

Task Mining Playbook

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Contents

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Objective

The Task Mining Playbook

empowers enterprises at various stages of their process automation and transformation journeys with insights, methodologies, and practical advice to achieve best-in-class outcomes from task mining.



01

The need for digital transformation

- The new digital transformation wave drivers of change and evolving priorities
- Business challenges driving the need for change
- Emerging drivers for automation adoption
- Common challenges to driving transformation programs
- Limitations of manual discovery techniques

Evolving into a digital-first business is becoming increasingly important for organizations to remain resilient and competitive



Legacy business

Values

Reduce costs

Make processes efficient

Improve employee productivity

Ensure SLA compliance

Levers

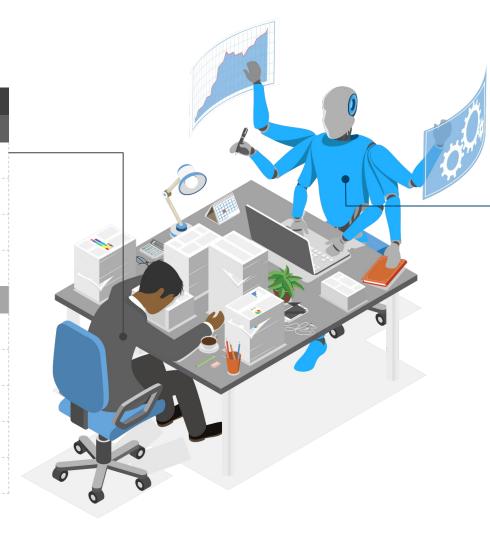
Shared services

Labor arbitrage

Lean Six Sigma

Legacy tools and wrappers

Manual processes





Digital-first business

Values

Reimagine processes

Eliminate manual work

Enhance customer and employee experience

Reduce risk and improve compliance

Focus on business metrics

Levers

Robotic Process Automation (RPA)

Artificial intelligence (Machine Learning or ML, Natural Language Processing or NLP, etc.)

Process mining and task mining

Cloud/SaaS

Design thinking

Deep domain expertise



In recent times, several business challenges and themes have reinforced the need for enterprises to accelerate their digital transformation and automation journeys

Business challenges driving the need for change



Talent unavailability to run/scale the business

Enterprises are facing talent shortages across industries and geographies, with record high attrition rates and the unavailability of skilled resources to take up new roles. This talent shortage is leading enterprises to rethink the areas in which digital technology can help fill talent gaps and drive efficiencies.



Remote ways of working

Pandemic-induced lockdowns forced organizations to support remote working to maintain business continuity. Remote work delivery accelerated digital transformation among enterprises to allow employees to operate from remote locations and ensure data security, compliance, and risk management.



Evolving employee expectations

With new ways of working, employees are demanding an enhanced employee experience. Thus, the bottom-up pressure for transformation is much higher than before.



Evolving customer expectations

Customers are demanding personalized experiences and real-time support, as well as consistency and continuity across channels based on past interactions. This insistence is compelling enterprises to meet their expectations and enhance their overall experience using digital levers.



Supply chain disruptions

Movement-related restrictions during the pandemic restricted the flow of goods, creating a disruptive ripple effect across global supply chains. Consequently, enterprises turned to digital levers to access data in near real-time, identify supply chain challenges, improve agility, and reduce cost pressures.



The need to ensure business resilience and continuity

The pandemic uncovered several inefficiencies and vulnerabilities in legacy business models – highlighting the need to improve risk management capabilities. Thus, enterprises started increasing their digital solutions leverage to ensure continuity in the face of uncertainties and to build operational resilience.



Changes in business models

An upsurge of digital-native companies has led traditional enterprises to reorient their business models and embed digital strategies to remain competitive.



The goal of digital transformation is expanding beyond traditional objectives, such as cost savings and operational efficiencies, to customer and employee experience

Factors driving digital transformation among enterprises

TRADITIONAL DRIVERS

Cost savings



Improving governance and compliance



Increasing employee productivity



Optimizing operations



EMERGING DRIVERS

Enhancing employee experience



Improving customer experience to disrupt competition



Ensuring business resilience and agility



Driving top-line growth





While there is significant emphasis on customer experience, enterprises are realizing the need to focus on enhancing employee experience, especially for the frontline workforce

Impact of increased focus on employee experience





High engagement

Higher productivity

Lower error rates and Turn Around Time (TAT)

Reduced attrition

Higher commitment





Business impact

Better service quality and higher customer satisfaction

Higher Rol

Top-line growth

Increased innovation

Reduced spend on talent sourcing and retention

Increased brand value

Employees are an organization's first customers and enabling them is vital to delivering superior customer experience. This change in focus is driving a new wave of digital transformation centered on enhancing experience/engagement for front-line employees.



Enhancing employee experience impacts overall business outcomes

Understanding the customer onboarding process

ILLUSTRATIVE



Collect customer data and update the database

Validate regulatory rules

Conduct due diligence and checks

Conduct a credit risk assessment

Generate the contract

Activate the service

Notify the customer

Maintain audit trail and secure the documents archive







Key challenges and their impact on employee experience

- Paper-based documentation makes for a cumbersome employee experience
- Delays and errors due to manual data inputs
- Protracted KYC process due to manual checks, leading to customer dissatisfaction
- Too many / duplicate documentation processes
- Manual entry of data across multiple, siloed systems leading to redundant effort
- Considerable delays in activating services and communicating with customers

How can employee experience be improved for this process?

- Empower employees with tools for automatic data entry and database updates so that they can focus on true value-adding activities, such as customer-risk assessment
- Leverage digital technologies such as RPA to guide human operators as they engage with multiple touchpoints within an entity across a process
- Enable employees with better document management practices that help in efficient indexing, storage, and retrieval of relevant documents
- Offer self-service channels to customers for streamlining the data collection process

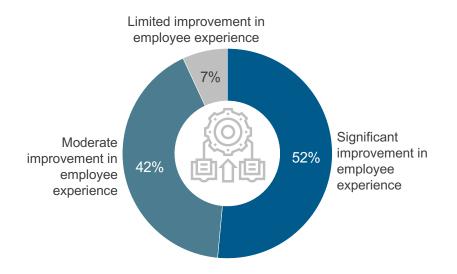
Impact of increased focus on employee experience on employees involved in customer onboarding

- Higher efficiencies and faster TATs for processing incoming requests
- Higher employee motivation due to non-repetitive and higher value work
- Lower attrition rate due to improved employee experience, resulting in reduced spend on hiring and training new employees
- Positive employee-customer interactions and innovation due to higher employee engagement
- Enhanced customer experience, with proactive and real-time status updates and faster processing
- Increased customer outreach driving top-line growth



Our recent study suggests that more than 90% of employees believe that automating their work can significantly improve their experience

Expected impact of automation on employee experience Percentage of respondents¹





More than 90% of employees

believe that process improvement and work automation will significantly improve their overall experience.



Digital transformation initiatives such as automation are the key to enhancing employee experience. However, to achieve the desired value from these initiatives, it is crucial to gain visibility into as-is processes to identify frequently performed tasks and assess their automation potential.



Our research on enterprises that have adopted intelligent automation indicates that automation initiatives resulted in a 40% improvement in employee experience.²

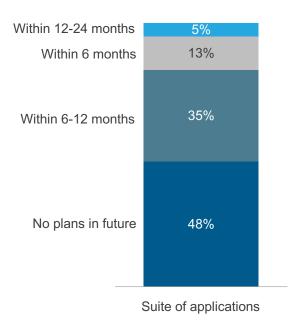
- 1 Based on inputs from 90+ employees (including individual contributors and managers) across finance & accounting, human resources, and industry-specific functions
- 2 Based on a survey of 50+ enterprises that have adopted intelligent automation solutions

Source: Everest Group (2022)



The study also reveals that more than 50% of CIOs plan to transform enterprise systems, which are critical to enabling superior employee experience, in the next two years

Enterprises' plans to rationalize/modernize applications
Percentage of respondents¹





Nearly 52% of CIOs / IT directors / IT managers highlighted plans to rationalize/modernize applications within the next 24 months.



Application usage is one of the critical factors for rationalization/modernization initiatives. However, getting data-backed evidence on utilization is a major barrier to driving these programs.

¹ Based on inputs from 20 CIOs / IT directors / IT managers Source: Everest Group (2022)



The lack of as-is process visibility and documentation is a key challenge to scaling digital transformation initiatives and improving employee experience

Common challenges to driving transformation programs















Top challenges for enterprises;

percentage of enterprises



Acquiring and retaining skilled resources

The increasing talent demand-supply gap poses significant challenges for enterprises to access skilled resources for supporting their digital transformation initiatives.



Lack of as-is process visibility and documentation

Not only does it take time to gather employees to obtain the complete picture on a task/process, but the details gathered are often incomplete, affected by bias, and based on opinions instead of verifiable facts.



Aligning stakeholders and managing change

Poor governance and change management result in poor adoption of best practices and new ways of working; they prevent enterprises from deriving the desired value from these initiatives.



Lack of a healthy transformation pipeline

After transforming a few low-hanging fruits, enterprises struggle to identify relevant opportunities (for automation, optimization, modernization, and rationalization) to improve employee experience.



Orchestrating hybrid workforce (human + machine) dynamics

As enterprises scale their digital transformation initiatives, they struggle to efficiently orchestrate the workflow that spans across several systems, applications, and digital and human workforce.



Removing roadblocks from the compliance and security function

In a digital world, as most data resides on the cloud, issues related to data privacy and regulatory compliance cause hurdles in executing transformation projects.



Obtaining executive sponsorship

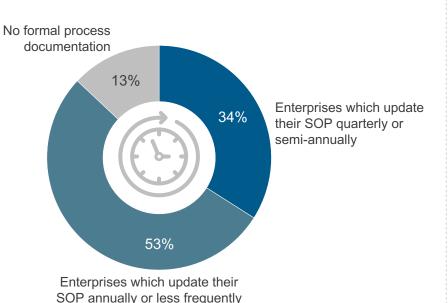
Obtaining executive sponsorship can be a roadblock to successful transformation programs, as multiple projects compete for scarce organizational resources and funding.

Source: Everest Group (2022)



For more than 50% of enterprises, the time frame for updating process documentation / SOPs is more than a year, which might result in an inaccurate understanding of the current state

Frequency of SOP / process documentation updates Percentage of respondents¹





Findings from our recent survey suggest that SOP / product documentation updates occur **annually** or less often in more than 50% of organizations.



However, business process changes are continuous and incremental across functions and industries. Updates to documentation are comparatively slow and deeply impacted by the recency effect – due to the reliance on manual discovery techniques – which results in an inaccurate representation of business processes.



Further, 13% of organizations do not have any formal process documentation which often limits process understanding.

¹ Based on inputs from 90+ employees (including individual contributors and managers) across finance & accounting, human resources, and industry-specific functions Source: Everest Group (2022)



Most organizations rely heavily on manual techniques, which limit visibility into as-is processes

Limitations of manual discovery techniques

Internal resistance

Operational SMEs and stakeholders are reluctant to provide details about their day-to-day operations.



Talent mix and availability

It is difficult for enterprises to identify the right mix of stakeholders and SMEs and ensure their availability.

Lack of continuous monitoring

Enterprises generally lack the capability to monitor processes on a continuous basis and depend on incomplete data captured periodically to guide decision-making.





Limited process variations

Manual process discovery techniques cannot capture too many process variations due to sample-set limitations and time constraints. These techniques miss the hidden process complexities.



Time-consuming and resource-intensive

Traditional techniques are manual in nature, prone to errors, often affected by bias, and based on opinions instead of verifiable facts.

Process intelligence solutions help enterprises address these limitations by providing a data-driven view into their business processes.



02

Introduction to process intelligence

- Understanding process intelligence
- Applications of process intelligence
- Types of process intelligence solutions
- Understanding process mining
- Key applications and use cases for process mining
- Limitations of process mining solutions

Process intelligence solutions enable enterprises to gain complete visibility into as-is processes using a fact-based, data-driven approach



Defining process intelligence

Process intelligence is a fact-based approach to help discover, monitor, and optimize as-is processes by analyzing process-related information from event logs generated by enterprise systems (e.g., Enterprise Resource Planning or ERP, Customer Relationship Management or CRM) and/or recordings of activities that users perform on their desktops.

Characteristics of process intelligence solutions



Follow a fact-based approach, with limited reliance on human bias and opinions



Are technology-driven and easier to scale versus manual discovery techniques



Provide faster time-to-value



Offer greater depth and breadth of information

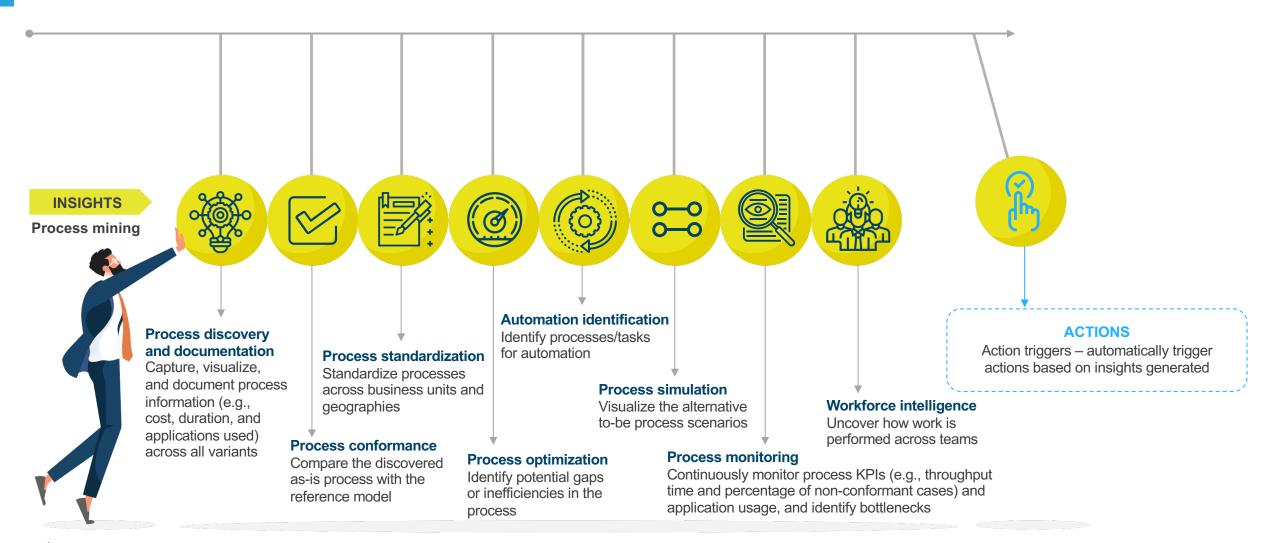


Facilitate operational transparency



Provide actionable insights on an ongoing basis

Process intelligence solutions have a wide range of applications in generating fact-based insights from processes and helping transform these insights into actions



Process intelligence solutions can either include or be grouped into two categories, depending on the nature of data leveraged and the scope of insights generated

Types of process intelligence



Process mining

Process mining solutions capture process-related information from event logs generated by enterprise systems, such as ERP, CRM, and Supply Chain Management (SCM), to discover and analyze as-is processes; process mining is primarily carried out at a macro level.





Task mining

Task mining captures process-related information through UI activities¹ to provide insights on the tasks and activities involved in executing a process; it is primarily carried out at a micro level.

Initial pilot

Early adoption

Industry adoption

Current market adoption and maturity of these technologies

Initial pilot

Early adoption

Industry adoption

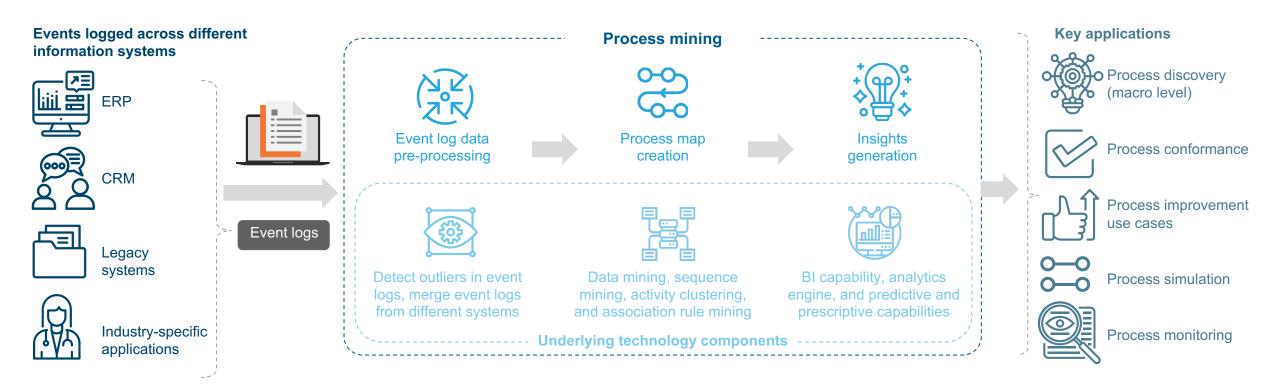
¹ User actions and metadata, such as keystrokes, mouse clicks, activity screenshots, and application object IDs, are captured/recorded across desktops to create UI logs



Understanding process mining solutions

Process mining is any software product or solution that can:

- Collect event log data from different information systems, such as ERP and CRM, which contain date, time, user, activity, etc., which are further analyzed
- Generate process maps capturing the different process variants, with the sequence of tasks/steps involved
- Extract relevant business insights, such as process discovery, root-cause analysis, process conformance checks, and process benchmarking



Process mining solutions assist enterprises in faster fact-based discovery of as-is processes, check the processes for compliance, and ensure consistent processes across business units

Key applications



Process discovery (macro level)

- Provides in-depth information about as-is processes, generates a process map with different process variants, and provides the option to deep dive into each variant
- Displays process information such as case frequency, activity frequency, throughput time, total cycle time, cost, and resources consumed



Process conformance

- Checks for compliance rules, provides insights into deviations from / violations of the discovered as-is process model as compared with the input reference model and segregates conformant and non-conformant cases
- Performs root-cause analysis on all the cases to identify the causes of process path deviations and highlights the deviations/gaps with the maximum impact



Process monitoring

- Helps monitor/verify process performance against key metrics (KPIs, SLA, etc.) using historical or near-real time information
- Provides users the flexibility to analyze process activities in near real-time across metrics, such as throughput times, rework rates, activity occurrences, and process flows



Process standardization

- Helps organizations compare and standardize their process performance across teams, units, and geographies
- Enables comparison with industry benchmarks to identify and implement best practices



Automation identification

Extracts and leverages information such as frequency, cost, volume, repetitiveness, and transactional nature, to derive the automation potential and identify process improven opportunities at a macro level



Process simulation

Performs what-if analysis / scenario testing and helps enterprises visualize alternative to-be scenarios; generates virtual logs of simulated process models to assist in before vs. after comparison of process steps and provides predictive insights



Action triggers

- Automatically triggers alerts/notifications about expected KPI breaches or SLA violations or other events requiring attention via email and dashboard displays
- Triggers action steps such as assigning a task to a particular user if certain criteria are fulfilled; automatically triggers RPA robots to carry out high-severity tasks when a user does not attend to that task within a specified duration



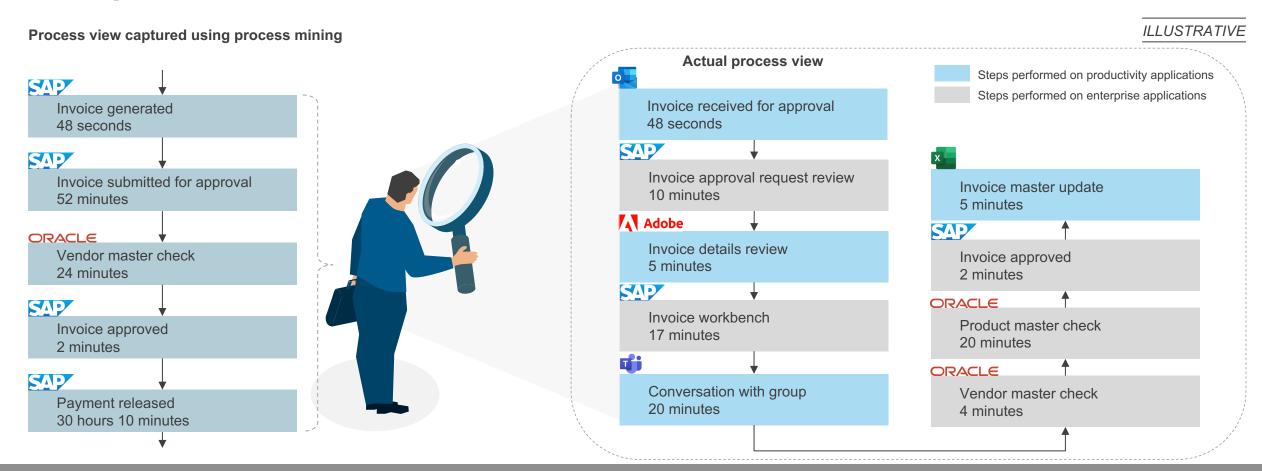
Process mining has witnessed deployment for several use cases across business processes/functions

			<u>ILLUSTRATIVE</u>
Function	Objective	Business challenge	Solution
Finance & accounting	Identifying bottlenecks in the accounts payable process and ensuring timely payments	 Typically, a mid-size to large enterprise could have a large volume of invoice transactions to be processed for payments. The variances in scenarios and the multiple checks that need to be done could make it challenging for enterprises to keep track of the end-to-end process for each invoice, leading to delays in processing payments and missing out on early payment discounts Enterprises need a real-time view of the process in execution and identification of potential bottlenecks to reduce the cycle time 	Process mining can generate visual process maps, help identify bottlenecks, and perform root-cause analysis for gaps and delays
Healthcare	Reducing patient- onboarding wait time	 Patients typically take a series of administrative steps, often leading to long wait times, to get admitted into a hospital or the emergency room Hospitals face the challenge of reducing patient wait time while adhering to the onboarding procedure and compliances 	 Process mining can alert relevant staff in near real-time in cases where compliance guidelines are not met Once the recommended automations are implemented, process mining can trigger those and help reduce processes' cycle time
Insurance (S)	Improving claims handling	 Claims handling is a core process of insurance companies. Due to the complexity of various claims categories and the high number of unique cases, there can be execution gaps in claims processing A major issue is claims overshooting the pre-defined SLAs and leading to a lower number of claims being handled in a specified duration 	 Process mining can be leveraged to classify claims and discover the most optimal path for different categories to ensure the claims are processed within the specified duration It can also conduct a detailed process variant analysis, along with conformance checking, to compare claims handling between different regions to validate the effectiveness of process redesign efforts
Supply chain	Identifying inefficiencies in raw material inventory planning	 Companies end up increasing the inventory stock when they do not receive on-time delivery of raw materials from vendors Increasing the inventory stock is an inefficient method, which leads to faulty production planning. It also forces enterprises to make planning changes during the frozen period, an important period in the Supply Chain Management (SCM) cycle that should ideally 	 Process mining can address this issue by analyzing the processes and identifying root causes, such as an inaccurate configuration set in the ERP system It can detect blind spots or bottlenecks, which otherwise remain unknown to operational resources



be free of any planning/activity

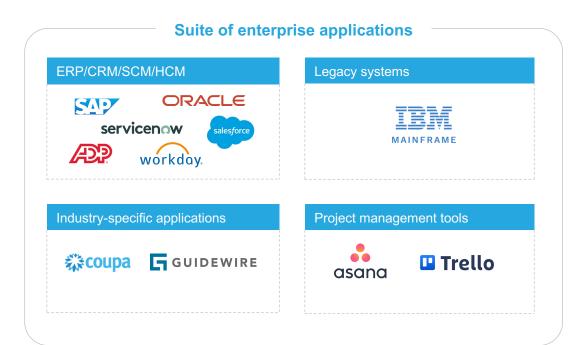
However, there are certain limitations – process mining fails to capture work done using suite of productivity applications which is essential to get a user-centric and holistic view of the processes

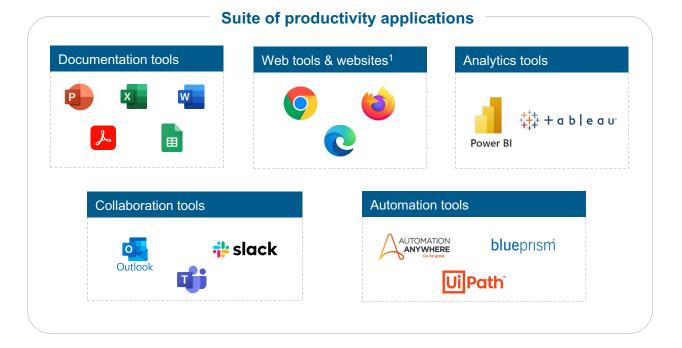


The lack of visibility into user interactions outside of source systems provides an incomplete view of the as-is process. This lack of visibility limits the ability to look at processes through a user-centric lens and identify opportunities that can impact both employee and customer experience.

