

Improving customer satisfaction often requires improving operating efficiency. Fortunately, there is greater recognition today of the dual benefits of operational efficiency, resulting in more systematic efforts (i.e., process and task mining).

Process and Task Mining: How a Hybrid Approach Can Create Greater Business Value

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Introduction

Improving operational efficiency and improving customer satisfaction are the top 2 business priorities in 2022. Both were cited by 51% of respondents to IDC's December 2021 *Future Enterprise Resiliency and Spending Survey, Wave 11*, far exceeding any other initiative in Figure 1. While improving operational efficiency and customer satisfaction seem like separate priorities, they really are two sides of the same problem.

Customers become dissatisfied for reasons that are often tied to how processes execute. A late delivery, inaccurate inventory, long lead times, missed deadlines, slow resolutions, and settlements cause dissatisfaction. Late delivery will delay payments. Fixing mistakes adds to operating costs. Losing customers creates higher costs to replace those customers. Slow cycle times mean the business may not be able to compete effectively, impacting growth and customer retention.

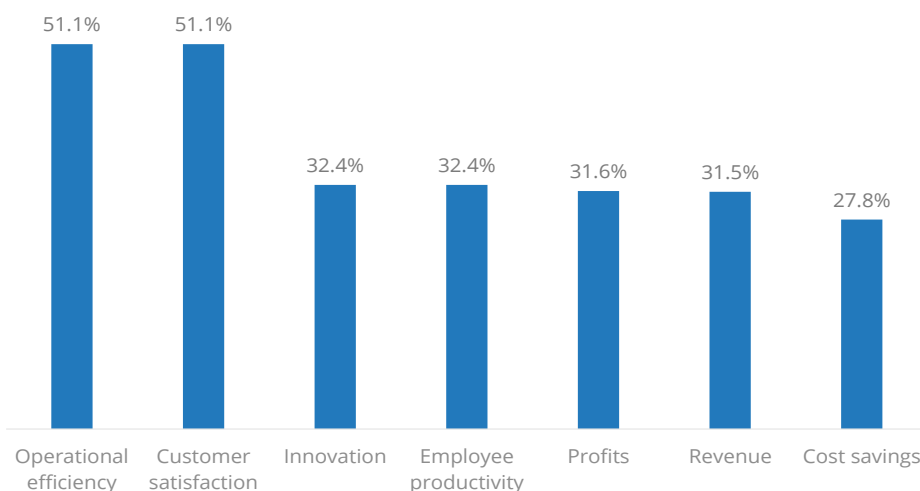
AT A GLANCE

KEY TAKEAWAY

Improving operational efficiency is a top priority for businesses in 2022. Process and task mining can provide information vital to improving business processes and individual work tasks, but current methods are full of gaps. Hybrid solutions, like Skan, can ensure greater depth of accuracy for process improvement planning, workforce efficiencies, and digital transformation.

FIGURE 1: **Top Business Priorities in 2022**

Q What are your organization's top 3 business priorities?



n = 858

Source: IDC's *Future Enterprise Resiliency and Spending Survey, Wave 11, December 2021*

In essence, improving customer satisfaction often means operating efficiency must be improved. Fortunately, there is much greater recognition today of the dual benefits of operational efficiency, which is resulting in more systematic efforts to identify improvement opportunities. The use of process mining and task mining is becoming strategically important as organizations move to a more systematic and end-to-end approach to achieving greater operational efficiency.

Importance of Process and Task Mining to Achieve Operational Efficiency

When teams use process mining, they collect the log data of the applications that are involved with an individual business process. Process mining organizes and correlates the log data to produce a statistical analysis of how a process works in production, graphically showing where variance occurs within the process. Process mining also evaluates how processes in production conform to the BPMN model that documents how the process is supposed to work. Process mining outputs a process design document (PDD) that teams can use to plan and build the case for process improvement.

