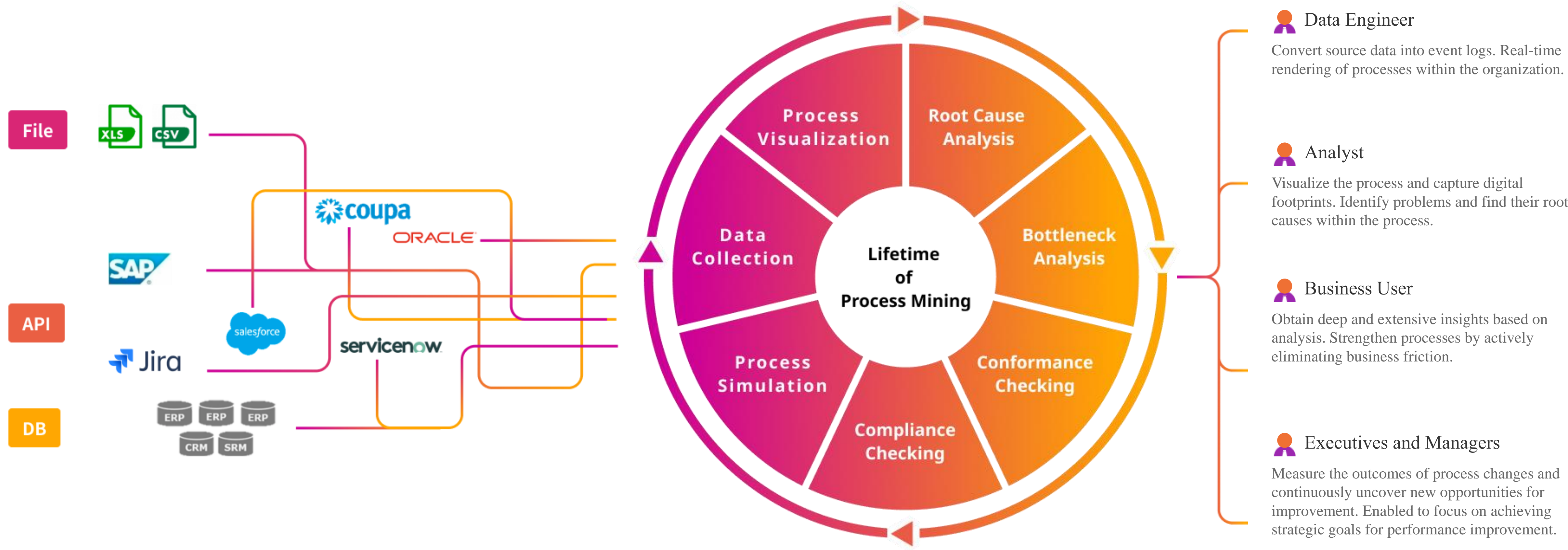# Process Copilot

Hi-Think Technology International Limited

What is Process Mining?

Process mining is a product developed for building Digital Twin of an Organization (DTO). It integrates technologies such as data science, process management, and artificial intelligence, enabling visual monitoring of business processes. By understanding, improving, and optimizing business processes, it enhances workflow efficiency, effectiveness, and productivity, maximizing business outcomes. It can identify business bottlenecks and utilize simulation techniques to uncover inefficiencies, optimize resource allocation, and automate tasks.

File — XLS, CSV

API

DB — ERP, ERP, ERP, CRM, SRM

coupa · ORACLE · SAP · salesforce · servicenow · Jira

Lifetime of Process Mining
- Process Visualization
- Root Cause Analysis
- Bottleneck Analysis
- Conformance Checking
- Compliance Checking
- Process Simulation
- Data Collection

Data Engineer
Convert source data into event logs. Real-time rendering of processes within the organization.

Analyst
Visualize the process and capture digital footprints. Identify problems and find their root causes within the process.

Business User
Obtain deep and extensive insights based on analysis. Strengthen processes by actively eliminating business friction.

Executives and Managers
Measure the outcomes of process changes and continuously uncover new opportunities for improvement. Enabled to focus on achieving strategic goals for performance improvement.