Employees leverage a host of applications at work that can be broadly classified into enterprise software (generates logs) and productivity applications (do not produce logs)

ILLUSTRATIVE

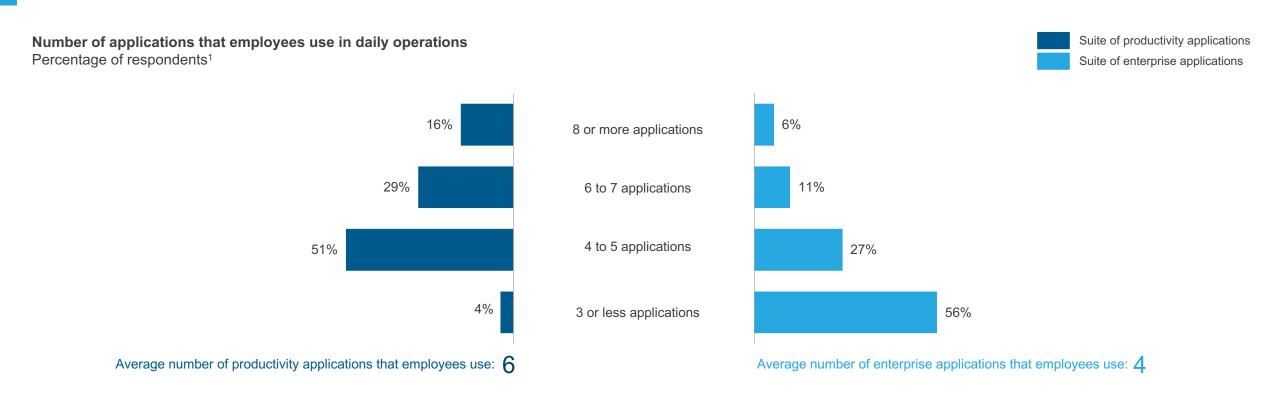




1 Web tools & websites include non-enterprise SaaS applications, third-party websites, and industry-specific web portals Source: Everest Group (2022)



Our study suggests the number of productivity applications in use surpasses enterprise applications by more than 1.5X on an average



In fact, more than 65% of respondents use more productivity applications versus enterprise applications – clearly indicating the proliferation of suite of productivity applications in day-to-day business operations.

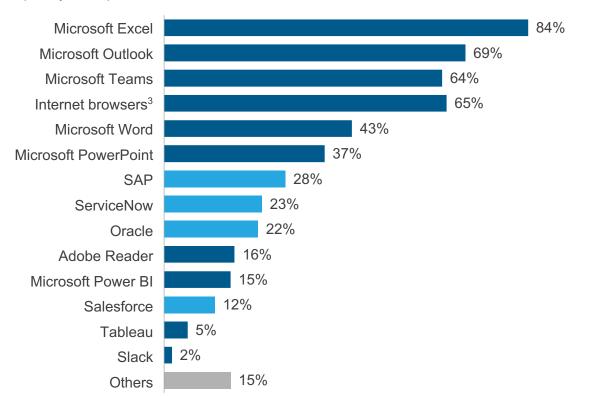
¹ Based on inputs from 90+ employees (including individual contributors and managers) across finance & accounting, human resources, and industry-specific functions Source: Everest Group (2022)



Productivity applications also account for nearly 80% of the most-used applications

Top five applications by usage

Frequency of response^{1,2}





- Employees commonly use documentation tools, collaboration tools, and internet browsers for their daily work
- More than 95% of the respondents reported to have used three or more productivity applications among the top five most-used applications
- SAP, Oracle, Salesforce, and ServiceNow account for only 17% of the mostoften-used enterprise applications
- Based on inputs from 90+ employees (including individual contributors and managers) across finance & accounting, human resources, and industry-specific functions and 20 CIOs / IT directors / IT managers
- 2 Numbers do not sum to 100% as respondents had to list multiple applications (i.e., top five applications)
- Internet browsers such as Google Chrome / Internet Explorer include web-based productivity tools such as trackers and web forms

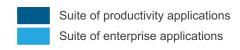
e: Others includes Workday, Alteryx, CATIA, Slack, Webex, and other homegrown applications

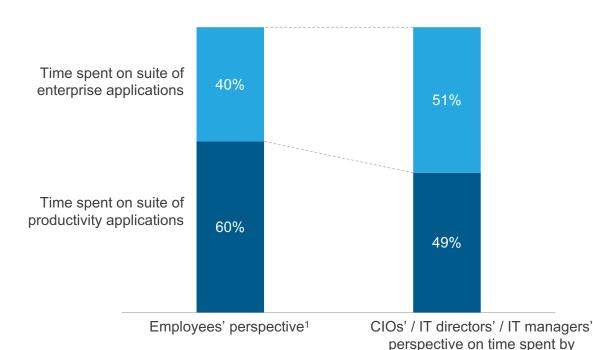
Source: Everest Group (2022)



More than 60% of employees' workdays are spent across a suite of productivity applications, 30% more than what CIOs expect it to be

Time that employees spend on productivity and enterprise applications Percentage of workday hours





- According to employees, they spend approximately 1.5x more time on the suite of productivity applications than on enterprise applications
- About 80% of employees stated that they spend the same or more time on the suite of productivity applications. However, only 60% of CIOs / IT directors / IT managers stated that their employees spend the same or more time on productivity applications
- Nevertheless, nearly 15% of CIOs / IT directors / IT managers expect the relative time spent on productivity applications to increase in the next 12-18 months

Previously, the amount of work done across applications was determined based on assumptions. We thought that most work happened in SAP. But task mining data showed us that 80% of the process effort was spent on Microsoft Excel and Outlook in preparing data for SAP – it was an eye opener for us.

- Jürgen Winandi, Group Product Manager Automation, Bayer

employees²

Source: Everest Group (2022)



Based on inputs from 90+ employees (including individual contributors and managers) across finance & accounting, human resources, and industry-specific functions

² Based on inputs from 20 CIOs / IT directors / IT managers

Given the high use of productivity applications, task mining emerges as the missing link to understand how employees work across different applications, including productivity applications

Task mining provides a fact-based, technology-driven approach to understand last-mile activities performed on various applications, especially productivity applications.

Task mining adopts a user-centric lens as opposed to process mining solutions' process-centric lens – resulting in a more granular understanding of as-is processes.



03

Task mining and its importance

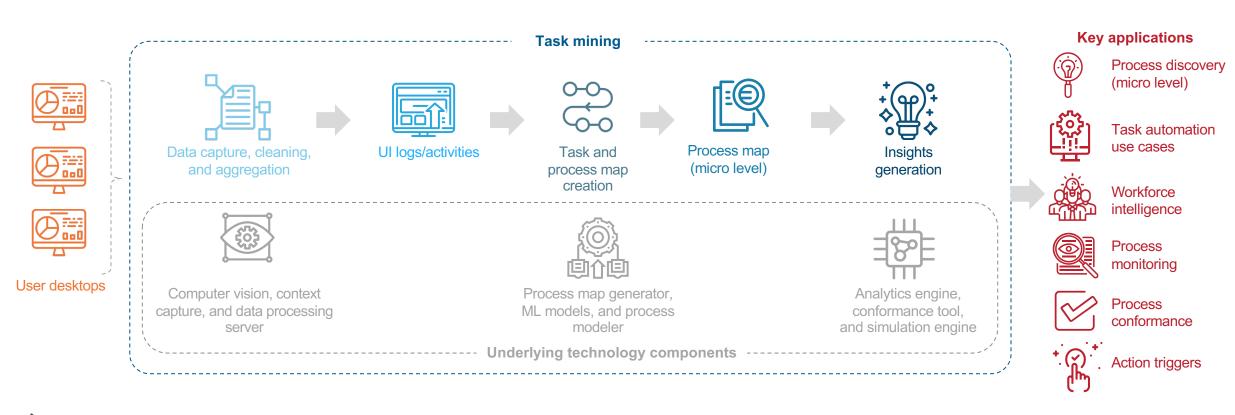
- Understanding task mining
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- Applications and use cases
- The role of task mining across the digital transformation life cycle



Task mining solutions leverage user-action recording / screen recording to capture steps taken by users outside of IT systems and generate task and process maps and derive relevant business insights for process improvement

Task mining is any software product or solution that can:

- Create UI logs: User actions and metadata, such as keystrokes, mouse clicks, activity screenshots, and application object IDs, are captured/recorded across desktops to create UI logs
- Generate process maps capturing the different process variants, with the sequence of tasks/steps involved
- Extract relevant business insights, such as task-level automation opportunities



Task mining solutions leverage AI/ML models to cleanse and contextualize the captured data to generate process maps, including last-mile variations, and provide process- and workforce-related insights







Data capture, cleaning, and aggregation

Desktop agents / activity recorders capture screenshots; user interactions through mouse clicks, scrolls, and keystrokes; and meta-data such as user ID, interacted element information, application/document-level data, and case IDs based on attributes such as process name or transaction ID

- The captured data is often voluminous, contains
 Personally Identifiable Information (PII), and is not
 always intelligible and thus requires data parsing and
 cleansing
- The cleaned data is aggregated and analyzed using AI/ML and NLP algorithms to classify tasks, that belong to a particular processes

Process map creation

- The solution leverages sequence modelling to identify chronology in the user steps and ML-based semantic labelling to add context to the aggregated meta-data
- The process map displays all available variants in each process – allowing users to visually compare two or more process variants to identify structural differences
- Users can also modify / build the to-be process using drafts of the process maps generated to define best practices and check the conformity of ongoing processes with to-be processes

Insights generation

- The solution analyzes process variants and provides insights to improve tasks, optimize the workforce, and discover automation opportunities
- It provides insights on the most efficient ways to complete activities by highlighting deviations, processing times, and bottlenecks
- It also helps determine the time that the workforce spends on each application, along with its productivity and performance
- The tool highlights process improvement opportunities, user training opportunities, and automation potential based on working patterns and processing frequencies



Task mining solutions comprise various underlying components, including computer vision, AI/ML models, conformance tools, and analytics engines

Underlying components of the task mining solution







Data capture, cleaning, and aggregation

Process map creation

Insights generation



Computer vision

Helps extract specific information from captured screenshots to understand user interactions and/or to create process documentation



AI/ML models for activity mapping

Help classify tasks that belong to a particular process to generate process maps; sequence modelling helps identify chronology in the user steps



Analytics engine and dashboard

Helps perform variant analysis, identify bottlenecks; provides process-, application-, and workforce-level insights; ML models also leveraged to identify automation opportunities



Context capture

Adds relevant contextual meaning to the captured user actions leveraging deep learning, sequence modeling, various types of unsupervised ML algorithms, NLP, and semantic modeling



Process map generator

Generates process maps based on the aggregated data to provide a visualization of as-is steps/activities carried out in a process



Conformance tool

Helps compare and check conformance of the as-is process with the defined to-be process model; also helps detect and visualize step deviations and underlying root causes



Data processing server

Stores user interaction data in an encrypted format in a secure database and further processes the data using proprietary algorithms to help generate process maps



Process modeler

Allows users to edit or modify steps within defined process maps, enabling process owners or process SMEs to define the to-be process model



Simulation engine

Assists in defining scenarios and running multiple simulations (what-if analysis) to aid business decisions; helps determine the impact and Rol of change initiatives (e.g., automation) by comparing various what-if scenarios

Task mining is different from task capture because of its proactive and data-driven approach to capture hybrid linkages and process hierarchy

Conventional task capture

Works at individual desktop-level

To capture the as-is process state for documentation and process-improvement purposes

Requires process SMEs to manually start recording and perform the tasks that need be captured

Helps build a Process Definition Document (PDD) or Extensible Application Markup Language (XAML) file based on the data captured and Subject Matter Expert (SME) inputs

Difficult to scale as it is time- and resource-intensive

Task mining

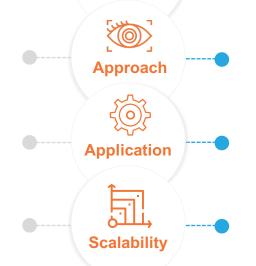
Aggregates data across users/desktops

To discover as-is processes, highlight deviations, capture hybrid linkages and process hierarchy, and identify optimal process variations

Automatically captures the tasks/activities that business users perform for a defined list of applications

Helps identify automation and other digital transformation opportunities, perform root-cause analysis to identify bottlenecks, and provide workforce analytics, in addition to generating PDDs

Can be easily scaled across business units, due to a datadriven approach



Objective



Task mining solutions offer a range of business, operational, and cost benefits to enterprises



Improved risk management, governance, and compliance

- Help identify and adhere to risk and regulatory requirements
- Assist in visualizing the work that employees perform daily, allowing better governance
- Address potential compliance issues through an automated approach to identify non-conformant activities or process steps



Optimization of operations

- Provide in-depth visibility into different process steps that employees carry out
- Offer insights on task performance, workforce performance, and process deviations, highlighting inefficiencies and bottlenecks and thereby helping enterprises optimize processes



Scaling of automation initiatives

Assist enterprises in identifying and prioritizing the processes/tasks for automation based on their automation potential, task duration, frequency, and expected Rol

Cost savings

- Can significantly reduce enterprise effort to gain visibility into how work gets done and identify opportunities for automation/optimization
- Provide insights on better resource allocation, helping enterprises achieve higher cost savings



Accelerated digital transformation

Offer a fact-based approach to identifying inefficiencies at a granular level in enterprises' existing processes and discovering transformation opportunities in order to create a healthy pipeline and, in turn, improved Rol and time-tomarket



Enhanced employee and customer experience

Operational impact

Help eliminate process inefficiencies and improve employee experience, thereby improving employee engagement and productivity, service quality and experience, and customer satisfaction



Business impact

Top-line growth

Cost impact

Help extract insights within processes that can uncover new cross-sell/upsell opportunities and ways to improve time-to-market, positively impacting top-line growth





Task mining solutions help enterprises gain micro level visibility into as-is processes, monitor process performance, and check compliance

Key applications



Process discovery (micro level)

- Discover the aggregated as-is process based on users' recorded activities performed across multiple desktops
- Generate a process map with different process variants and offer the option to deep dive into each variant
- Display process information such as activity frequency, throughput time, cost, and resources consumed
- Offer users process templatization capability by enabling them to generate Process Design Documents (PDDs) for discovered process maps, along with screenshots and process insights
- Combine task-level micro views with a macro view of business processes by tagging the recorded activities/tasks to high-level processes through AI-/MLbased clustering and co-relation algorithms



Process monitoring and improvement

- Help monitor/verify process performance against key metrics such as throughput times, rework rates, and activity occurrences using historical information or in near-real time
- Assist enterprises in creating custom dashboards as well as role-specific dashboards for different business roles (e.g., frontline employees, managers, CXOs, auditors)
- Enable enterprises to streamline processes by identifying and removing redundant steps, bottlenecks, and any other process inefficiencies, to optimize process KPIs such as cost, resources, and turnaround time
- Help organizations compare and standardize their process performance across multiple teams, units, and geographies
- Help monitor and assess application usage (duration and frequency) to assist organizations in application rationalization efforts



Process conformance

- Provide insights into deviations/violations in the discovered as-is process model as compared with the input reference model and segregate conformant and non-conformant cases
- Highlight the additional steps taken during process execution but not specified in the reference process model(s)
- Display cases in which the process steps were skipped or not executed in the right order vis-à-vis reference process model(s)
- Perform root-cause analysis on all the cases to identify the causes of process path deviations and highlight the deviations/gaps with the maximum impact



Task mining solutions can also offer recommendations to enterprises on potential automation use cases, provide workforce-related insights, and trigger actions leveraging insights generated from process analysis

Key applications



Task automation

- Help identify and prioritize automation use cases / candidates at a micro level (tasks/activities) based on automation potential
- Extract and leverage information such as frequency, cost, volume, repetitiveness, and transactional nature to derive the automation potential by capturing and analyzing activities that users perform outside the enterprise application
- Determine the potential impact (e.g., cost savings) from automation to help enterprises prioritize the identified tasks to improve value realization from automation
- Provide data-driven insights on performance and productivity to design the best automation strategy



Workforce intelligence and training

- Generate work graphs that provide a graphical view of how work is performed across teams and applications involved in the process
- Provide workforce related insights such as team productivity, most productive team by task, and the amount of time spent on different applications to improve resource utilization and re-allocation
- Help discover applications that are frequently used and identify teams that are highly productive
- Help identify areas in which team performance/efficiency can be improved by imparting relevant user training; can also reveal the areas in which teams violate the necessary process execution rules, including the order in which tasks and process steps should occur
- Assist organizations in faster onboarding and training of new employees by leveraging discovered process maps and process documentation



Action triggers

- Automatically trigger alerts/notifications about expected KPI breaches or SLA violations or other events requiring attention via email and dashboard displays
- Trigger action steps such as assigning a task to a particular user if certain criteria are fulfilled
- Automatically trigger RPA robots to carry out highseverity tasks when a user does not attend to that task within a specified duration



Task mining use cases (page 1 of 2)









		الكار	\mathcal{M}
Function	Objective	Business challenge	Solution
Customer service	Identify inefficiencies to accelerate customer service	 Despite making improvement efforts, many companies fail to meet Service Level Agreements (SLAs) and have high error rates in servicing customers, which often results in high operational costs A major issue is outdated process documentation, which is time-consuming and effort-intensive 	 Task mining can address this issue by monitoring and analyzing employee operations and providing visibility into process time, deviations, and inefficiencies It can compare process variants with baseline processes to help identify the bottlenecks and root causes leading to errors and delays
Procurement	Identify inefficiencies in the buying process	 Procurement processes include numerous manual tasks, such as fixing pricing discrepancies, purchase order changes, and contract leakages These manual activities increase costs and reduce delivery rates 	 Task mining provides visibility into process steps and recommends areas to be automated It helps monitor the process and team productivity and identify bottlenecks, which, in turn, helps improve efficiency and cost savings
Insurance (S)	Optimize the claims process	 One of the key challenges in the insurance industry is managing heavy volumes of insurance claims along with maintaining process efficiencies A manual discovery of the claims process via employee interviews does not provide a true picture due to employee biases and limited visibility. Thus, it does not help identify opportunities for process automation and optimization 	 Task mining helps automatically discover the process with detailed process steps It helps enterprises capture all process variations Enterprises can identify automation opportunities and potential outcomes (e.g., cost savings)



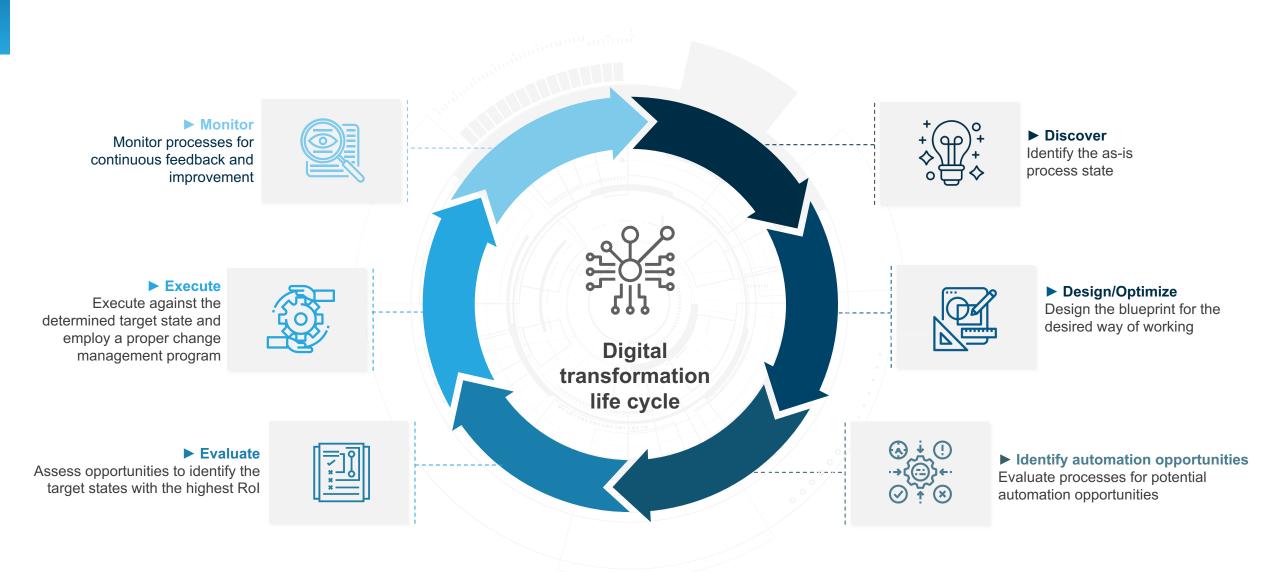
Task mining use cases (page 2 of 2)