Task mining is used to learn exactly how work is performed by people. Task mining installs an agent on the computers of designated workers to capture how the user is working. An opt-in selection designates which applications can be captured. The task mining agent captures screenshots, keystrokes, and mouse clicks, using computer vision to produce an aggregated, correlated, and sequence-ordered view of the screen interactions performed by the participating workers.

This stream of images and information is used by the task mining team to map screen interactions to the specific details that are involved with completing a task. They use this to assess whether there is an opportunity to make the designated task more efficient. Improvement options include fixing the underlying cause of inefficiency or automating the task either partially or fully. The result of this assessment produces a PDD, and the results are often importable into the studios of designated RPA vendors.

Teams may use process mining and task mining in combination to produce a larger business case for improvement or they can use either tool individually. Assuming data is comprehensively collected to produce an accurate statistical analysis, task mining and process mining offer a fact-based approach to improvement. Both tools are used to:

- » Support discussions with subject matter experts to clarify questions uncovered from the mining.
- » Create proposals and business cases that justify the investment in process improvement, with the ability to point to specific key performance indicator (KPI) improvements they can achieve with their proposed improvement plans.
- » Use the PDDs in development as a guide to making improvements.

Current Gaps in Process and Task Mining

Process and task mining are largely dependent on identifying improvement initiatives that are built around SaaS and enterprise applications. This creates data gaps in analyzing how a process is executed, including the following:

- » When a process is largely manual, it is difficult to capture how work flows from one participant to the next. This impacts process improvement efforts as well as the ability to assess the opportunity to automate tasks.
- » Tasks in one process may have a dependency on an upstream process. That relationship is lost if the log data used for process mining is narrowly defined, especially if the linkage between the two processes is a manual task.
- » When too few participants are involved with task mining, data gaps about variations in how the task can be performed may occur, which means the resulting automation will be too narrowly focused. Workers then must revert to manual task completion.
- » Not all processes or subprocesses are documented or well understood, and log data not collected and used to do the process mining. While the process can be improved, the data gaps mean that improvement is not as robust as it could be.
- » Not all applications and systems needed for process execution generate log data.
- » Many processes and activities are executed implicitly, with proper execution dependent on the individual worker's knowledge of how to complete the task. Because they are implicit, there is little if any documentation about the workflow and participants. Implicit processes and tasks also pose difficulties accurately identifying workers performing the same type of manual task.

A Hybrid Approach May Be a Better Option

Approaches to fix the gaps in process and task mining are emerging that improve task mining by extending the use of AI to observe and capture data on screens that identify unique data — or keys — which can be used to link one worker's task to other workers' task with the same key. The output produces an aggregated, correlated, and sequence-ordered view of how tasks with the same key are performed by individuals across applications.

In some solutions, the analysis is extended to apply a higher primary key — or signature — that produces a complete view of the manual steps in an end-to-end process. Using keys provides a mechanism to analyze the task information at increasingly lower levels of detail, such as a business process, a subprocess, and applications with more complex process structures. For example, workflow and case management — both heavily used in process design — have similar but different structures.

Like process and task mining, the output of a hybrid approach also produces graphical process views with statistics of all manual tasks with variations that map to individual processes in which the workers participate. There are many benefits to this approach, including:

Approaches to fix the gaps in process and task mining are emerging that improve task mining by extending the use of AI.

- » Teams focused on executing robotic process automation (RPA) projects have a much better process context of the scope of work and total value of the effort when they can focus on automating all repetitive tasks in a business or IT process without the need for process mining. This links the automation outcome more holistically to the process KPIs, with the automation impact and value better understood by the team managing the process.
- » The ability to capture all tasks in the process and not just the tasks that derive from the log data of designated applications provides a greater opportunity for process improvement. The satellite applications and the implicit work using team collaboration and productivity applications can be assessed and included in the improvements.
- » Processes that are related to each other by manual tasks are identified.
- » Largely manual and knowledge-intensive processes can be improved because this approach is able to identify the flow of work across participants. Knowledge workers tend not to get the full benefit of process improvement and automation efforts because much of their work is not captured in enterprise applications. Using a hybrid approach to task and process mining will support greater knowledge worker automation and efficiency.
- » This hybrid approach is compatible with process mining when teams need to understand the full scope of a process, including both manual and automated activities.