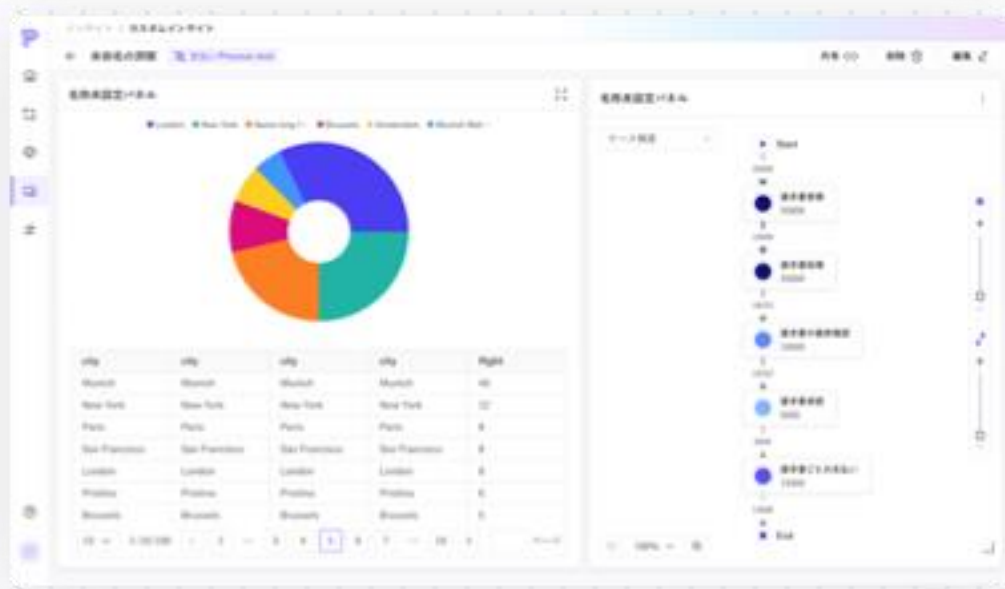# Process Copilot

Hi-Think

Multiple Data Sources

Seamlessly integrates with diverse systems like APIs, SAP, and file repositories, enabling direct retrieval of associated event logs.

Root Cause Analysis

Incorporate multi-dimensional data for the analysis of the fundamental causes behind process deviations and propose enhancements.

Bottleneck Analysis

Utilize Machine Learning techniques to detect, categorize, and analyze bottlenecks influencing the process.

Process Simulation

Applying AI & Simulation to forecast the outcome of process enhancements, preemptively assessing whether the modified process will meet expectations.

Conformance Checking

Evaluates adherence to a reference model, identify and quantify the extent of deviations.

Process Visualization

Visualize event logs through flow charts and display relevant statistical data, such as KPIs, to enhance the intuitiveness and facilitate analysis.

Compliance Analysis

Compare the observed behavior of a process with industry standards or business rule to identify any violations or deviations.

⊗ User-friendly

Retrieve event log data via the API interface to circumvent intricate Data-preparation tasks and effectively expedite the creation of visualization processes.

🗄 Cost-effective Enhancement

Optimize processes by reducing redundancies, identifying automationopportunities,minimizing manual intervention and errors and enhancing productivity.

↑↑ Efficient Monitoring

Enhance transparency by real-time monitoring, leveraging AI and Machine Learning for visual process compliance validation, fostering digital transformation.

⬡ Robust Operations

Achieve robust operation of the corporation through KPI-based process behavior prediction by implementing DTO and integrating comprehensive end-to-end process

Process Mining Analysis Report of the Approval Process of a Company's Procurement Operations

- Process Discovery

- Analysis of Rework Operations in the PR Process

- Comparison of the Purchasing Processes for Internal Needs and Business Uses

▪ Target period：2022/9/28~2023/11/9   ▪ Number of cases：36,952

▪ Main path: Purchase Requisition Approval Process—Purchase Order Approval Process

Process Animation

Display the execution status of the process in chronological order, visually observe any backlogs at a certain stage, and further analyze the root causes of any issues that appeared.

Process Map

Display the status of multiple processes in a graphic format and analyze the root causes of problems at a certain stage from an global perspective.