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Function	Objective	Business challenge	Solution
Banking	Improve AML process efficiency	 AML reviewers at banks take much time in reviewing and creating a transactions backlog The review process is inconsistent, as some reviewers perform excessive validations, while others perform minimal validations, resulting in process inefficiencies 	 Task mining can discover the entire review process by capturing reviewers' actions across multiple desktops It can help analyze process deviations from the optimal path and visualize variances in Anti Money Laundering (AML) reviews to eliminate non-value-added activities from the process
HR	Identify automation opportunities in employee processes	 Employee processes are distributed across diverse locations, multiple employees, and highly unstructured systems These processes are manual and operations are carried out on Microsoft Excel and Outlook; hence, identifying automation opportunities is not easy 	 The HR department can visualize the process step-by-step, track the time that employees spend on each application, and monitor task frequency HR can easily identify automation opportunities and related time and cost savings
Information technology	Rationalize application portfolio	 More than 50% of CIOs plan to rationalize/modernize their suite of enterprise and productivity applications1 However, due to limited visibility and complexity of application portfolios, they face difficulties in identifying where duplication is happening Consequently, they lack a data-backed view of application usage to drive their portfolio rationalization initiatives 	 Task mining can discover applications by capturing user interaction data across enterprise and productivity applications It also provides insights on application usage to guide rationalization/modernization decisions

¹ Based on inputs from 20 CIOs / IT directors / IT managers Source: Everest Group (2022)



Task mining plays a critical role across various stages of a digital transformation life cycle





The role of task mining across the digital transformation life cycle (page 1 of 3)

▶ Discover

Key objective

- The discovery stage's primary objective is to capture as-is processes, gain visibility into how work is done at a micro level across applications and verify any existing understanding/hypothesis about the processes
- The end outputs at this stage are visual process maps with task-/activity-level information, such as frequency, cost, time, and employees involved

Challenges

Traditionally, enterprises have used manual techniques such as interviews and workshops for discovery. These techniques:

- Rely on the availability of process owners and employees
- Struggle to identify all process step details, variances, and exceptions and fail to generate the true picture because of employee biases
- Consume significant time, effort, and costs

The role of task mining

- Task mining captures user activities across desktops and leverages Al/ML to tag them to the high-level process to generate process maps quickly
- It helps visualize the current state of tasks at a user level and reveals essential task information, along with any deviations, exceptions, and variances
- The maps can also be used to create or update process documentation, which can be leveraged for use cases such as training new employees and handing over processes in outsourcing scenarios

▶ Design/Optimize

Key objective

- The key objective is to identify opportunities to streamline/improve processes and/or design their future states
- Enterprises need to remove unnecessary steps and/or standardize existing workflows across teams or business units to optimize processes

Challenges

- Lack of data or knowledge of ground-level process execution to identify inefficiencies and consequent improvement opportunities
- Reliance on a process SME-led input-based approach to design the to-be process and take process improvement decisions
- Inability to identify task-level inefficiencies and detect underlying root causes to avoid automating non-standardized, suboptimal processes

The role of task mining

- Task mining offer a user-centric view to optimize tasks within a process by identifying process deviations via gap analysis and root-cause analysis
- It also helps standardize user activities by eliminating/minimizing the variants identified across teams. It helps identify exceptions (e.g., process loops) and blind spots, and measures the impact of these on process KPIs
- Task mining also helps gain insights into employee collaboration and productivity that can be used for better task allocation and management, thereby improving employee experience



The role of task mining across the digital transformation life cycle (page 2 of 3)

► Identify automation opportunities

Key objective

- The primary objective of this stage is to assess the automation potential to identify high-value automation opportunities
- Identifying task-level automation opportunities involves assessing process steps for their suitability for automation considering factors such as whether they are transactional or strategic in nature, costs, frequency, and volumes

Challenges

- Inability to identify automation use cases beyond low-hanging fruits and, therefore, challenges in creating an automation pipeline
- Inability to ascertain the potential of the identified automation use cases, especially in terms of their impact on strategic outcomes, such as employee experience
- Amplification of underlying inefficiencies due to an incomplete view of the process and subsequent automation of processes that are not optimized/streamlined
- Employee apprehension to automation due to the lack of awareness of the potential impact on employee productivity and experience

The role of task mining

- It highlights the tasks that can be automated considering their frequency, duration, repetitiveness, and transactional nature
- It helps prioritize the identified automation opportunities by comparing the Rol, significantly reducing the time and effort required to create a healthy pipeline
- Task mining also helps generate initial automation scripts for the identified automation opportunities to reduce the implementation time



▶ Evaluate

Key objective

- The key objective is to assess the impact/Rol of various transformation levers and check these results with a business case to prioritize the right set of opportunities
- It involves evaluating various combinations of previously identified optimization and automation opportunities

Challenges

- Inability to test multiple/various scenarios in real life
- No visibility on the impact of optimization opportunities on existing operations
- Absence of tools to identify the impact on employee experience
- Lack of adequate infrastructure to support various optimization and automation requirements

The role of task mining

- Enterprises can simulate various scenarios to predict the Rol and create/validate business cases
- Common simulation analysis approaches involve configuring what-if scenarios by defining certain attributes to compare tasks and examining the impact on relevant KPIs, such as activity duration and cost
- Process SMEs or domain experts can leverage the simulated process model and workforce insights to check the impact on employee experience and the impact of automation opportunities



The role of task mining across the digital transformation life cycle (page 3 of 3)

► Execute

Key objective

- The primary objective is to successfully implement transformation levers
- While there are many important factors at this stage, change management and governance structure are key to ensuring success

Challenges

- Employee resistance to changes in the ways of working and automation
- Departmental silos resulting in fragmented information flow and ownership of processes; silos can also result in one department undermining the efforts of another without even realizing it
- Absence of buy-in from the senior management and enabling IT and security teams
- Unrealistic expectations and the lack of a defined set of KPIs to measure performance over time

The role of task mining

- Task mining can provide a transparent and fact-based user-centric process view, with detailed process insights and workforce intelligence
- The output highlights inter-dependent process problems and organizational relationships, thereby breaking down departmental silos and promoting collaboration to achieve a shared organizational goal
- The solution can be integrated with automation/RPA platforms to enable enterprises to trigger automations



► Monitor

Key objective

- The key objective is to help enterprises monitor process performance and employee productivity against expected/desired outcomes
- These objectives involve identifying further process improvement opportunities and refining/updating the transformation pipeline

Challenges

- Lack of trust in data collected through manual ways of monitoring processes
- Limited financial and staff resources to engage in continuous monitoring
- Inefficiencies in processes if improvement projects are carried out as a one-time exercise
- Gaps in technical knowledge about defining performance indicators and preparing and interpreting data

The role of task mining

- Task mining enables business users to monitor activities on an ongoing basis, improve process awareness, and plan for further efficiency improvements
- Monitoring processes in near real-time helps enterprises predict any challenges in meeting critical SLAs or any potential KPI breaches and plan for remedies, ensuring business resilience
- The task mining technology provides workforce intelligence and task-level insights, helps identify areas for user training, and recommends ways to improve process performance and employee productivity



04

Task mining market characteristics

- Market size and growth by revenue
- Adoption by buyer size
- Adoption by buyer geography
- Adoption by buyer industry
- Adoption by business function/process



Market size and growth by revenue

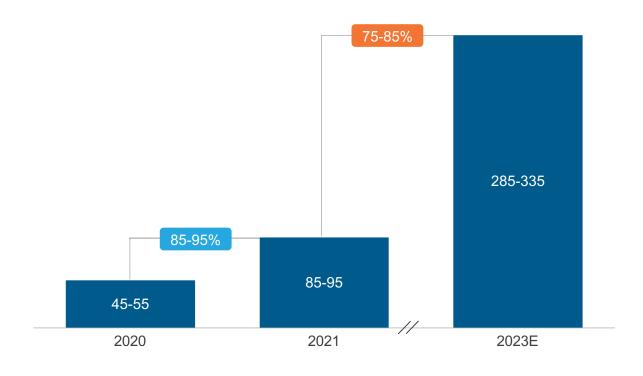
The task mining software market has experienced a strong growth from 2020 to 2021

Task mining software market size

Revenue in US\$ million



- Task mining adoption is expected to continue its growth trend, as an increasing number of enterprises realize the benefits that it offers, including:
 - Enabling micro-level process views by capturing all last-mile activities and tasks
 - Generating workforce insights, such as team productivity and most productive teams by task
 - Identifying automation opportunities, by leveraging ML models and workforce insights on performance, productivity, and frequency
 - Facilitating the creation of initial automation workflows for the opportunities identified
 - Creating process discovery documents that can be leveraged internally to develop process understanding as well as RPA scripts
- Enterprises are using task mining in conjunction with process mining to get a unified and holistic view of as-is processes
- Following the pandemic, enterprises have realized the importance of digital transformation, and the awareness about task mining's role in accelerating digital transformation has grown significantly. Consequently, the market's strong growth momentum is likely to continue in the coming years



Source: Everest Group (2022)



Growth rate

Expected CAGR

Adoption by buyer size

Large enterprises account for the highest revenue share for task mining providers

Task mining software market by buyer size¹

XX% Growth rate (2020-21) Percentage split of license revenue



- Large enterprises (with revenues >US\$5 billion) continue to be the leading adopters of task mining solutions due to their greater focus on digital transformation initiatives
- Buyers, especially large enterprises, which are already familiar with process mining are adopting task mining to discover and analyze processes in a holistic manner
- Large and midsize buyers on their automation journeys are adopting task mining to identify new opportunities and further scale their automation initiatives

Buyer size is defined as large (>US\$5 billion in revenue), midsize (US\$1-5 billion in revenue), small (US\$50 million-1 billion in revenue), and Small and Midsize Businesses (SMBs; <US\$50 million in revenue) Source: Everest Group (2022)



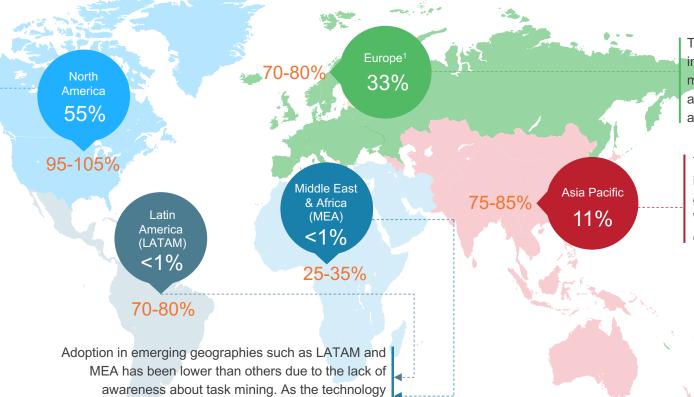
Adoption by buyer geography

North America continues to dominate the task mining market; APAC and Europe are also growing at a strong pace

Task mining software market size by buyer geography

Percentage split of license revenue

Task mining adoption is the highest in North America due to the region's higher maturity in automation adoption and more awareness due to the presence of broader IA-based providers.



matures, adoption is likely to grow in these regions.

XX% Growth rate (2020-21)

Task mining adoption has been strong in Europe, though lower than process mining adoption, as enterprises have apprehensions related to data security and privacy in task mining.

Task mining adoption grew strongly in APAC, almost close to market growth, due to increasing awareness. We expect this momentum to continue in the coming years.

1 Includes UK and Continental Europe Source: Everest Group (2022)



Adoption by buyer industry

BFSI is the leading adopter of task mining solutions, followed by hi-tech & telecom and healthcare & pharma; CPG & retail posted the highest growth

Task mining software market size by buyer industry

Percentage split of license revenue

100% = US\$85-95 million

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BFSI	Hi-tech & telecom	Healthcare & pharma	CPG & retail	Professional services	Manufacturing	Government & public sector	Travel & logistics	Others ¹
39%	16%	13%	8%	8%	8%	4%	1%	3%
90-100%	85-95%	100-110%	120-130%	90-100%	50-60%	35-45%	50-60%	50-60%

- BFSI, hi-tech & telecom, and healthcare & pharma are the major adopters of task mining. BFSI continues to be the leading adopter, as the industry involves many manual tasks that use productivity tools and custom applications
- Task mining adoption grew the most in the CPG & retail industry due to use cases such as logistics planning, scheduling, and product lifecycle management
- After the pandemic, task mining adoption grew strongly in the healthcare & pharma sector for patient data management and shifts and roster management

¹ Others includes the energy & utilities sector Source: Everest Group (2022)



48

XX% Growth rate (2020-21)

Adoption by business process/function

Finance and Accounting (F&A) and industry-specific processes, especially in BFSI and healthcare industries, account for a majority of task mining deployments and growth

Task mining software market size by business process/function Percentage split of license revenue Growth rate (2020-21): ☆ <40% ☆ ☆ 40-80% ☆ ☆ ☆ >80%

100% = US\$85-95 million

<u> </u>	Industry-specific	44%	11
\$	F&A and procurement	28%	111
	Contact center	16%	111
٦	HR	6%	111
	ITSM	4%	11
000	Others	2%	1

21% BFSI 111 8% Healthcare 111	6% Manufacturing 1	6% Telecom 1 1	3% Retail 1
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- Industry-specific processes within BFSI, healthcare, manufacturing, and telecom account for the bulk of adoption. Within these processes, BFSI-specific processes lead the adoption of task mining solutions, with use cases such as retail banking, risk reporting, fraud investigations, and back-office operations
- F&A and procurement has seen higher growth than other business functions in task mining adoption, along with an increase in market share. Major use cases are accounts payable, accounts receivable, the credit memo process, and the P2P process
- Due to increased enterprise focus on reducing operational costs and improving workforce productivity, contact center use cases, such as billing support, technical support, order management, and appointment booking, are gaining high traction within task mining adoption
- Task mining adoption has grown strongly in HR across use cases such as employee onboarding, recruitment process, employee payroll, and help desk

Source: Everest Group (2022)

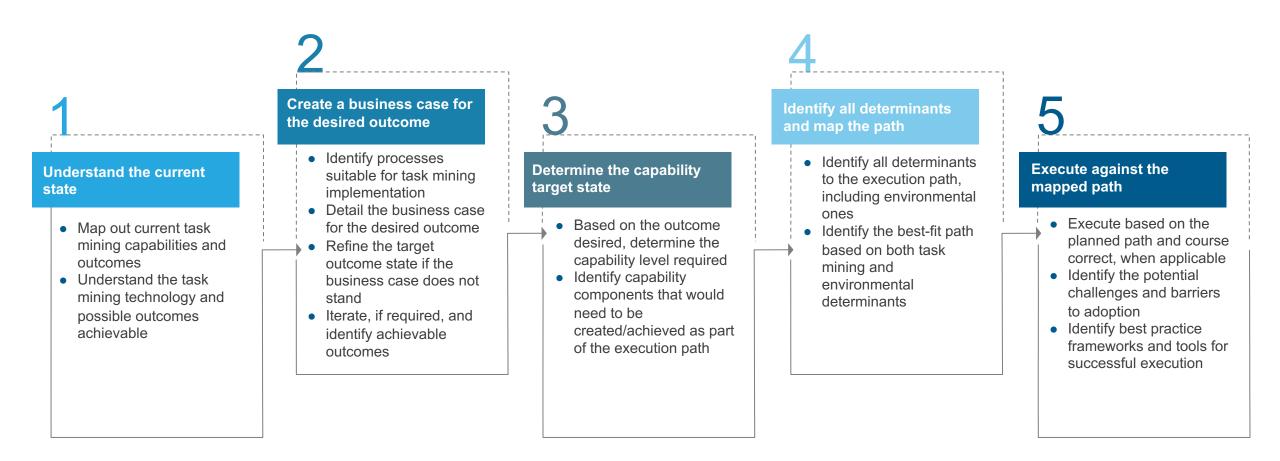


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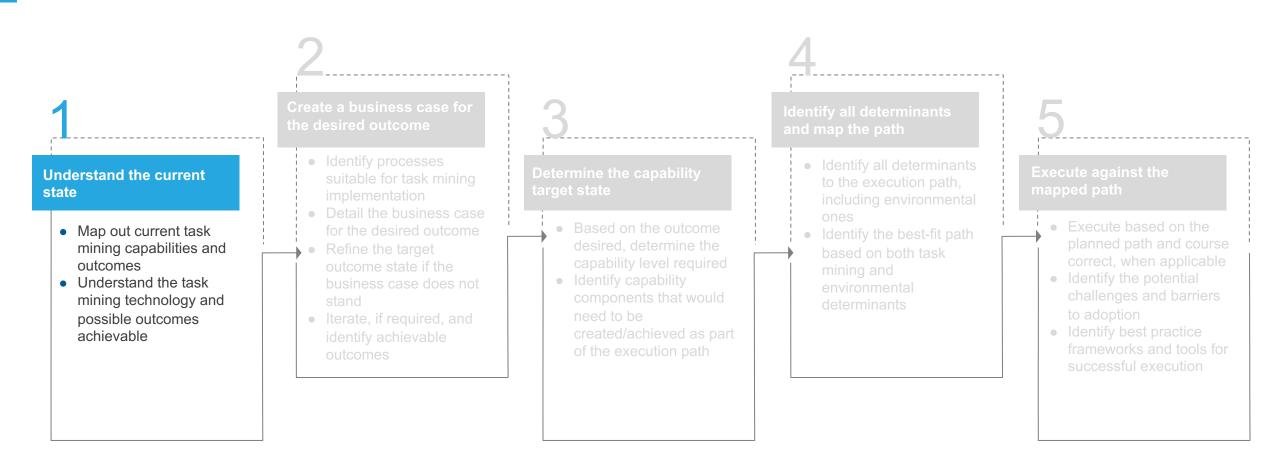
Enterprises' task mining journeys

- Understand current state and market capabilities
- Create a business case for the desired outcome
- Determine the capabilities required to achieve outcomes
- Identify all determinants and map the path
- Execute against the mapped path

Enterprises can break down their task mining journeys into five distinct steps to successfully adopt task mining solution

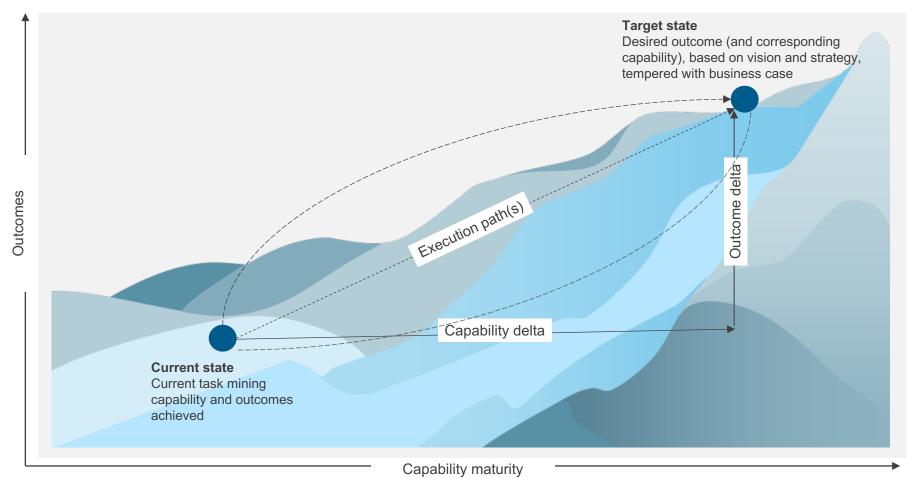


Enterprises can break down their task mining journeys into five distinct steps to successfully adopt task mining solution



Understand the current state (page 1 of 4)

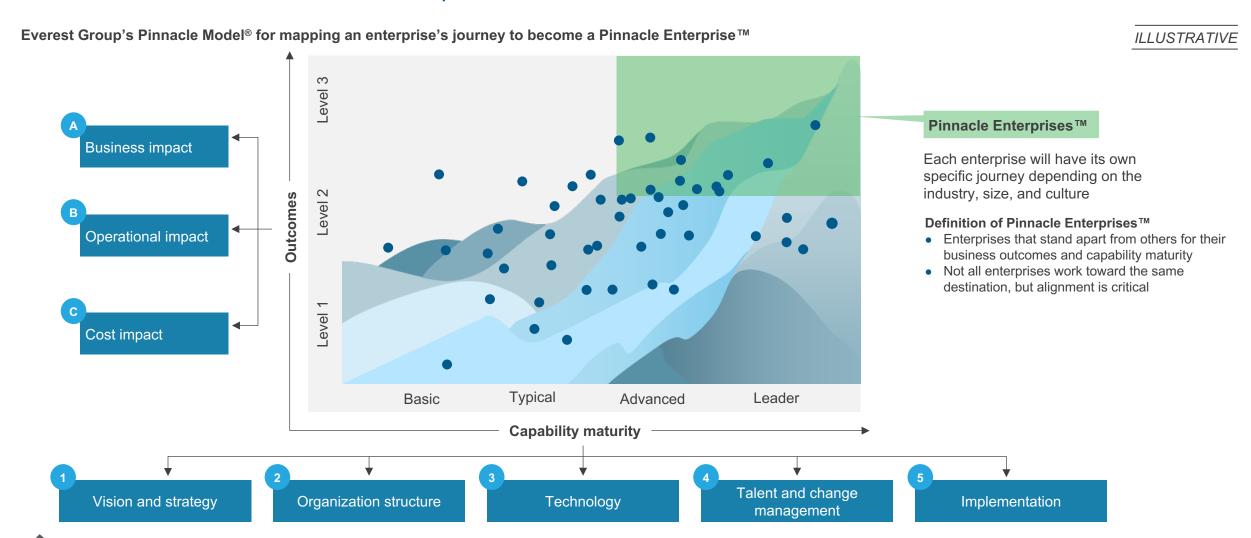
It is important for enterprises to understand their existing and desired target outcome states to map the best-fit execution path for their task mining journeys