Considering Skan.ai

Skan.ai was founded in 2018 by two executives at Genpact who used process mining in their consulting engagements and realized they needed a much deeper understanding of how work is performed than what they could achieve with standalone process mining and standalone task mining. They formed Skan.ai to build software able to solve the process and task mining gaps that hampered process improvement teams from fully understanding how work is performed in detail, especially by solving the problem of how work is handed off between workers to execute the process end-to-end.

Using computer vision to capture both on-screen actions and the data from an application UI and aggregating into a stream of images and data ordered by time, Skan joins two or more tasks together by a common unique data property, or key, that appears in each screen of users working on a related step in the process. The software also identifies how to link the set of related steps in a process to other related steps that use different keys into a larger process model, called a "signature of work." That signature represents manual work as it flows end-to-end across one or more processes tying together the triangulation of people, the process-specific work steps, and applications used across time.

Process design teams can use the signatures of work to continuously analyze opportunities for workforce improvements, process redesign, and automation opportunities.

By using this approach, the Skan founders saw an opportunity to help customers do more detailed analysis more accurately and in far less time than initiating supplemental worker interviews to get a sense of how work flows across an organization. By reducing the need for interviews or question and answer sessions with workers, this approach was also less disruptive and able to capture all variations from all processes. By removing the need to start improvement projects with process mining, they also saw an opportunity to lower the cost of process improvement planning.

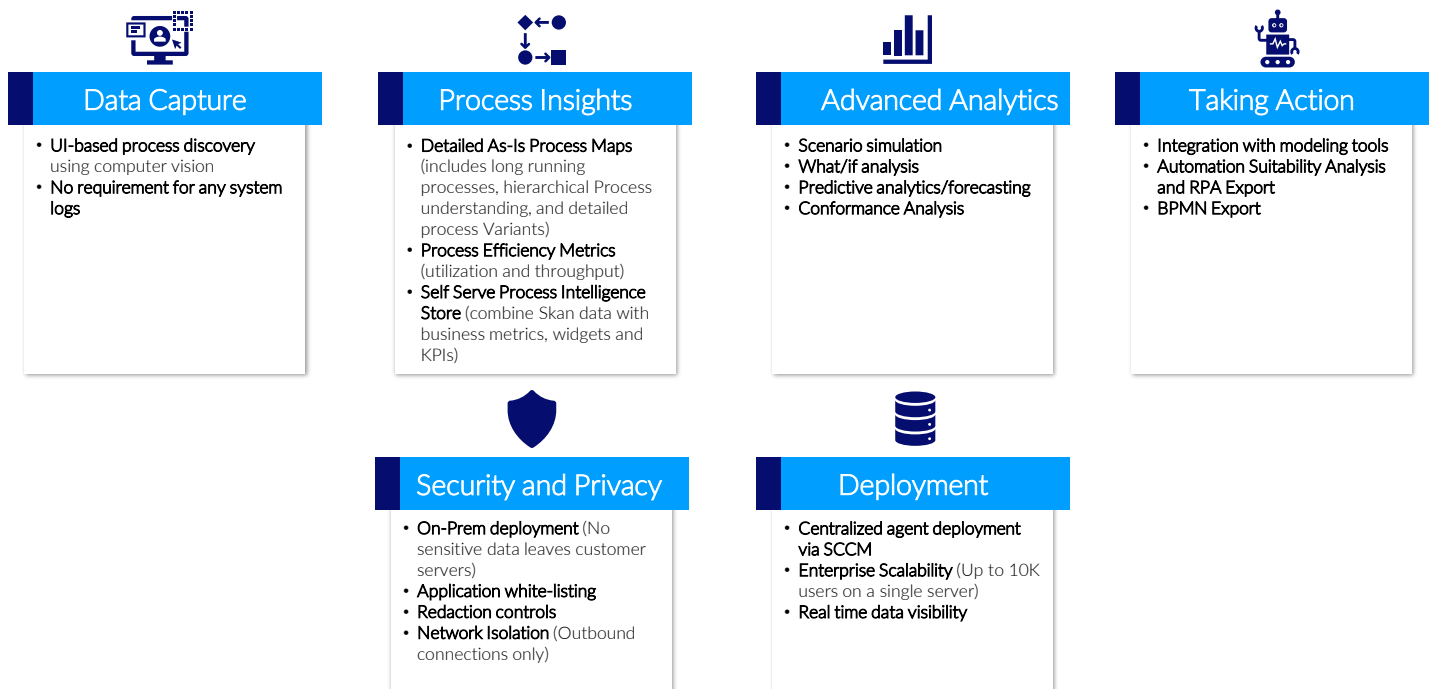
Skan's privacy-first architecture software consists of desktop agents called Virtual Assistant, a PRISM (Privacy and Information Security Machine) server that can be hosted in a virtual private cloud or on prem, and a Skan cloud environment. The desktop agents perform the capture and deliver images and related data to the PRISM Server where

