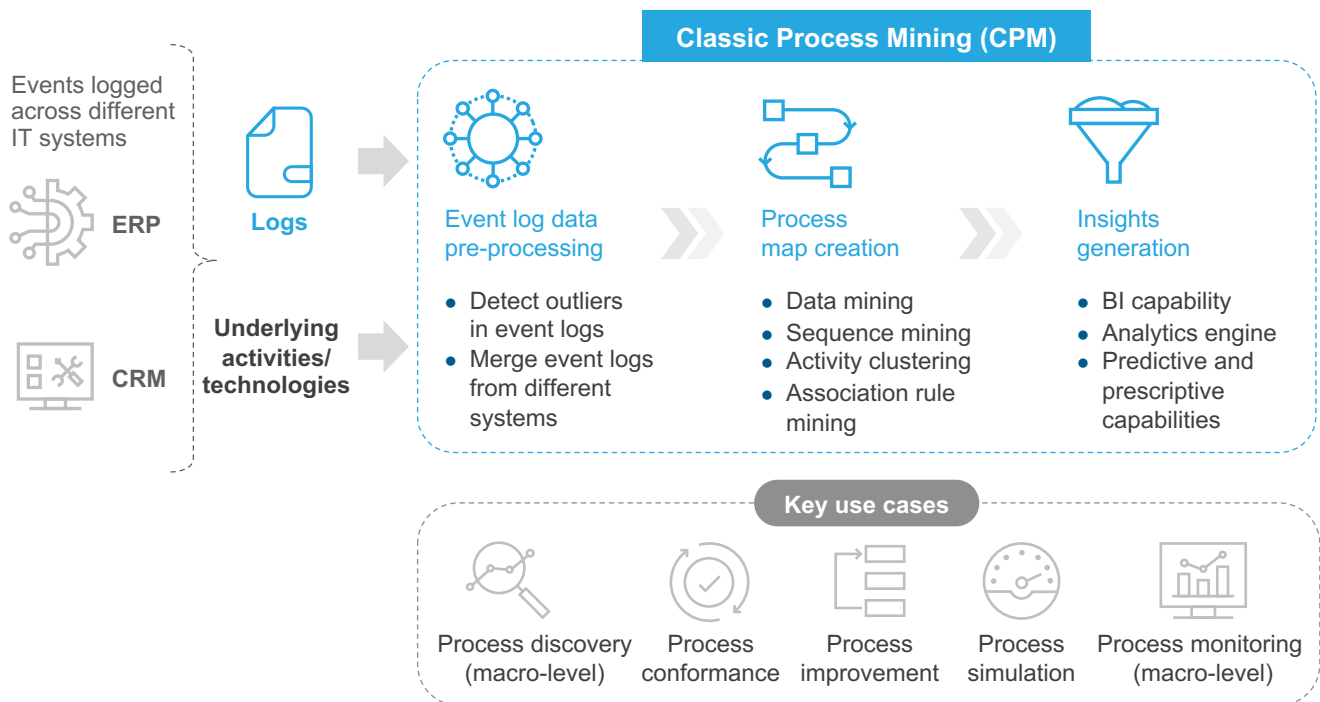
### Classic process mining

Classic process mining solutions capture process-related information from event logs generated by enterprise systems such as ERP, CRM, and SCM. The captured details are used to re-construct as-is processes and help visualize process flows, step repetitions, and variations at a macro level. These solutions further help monitor process performance metrics and KPIs on an ongoing basis and identify process improvement opportunities. The exhibit below illustrates classic process mining solutions' architecture and major applications.

#### EXHIBIT 7

##### Classic process mining solution architecture

Source: Everest Group (2021)