- The task mining journey for every organization begins with an understanding of its current state of maturity and its aspirational target state
- While understanding the current and target states will reveal the gaps to be bridged, the actual execution path will depend on multiple factors, as described in subsequent pages

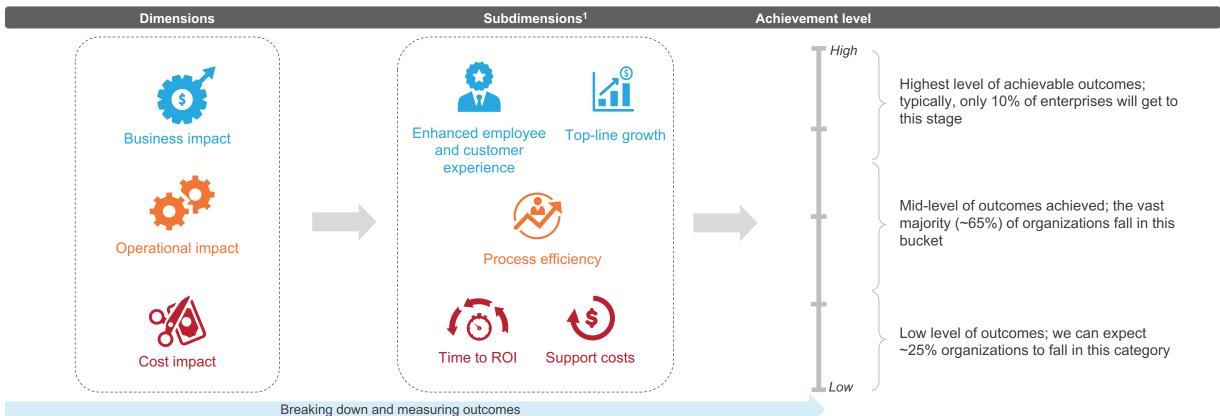
Understand the current state (page 2 of 4)

The Pinnacle Model® provides a framework to enterprises to measure their task mining journeys' current and target states, both in terms of outcomes and capabilities



Understand the current state (page 3 of 4)

Outcomes: Use the Pinnacle Enterprise[™] outcomes model to understand your current state and goals for the desired target state

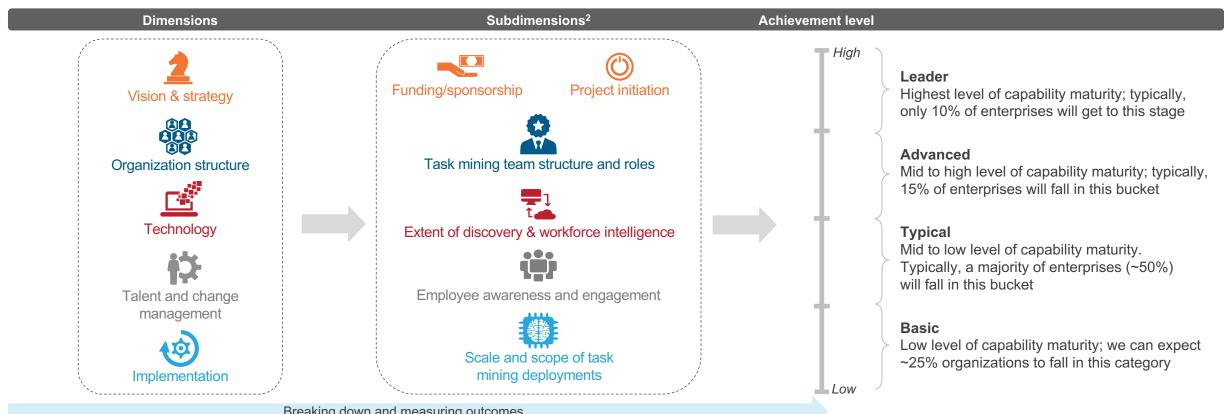


- Overall, we can measure the outcome through a combination of three factors: cost impact, operational impact, and business impact
- We can further break these down into subdimensions under one of the three buckets depending on the outcome level achieved. The exact outcome measures will vary significantly by the scope of task mining implementation
- 1 Not exhaustive



Understand the current state (page 4 of 4)

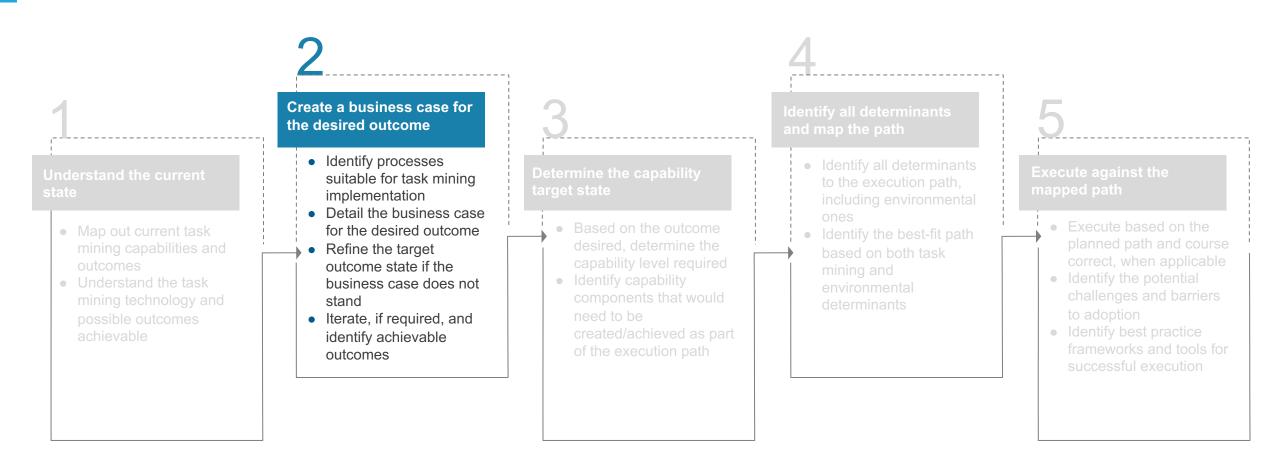
Capability: The Pinnacle Enterprises™ Capability Maturity Model (CMM)¹ can help enterprises understand their current state of capabilities and where they want to reach



- Breaking down and measuring outcomes
- Overall, capability is measured through a combination of five factors vision & strategy, implementation, organization, technology, and talent
- Each of these is further broken down into subdimensions, which can be measured under one of the four buckets depending on the maturity level: basic, typical, advanced, and leader
- Refer to pages 114-128 for the detailed model, dimensions, and subdimensions
- 2 Not exhaustive



Enterprises can break down their task mining journeys into five distinct steps to successfully adopt task mining solution



Create a business case for the desired outcome (page 1 of 9)

Create a business case and refine the target outcome state

Identifying processes

- Multiple tasks run across different processes for which enterprises can implement task mining
- The first step is to identify all processes across business functions either manually or by leveraging task mining solution
- Task mining provides a telescopic view of the organization to identify processes where the solution can be implemented

Prioritizing processes

- Once the processes are shortlisted, they should be prioritized for task mining implementation
- These processes should be prioritized using a structured and repeatable framework
- Tasks with a higher task mining potential and impact on business should be prioritized

Creating a business case

- After shortlisting the top-priority processes, enterprises should develop a business case to identify the target outcome state
- Enterprises should examine all potential use cases and target options to arrive at an achievable target outcome state

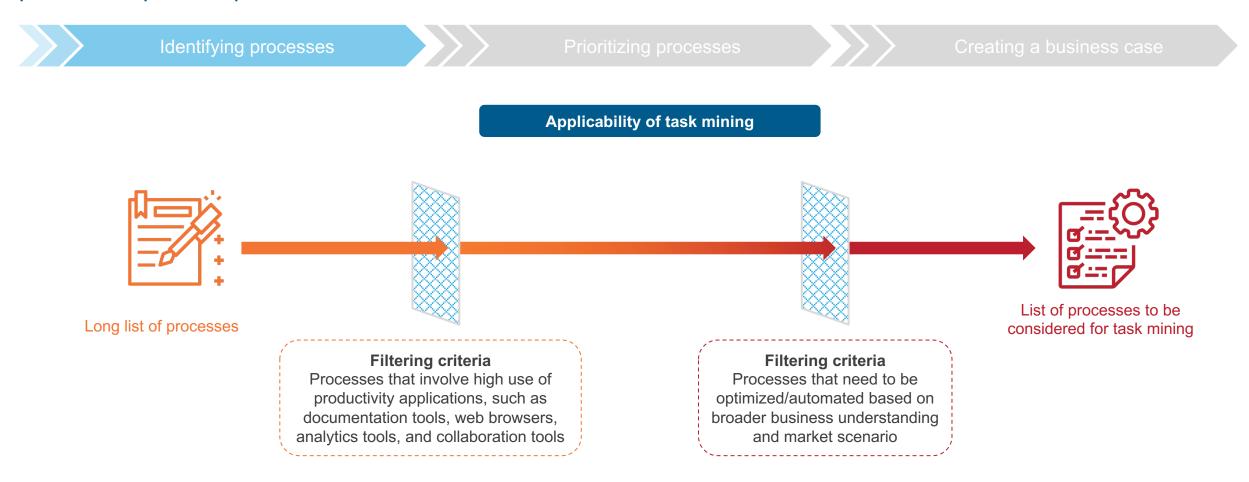


Enterprises should identify and prioritize potential processes for task mining adoption. After identifying the potential processes, they should create a business case to refine the achievable target outcome state.



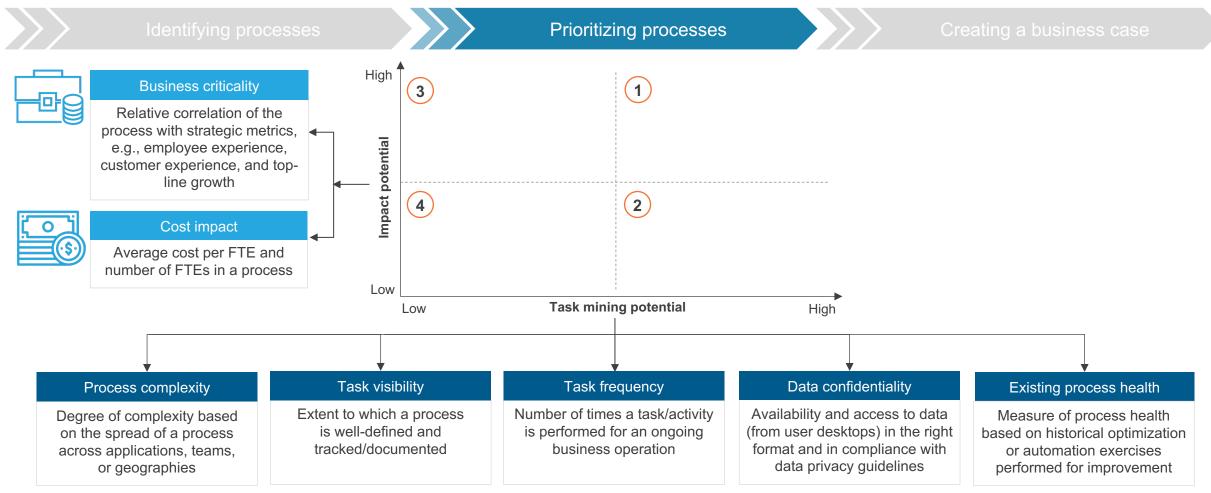
Create a business case for the desired outcome (page 2 of 9)

Organizations should identify processes that use productivity applications extensively and require optimization and plan subsequent steps



Create a business case for the desired outcome (page 3 of 9)

Enterprises should prioritize the identified processes for task mining through a structured and repeatable framework¹



¹ Refer to pages 86-88 for the detailed framework and methodology of use



Create a business case for the desired outcome (page 4 of 9)

Illustration: Consider an organization evaluating its Finance and Accounting (F&A) business function for task mining implementation

End-to-end process-driven definition of F&A



Vendors



Sourcing support & catalog management

Requisition-to-PO

Procure-to-Pay (P2P)

Accounts payable

Travel & expense

Order-to-Cash (O2C)

Accounts receivable

Billing

Order management

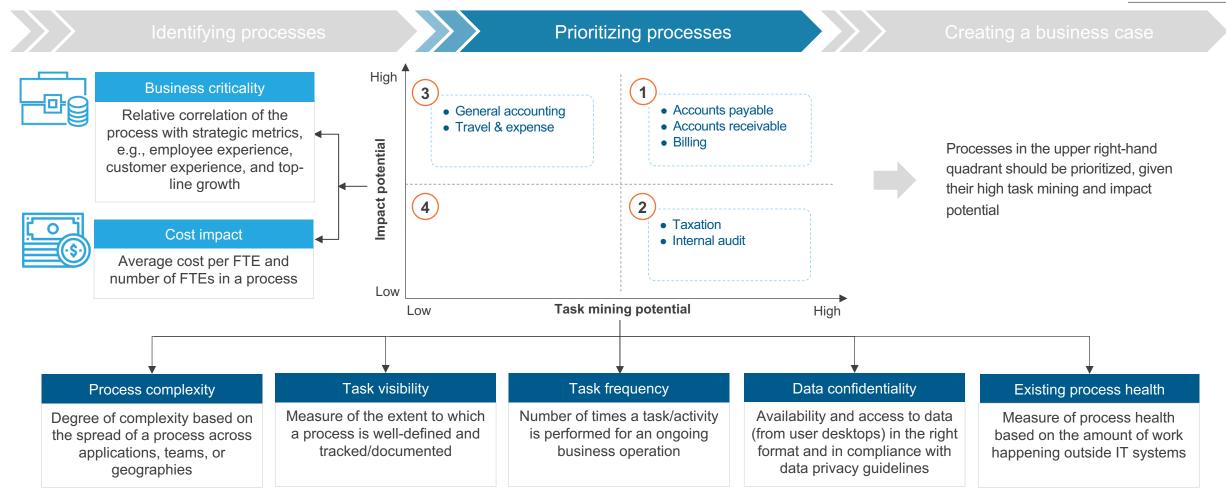
Customer

Covered under procurement



Create a business case for the desired outcome (page 5 of 9)

After the initial shortlisting, processes with high costs, business criticality, and high task mining potential should be considered for further evaluation



Create a business case for the desired outcome (page 6 of 9)

Considerations when creating a business case for a shortlisted process

Identifying processes

Prioritizing processes

Creating a business case

Business case components



Cost

- For each outcome, implementation costs vary depending on:
 - Number of recorders installed on user desktops: Integration costs, including resource costs, increase if a high number of recorders are to be installed on user desktops for an end-to-end process to achieve greater accuracy and faster time-to-insights
 - Number of business analysts: Business analysts are vital for analyzing insights, and their number varies based on process depth
- Task mining software maintenance costs remain the same across various outcome states
- The license cost typically depends on the number of desktop recorders installed and, thus, remains the same across various outcome states

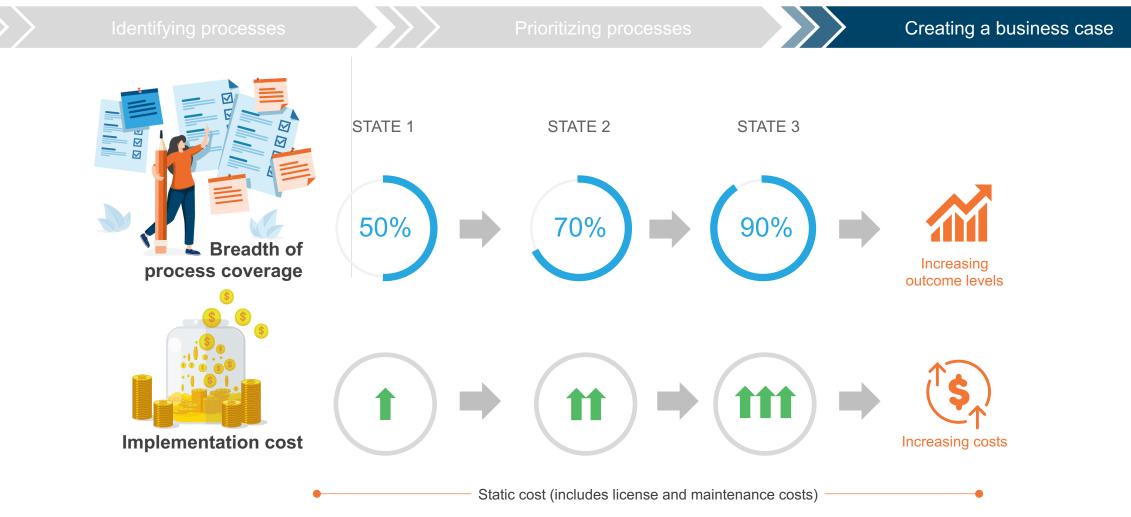


Benefits

- As more parts of user activities or tasks are discovered and analyzed, various tasklevel deviations, interdependencies, and blind spots are captured
- For the business case, enterprises should ideally include metrics that are quantifiable and relatively easy to measure and directly link them to task mining implementation. Examples include:
 - Potential FTE savings from automation candidates, such as invoice processing
 - Reduced error rates (errors in servicing customers) leading to better Net Satisfaction (NSAT) score
- Information/proxies around other business benefits, such as user experience gains, increase in customer retention rates, employee productivity gains, and risk reduction and improvement in compliance, may not be available prior to or at the time of business case creation

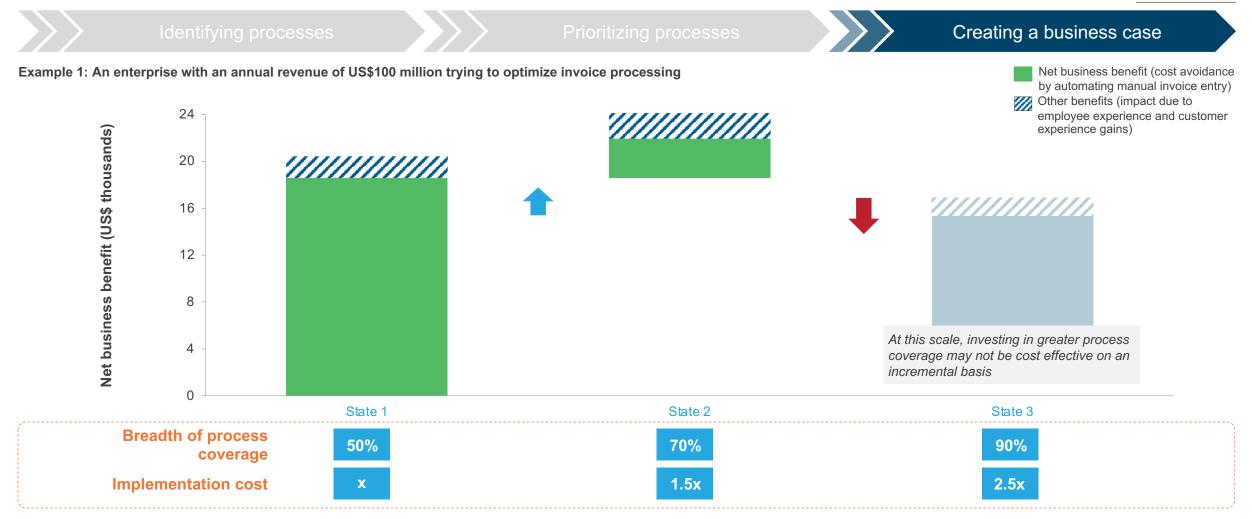
Create a business case for the desired outcome (page 7 of 9)

Considerations when creating a business case for a shortlisted process



Create a business case for the desired outcome (page 8 of 9)

Enterprises can target multiple process coverage options with task mining; it is vital to evaluate the different options against the likelihood of diminishing returns

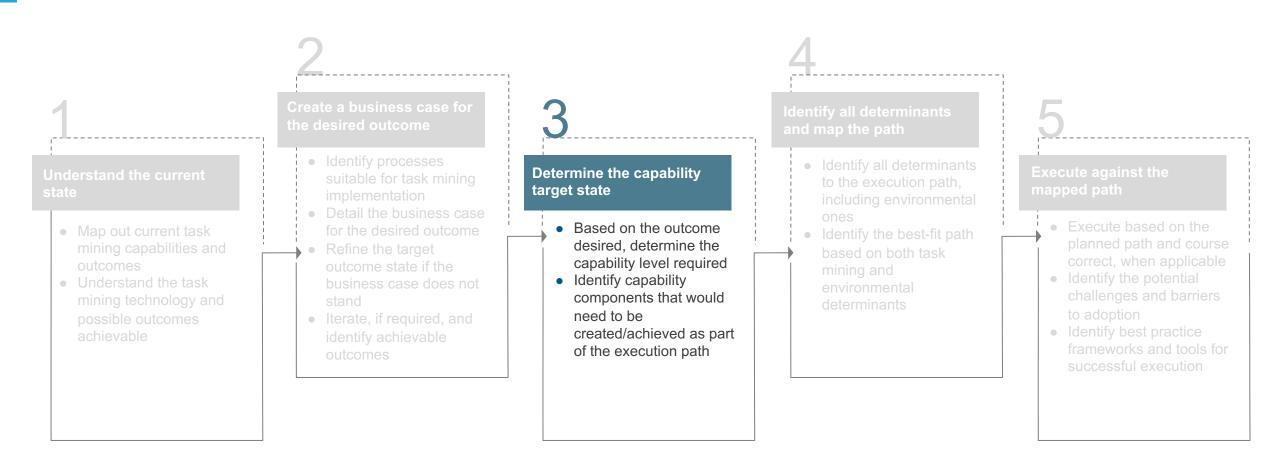


Create a business case for the desired outcome (page 9 of 9)

Enterprises can target multiple process coverage options with task mining; it is vital to evaluate the different options against the likelihood of diminishing returns