the images are stored and analyzed, never leaving the client's firewall. Redaction and other privacy policies are applied, and metadata is delivered to the Skan cloud where AI engines perform the statistical analysis and design.

As Figure 2 shows, Skan has several key capabilities ranging from data capture, performing analysis to produce the signature of work and as-is process maps. Operational insights produce the statistics about how the process runs in production. Advanced analytics are used to produce improvement scenarios, estimate the opportunity for improvement, and produce a conformance check to determine how the process works compared with a model of the how the process should work.

Users can export the selected variant's model designed by the AI engines in a BPMN format and export it into a format that can be imported into selected RPA studios. The import maps to corresponding automation actions, auto-generating a partial or full automation script.

FIGURE 2: *Skan Features*



Source: Skan.ai, 2022

Challenges

Not all automation and process improvement teams are aware of technologies used to speed up planning, or these teams may not have budgets to adopt the technology. Meanwhile, teams using process mining or task mining may be unaware of the newer, hybrid approaches to process improvement planning represented by offerings from vendors like Skan. Innovation in this area is a moving target, and getting the word out quickly with corresponding successes is critical.

Conclusion

Process mining and task mining are emerging markets with rapidly accelerating technology adoption. Enterprises achieving success with use of this type of technology are beginning to go public about their successes, especially as more enterprises systematically adopt this technology to achieve greater operational efficiency. IDC expects to see this market evolve quickly as gaps are recognized and innovators find ways to advance improvement planning. Vendors like Skan provide an opportunity to ensure greater depth of accuracy in process improvement planning while also speeding up development itself by delivering planning documents that are directly importable into automation studio environments for auto-generation of automation scripts.

About the Analyst



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Maureen Fleming is Program Vice President for IDC's Intelligent Process Automation research. In this role, she focuses on a portfolio of technologies used by enterprises to speed up, drive cost out of, and support a customer-centric approach to business operations. She especially focuses on the convergence of AI, machine learning, and automation and how that combination changes the economics and benefits of process improvement.

MESSAGE FROM THE SPONSOR

More About Skan.ai

Skan is on a mission to help organizations be greater in their business transformation efforts. We see an opportunity to collectively and continuously provide the missing operational insights from a people, process, and technology perspective so that companies can achieve their objectives through smarter transformation efforts. Companies are struggling with transformation initiatives because they are not well informed on the actual work being done or what we call the signature of work. Skan feels that the intelligence behind this signature of work is of the utmost importance. The intelligence found will arm companies with the ability to create and execute the most informed and smartest transformation to achieve operational excellence. Skan wants companies to be greater at operations, be greater at workforce intelligence, be greater at process improvement, and be greater at business. Check out our [process intelligence playbook](#) to learn more about the must have insights for transformation success.



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