



**IT'S ALL ABOUT  
INFORMATION**

**solicon**<sup>IT</sup>

**APEX Workflow & Flows for APEX  
Ein gutes Team?**

# Jörg Doppelreiter



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 Oracle ACE  
Associate

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## **APEX Workflow**

APEX 23.2  
(November 2023)

## **Flows for APEX**

Open Source  
(Seit 2020)

## **APEX Workflow Flows for APEX**

Unterschiede und  
Gemeinsamkeiten

## **Team up!**

APEX Workflow  
+ Flows for APEX  
+ APEX Tasks



# APEX Workflow

# APEX Workflow (APEX 23.2)



## ■ Eigener Designer

The screenshot displays the APEX Workflow Designer interface. The main workspace shows a workflow diagram with the following steps:

- Start** (black circle with play icon)
- Set Payment Method** (blue rounded rectangle with person icon)
- Check account details** (blue rounded rectangle with checkmark icon)
- Check Payment Method** (orange diamond with checkmark icon)

The **Check Payment Method** activity is expanded, showing a **domestic payment** output path. The right-hand panel provides configuration details for the selected activity:

- Activity** section: Filter
- Identification** section: Name (Set Payment Method), Type (Human Task - Create)
- Settings** section: Definition (Set Payment), Subject, Priority, Initiator Item, Task ID Item (TASK\_ID), Details Primary Key Item, Outcome, Owner
- Additional Data** section: SQL Query
- Deadline** section: Due On Type (None)

The bottom of the interface features an **Activities** palette with various task types and actions:

- Human Task - Create
- Invoke API
- Execute Code
- Send E-Mail
- Send Push Notification
- Workflow End
- Workflow Start
- Switch
- Wait
- Flows for Apex - Complete
- Flows for APEX - Manage Flow Instance