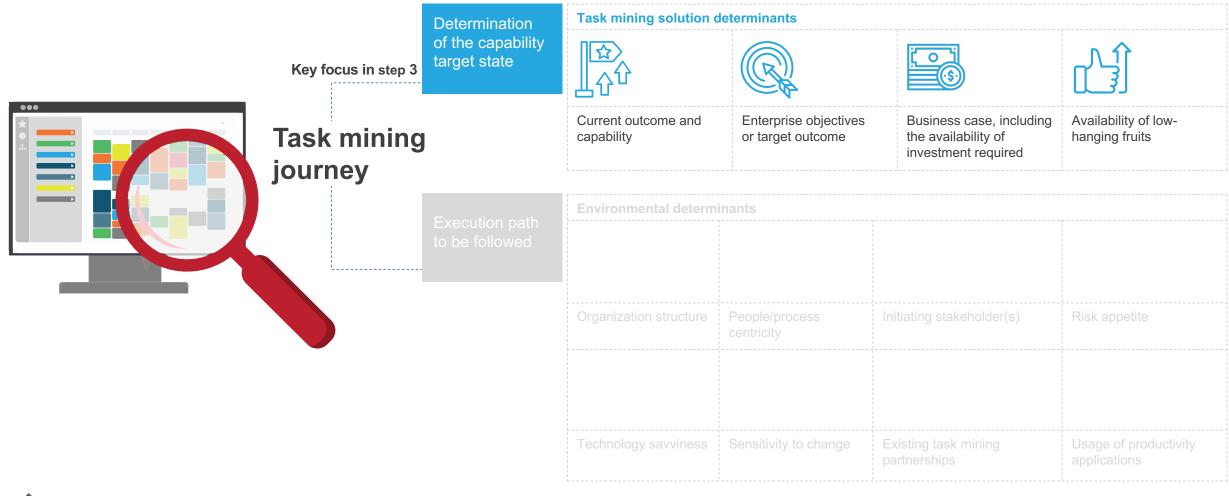


Enterprises can break down their task mining journeys into five distinct steps to successfully adopt task mining solution



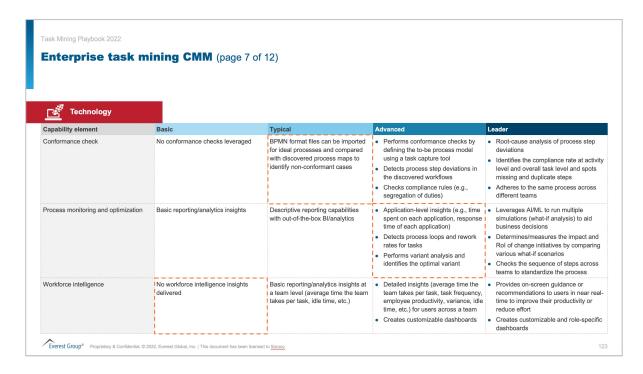
Determine the capability target state (page 1 of 5)

The task mining journey will take different forms based on two sets of determinants – task mining solution-related and environmental

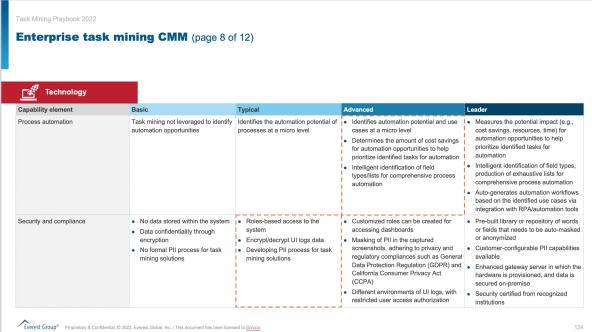


Determine the capability target state (page 2 of 5)

Having determined achievable outcomes, enterprises should map out corresponding capability requirements to achieve them







Note: Refer to pages 114-128 to understand the Capability Maturity Model (CMM)



Determine the capability target state (page 3 of 5)

Everest Group evaluates task mining capabilities based on five key components of enterprise task mining journeys

Component

Focus areas



Vision & strategy

- Understand the organizational vision for task mining and adoption drivers
- Assess the organization's readiness for task mining adoption from process, security, and monitoring perspectives



Organizational structure

- Determine the governance model for task mining initiatives
- Analyze the task mining team's structure and the CoE's roles and responsibilities



Technology

- Assess the extent to which various task mining components, such as discovery, conformance, monitoring, and intelligence, are leveraged alongside ancillary technologies
- Determine the sophistication level of the task mining technology deployed



Talent & change management

- Assess the sourcing strategy, training, and education programs for various task mining skills, along with the level of sharing/pooling of resources/skills
- Evaluate the level of employee awareness and engagement for managing change

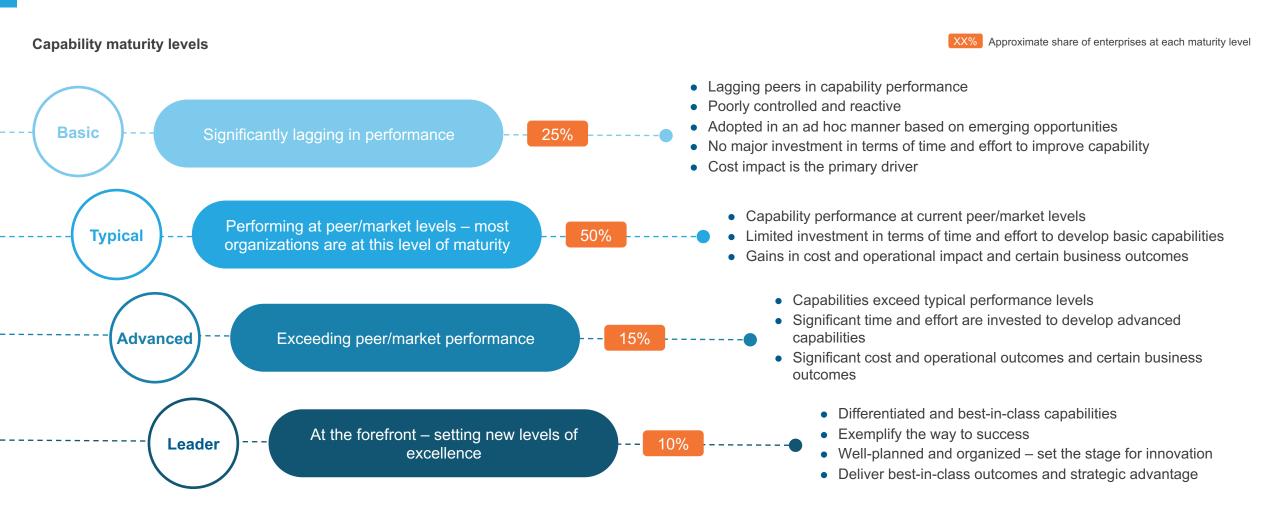


Implementation

Evaluate the maturity stage, scale, scope, and speed of task mining adoption – in terms of the number of processes, users, and business units

Determine the capability target state (page 4 of 5)

Enterprises' task mining capabilities are assessed across four maturity levels



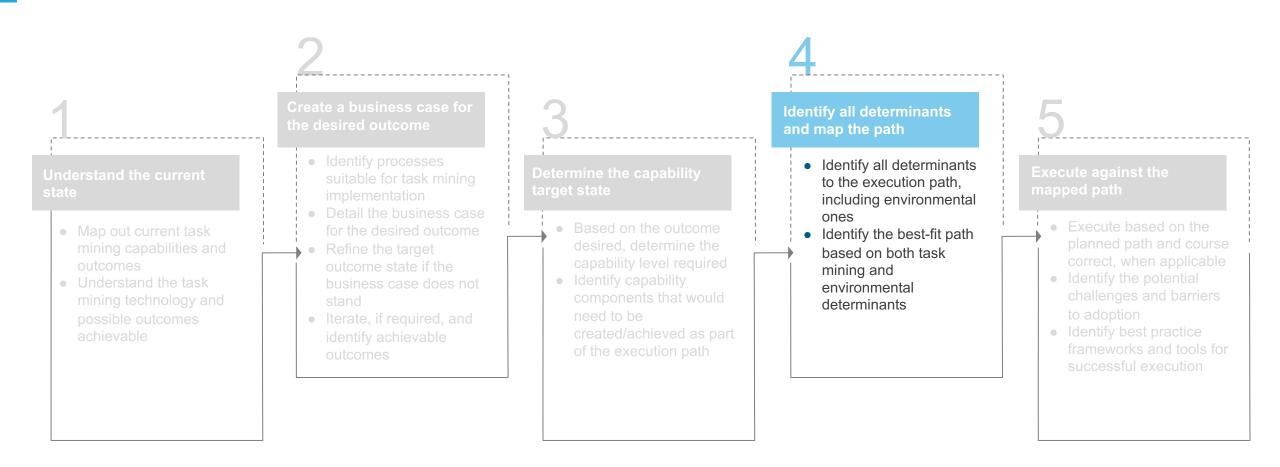
Determine the capability target state (page 5 of 5)

Enterprises' task mining capabilities are assessed across more than 25 capability elements

Component		Capability				
2	A. Vision & strategy (7 capabilities)		lignment rics and KPIs to measure the benefits/impact of task mining rics and KPIs to measure the effectiveness of task mining			
	B. Organizational structure (4 capabilities)	B1. Task mining team structure and rolesB2. Types of CoEB3. Scope of the CoEB4. Roles and responsibilities of the CoE				
	C. Technology (9 capabilities)	C2. Extent of discovery C7. Hosti C3. Conformance check C8. Secu	cess automation ting options urity and compliance Ilary technologies			
**	D. Talent & change management (4 capabilities)	D1. Sourcing of task mining talentD2. Task mining training and educationD3. Sharing/pooling of task mining skillsD4. Employee awareness and engagement				
100	E. Implementation – scale, scope, and speed (5 capabilities)	 E1. Distribution of task mining projects by stage E2. Targeted process types for task mining adoption E3. Scale of task mining adoption E4. Scope of task mining deployments across functions E5. Speed of task mining adoption 				



Enterprises can break down their task mining journeys into five distinct steps to successfully adopt task mining solution



Identify all determinants and map the path (page 1 of 7)

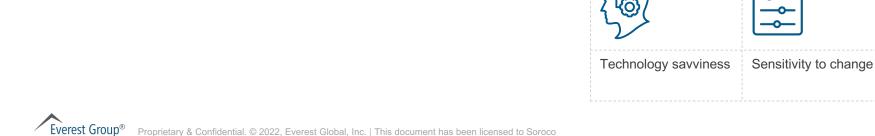
The task mining journey will take different routes based on two sets of determinants – task mining solution-related and environmental



Organization structure

People/process

centricity

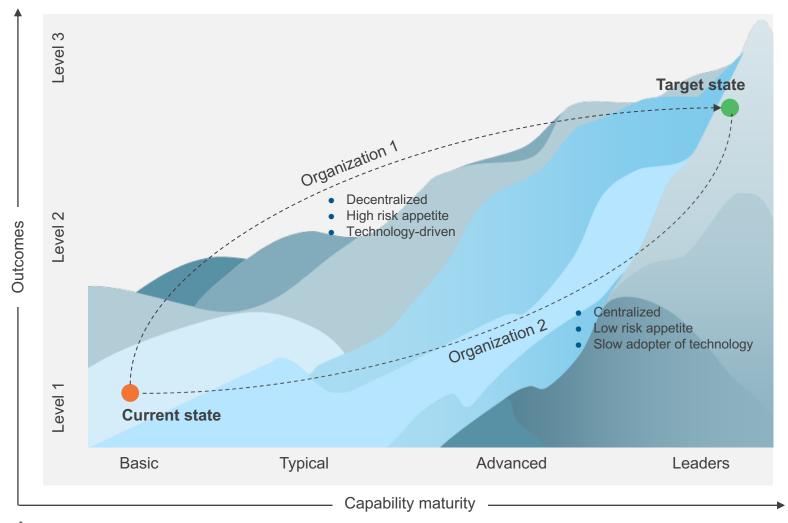


Key focus in step 4



Identify all determinants and map the path (page 2 of 7)

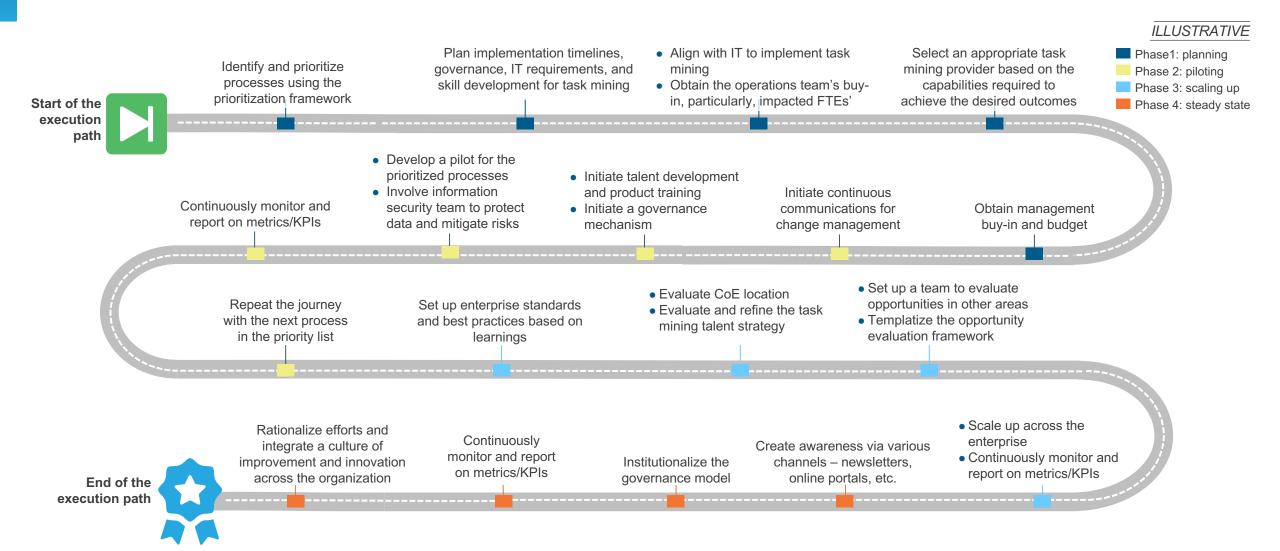
Given the same current and target states, enterprise culture, structure, and other environmental determinants influence the routes enterprises take



Two enterprises starting their journeys at the same low level of task mining adoption maturity and wishing to reach the same advanced target state may take significantly different execution paths; the paths would largely depend on environmental determinants.

Identify all determinants and map the path (page 3 of 7)

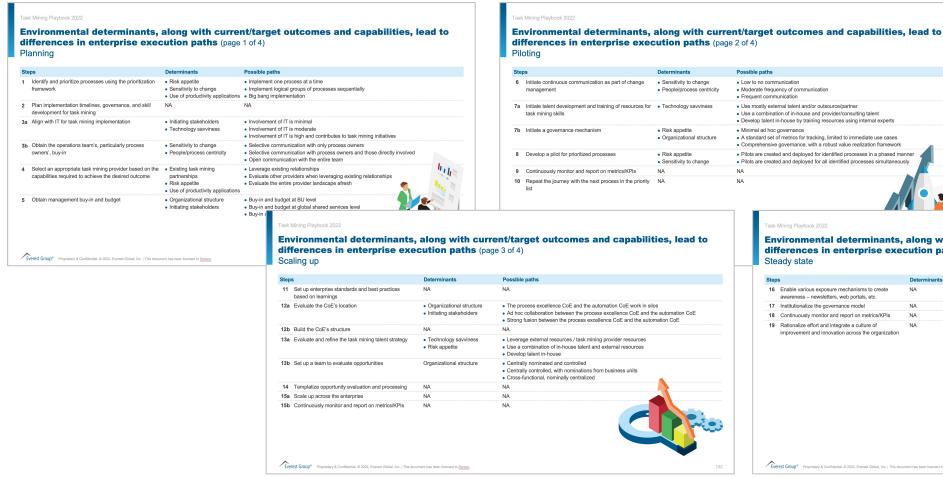
While all enterprises are likely to follow a series of steps in their execution paths ...



Identify all determinants and map the path (page 4 of 7)

... the nature of those steps will vary based on environmental determinants¹

ILLUSTRATIVE



1 Refer to pages 129-133 for the overview of the environmental determinants and the various path options for the enterprise at each step



Identify all determinants and map the path (page 5 of 7)

Use case: Consider two organizations with different characteristics, both aiming to reach similar target states for their accounts payable processes from similar current states through their task mining journeys

ILLUSTRATIVE



Consider two organizations with the same current states and target states:

• Current state: The organizations have moderate to high adoption of productivity systems. They have limited visibility into their accounts payable processes' variants and performance, resulting in delays and manual follow-ups and, in turn, a poor employee experience. Both have about 200-250 employees employed in the accounts payable process

Organization B – Global bank

• Achievable target state: Both organizations are trying to reach the Leader category in both capability maturity and business outcomes. The ideal execution path for the two organizations would depend on environmental determinants, such as those listed below.

Environmental determinants

Organization A – Telecom operator

Decentralized ---- Organization structure Centralized

Low people centricity ----- High people centricity / unionized

BU-driven ----- Initiating stakeholders ---- Centrally driven

High risk appetite ----- Low risk appetite

Highly tech-savvy firm Technology savviness Low level of technology savviness

Workforce is receptive to changes Sensitivity to change High sensitivity; willing to accept smaller changes

Existing relationship with task mining providers — Existing task mining partnerships — No relationship with task mining providers

Moderate adoption of productivity applications

Usage of productivity applications

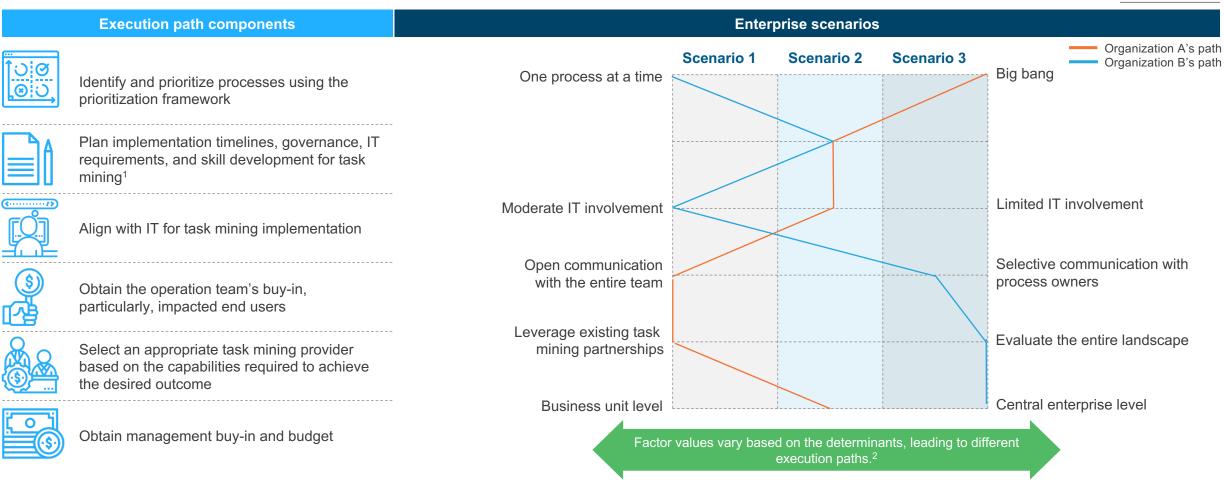
High adoption of productivity applications



Identify all determinants and map the path (page 6 of 7)

Execution paths differ based on environmental determinants

ILLUSTRATIVE



¹ This step does not vary for the organizations irrespective of environmental determinants

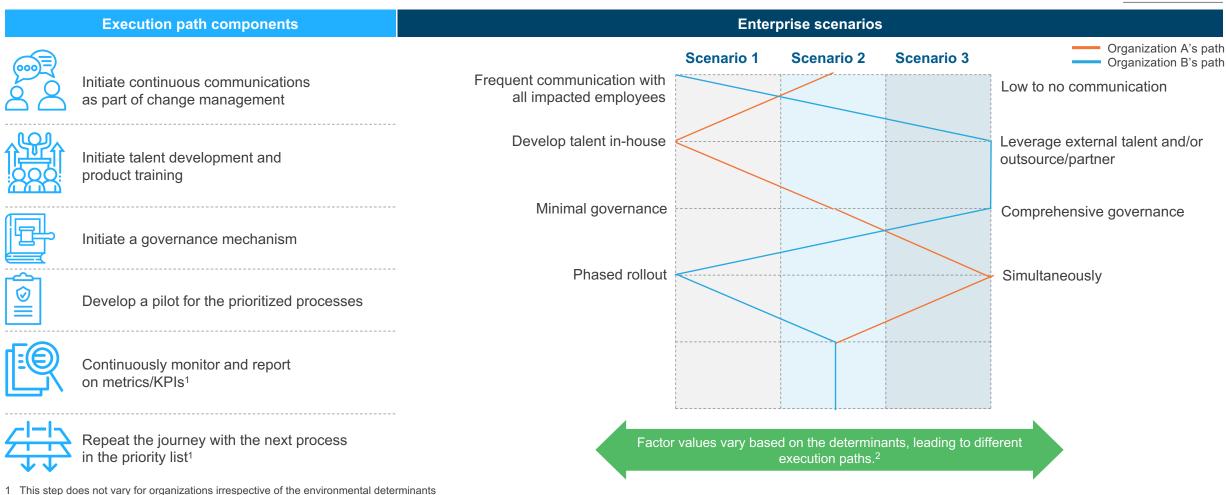
² Refer to Appendix pages 130-133 for variations in the execution path by determinant



Identify all determinants and map the path (page 7 of 7)

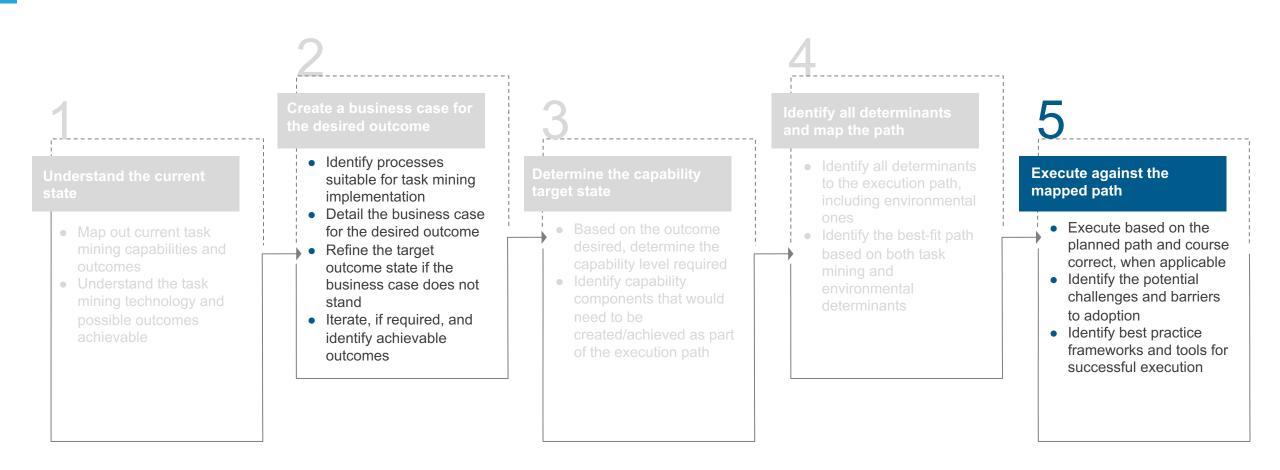
Execution paths differ based on environmental determinants

ILLUSTRATIVE



2 Refer to Appendix pages 130-133 for variations in the execution path by determinant

Enterprises can break down their task mining journeys into five distinct steps to successfully adopt task mining solution



Execute against the mapped path (page 1 of 3)

Key challenges in the task mining journey















Compliance and data security risks

Enterprises are reluctant to provide third-party providers access to user activity data due to growing data security and privacy concerns. Getting approvals from enterprise IT to access data could be a time-consuming process.