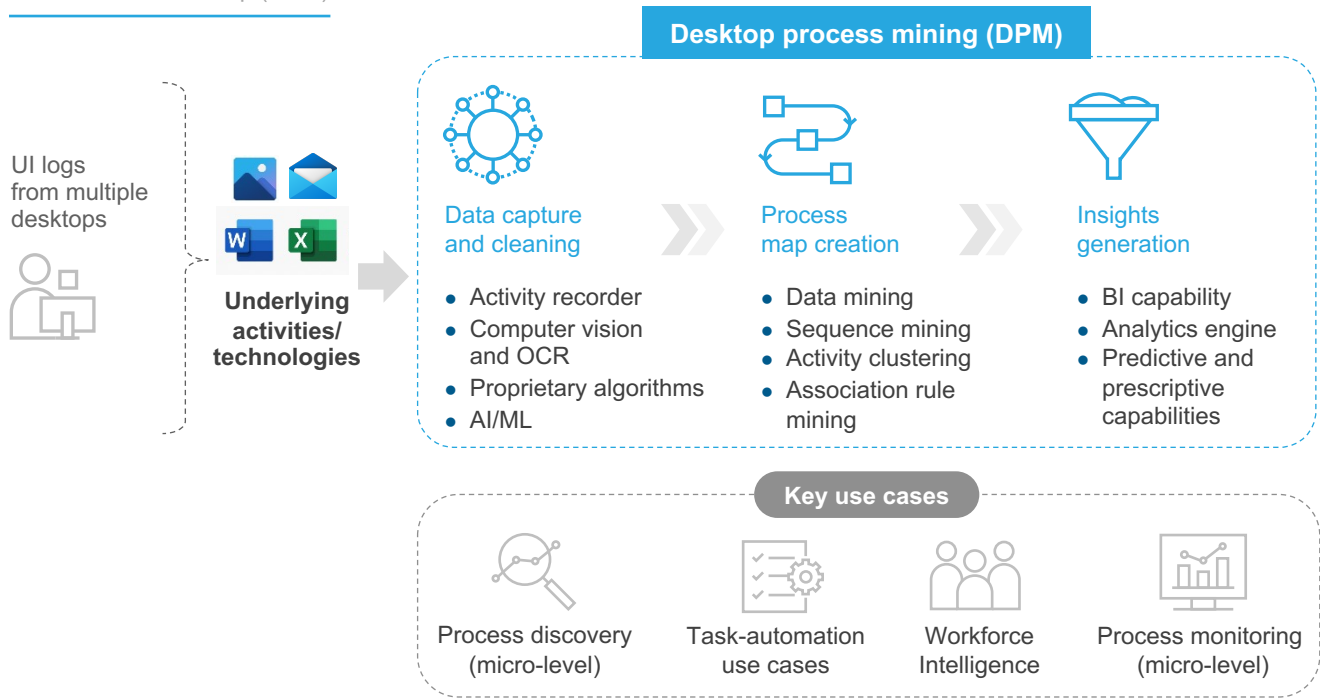
### Desktop process mining

Desktop process mining solutions capture process-related information through UI logs generated when end-users interact with their workplace applications. This includes keystrokes, mouse-clicks, application object-IDs, screen information, and other potential system-level activities. This granular data gives insight into the tasks and activities involved in executing a process. The insights from desktop process mining help identify task-level automation opportunities, generate process documentation, and monitor processes and employee productivity. Desktop process mining solutions' architecture and major applications are illustrated in Exhibit 8.

**EXHIBIT 8**

**Desktop process mining solution architecture**

Source: Everest Group (2021)





**Limitations of relying on a single process mining approach**

Classic process mining and desktop process mining solutions offer significant advantages over manual techniques. However, they have certain limitations in addressing all the requirements of a healthy transformation pipeline, as illustrated in the exhibit below.

**EXHIBIT 9**

**Limitations of process mining solutions**

Source: Everest Group (2021)

<b>Classic process mining</b> 	<b>Desktop process mining</b> 
<p><b>Inability to provide a micro view</b> Does not provide visibility into task-level activities, as it is limited to event logs</p>	<p><b>Inability to provide a macro view</b> Not able to efficiently capture rich process performance metrics and KPIs stored in event logs; limited ability to identify how user activities and tasks roll up to high-level workflows</p>
<p><b>Limited opportunity identification</b> Is ineffective in identifying task-level automation use cases</p>	<p><b>Limited opportunity identification</b> Is ineffective in identifying optimization and re-engineering opportunities across end-to-end processes</p>
<p><b>Reliance on enterprise IT systems</b> Has limited use in organizations with lower adoption of enterprise IT systems such as ERP, CRM, and SCM. Any process that extends outside of these apps will have an incomplete picture</p>	<p><b>Reliance on training data</b> Requires large volumes of information from multiple users over a reasonable period to achieve the desired outcomes</p>

While **classic process mining solutions** are especially adept at providing an end-to-end macro view of processes by leveraging IT systems’ event logs, they cannot provide visibility into task-level activities performed using applications such as MS Office, and web-based and legacy applications that do not generate event logs. Hence, they cannot fully identify such task-level automation opportunities that present themselves as suitable use cases for technologies such as RPA. Additionally, these solutions have limited applicability in processes with high prevalence of custom-built applications, such as banking industry-specific processes, and those with lower adoption of standard enterprise IT systems such as SAP, Oracle, and Salesforce.