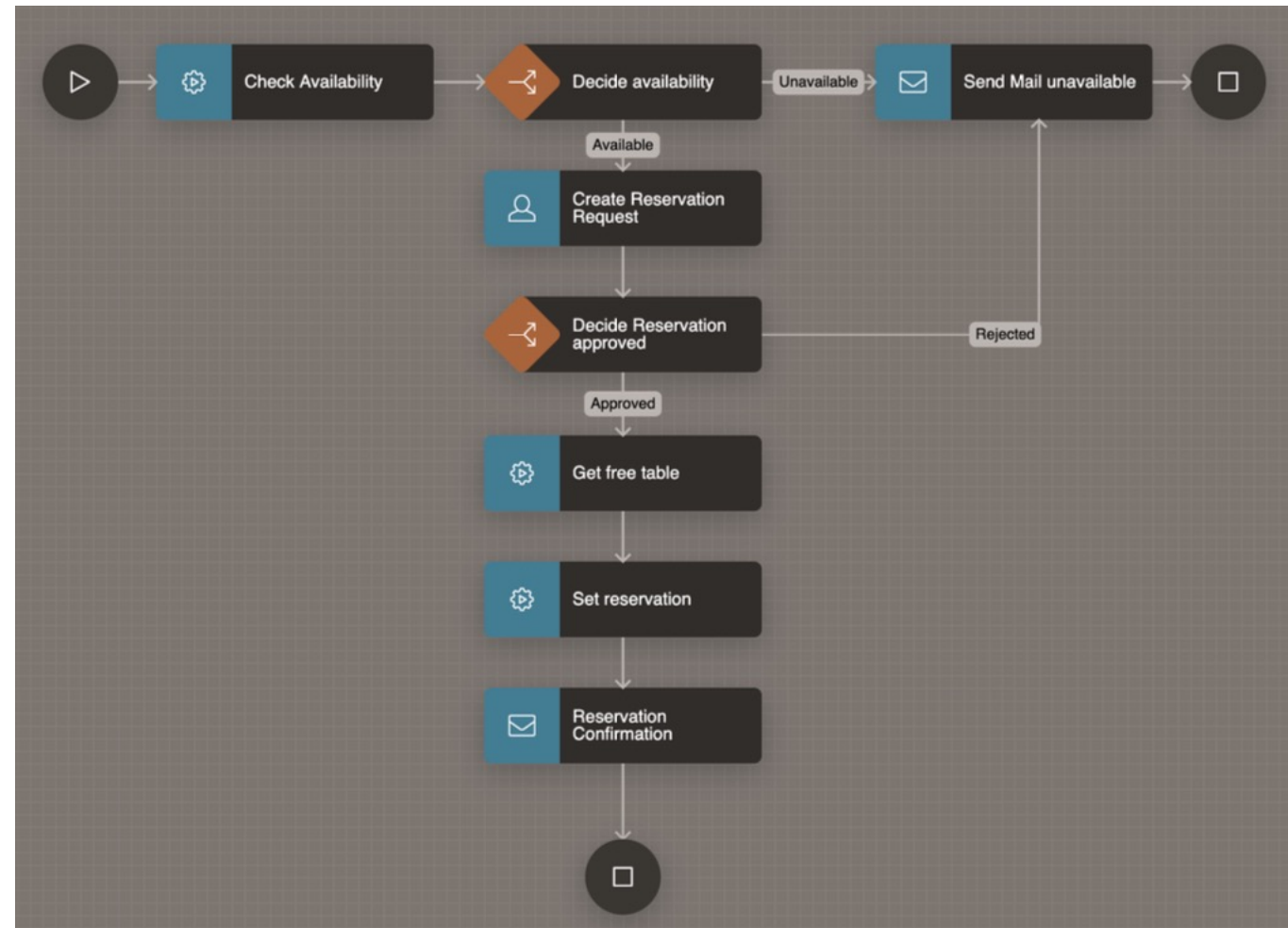
# APEX Workflow



- Eigener Designer
- Build-in Komponenten + APEX Process Plugins

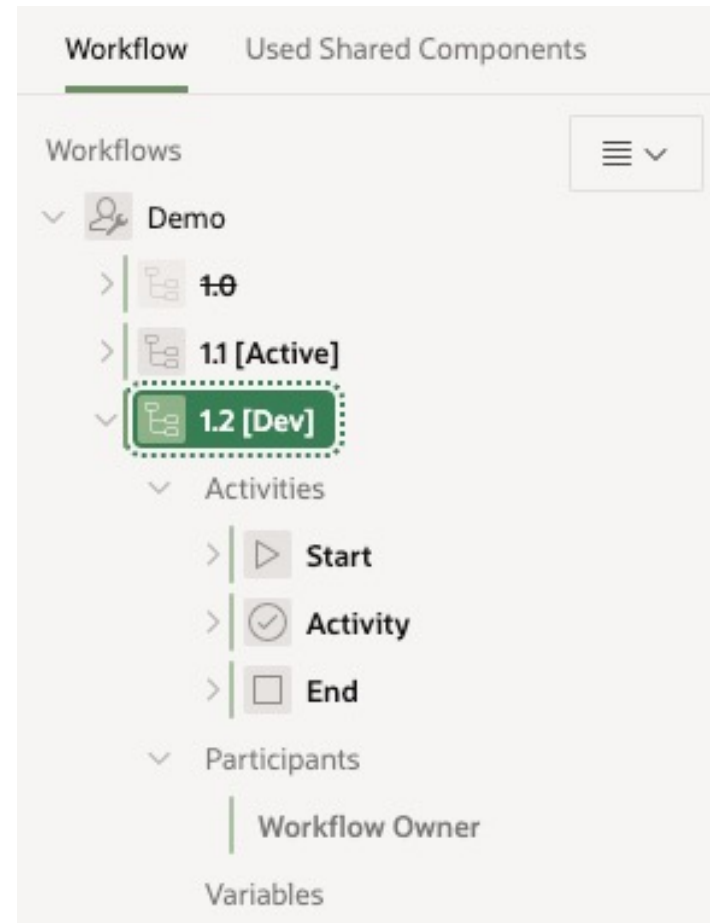
Built-in Components

- Execute Code
- ✓ Human Task - Create
- Invoke API
- Send E-Mail
- Send Push Notification
- Switch
- Wait
- Workflow End
- Workflow Start