Internal resistance

Employees/teams could resist the adoption of task mining due to the increased transparency and visibility into ways of working. It is important to secure the buy-in of all teams for successful implementation.

Siloed approach

Within enterprises, different business units or teams may carry out their task mining projects in silos and with limited support from process excellence or automation CoEs.

Lack of technology awareness

Organizations could face the lack of business stakeholder buy-in due to limited understanding of task mining technology, its applications, and benefits. They could also be skeptical regarding the credibility of new technology.

Improper metrics

Another challenge is the lack of process SMEs' involvement and the inability to identify the right set of metrics/KPIs to track the performance of task mining solutions.





Execute against the mapped path (page 2 of 3)

Winning insights for a successful task mining journey



Increase technology awareness

Spread the awareness about task mining and its benefits, address any concerns related to increased transparency, and disseminate success stories for robust change management.



Secure buy-in of business and IT teams

Obtain support from the senior management to ensure smoother implementation and from enterprise IT teams to ensure data security and compliance.



Train/upskill your employees

Collaborate with task mining providers or their training partners and leverage in-house experts to train employees on using the task mining platform.



Collaborate with business units and CoEs

Work closely with other business units, process excellence, and automation CoE to align task mining initiatives with broader transformation initiatives.



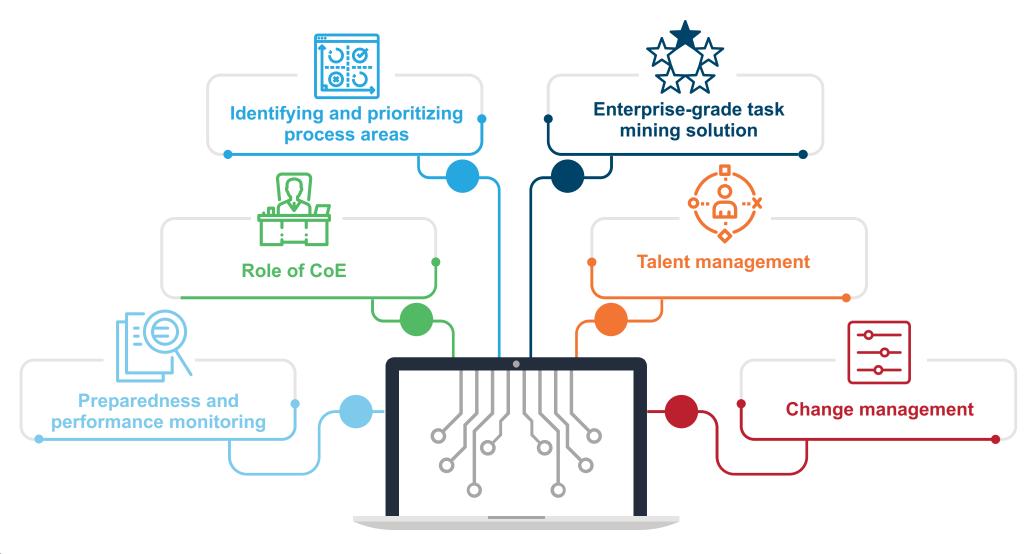
Start with a simple project

Start with a process that is limited to few teams and has a restricted number of applications.
Secure quick wins to establish credibility and accelerate adoption.



Execute against the mapped path (page 3 of 3)

Leverage best practice frameworks and tools to accelerate the task mining journey



06

Accelerating the task mining journeys

- Identifying and prioritizing process areas for adoption
- Selecting the best-fit enterprise-grade solution
- Talent management
- Change management
- Preparedness and performance monitoring
- The role of a CoE

Identifying and prioritizing processes for task mining adoption (page 1 of 3)

Areas should be prioritized using a structured and repeatable framework



The framework below helps prioritize processes based on the overall task mining and impact potential. High 1 **Business criticality** Relative correlation of the potential task with strategic metrics, e.g., employee experience, customer experience, and Impact | top-line growth Cost impact Average cost per FTE and Low number of FTEs in the process task mining potential High Low Task visibility Task frequency Data confidentiality Existing process health Process complexity Extent to which a task is well-Number of times a task/activity Availability and access to data Degree of complexity based on Measure of process health defined and is performed for an ongoing (from user desktops) in the right based on the amount of work the spread of a task across tracked/documented business operation format and in compliance with applications, teams, or happening outside IT systems data privacy guidelines geographies

Identifying and prioritizing processes for task mining adoption (page 2 of 3)





Step 1: Understanding the correlation

Dimension	Correlation with task mining potential	Rationale of correlation
때나를 나았다. Process complexity	Positive 1	Complex processes increase the avenues and scope for the application of task mining.
Task visibility	Negative —	Well-tracked/documented tasks are less suitable for task mining.
[) Task frequency	Positive 1	Tasks with high frequency are more prone to forming variances and are, hence, suitable candidates for task mining.
Data confidentiality	Negative	The feasibility and ease of task mining adoption increase if data is not confidential and is accessible for use.
Existing process health	Positive 1	Processes with most tasks happening in productivity application systems are more suitable.

Step 2: Assigning weights and plotting on a 2x2 matrix

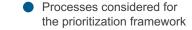
- For y-axis, assign weights to the cost and business criticality dimensions, depending on task mining objectives
- For x-axis, assign weights to the five dimensions based on their correlation with task mining potential
- Arrive at the y- and x-axis composite scores (based on the weights) for each of the processes considered for the prioritization framework
- Plot the y- and x-axis coordinates on the 2x2 matrix

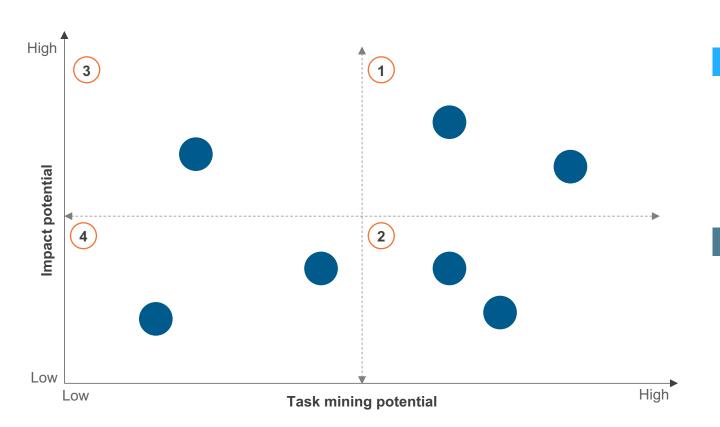


Identifying and prioritizing processes for task mining adoption (page 3 of 3)

For phases 1 and 2, processes that deliver the highest net benefit should be considered







Phase 1 (planning) and phase 2 (piloting)¹

- Select processes from quadrant 1 for phases 1 and 2
- As phase 1 is the Proof of Concept (PoC), it should ideally address the
 process within the high-priority quadrant (quadrant 1) for which the business
 case is the strongest
- For phase 2, organizations can choose other processes in quadrant 1 based on the confidence gained from PoC and other organizational nuances

Phase 3 (scaling up) and phase 4 (steady state)¹

- For phases 3 and 4, i.e., when scaling up beyond pilots, quadrant 1 continues to be the priority, typically moving from the top right to the bottom left of the quadrant
- Upon exhausting processes in quadrant 1, processes in quadrants 2 and 3 can be selected (processes for which the business case still makes sense)
- Typically, quadrant 4 processes are left as is, even in the high maturity phases, as it is likely that there is not a strong business case for them. They can be considered at a later point in time, if they become attractive from a business-case perspective

¹ Refer to page 76 for description of the phases



Selecting the best-fit enterprise-grade solution (page 1 of 10)

To choose the right task mining solution, enterprises need to consider certain factors



Key factors to consider when selecting an enterprise-grade task mining solution



Product capability



Commercial models



Product training and support



Ecosystem of services partners



Ecosystem of technology partners

















Selecting the best-fit enterprise-grade solution (page 2 of 10)

Product capability





Discovery and conformance

Ability to capture user activities and discover different process variants, discover tasks across teams/units, and detect underlying reasons for any deviations



Monitoring and workforce insights

Reporting and monitoring capabilities with leverage of AI/ML for generating task-level insights and workforce intelligence



Task enhancement

Ability to identify ways to improve tasks (e.g., reallocation, elimination, or automation) and perform simulation analysis to identify the impact for different scenarios



Data security and hosting options

Availability of enterprise-grade data security features, certifications, and flexible hosting options (on-premise, public cloud, private cloud)



Selecting the best-fit enterprise-grade solution (page 3 of 10)

Product capability



Discovery and conformance

Capability		Description	
• =	Data capture	Deploying a desktop recorder to capture user interaction data, including screenshots, clicks, scrolls, keystrokes, and the corresponding timestamps	
÷	Discovery of as-is models	Discovering as-is process maps based on UI logs data; it offers an aggregated view of a process from the recorded user activity data across teams, units, and locations, using AI/ML models	
	Variant analysis	Analyzing different variants of a discovered task across teams, business units, and geographies; some task mining providers also offer a side-by-side view for comparison to identify best practices within an organization	
	Compliance checks and benchmarking	Comparing the discovered as-is tasks based on UI logs data, with a reference model to analyze deviations and identify non-conformant cases; providers can help import or create BPMN 2.0-compliant models for comparing existing as-is tasks with Standard Operating Procedures (SOP) and benchmarking them with industry best practices	
	Identification of gaps and root-cause analysis	Identifying the causes of (un)desirable deviances/violations in the discovered variants	
	Documentation	Generating PDDs for discovered models, along with insights and captured screenshots for each task	



Selecting the best-fit enterprise-grade solution (page 4 of 10)

Product capability



Monitoring and workforce insights

Capability	<i>,</i>	Description
	Dashboarding and analytics with customization	Offering task-level insights (task analysis, rework rate, frequency of task, execution time) and application-level insights (time spent on each application, response time of each application); dashboards can be customized based on user requirements and roles
	Continuous monitoring	Continuously monitoring user activities performed across teams or units in near real-time
200	Workforce intelligence	Providing workforce-related insights, such as team productivity, most productive teams by task, and the amount of time each team spends on different applications to improve resource utilization and re-allocation
(g)	Custom KPIs	Allowing users to create any kind of KPIs or parameters related to user productivity, app rationalization, and process operations for further analysis



Selecting the best-fit enterprise-grade solution (page 5 of 10)

Product capability



Task enhancement

Capability	,	Description	
?	Simulations and what-if analysis	Defining scenarios and run simulations by listing certain attributes/variables and using multiple filters to compare tasks for examining the impact on relevant KPIs, such as throughput time and costs	
	Process improvement recommendations	Recommending ways to improve process performance, such as resource reallocation, step elimination, and next-best action for process owners	
	Automation recommender	Identifying opportunities for automating manual tasks and providing recommendations on prioritizing tasks based on automation potential; technology providers offer a metric known as automation potential to indicate tasks that can be automated	
	Automating the automation	Automatically creating automation workflows based on the optimal process variant through integration with automation/RPA tools	



Selecting the best-fit enterprise-grade solution (page 6 of 10)

Product capability



Data security and hosting options

Capability		Description		
	Securing of UI logs data	Algorithms help encrypt/decrypt data in transition and at rest. Restricted user access authorization, with roles-based access control, helps secure data. It also allows enterprises to centrally manage allow-/block-list applications from UI.		
器,	Product architecture	A loosely coupled microservices architecture supports multi-tenant containerized deployments. A scalable architecture will help enterprises to scale to over 1000 users across the organization increasing the accuracy of ML algorithms for discovery.		
, i	Hosting options	There is flexibility to deploy the solution on-premise or on private/public cloud. A SaaS offering can help reduce TCO and improve accessibility, scalability, and implementation time.		
' II \\ \\ \\ II	Data security and compliance	Standard security protocols, such as masking of PII in captured screenshots, a library of pre-defined words or fields that needs to be automasked or anonymized, secure credential management, and data encryption standards, are followed.		



Selecting the best-fit enterprise-grade solution (page 7 of 10)

Ecosystem of technology partners

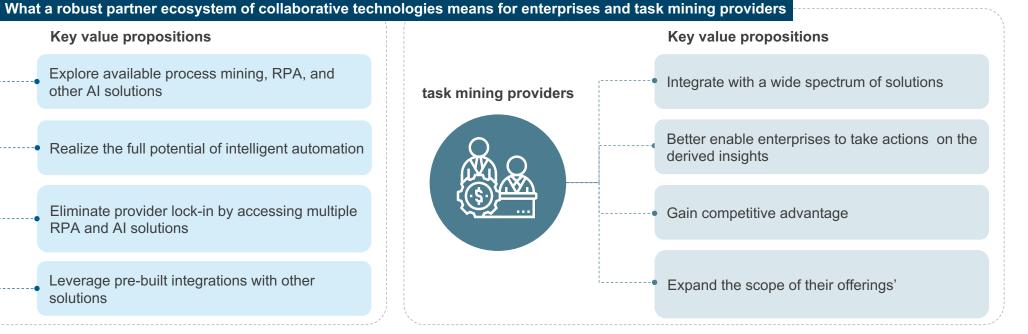




The technology partner ecosystem should be an important consideration for enterprises when choosing a task mining provider

- task mining solutions are capable of capturing user activities across desktops and can be combined with complementary technologies, such as process mining. RPA, Business Intelligence (BI) tools, and other AI technologies, to optimize and automate business processes
- Solutions packaged with task mining and process mining help enterprises get a holistic process view and improve operational efficiencies. Solutions packaged with task mining and RPA help enterprises automate identified tasks, reducing the manual effort involved
- If an enterprise's chosen task mining provider can provide access to a broad partner ecosystem for collaborative technologies, it will help the enterprise expand its digital transformation capabilities. It will also reduce the hassle of reconfiguring the deployment and integrating with collaborative technologies

Key value propositions Explore available process mining, RPA, and other AI solutions **Enterprises** Realize the full potential of intelligent automation Eliminate provider lock-in by accessing multiple RPA and Al solutions Leverage pre-built integrations with other solutions





Selecting the best-fit enterprise-grade solution (page 8 of 10)

Ecosystem of service partners





Training partners

- Training partners provide implementation and training expertise to help enterprises configure and deploy task mining solutions
- As task mining is an emerging technology, training partners are required to train employees on new features/capabilities of the solution
- For enterprises to achieve a global scale of deployment, they need training to be available in a variety of languages. This is one of the key value propositions they bring to the table



Implementation partners

- Implementation partners include system integrators that help enterprises implement task mining solutions and deploy broader automation or digital transformation solutions
- Enterprises can also leverage them to overcome challenges in areas such as governance, business case realization, and scale-up
- These partners can also help set up different CoEs, such as automation CoEs and process excellence teams



Consulting partners

- Few task mining providers currently provide the option of a managed-services model through their partnerships with providers
- They offer business and process expertise and can help in analyzing insights and executing appropriate improvement initiatives, such as process optimization and automation
- Collaborating with them can significantly reduce the time taken for implementation and eliminate the need to train employees



Selecting the best-fit enterprise-grade solution (page 9 of 10)

Product training and support



Two key components of product training and support



Robust product support and maintenance services

- Product support and maintenance are vital for a smooth journey experience, and, hence, enterprises should look for a task mining provider that offers robust and continuous product and maintenance support
- Uniform product update/release cycles and maintenance services help enterprises avoid/minimize challenges with their deployments, especially when task mining is used for multiple processes. An enterprise's IT and operations department should not be burdened with issues resulting from inadequate product support but rather be assisted to ensure the most efficient use of limited resources



Easy access to comprehensive product training

- Since the market is at an early stage, most providers offer in-person or classroom training to enterprises, but some providers have also started offering online training
- Self-paced online training with robust training documentation that can be downloaded and viewed offline allow enterprises to accelerate use, and hence should be considered when selecting a task mining provider
- A few providers are also developing online community ecosystems in which users can interact with each other to brainstorm and troubleshoot. Platforms may also contain embedded help tools to help users learn on the job



Selecting the best-fit enterprise-grade solution (page 10 of 10)

Commercial models



Task mining providers offer different types of pricing models. Enterprises need to be aware of the components included in their packages and how they are bundled and, accordingly, choose the most suitable model for themselves. Measure of market prevalence: Low High

		Description	Market prevalence
Q	User-/recorder-based licensing	Clients are charged based on the number of desktops on which discovery agents are deployed. Some providers also charge a base fee to start with and an additional fee for the data processing server.	
>	Bundled pricing	A few process-mining providers offer a discounted/special bundled pricing for task mining solutions, or, in some cases, they offer task mining complementary as part of the process-mining platform.	
(\$)	Hybrid of recorder-based and analyst-based	Clients are charged based on the number of desktops on which discovery agents are deployed and the number of analyst licenses that an enterprise opts for.	
	Fixed one-time pricing	Clients are charged a one-time/perpetual fixed fee for core product capabilities. An additional fee is charged for using premium product features.	

Key factors affecting the suitability of commercial models

Scale of deployment



Number of analysts



Scope of engagement



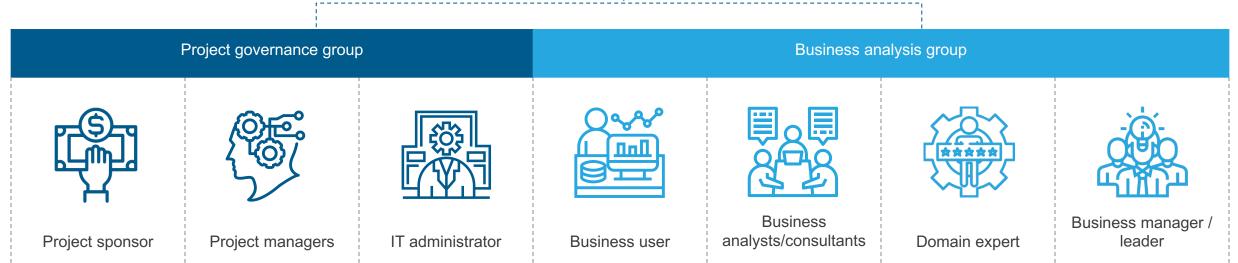


Talent management (page 1 of 4)

Roles, responsibilities, and skills required for task mining







Talent management (page 2 of 4)

Roles, responsibilities, and skills required for task mining



Project governance group



- The project sponsor is the owner of the overall business process (under consideration) during the enterprise's regular operations
 - For example, for the accounts payable process within F&A, the Chief Financial Officer (CFO) is likely to be the project sponsor
- This role is responsible for championing the project and securing the buy-in and budget from senior decisionmakers
- The role requires someone who believes in the capabilities of task mining and provides necessary support and resources for the project
- The project sponsor is expected to take full ownership of the task mining initiative's outcome



Project manager

- Project managers lead task mining projects and act as their single points of contact
- They are responsible for requirement specification, technology selection, risk assessments, and business adoption
- They are also responsible for liaising with relevant teams, defining realistic milestones, managing project progress, and ensuring timely delivery
- This role requires someone who has:
 - Experience in supervising teams, monitoring, reporting, auditing, and managing change following the implementation of improvement initiatives
 - Understanding of business processes and the task mining tool



IT administrator

- IT administrators help facilitate the setting up of desktop recording capabilities centrally
- They are responsible for authorizing, facilitating, and maintaining the required technical integrations, which might include installing and configuring task mining software on business users' desktops and getting information security clearances
- The administrator is also responsible for access control, configuration for redaction and blocked/allowed applications, and protection of personal information
- This role requires someone who understands the implementation scope and data-related concerns and has knowledge related to application access and authorization



Talent management (page 3 of 4)

Roles, responsibilities, and skills required for task mining



Business analysis group



Business user

- Business users carry out the core tasks/activities involved in the processes being recorded, discovered, and analyzed
- Working alongside business analysts, they help capture and subsequently, understand the sequence of the captured tasks
- An organization's core process FTEs, who should be trained to use the task mining tool to record daily operations, perform this role



Business analysts/consultants

- Business analysts review the sequences of the captured tasks and detail the stepby-step process, along with domain experts, for completing PDD
- They view and analyze the detailed process metrics of the automation candidates to evaluate the automation potential
- The role requires someone who:
 - Thoroughly understands business processes and process-reengineering acumen
 - Has experience in Lean Six Sigma, automation, or other processimprovement methodologies



Domain expert

- Domain or process experts typically know about different process variations and have a general sense of how the process is executed
- They are responsible for performing data validation and reviewing intermediary findings
- This role requires someone with extensive experience in the field, thorough knowledge of the overall process, and an understanding of various process execution methods across geographies, branches, business units, etc.