**Desktop process mining solutions** cannot capture rich process information such as performance metrics and KPIs stored in event logs. Thus, they cannot identify how individual tasks and process steps roll up to high-level processes. This also limits their ability to scale process discovery and identify improvement opportunities. Moreover, the solutions require large volumes of information from multiple users over a reasonable time period to achieve the desired outcomes, increasing their time-to-value.

### The emergence of hybrid process mining














The limitations of classic process mining and desktop process mining solutions have fueled the need for a hybrid solution that provides the best of both worlds.

A hybrid process mining solution uses a combined approach to provide a complete process view, both at a micro and a macro level. It leverages both event logs and user activities, including mouse-clicks, keystrokes, and UI object IDs, to derive a full understanding of as-is process performance and improvement potential. This insight helps conduct comprehensive identification and prioritization of both process automation and optimization opportunities, among other applications, as illustrated in the exhibit below.

#### EXHIBIT 10

##### Hybrid process mining solution architecture

Source: Everest Group (2021)

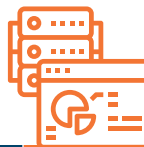
Input	Data analysis techniques	Use cases
 Event logs from different information systems (CRM, ERP, SCM)	 Data mining  Sequence mining	 Process discovery  Process monitoring
 UI logs (user activity recording / screen recording)	 Clustering  Association rules mining	 Process transformation  Process conformance
	 AI/ML	 Process simulation  Workforce intelligence

Hybrid process mining solutions can significantly help enterprises accelerate their process transformation. While early in maturity and still evolving, they can deliver on all elements of a healthy pipeline, as explained in the exhibit below.

**EXHIBIT 11**

The role of hybrid process mining solutions in building a healthy pipeline

Source: Everest Group (2021)



Key elements of a healthy pipeline	Role of hybrid process mining solutions
<b>Scaled discovery of as-is process</b>	These solutions stitch together event logs and UI logs to provide a fact-based and automated discovery of as-is processes at both macro and micro levels.
<b>Comprehensive identification of transformation opportunities</b>	Hybrid process mining provides a comprehensive view of the process optimization opportunities (e.g., step elimination, standardization, process conformance, and automation potential) down to task-level candidates for automation.
<b>Holistic view into RoI</b>	Organizations can leverage these solutions to perform “what-if” simulations, analyze the impact of transformation levers on target business KPIs (e.g., cycle time, top-line impact, on-time payments, variant reduction, and compliance), and prioritize their transformation use cases.
<b>Continuous monitoring of ongoing initiatives for feedback</b>	The solutions continuously monitor the actual impact of the initiatives implemented, at an end-user and an enterprise-process level. This helps validate and/or refine the transformation pipeline.

“ Based on the insights of the hybrid process mining approach, we automated mailroom workflows, streamlined the process, and eventually improved overall productivity by more than 30%.

– Global head of digital automation at a leading global investment banking and financial services firm

## An enterprise case study

### Challenge

Bayer, a multinational pharmaceutical and life sciences company, started its automation journey in 2018 with RPA implementation. As part of this journey, the firm wanted to evaluate the automation potential within its supply chain management and logistics functions. Thus, Bayer initiated brainstorming sessions and SME interviews to identify potential use cases. However, the results from this approach were slow and not sustainable. The lack of end-to-end process visibility led to incoherent process maps and failed to capture how teams performed each process step, as the inputs collected were subject to individual perceptions and biases.

Critical processes within the functions involved manual processing of a large number of documents (packing lists, certificates of analysis, etc.) in different formats and languages. Thus, the process was extremely time-consuming, prone to human errors, and riddled with inefficiencies. Hence, the team failed to identify and justify the right optimization and automation opportunities.

### Objective

Bayer sought to leverage a fact-based process discovery approach to create a “digital mirror” of processes, improve operational transparency, and create a healthy pipeline for process optimization and automation. By acting on these opportunities, it aimed to increase operational efficiency, realize greater value, and free up resources from processing mundane and repetitive tasks so that they could focus on more value-add activities.