Hi-Think
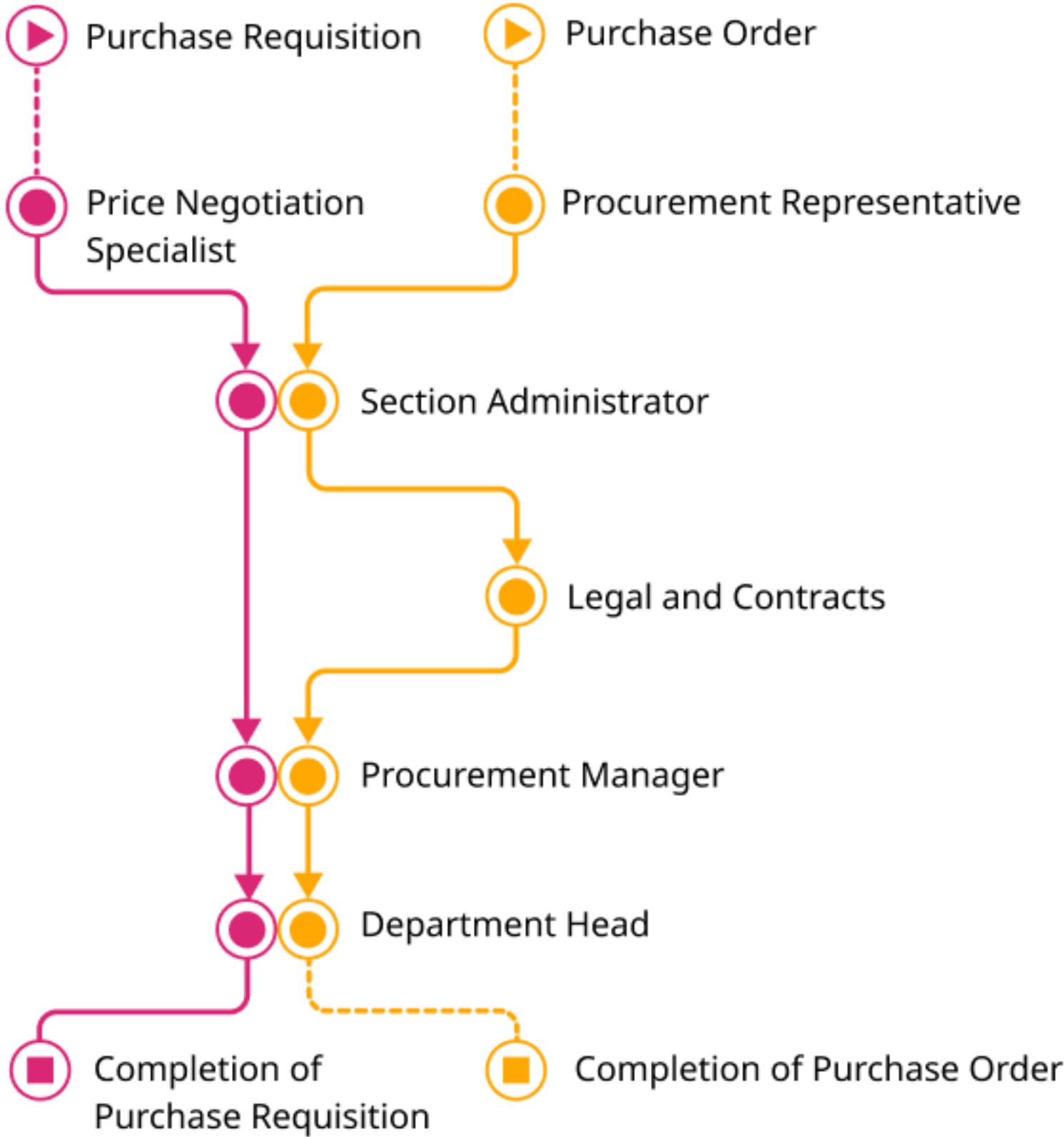
If a purchase request is denied, it may require rework of previous processes and pose a risk of overall process delays. Employees and teams may have to reallocate time and resources, leading to potential information loss and confusion.