Business manager / leader

- Business managers / executives leverage insights from the task mining tool to build a business case for automation and other process improvement techniques
- They leverage process performanceand productivity-related insights to understand the cost drivers, drive efficiency, and chart out the future roadmap for changes
- They are responsible for initiating discussions on the insights gained through task mining and liaising with process improvement / automation teams per requirements



Talent management (page 4 of 4) Best practices for task mining talent management







- Hire experienced resources (business analysts / project managers) from peer enterprises and/or providers
- Turn to system integrators and providers for initial setup, technical consulting, and employee training through staff augmentation models



Employee awareness and engagement

- Conduct organization-wide education and awareness programs to address employee apprehensions around process transparency and educate business stakeholders on the capabilities and benefits of task mining
- Engage frequently with the customer support team of the task mining technology provider and/or service provider to disseminate business case studies among employees to establish credibility
- Establish a rewards system for contribution to process improvement initiatives using task mining tools (e.g., identifying automation/optimization use cases)



Training sessions

- Rely on training/upskilling existing employees and organize dedicated training sessions for administrators / business analysts to provide them hands-on training on the task mining solution. Such training reduces dependency on external hiring
- Collaborate with technology providers and external consultants to conduct training for the initial period (three to six months)
- Leverage the expertise of existing employees in automation / process excellence



Change management (page 1 of 3)

Key factors for effective change management when implementing task mining





















Alignment with IT





Change management (page 2 of 3)

Challenges and best practices for effective change management



Executive sponsorship and buy-in	Communication to overcome employee resistance	Employee training	Alignment with IT	Security and data privacy
 Challenges Low or late buy-in from the executive management slows the implementation process Lack of strategic focus and executive backing derails task mining initiatives 	 Challenges Individual resistance due to the lack of awareness Resistance to task mining adoption due to increased transparency and visibility into employees' ways of working 	 Challenges Constrained supply of experienced resources Limited adoption of task mining due to reliance on manual practices and reluctance to learn, adopt, and work with new technology 	 Challenges Lack of a shared vision between IT and the business results in disagreements on various fronts Time-consuming approvals from enterprise IT because of apprehensions around data security and privacy 	 Challenges Data breach concerns when data resides in public cloud Risk of violating user privacy by exposing sensitive and confidential information Challenges related to assigning the necessary user access
Best practices • Search for senior leaders	Best practices Reveal deviations of the current state from the desired state and help	Best practices Customize training to suit different release such as business applyate and	Best practices	controls to employee activity data
 (preferably CXOs) who: Are enthusiastic about the possibilities of task mining, take ownership, and drive the initiative continuously 	from the desired state and help sensitize the teams on the need for change • Create awareness about task mining through a story that generates enthusiasm and spread it via	roles, such as business analysts and process experts Train employees to operate with task mining by educating them on the use of task mining solutions and associated benefits	 Secure acceptance for the tool from security and IT teams and in terms of change management Collaborate with IT, from the beginning, to understand organizational data and IT 	 Best practices Address data security concerns pertaining to data staying onpremise or accessed via the cloud by restricting data access control to users
 Secure budget from the company board / management for the project Assume the role of change champions and have the ability to influence people 	channels such as enterprise newsletters • Educate employees about expected organizational benefits due to task mining • Share success stories, even of pilots or small projects through user-of-the-	 Orient project managers and administrators / business analysts to understand that task mining solutions and their leverage increases the speed of process discovery and documentation 	infrastructure, along with data extraction from desktops • Clearly divide responsibilities between the business and IT to avoid confusion/conflict and ensure collaboration on a shared goal	 Configure for any redaction and personal transactions; this activity requires additional time to configure and validate, ensuring that any PII, other secure information, or personal activity are not recorded



status updates

• Engage with leaders regularly

instead of providing them with

month announcements Proactively address employee

privacy/transparency concerns

Change management (page 3 of 3)

The change management team: role examples for sustaining the journey



	Illustrative titles	Responsibilities
Change management head (executive sponsor)	CEO/CDO/CTO	 Executive leadership Key project accountability and process ownership Reports to Business Head / CEO on project outcomes
Head – organization Development (change leaders)	Business line head	 Develop clear strategies for the task journey Coordinate the overall change program Develop individuals and teams for task mining adoption
Communication role (change agents)	Public relations head / chief communications officer / VP,	 Provide clear communication to all key stakeholders on issues related to task mining implementation Develop a two-way communication channel to foster ongoing task mining from Proof of Concept (PoC) to production
Content development role (change agents)	Content writer	 Develop business case studies and success stories for broadcasting and marketing Engage with business teams to obtain insights on the task mining journey
Human resources role (change agents)	HR manager	 Provide HR support on individual issues – reskilling/upskilling Provide a change office and HR infrastructure to support employees in the task mining journey
Project leaders (implementors)	Business line manager (mid-level)	 Engage the workforce for task mining projects Take responsibility for key initiatives in a specific project Report to the change management head and organizational development head on outcomes/progress
Performance management role (implementors)	Project manager / business line manager	 Establish clear, precise project performance measures and reporting systems Manage ongoing project performance Report to senior leaders on overall progress



Preparedness and performance monitoring

Enterprise best practices and illustrative metrics for performance monitoring



Enterprise best practices

- Proactively identify and define KPIs to measure and monitor the effectiveness and impact of task mining solutions
- Continuously monitor and revise KPIs and raise the bar to increase Rol from task mining tools
- Take adequate measures to protect sensitive data and PII to maintain data security



Preparedness

- Maintain audit trail for data protection and privacy
- Ensure data protection and privacy per compliance requirements

Illustrative metrics



Task mining impact

- Cost savings
- Process efficiencies
- Employee productivity
- Employee experience
- Broader automation



Effectiveness of task mining

- Accuracy rate
- Time-to-insights
- Speed of training/implementation
- Efficiency/effectiveness of ML algorithms for process mapping



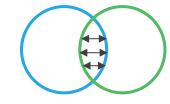
The role of a CoE (page 1 of 3)



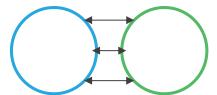
As enterprises mature in their task mining journeys, the process excellence and automation CoEs start collaborating to implement task mining initiatives

Increasing level of maturity





Unified team/CoE, with structured collaboration between the process excellence and automation CoEs



Ad hoc collaboration between process excellence and automation teams/CoEs



Process excellence and automation teams / CoEs work in a siloed manner

CoE evolution -

The role of a CoE (page 2 of 3)

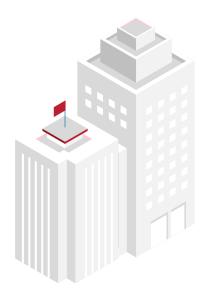




Collaboration between process excellence and automation CoE teams

Siloed approach of the process excellence team and the automation CoE

- The central process excellence / digital transformation / automation team manages task mining projects in collaboration with business units and IT (for implementation), with limited support from other CoEs
- When the process excellence CoE drives task
 mining initiatives, there is limited domain and core IT
 expertise. When the automation CoE drives them,
 ongoing automation requirements/projects
 overshadow these projects, or they could face
 challenges due to limited process knowledge



Structured collaboration between the process excellence and automation CoE teams

- As the task mining journey matures, the automation CoE works together with the process excellence CoE to align task mining initiatives with broader process improvement and automation initiatives
- A structured collaboration helps limit redundant efforts for process optimization, while ensuring that task mining initiatives strongly align with the enterprise's strategic targets and digital transformation journey
- The collaboration will help employees to leverage insights and improve process execution, as well as institutionalize standards and governance mechanisms

The role of a CoE (page 3 of 3) What services does a unified CoE offer?





Governance

- Align with the enterprise leadership's business objectives and priorities
- Develop a roadmap for the adoption and growth of task mining
- Define frameworks for process identification and prioritization, and standards, procedures, and guidelines for task mining implementation
- Ensure course correction based on feedback and learning
- Identify best practices that can be shared and used
- Monitor and report progress to the executive sponsor



Technical support

- Support data integration and preparation, quality assurance, and overall technical connectivity
- Assist in arranging approvals on data privacy
- Reduce time, effort, and costs related to delivery, development, and maintenance through increased efficiency
- Create a scalable technical environment



Execution and change management

- Coordinate with business and IT teams to drive action, including identifying and prioritizing use cases
- Develop business cases to measure value and streamline approaches
- Identify and develop reusable assets to improve Rol
- Employ a change management program, including training, awareness, and education, to get the most out of the investments made
- Evangelize task mining and empower teams and end users to adopt task mining for daily use
- Create a culture of continuous improvement



Enterprise case study



Case study | Bayer (page 1 of 2)



Enterprise overview

Bayer is a multinational pharmaceutical and life sciences company, headquartered in Leverkusen, Germany. Founded in 1863, Bayer currently has over 99,000 employees across Europe, the United States, Brazil, and India. The company started its automation journey with RPA implementation in 2018 and engaged with Soroco to deploy task mining in 2020. This case study is specific to an implementation across five functions at the company's Consumer Health division. That said, across Bayer Group, task mining has been deployed across 30 countries and 400+ users and has delivered 90,000 work-hours of value.

Drivers of adoption

- Improving process transparency: Gaining visibility into end-to-end processes, including application-level insights, to create a digital mirror of processes and improve operational transparency
- Improving process efficiency: Improving processes by identifying improvement opportunities for automation, process re-engineering, application rationalization, and training

Approach to task mining initiatives

- Project initiation: Task mining was introduced as part of the broader digital transformation initiative
- **Process selection:** The top management selected supply chain, which was badly hit due to the pandemic, as the first use case for task mining. Further use cases were selected based on market size and process health
- Talent: The internal IT team and business analysts run the task mining initiative; it also involves nearly 60 process SMEs and business analysts
- **Organization structure:** The task mining team is embedded within the automation CoE and functions in a decentralized manner. Business teams fund the various initiatives

Key business outcomes

- Returned more than 90,000 work-hours back to the business in the past 12 months
- Gained a 360-degree perspective on processes, including the application layer outside of enterprise applications which involved more than 80% of the process effort
- Identified various process improvement opportunities using application and workforce intelligence that helped reduce workload and improved employee experience, and scaled adoption across the enterprise
- Ensured GDPR compliance with no privacy concerns and adhered to privacy requirements alongside workers councils across Europe



Case study | Bayer (page 2 of 2)



Challenges

- Obtaining stakeholder buy-in due to the lack of awareness about task mining and its benefits; stakeholders also apprehensive about the new solution's viability
- Lack of willingness to adopt task mining because of employee apprehensions regarding transparency across tasks and processes and concerns related to data privacy in certain countries, especially Germany, France, and Switzerland
- Inability to visualize benefits in the initial phase of the task mining journey, as it takes a few months to realize the desired outcomes

Winning insights

- Started small with one process and evangelized the benefits achieved for further adoption in other areas to overcome the inhibitions to adopting task mining; subsequently, invited team members that had used the solution to share their experiences with other stakeholders to promote adoption
- Built a structured program for execution; the team identified and nominated SMEs who were accountable for driving adoption
- Leveraged work graph to analyze the work performed across teams and identify improvement opportunities beyond individual tasks
- Leveraged a change management program and followed a bottom-up approach to educate users and business stakeholders and build a trusted relationship, as it involved data sharing

Current state of the task mining initiative

- Rolled out across five functions, including supply chain management, logistics, new product development, R&D, and quality assurance, touching nearly 500 FTEs
- Deployed across 400+ applications, including web, desktop, Citrix, and custom applications

Future plans for the task mining initiative

- Expand task mining to other functions and markets, including the global product supply
- Leverage task mining to automatically generate more than 70% of automation codes for RPA development

Bayer is leveraging task mining software for not only automation initiatives, but also insights generation for process re-engineering, employee training, and application rationalization/modernization.

Jürgen Winandi, Group Product Manager Automation, Bayer



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Appendix

- Enterprise task mining Capability Maturity Model (CMM)
- Environmental determinants
- Variance in execution path steps for organizations by environmental determinants
- Survey demographics
- Glossary



Everest Group evaluates task mining capabilities according to five key components of enterprises' task mining journeys

Journey components



Vision & strategy

Key focus area

- Understand the organizational vision for task mining and the drivers for its adoption
- Assess the organization's readiness for task mining adoption from process, security, and monitoring perspectives



Organizational structure

- Determine the governance model for task mining initiatives
- Analyze the task mining team structure and the COE's roles and responsibilities



Technology

- Assess the extent to which various task mining components, such as discovery, conformance, monitoring, and intelligence, are being leveraged alongside ancillary technologies
- Evaluate the level of sophistication of the task mining technology deployed



Talent and change management

- Assess the sourcing strategy, training, and education programs for various task mining skills, along with the level of sharing/pooling of resources/skills
- Evaluate the level of employee awareness and engagement for managing change

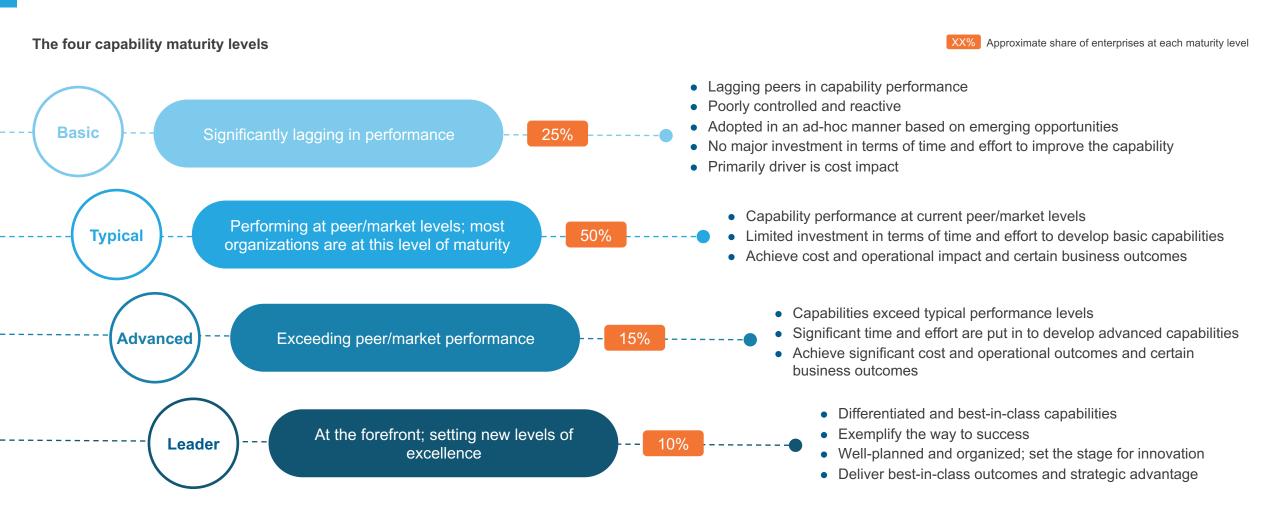


Implementation

Evaluate the maturity stage, scale, scope, and speed of task mining adoption – in terms of number of processes, users, and business units



Enterprises' task mining capabilities are assessed across four maturity levels



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Enterprises' task mining capabilities are assessed across more than 25 capability elements

Journey components	Capability				
A. Vision & strategy (7 capabilities)	A1. Primary drivers of task mining adoption A2. Funding/sponsorship A3. Project initiation A4. Security & risk preparedness for task mining with factors considered A5. IT alignment A6. Metrics and KPIs to measure the benefits/impact of task mining A7. Metrics and KPIs to measure the effectiveness of task mining initiatives				
B. Organization structure (4 capabilities)	B1. Task mining team structure and roles B2. Types of CoE B3. Scope of CoE B4. Roles and responsibilities of the CoE				
C. Technology (9 capabilities)	C1. Data collection and preparation C2. Extent of discovery C3. Conformance check C4. Process monitoring and optimization C5. Workforce intelligence C6. Process automation C7. Hosting options C8. Security and compliance C9. Ancillary technologies				
D. Talent and change management (4 capabilities)	D1. Sourcing of task mining talent D2. Task mining training and education D3. Sharing/pooling of task mining skills D4. Employee awareness and engagement				
E. Implementation – scale, scope, and speed (5 capabilities)	E1. Distribution of task mining projects by stage E2. Targeted process types for task mining adoption E3. Scale of task mining adoption E4. Scope of task mining deployments across functions E5. Speed of task mining adoption				



Enterprise task mining CMM (page 1 of 12)

Vision & strategy

Capability element	Basic	Typical	Advanced	Leader
Primary drivers of task mining adoption	Achieving tactical benefits such as cost savings, quality, and efficiency in specific projects; no formal business case	Improving process efficiency and quality, workforce productivity, process standardization, and cost savings/avoidance	Accelerating automation, process optimization, operational transparency, and customer experience, along with other cost and operational factors	Achieving digital transformation, employee experience and engagement, and top-line growth, along with various cost and operational factors
Funding/ Sponsorship	Primarily sponsored/funded by the local/regional business unit budget	Primarily sponsored/funded by the global shared services budget	Primarily funded by the global business function's budget / CoE	Primarily funded by the central enterprise budget; sponsorship from the CXO
Project initiation	Siloed approach, with no CoE support	Local/Regional business or IT units initiate the project, with basic/limited support from the CoE	Global business/IT functions or the global shared services function initiates the project; this is a multipronged approach with substantial support from the CoE and process SMEs	The corporate function / global business or IT functions / the global shared services function initiate(s) the project; this is a multi-pronged approach with robust CoE and process SME support



Enterprise task mining CMM (page 2 of 12)

Vision & strategy

Capability element	Basic	Typical	Advanced	Leader
Security and risk preparedness for task mining with factors considered	 No major changes made to security and risk policies; work around existing policies to accommodate the changes required for task mining, such as access to UI logs data or desktop recordings No formal Information Security (InfoSec) process for task mining solutions 	 Some changes made to security and risk policies to accommodate task mining environments and scenarios Factors considered include role-based user access, compliance, and data confidentiality/residency requirements Developing the InfoSec process for task mining solutions 	 Proactively evaluates and plans for the mitigation of security and compliance risks associated with task mining deployments Role-based user access, data protection, and security measures for access to UI logs data (allow-/ block-list applications) Strict governance and compliance (masking PII) 	 Involves security and risk leaders in task mining projects to proactively plan for the mitigation of security and compliance risks Unique risk management protocols and controls for task mining deployments Granular user access control and governance and compliance (masking PII)
IT alignment	The operations/business team leads the deployment, with limited support from IT	The operations/business team leads the deployment, and local IT lends support for implementation and other relevant services	 Enterprise IT is brought on board to set standards and support security, infrastructure, and business continuity requirements Revising standards and practices for deploying task mining at scale 	 Enterprise IT is an end-to-end partner for all task mining initiatives to set up standards and support security, application rationalization, infrastructure, and business continuity Revising standards and practices for institutionalizing task mining

Enterprise task mining CMM (page 3 of 12)



Vision & strategy

Capability element	Basic	Typical	Advanced	Leader
Metrics and KPIs to measure task mining's benefits/impact, such as cost savings/avoidance, process quality and speed (e.g., on-time payments, variant reduction), workforce productivity, process standardization and optimization, automation pipeline, employee and customer experience, time-to-market, and revenue growth	Does not use any well-defined metrics to measure the returns from task mining investments; the metrics used are ad hoc, poorly controlled, and reactive/chaotic	Uses some basic cost and efficiency metrics / existing IT metrics, which are repeatable in projects to measure the returns from task mining investments	Has defined new metrics, along with basic cost and efficiency metrics, which are repeatable in projects; the metrics are standardized across the organization to track the returns on task mining investments.	Has defined a robust value-realization framework (e.g., business case calculator) and reviews it regularly to continuously monitor and optimize the impact of task mining investments
Metrics and KPIs for measuring the effectiveness of task mining initiatives (e.g., speed of implementation and achieving meaningful insights, license utilization, number of processes/BUs, number of users, and depth and breadth of process insights as well as workforce insights)	Does not use any well-defined metrics to measure the effectiveness of task mining initiatives; the metrics used are ad hoc, poorly controlled, and reactive/chaotic	Uses some basic metrics, such as process variants discovered alongside existing IT metrics, which are repeatable in projects to measure the effectiveness of task mining initiatives	Has defined new metrics that are standardized across the organization to track and measure the effectiveness of task mining initiatives; the defined policies, procedures, and practices are driven by flexibility to accommodate the unique aspects of different business units	Continuously optimizes metrics, policies, procedures, practices, roles, and responsibilities to measure and optimize the effectiveness of task mining initiatives



Enterprise task mining CMM (page 4 of 12)

Organization structure

Capability element	Basic	Typical	Advanced	Leader
Task mining team structure and roles	 No dedicated task mining team within the organization Largely shared talent from IT and operations Lack of well-defined roles 	 Decentralized structure The business unit forms a dedicated team for task mining initiatives when required A few well-defined roles (e.g., business analyst, business user, and data scientist) 	 A centralized, dedicated task mining team that defines and implements task mining for the entire organization, along with broadcasting and marketing initiatives Well-defined roles, such as business analyst, business user, domain expert, data scientist, and IT administrator 	 Hybrid process mining operations Decentralized task mining teams from business units – consisting of project sponsor, project manager, business user, business analyst, IT administrator, data scientist, and domain expert – work closely with a central team to implement task mining initiatives A mature team for broadcasting and marketing initiatives to foster adoption
Type of CoE	No formal CoE setup for task mining initiatives	Process excellence and automation teams / CoEs work in a siloed manner	Ad hoc collaboration between process excellence and automation teams	Structured collaboration between process excellence and automation teams
Scope of the CoE	NA	CoEs influencing less than 40% of the task mining projects; business units initiate, govern, and deliver the projects	CoEs initiate, govern, and deliver 40-80% of the task mining projects	CoEs initiate, govern, and deliver more than 80% of the task mining projects



Enterprise task mining CMM (page 5 of 12)

Organization structure

Capability element	Basic	Typical	Advanced	Leader
Roles and responsibilities of the CoE	 Rolls out and implement task mining projects and ensure coordinated communication with relevant stakeholders Loosely defined roles, responsibilities, and skill sets 	 Ensures quality and compliance through well-defined standards, procedures, and guidelines Leads the PoCs that the CoE owns and has developed Rolls out and implements task mining projects and ensure coordinated communication with relevant stakeholders Some key roles and responsibilities are well defined 	 Approves all task mining procedures before they are deployed; identifies new opportunities and use cases Ensures quality and compliance through well-defined standards, procedures, and guidelines, which the CoE owns and has developed, for broader digital initiatives Ensures coordinated communication with relevant stakeholders Well-defined roles, responsibilities, and skill sets 	 Educates business units on task mining benefits; approves all task mining procedures before they are deployed Provides task mining training and education programs Identifies new opportunities and use cases Ensures quality and compliance through well-defined standards, procedures, and guidelines, which the CoE owns and has developed Rolls out and implements task mining projects Well-defined roles, responsibilities, and skill sets



Enterprise task mining CMM (page 6 of 12)