### Solution

Bayer partnered with Soroco to leverage its proprietary hybrid process mining solution, which accelerated its data collection and documentation process. The solution helped Bayer:

- Capture 13 different business processes along with their last-mile variations
- Identify processes that required standardization before automation
- Evaluate automation opportunities, along with the associated impact on process efficiencies
- Determine re-training opportunities to better leverage existing tools

By leveraging this solution, Bayer was able to timely identify and implement automation/optimization initiatives within the function. Based on the solution’s recommendations, the firm combined different processes, while designing a new cross-functional process for easy automation. It also implemented an Intelligent Document Processing (IDP) tool to automate data extraction from packaging lists and feed the data into SAP for further processing.

### Business outcomes

The process mining solution helped Bayer identify and prioritize process optimization and automation initiatives, bringing in significant benefits. The organization reduced its Average Handling Time (AHT) by 97%, fast-tracking its processing time from about six hours to a few minutes. The quality of the processed data improved eight-folds, resulting in much higher customer satisfaction. The solution also returned more than 10,000 staff hours back to business.

## Key success factors

As enterprises adopt process mining solutions to build a healthy pipeline and successfully scale their transformation initiatives, the following best practices can help fast-track their journeys:

- **Obtaining executive sponsorship** – To scale process transformation initiatives, it is vital to secure executive sponsorship to ensure the necessary funding for ongoing and future change programs. It also helps set up the right mechanisms to bring different teams together and make the initiative an organization-wide program. Creating awareness around the transformation levers and associated benefits can help obtain buy-in from senior stakeholders
- **Choosing the right products** – Enterprises should evaluate the solutions available based on their business requirements and priorities. Selecting an enterprise-grade solution that provides a comprehensive view across process automation and optimization opportunities helps fast-track transformation initiatives. Hybrid process mining solutions are best suited to cater to this need, as they provide a fact-based and scalable solution for process discovery, documentation, and analysis – helping enterprises build and maintain a healthy pipeline
- **Obtaining enterprise IT buy-in** – Ensuring that enterprise IT is on-board right from the start is crucial for the transformation journey. It helps address data security and privacy considerations (such as access to system logs and desktop recordings) and infrastructure requirements for relevant technology implementation during the journey. In the absence of IT buy-in, implementation programs are delayed, resulting in slower value realization
- **Unifying multiple change programs** – A holistic process transformation initiative should combine various transformation levers, such as digitization, re-engineering, and automation. Hence, it is necessary to ensure that all the relevant stakeholders across process excellence, automation, digital transformation, and business teams work together to achieve a common goal
- **Setting up a cross-functional CoE** – Organizational silos often result in redundant efforts and, subsequently, lower RoI. A Center of Excellence (CoE) can go a long way in helping align common objectives and bringing together different teams, thereby enabling smooth project implementation. The CoE's responsibilities include establishing a governance mechanism to track progress and RoI, and roll out necessary communication plans
- **Acquiring relevant skills/expertise** – Organizations need to ensure that relevant skills and expertise are available within the firm as they adopt new technologies as part of their transformation initiatives. They can also hire external experts when training and up-skilling existing resources to maximize the solutions' benefits. Leveraging service providers for initial hand-holding and training support also proves to be beneficial in many cases
- **Instituting change management efforts** – Proper communication and change management are vital to ensure that process mining initiatives are rolled out effectively. It is important to identify suitable individuals to evangelize the programs and create firm-wide awareness of potential benefits. Involving operational SMEs and empowering them to play a role in adoption can help increase engagement and better manage change



## Conclusion









COVID-19 has aggravated the need to accelerate the pace of businesses' digital transformation. However, many organizations continue to struggle to scale these initiatives beyond siloed projects.

Hybrid process mining solutions can help scale process transformation enterprise-wide by enabling all key elements of a healthy pipeline, as illustrated in the exhibit below.

### EXHIBIT 12

The need for hybrid process mining solutions to build a healthy pipeline

Source: Everest Group (2021)

	<p><b>Scaled discovery of as-is process</b> – understand micro and macro views</p>	
	<p><b>Comprehensive identification of transformation opportunities</b> – identify both optimization and automation opportunities</p>	
	<p><b>Holistic view into the RoI</b> – look beyond cost savings</p>	
	<p><b>Continuous monitoring of ongoing initiatives</b> – use data to validate impact and refine the pipeline</p>	

These solutions add much value over stand-alone classic process mining or desktop process mining solutions, as they provide an integrated view of as-is processes and transformation opportunities at both macro and micro levels. Consequently, classic and desktop process mining vendors are increasingly investing in the area to develop the required capabilities.

Though hybrid process mining solutions are still in their early stages of maturity, we expect them to evolve rapidly with growing enterprise awareness and the demand for technology-based solutions to create a robust transformation pipeline.



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