In the analysis of this procurement operation, denial carries the risk of extending delivery deadlines, impacting customer satisfaction, and potentially affecting collaborative relationships as well as subsequent business operations.

Phenomenon

There are 645 cases with denied purchase requests, accounting for 24% of all cases.

Among them, 480 cases were denied in the first step of approval, accounting for 74% of all cases with purchase request denied.

❶ 423 of them applied for approval again after being denied, accounting for 65.6% of the cases that were denied.

❷ Eventually, 251 purchases were discontinued, after being repeatedly denied. These account for 39% of the cases that were denied.

65.6%
Denial Rate

39%
Denial Rate
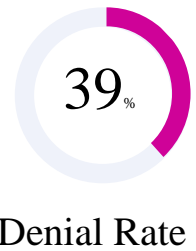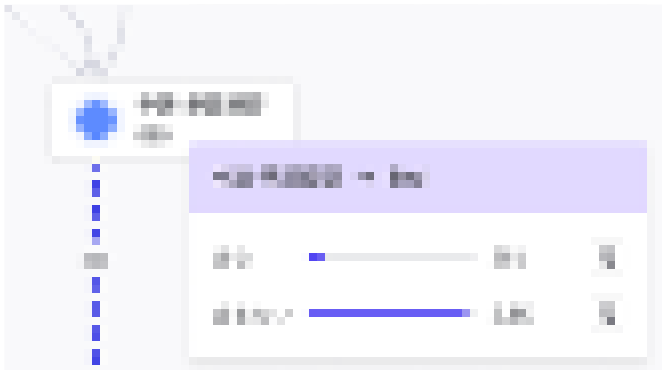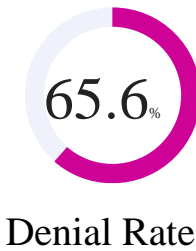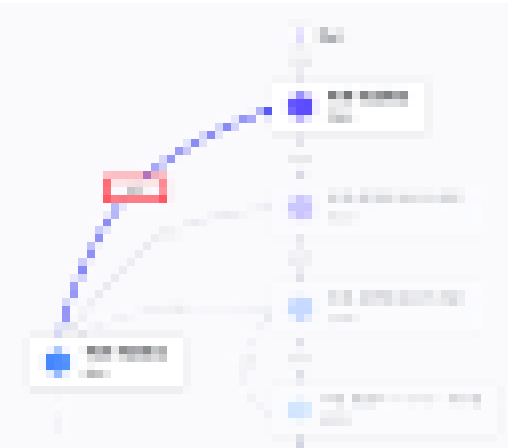
Improvement Points Analysis

❶ 394 cases were denied due to mistakes in filling out application or insufficient provision of information. They account for 94% of the cases that were approved after initially being denied.

❷ The suspension of purchases by denial indicates a legitimate refusal of improper procurement.

Improvement Points

❶ To boost operational efficiency, we recommend optimizing the purchase requisition form by providing clear guidelines and requirements, as well as offering support to ensure a smooth workflow and minimize rejections.

❷ After denial, the purchase is canceled, and no further improvements are necessary.

Comparison of Purchasing Processes for Internal Needs and Business Uses

By comparing the purchasing processes of the two categories, we can understand their differences and characteristics, identify best practices and lessons learned, and quickly identify any issues or bottlenecks. Such a comparison provides insights and reference, aiding in problem identification, process improvement, and best practice implementation.