Capability element	Basic	Typical	Advanced	Leader
Data collection and preparation	 OCR- and computer vision-based recorders are used to capture user actions across multiple desktops Manual collating, transforming, and loading of UI logs data to the task mining platform 	 Computer vision-based recorders are available, but users need to manually select the recording style Need to manually start and stop recordings on each user desktop 	 Both Document Object Model (DOM)-/Component Object Model (COM)-based and computer vision-based recorders are available Users need to allow/block applications from UI Silent recording of user activities without users having to manually start or stop recordings 	 Classifies applications into relevant (e.g., Excel, SAP, search engines) and non-relevant categories (e.g., social media applications) Admin can centrally manage allowed/blocked applications from UI and also pause recordings Record user actions performed on any green screen or applications run on the Citrix server / VDI
Extent of discovery	 No discovery is possible Generates PDDs and captures tasks Limited to a specific business unit or geography 	 Discovery of user activities at team level Discovery of application usage, document usage, communication usage patterns, and bottleneck identification Generates PDDs for discovered process maps, with process steps and process information 	 Discovery of user activities at a business unit or geography level Ability to visualize task/process flow and identify bottlenecks Generated PDDs contain captured screenshots and process insights 	 Discovery of user activities at multiple business units or geographies Ability to provide recommendations for alleviating bottlenecks and enable change programs Users can add step description and notes in the discovered maps and generate PDDs, BPMN models, and RPA code Extracts specific fields or information within the screenshots

Enterprise task mining CMM (page 7 of 12)

Capability element	Basic	Typical	Advanced	Leader
Conformance check	No conformance checks leveraged	BPMN format files can be imported for ideal processes and compared with discovered process maps to identify non-conformant cases	 Performs conformance checks by defining the to-be process model using a task capture tool Detects process step deviations in the discovered workflows Checks compliance rules (e.g., segregation of duties) 	 Root-cause analysis of process step deviations Identifies the compliance rate at activity level and overall task level and spots missing and duplicate steps Adheres to the same process across different teams
Process monitoring and optimization	Basic reporting/analytics insights	Descriptive reporting capabilities with out-of-the-box BI/analytics	 Application-level insights (e.g., time spent on each application, response time of each application) Detects process loops and rework rates for tasks Performs variant analysis and identifies the optimal variant 	 Leverages Al/ML to run multiple simulations (what-if analysis) to aid business decisions Determines/measures the impact and Rol of change initiatives by comparing various what-if scenarios Checks the sequence of steps across teams to standardize the process
Workforce intelligence	No workforce intelligence insights delivered	Basic reporting/analytics insights at a team level (average time the team takes per task, idle time, etc.)	 Detailed insights (average time the team takes per task, task frequency, employee productivity, variance, idle time, etc.) for users across a team Creates customizable dashboards 	 Provides on-screen guidance or recommendations to users in near real- time to improve their productivity or reduce effort Creates customizable and role-specific dashboards



Enterprise task mining CMM (page 8 of 12)

Capability element	Basic	Typical	Advanced	Leader
Process automation	Task mining not leveraged to identify automation opportunities	Identifies the automation potential of processes at a micro level	 Identifies automation potential and use cases at a micro level Determines the amount of cost savings for automation opportunities to help prioritize identified tasks for automation Intelligent identification of field types/lists for comprehensive process automation 	 Measures the potential impact (e.g., cost savings, resources, time) for automation opportunities to help prioritize identified tasks for automation Intelligent identification of field types, production of exhaustive lists for comprehensive process automation Auto-generates automation workflows based on the identified use cases via integration with RPA/automation tools
Security and compliance	 No data stored within the system Data confidentiality through encryption No formal PII process for task mining solutions 	 Roles-based access to the system Encrypt/decrypt UI logs data Developing PII process for task mining solutions 	 Customized roles can be created for accessing dashboards Masking of PII in the captured screenshots, adhering to privacy and regulatory compliances such as General Data Protection Regulation (GDPR) and California Consumer Privacy Act (CCPA) Different environments of UI logs, with restricted user access authorization 	 Pre-built library or repository of words or fields that needs to be auto-masked or anonymized Customer-configurable PII capabilities available Enhanced gateway server in which the hardware is provisioned, and data is secured on-premise Security certified from recognized institutions



Enterprise task mining CMM (page 9 of 12)

Capability element	Basic	Typical	Advanced	Leader
Hosting capabilities	 On-premise (physical laptop/desktop, server) Private cloud (enterprise or third-party service provider hosted) 	 On-premise (physical laptop/desktop, server) Private cloud (enterprise or third-party service provider hosted) Public cloud (enterprise or third-party service provider hosted) 	 Public cloud (enterprise or third-party service provider hosted) Private cloud (enterprise or third-party service provider hosted) SaaS (software provider hosted) 	 Public cloud (enterprise or third-party service provider hosted) SaaS (software provider hosted)
Ancillary technologies	The task mining solution is leveraged on a stand-alone basis.	party service provider hosted) • SaaS (software provider hosted) Used in conjunction with or ad hoc integrations with complementary technologies, such as process mining and Bl/analytics capabilities	Used in conjunction with or pre-built integrations with complementary technologies, such as process mining, RPA, process orchestration, and BI/analytics capabilities	Holistic intelligent automation approach integrating task mining with process mining, RPA, process orchestration, IDP, and BI/analytics capabilities for end-to-end process automation



Enterprise task mining CMM (page 10 of 12)

44	Talent & change
14.	management

Capability element	Basic	Typical	Advanced	Leader
Sourcing of task mining talent	Leverages provider / external partner resources or existing resources with limited/no training	Leverages provider / external partner resources and existing shared resources with relevant training on task mining	 Leverages existing dedicated resources with proper training Leverages partners for scaling task mining initiatives Cross-training on task mining for enterprise-wide resources 	 Leverages existing well-trained/experienced dedicated resources A well-documented approach to source resources from across the enterprise per bandwidth requirements Leverages partners for scaling task mining initiatives Cross-training of all resources on task mining (agile training)
Task mining training and education	No formalized training / basic initial task mining training by provider	External training of resources, primarily leveraging the training and certification programs offered by the task mining provider / service provider	Formal internal task mining training program plus initial training by task mining provider / service provider, primarily for technical skills for task mining	Well-structured internal and external task mining training programs, integrated with broader training programs, which are regularly reviewed and optimized
Sharing/pooling of task mining skills	No sharing/pooling of task mining skills	Sharing/pooling of task mining skills within regional business units/functions	Sharing/pooling of task mining skills within business functions across geographies	Organization-wide sharing/pooling of task mining skills across most business functions and geographies



Enterprise task mining CMM (page 11 of 12)

i \$	Talent & change
	management

Capability element	Basic	Typical	Advanced	Leader
Employee awareness and engagement	 Limited training and awareness programs, with no involvement and support from the task mining provider or service provider Few people proactively engaged in some task mining initiatives 	 Informal awareness programs made available to a focused group of stakeholders to educate them about the use and benefits of task mining Limited consultation with the task mining provider or service provider More believers who engage in task mining initiatives 	 Organization-wide education and awareness programs to address employee apprehensions around process transparency Frequent engagement with the task mining provider's or service provider's customer support team Organization-wide employee engagement, with some internal experts to educate on the tool and its benefits Develops a culture of innovation and design thinking 	 Organization-wide awareness programs to educate stakeholders on the capabilities and benefits of task mining Proactive addressal of concerns around process transparency and involvement of the task mining provider / service provider to create awareness Front-end of the CoE comprises internal experts set up across the organization for employee engagement A rewards system for contribution (e.g., automation/optimization use cases)



Enterprise task mining CMM (page 12 of 12)

Implementation (scale, scope, and speed)

Capability element	Basic	Typical	Advanced	Leader
Distribution of task mining projects by stage	Most task mining projects are in the planning stage.	Most task mining projects are in the pilot stage.	Most task mining projects are being scaled up from the pilot stage.	Most task mining projects are in a continuous improvement stage.
Targeted process types for task mining adoption	The average time that users spend on productivity applications is less than 25% of the total on-system time.	The average time that users spend on productivity applications is in range of 25-50% of the total on-system time.	The average time that users spend on productivity applications is at least 50% of the total on-system time.	 The average time that users spend on productivity applications is at least 70% of the total on-system time Processes that involve significant employee collaboration / handoffs / calls
Scale of task mining adoption	Up to 2 teams leveraging task mining solution(s) or up to 50 users	3 to 5 teams leveraging task mining solution(s) for 51 to 250 users	6 to 10 teams leveraging task mining solution(s) for 251 to 1,000 users	More than 10 teams leveraging task mining solution(s) for more than 1,000 users
Scope of task mining adoption	1 business function/unit	2 to 3 business functions/units	4 to 5 business functions/units	More than 5 business functions/units
Speed of task mining adoption (time taken to reach 500 users)	3 years	2 years	1 year	9 months



Environmental determinants

38 38 38	Organizational structure	Highly centralized, with little independent decision-making	Partially centralized, with parts of the decision- making federated to Business Units (Bus)	Largely federated decision-making – BUs have a large degree of freedom to make their own decisions
	People centricity	The culture is people-driven, relying on process-level knowledge residing with individuals. Processes are loosely defined	Organization with high focus on people as assets along with some focus on efficiency	Efficiency- and process-driven organization achieving strategic objectives in a structured manner; processes are well-defined and mapped
ŤŤŤ	Initiating stakeholder(s)	BUs run operations-driven initiatives to make their function employees more productive	IT-driven initiatives for organization-/BU-wide training or change management / innovation scenarios	Centrally driven, typically by the C-suite or one level below, with all BUs and IT falling in line
<u> </u>	Risk appetite	Low risk appetite – need to have multiple layers of checks and balances for any initiative	Medium risk appetite – willing to take risks in selected scenarios, especially when the market dictates	High risk appetite – willing to take risks in the hope of market leadership and payoff
<u></u>	Technology savviness	Highly technology savvy – IT plays the role of innovation leader	Moderate level of technology savviness – IT supports most initiatives and spearheads a few	Low level of technology savviness – IT plays a supporting role in innovation
$\leftarrow \bullet$	Sensitivity to change	Very sensitive to change – even the slightest change can disrupt the organizational workforce	Willing to accept smaller incremental changes but not large systemic changes	Progressive mindset to change – workforce is receptive and accepting of even transformative changes
	Existing task mining partnerships	No existing task mining partnerships	Existing partnerships with process mining or RPA providers who have in-house task mining capability	Existing task mining partnerships and deployments with pure-play task mining providers
	Usage of productivity applications ¹	Relatively low usage of productivity applications	Moderate usage of productivity applications	High usage of productivity applications

¹ These applications include documentation tools (e.g., Microsoft Excel, Microsoft Word, and Adobe PDF), web browsers (e.g., Google Chrome and Mozilla Firefox), analytics tools (e.g., Tableau), collaboration tools (e.g., Microsoft Outlook and Slack), and automation tools (e.g., UiPath and Automation Anywhere)



Environmental determinants, along with current/target outcomes and capabilities, lead to differences in enterprise execution paths (page 1 of 4)

Planning

Ste	eps	Determinants	Possible paths
1	Identify and prioritize processes using the prioritization framework	Risk appetiteSensitivity to changeUse of productivity applications	 Implement one process at a time Implement logical groups of processes sequentially Big bang implementation
2	Plan implementation timelines, governance, and skill development for task mining	NA	NA
3a	Align with IT for task mining implementation	Initiating stakeholdersTechnology savviness	 Involvement of IT is minimal Involvement of IT is moderate Involvement of IT is high and contributes to task mining initiatives
3b	Obtain the operations team's, particularly process owners', buy-in	Sensitivity to changePeople/process centricity	 Selective communication with only process owners Selective communication with process owners and those directly involved Open communication with the entire team
4	Select an appropriate task mining provider based on the capabilities required to achieve the desired outcome	Existing task mining partnershipsRisk appetiteUse of productivity applications	 Leverage existing relationships Evaluate other providers when leveraging existing relationships Evaluate the entire provider landscape afresh
5	Obtain management buy-in and budget	Organizational structureInitiating stakeholders	 Buy-in and budget at BU level Buy-in and budget at global shared services level Buy-in and budget at central enterprise level



Environmental determinants, along with current/target outcomes and capabilities, lead to differences in enterprise execution paths (page 2 of 4)

Piloting

Ste	ps	Determinants	Possible paths
6	Initiate continuous communication as part of change management	Sensitivity to changePeople/process centricity	Low to no communicationModerate frequency of communicationFrequent communication
7a	Initiate talent development and training of resources for task mining skills	Technology savviness	 Use mostly external talent and/or outsource/partner Use a combination of in-house and provider/consulting talent Develop talent in-house by training resources using internal experts
7b	Initiate a governance mechanism	Risk appetiteOrganizational structure	 Minimal ad hoc governance A standard set of metrics for tracking, limited to immediate use cases Comprehensive governance, with a robust value realization framework
8	Develop a pilot for prioritized processes	Risk appetiteSensitivity to change	 Pilots are created and deployed for identified processes in a phased manner Pilots are created and deployed for all identified processes simultaneously
9	Continuously monitor and report on metrics/KPIs	NA	NA
10	Repeat the journey with the next process in the priority list	NA	NA NA



Environmental determinants, along with current/target outcomes and capabilities, lead to differences in enterprise execution paths (page 3 of 4)

Scaling up

Step	s	Determinants	Possible paths
11	Set up enterprise standards and best practices based on learnings	NA	NA
12a	Evaluate the CoE's location	 Organizational structure Initiating stakeholders	 The process excellence CoE and the automation CoE work in silos Ad hoc collaboration between the process excellence CoE and the automation CoE Strong fusion between the process excellence CoE and the automation CoE
12b	Build the CoE's structure	NA	NA
13a	Evaluate and refine the task mining talent strategy	Technology savvinessRisk appetite	 Leverage external resources / task mining provider resources Use a combination of in-house talent and external resources Develop talent in-house
13b	Set up a team to evaluate opportunities	Organizational structure	 Centrally nominated and controlled Centrally controlled, with nominations from business units Cross-functional, nominally centralized
14	Templatize opportunity evaluation and processing	NA	NA
15a	Scale up across the enterprise	NA	NA
15b	Continuously monitor and report on metrics/KPIs	NA	NA



Environmental determinants, along with current/target outcomes and capabilities, lead to differences in enterprise execution paths (page 4 of 4)

Steady state

Step	s	Determinants	Possible paths
16	Enable various exposure mechanisms to create awareness – newsletters, web portals, etc.	NA	NA
17	Institutionalize the governance model	NA	NA
18	Continuously monitor and report on metrics/KPIs	NA	NA
19	Rationalize effort and integrate a culture of improvement and innovation across the organization	NA	NA

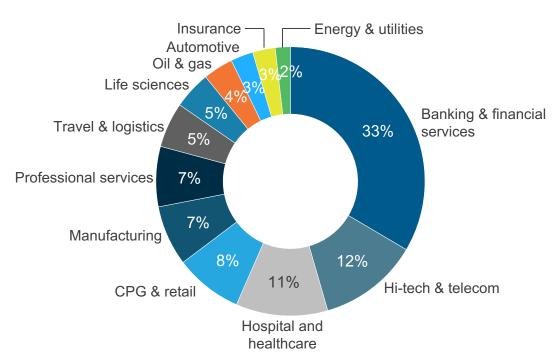


Demographics – respondent profile (page 1 of 2)

Respondent profile by industry

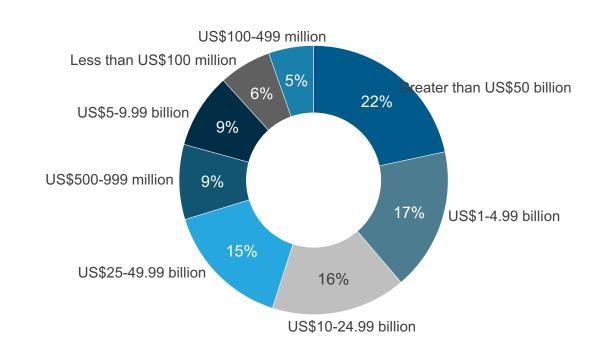
Percentage of respondents





Respondent profile by enterprise annual revenue Percentage of respondents

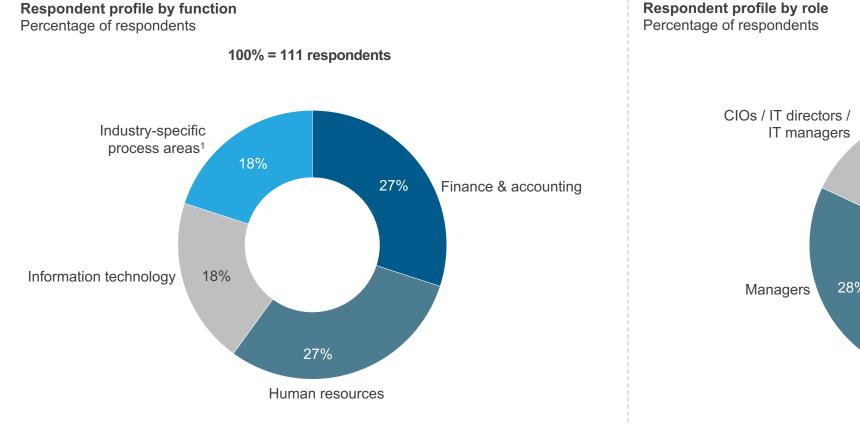
100% = 111 respondents



Source: Everest Group (2022)

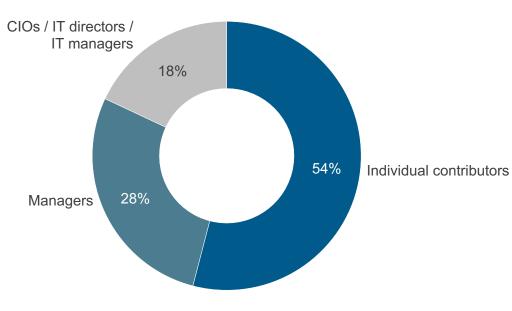


Demographics – respondent profile (page 2 of 2)



Respondent profile by role

100% = 111 respondents



¹ Includes industry-specific functions across automotive, banking & financial services, CPG & retail, energy & utilities, hi-tech & telecom, hospitals & healthcare providers, manufacturing, oil & gas, professional services, and travel & logistics Everest Group (2022)



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Glossary of key terms used in this report (page 1 of 2)

Activity clustering	Forming clusters or groups of activities that are closely related to each other, based on analysis
Al	Artificial Intelligence is the ability of machines to use cognitive computing to mimic human intelligence, such as visual perception, speech recognition, decision-making, and language translation
Association rule mining	Rules-based machine learning method to discover the relationship between variables in a large dataset
BPMN 2.0	Business Process Model and Notation 2.0 is a graphical representation for specifying business processes in a business process model. It helps to clearly determine the flows and business processes designed in a process diagram.
BI	Business Intelligence refers to the technologies, applications, and practices for the collection, integration, analysis, and presentation of business information
ВРМ	Business Process Management or process orchestration is a software product/solution that helps business users design, manage, and monitor end-to-end business processes;. it can orchestrate the flow of work across human workers, digital workers (such as RPA, IDP, and conversational AI), and enterprise applications in long-running workflows
Buyer	The company/entity that purchases outsourcing services from a provider of such services
Computer vision	A technology that uses AI to enable the automatic extraction, analysis, and understanding of useful information from digital images
Conversational Al	A computer-generated virtual character that can have a conversation with human customers and take decisions; also referred to as chatbots or virtual assistants
CRM	Customer Relationship Management
Deep learning	A subfield of Machine Learning (ML) concerned with algorithms and inspired by the structure and function of the brain called artificial neural networks
ERP	Enterprise Resource Planning
Event logs-based pricing	Pricing model based on the volume of data ingested in a tool for process mining
FTE	Full Time Equivalent, or a way to measure a worker's productivity and/or involvement in a project; an FTE of 1.0 is equivalent to a full-time worker
HCM	Human Capital Management
Horizontal business processes	Processes common across various departments in an organization and often not directly related to the key revenue-earning business, such as procurement, finance & accounting, and human resources management
IDP	Intelligent Document Processing is a software product or solution that captures data from documents (e.g., emails, texts, PDFs, and scanned documents), categorizes it, and extracts relevant data for further processing using AI technologies such as computer vision, Optical Character Recognition (OCR), Natural Language Processing (NLP), and ML / deep learning
ITSM	IT Service Management is a set of defined policies, processes, and methods for delivering IT products and services



Glossary of key terms used in this report (page 2 of 2)

KPI	Key Performance Indicators for processes, services, products, or solutions
ML	A type of AI that provides computers with learning capabilities without explicit programming
NLP	A machine's ability to interpret human languages
OCR	A technology within computer vision that involves the recognition of printed characters using computer software
PII	Personally Identifiable Information is any information that can be used to identify, contact, or locate a specific individual. It includes IP address, phone number, email address, credit card number, date of birth, or any other unique identifier.
Process loops	A repetition of activity or a process step in a process path, leading to rework
ROI	Returns generated from an investment
RPA	Robotic Process Automation refers to a type of rules-based automation technology that helps automate repetitive tasks by mimicking a user's activities. It is non-invasive and typically interacts with a computer-centric task/process through the User Interface (UI) of the underlying software applications.
SaaS	Software-as-a-Service is a software licensing and delivery model, in which the software is hosted centrally by a third-party provider and is made available to customers over the internet. It is also referred to as on-demand software.
SCM	Supply Chain Management
Semi-structured data	Refers to content that does not conform to pre-defined structures but, nonetheless, contains tags / other markers to separate semantic elements and enforce hierarchies; in short, it has a self-describing structure, and the placeholders of the content can be in varied sequences
Sequence mining	Identifying the sequential pattern of activities that occur during a process
Structured data	Refers to content that conforms to pre-defined structure in terms of tags to separate semantic elements and enforce hierarchies of records and fields; the placeholders for the content have a pre-defined sequence
Unstructured data	Refers to information that either does not have a pre-defined data model or is not organized in a pre-defined manner; unstructured information is typically text-heavy but may contain data such as dates, numbers, and facts as well
Vertical-specific business processes	Refer to processes that are specific to a department within an organization and are often directly related to the key revenue-earning business; examples include the lending process in the banking industry and claims processing in the insurance industry
Virtual agent	A computer-generated virtual character that can have a conversation with human customers and take decisions; also referred to as chatbot or virtual assistant
Workforce intelligence	Refers to the tracking and analysis of employee behavior by gathering insights from workforce data, such as the time spent on production, usage of applications, and working patterns to make proactive resource management decisions







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