Phenomenon Analysis

❶ Scenarios

Compared to purchases for business use, the purchase for internal needs involves a greater number of unique paths, with a lowe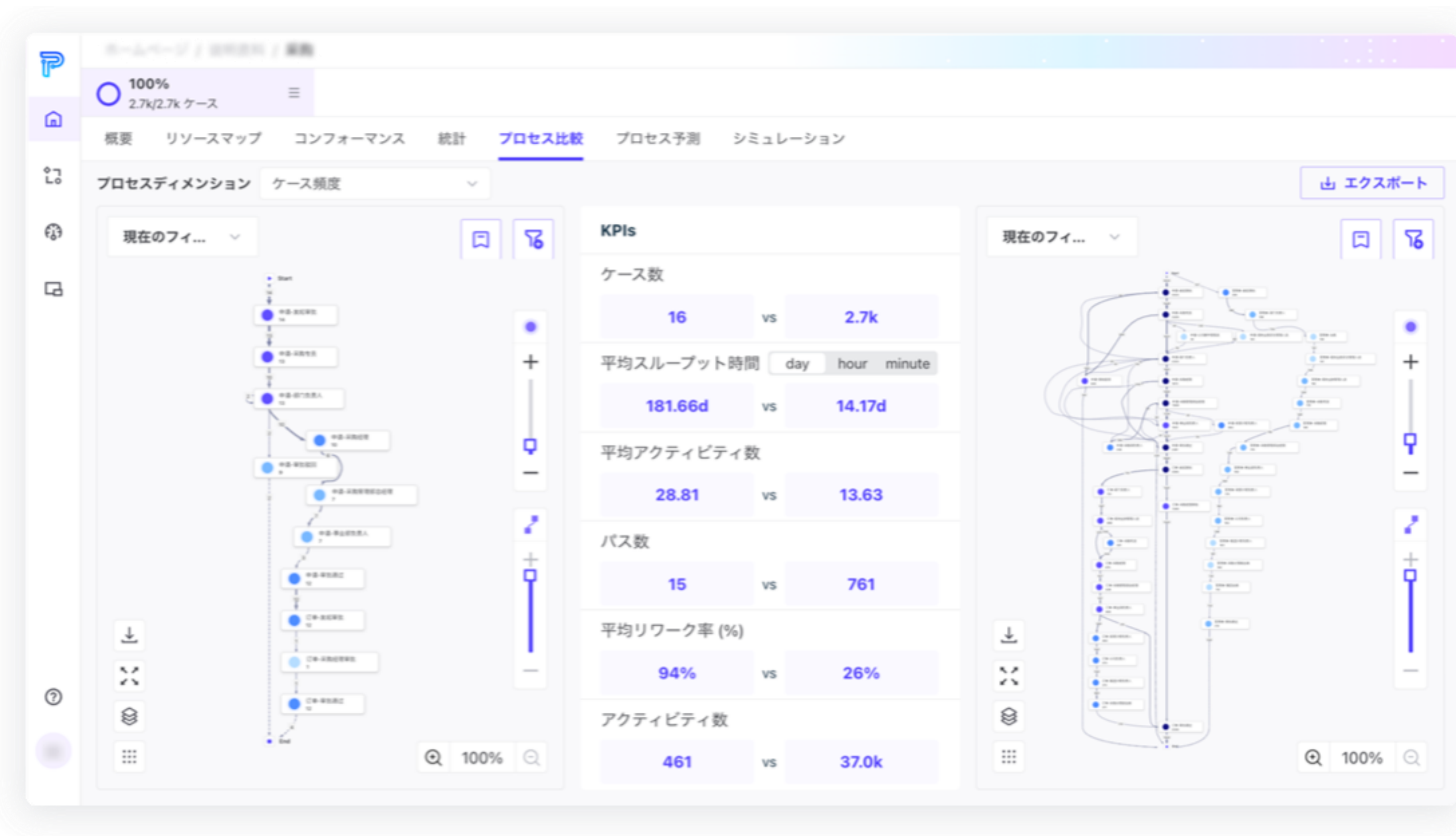r average number of activities. 75% of the paths have an activity count in the range of 10 to 25, which accounts for 94% of all cases. This means that while there are many purchases for internal needs and a high number of scenarios, the actual process is not complex. Further analysis also reveals similarities among different activities, indicating the need for improvement.

❷ Efficiency

If we look at the averages (throughput time, number of reworks, number of activities), we can see that the efficiency of the purchasing process for internal needs is high. The average throughput time for business use is 2.3 times of that for internal needs, and the rework rate is 4.4 times higher. Improvement for the purchasing process for business use is needed.

Improvement Points

❶ Consider simplifying and automating the process

The purchase for internal needs is frequent and occurs in many scenarios (paths). It is not very complex, has a low rework rate and the contents are similar. Therefore, it is suggested to consider the integration and automation of the process.

❷ Reduce denial operations

Due to the high rework rate for business use, it is recommended to consider enhancing process design, providing clear guidance, strengthening communication and cooperation, and offering support. This can help to reduce denials.

Hi-Think

Target Business Selection (~1 week)	→	Trial Introduction (2 ~ 4 months)	→	Full-Scale Deployment
				Establish a Center of Excellence (COE) and drive business transformation and improvement initiatives.

IT   **Process Owner**

Collect Sample Data

↓

Examine

↓

Assessment of Analysis Feasibility

IT   **Process Owner**

Environment Setup & Data Acquisition

↓

Build Initial Hypotheses

↓

Build Initial Process Data Model

↓

Hypothesis Testing

↻

Formulate Strategies・Evaluate → Final Report

Project Manger   **IT**   **Process Owner**

Prepare   Evaluate and Review Entire Program   **Management Layer**

CoE/PMO   Each Field Department

Planning — Monitoring
Demand Management · Decision on Measures · Budget Management · Project Structure · Effectiveness Evaluation · Project Monitoring · Budget Execution Management · Report to Management

Define Success Standard · Select Backup Measures · Go/NoGo · Implement Measures

Business Process Transformation & Project Execution

- Institutional Review & Modification
- Automation & Efficiency
- BPR

Technical Support & Assistance	FAQ・Providing Know-How	Institutionalization

Platform   **Consultant**

Platform   **Consultant**   **ETL Engineer**

Platform   **Consultant**   **ETL Engineer**   **Dev Engineer**

※Determine (for free) whether analysis is feasible based on log data format and size.

※Optionally, choose an ETL engineer.

※Establish and consider the optimal CoE/PMO structure and rules according to the goals.

※Institutionalize the business transformation program and implement each measure, including the selected candidates in the trial.

Process Copilot Roadmap

V1.0 Core Fundamentals of Process Mining

Beginning
- Process Data Visualization
- Consistency Analysis and Root Cause Identification
- Dynamic Resource Analysis

V2.0 Deep Data Mining

Intelligent Analysis Upgrade
- Adaptive Bottleneck Identification and Root Cause Analysis
- Time Prediction for Process Completion

V2.1 Big-Data Capability

Data engine Upgrade
- Capability to process data at the million-level
- Automatic import of data from multiple sources

V2.2 UI&UX Upgrade

UX Upgrade
- Brand Design Upgrade
- Product Architecture Restructuring
- Product Usability Optimization
- Information Display Hierarchy Optimization

V2.3 Process Insight

Process Insight Upgrade
- Insight Dimension Expansion
- Automatic Generation of Analysis Metrics
- Dynamic Process Monitoring

Product Implementation

V3.0 Task Mining

Task Mining Analysis
- Task Data Integration
- Intelligent Task Recognition
- Task Data Visualization

V3.1 Lightweight & Enhanced Convenience

UI Optimization
- Release of Lite Version
- UI/UX Optimization for the Insights Feature

V3.2 Guided Intelligent Analysis

Guided Intelligent Analysis
- Template-based Guided Process Analysis
- Task Mining from a Business Classification Perspective

V3.3 Multi-Process/Task Analysis

Multi-process Correlation Analysis
- Multi-Process Analysis
- Integration of Source Interfaces
- Process Analysis of Multiple Data Sources

V3.4 AIGC Report Generation

AIGC Report Generation
- Automated Intelligent Report Generation
- Customizable Analysis Output
- Interactive Analysis Recommendations

V3.5 ChatBI

ChatBI
- Dialogue-Guided Process Analysis
- Multi-Process Conversational Process Analysis
- Custom Drill-Down of Dialogue-Guided Process Data

AI Driven

V1.0	V2.0	V2.1	V2.2	V2.3	V3.0	V3.1	V3.2	V3.3	V3.4	V3.5
2024年3月末	2024年6月末	2024年9月末	2024年11月中	2024年12月末	2025年2月末	2025年3月末	2025年4月末	2025年7月末	2025年9月末	2025年12月末	2026年

Hi-Think

Thank you!

Hi-Think Technology International Limited