# APEX Workflow

- Eigener Designer
- Build-in Komponenten + APEX Process Plugins
- Versionierung



# APEX Workflow



- Workflow Console

The screenshot displays the 'WF|Console' interface. The main console shows a list of tasks, each with a status (Completed or Faulted), a user icon, and the task name 'Payment'. The detailed view on the right, titled 'WF|Console-Details', shows the following information:

- Task Status:** Completed
- Task Name:** Payment
- Initiated by:** AC\_APPROVER
- Time:** 5 hours ago
- Activities:**
  - Completed Start
  - Completed Set Payment Method
  - Completed Check account details
  - Completed Check Payment Method
  - Completed TT
  - Completed Send Message
  - Completed End
- Variables:**
  - APEX Workflow ID: 41668116106685679
  - Approver: (empty)
  - Payment Method: TT
  - TaskID: 41669449032685693
  - TaskOutcome: (empty)



# APEX Workflow



- Workflow Console
- APEX APEX\_WORKFLOW

WF|Console

Search...

↓ Last Update

Payment

Completed Payment · Initiated by AC\_APPROVER 6 hours ago

Completed Payment

WF|Console-Details

**Completed** Payment  
Payment · Initiated by AC\_APPROVER 5 hours ago

Activities

Completed	Start	Completed 5 hours ago
Completed	Set Payment Method	Completed 5 hours ago
Completed	Check account details	Completed 5 hours ago
Completed	Check Payment Method	Completed 5 hours ago
Completed	TT	Completed 5 hours ago
Completed	Send Message	Completed 5 hours ago
Completed	End	Completed 5 hours ago

Variables

APEX Workflow ID  
**41668116106685679**

Approver

Payment Method  
**TT**

TaskID  
**41669449032685693**

TaskOutcome

- ▶ 48 APEX\_SPATIAL
- ▶ 49 APEX\_STRING
- ▶ 50 APEX\_STRING\_UTIL
- ▶ 51 APEX\_THEME
- ▶ 52 APEX\_UI\_DEFAULT\_UPDATE
- ▶ 53 APEX\_UTIL
- ▶ 54 APEX\_WEB\_SERVICE
- ▼ 55 APEX\_WORKFLOW
  - 55.1 Constants and Data Types
  - 55.2 CONTINUE\_ACTIVITY Procedure Signature 1
  - 55.3 CONTINUE\_ACTIVITY Procedure Signature 2

## 55.17 START\_WORKFLOW Function

This function starts a new Workflow given the Workflow definition ID.

### Syntax

```
APEX_WORKFLOW.START_WORKFLOW (  
    p_application_id      IN NUMBER  
                          DEFAULT wwv_flow.g_flow_id,  
    p_static_id           IN VARCHAR2,  
    p_parameters          IN t_workflow_parameters  
                          DEFAULT c_empty_workflow_parameters,  
    p_initiator           IN VARCHAR2           DEFAULT NULL,  
    p_detail_pk           IN VARCHAR2           DEFAULT NULL,  
    p_debug_level        IN wwv_flow_debug_api.t_log_level DEFAULT NULL )  
RETURN NUMBER;
```



Flows for APEX

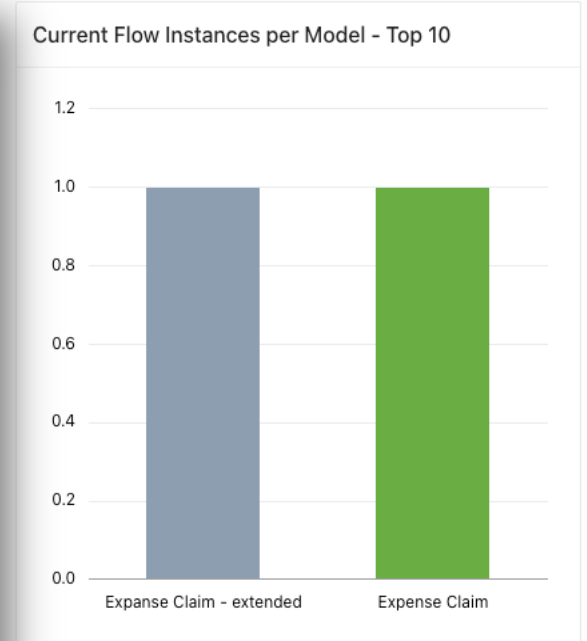
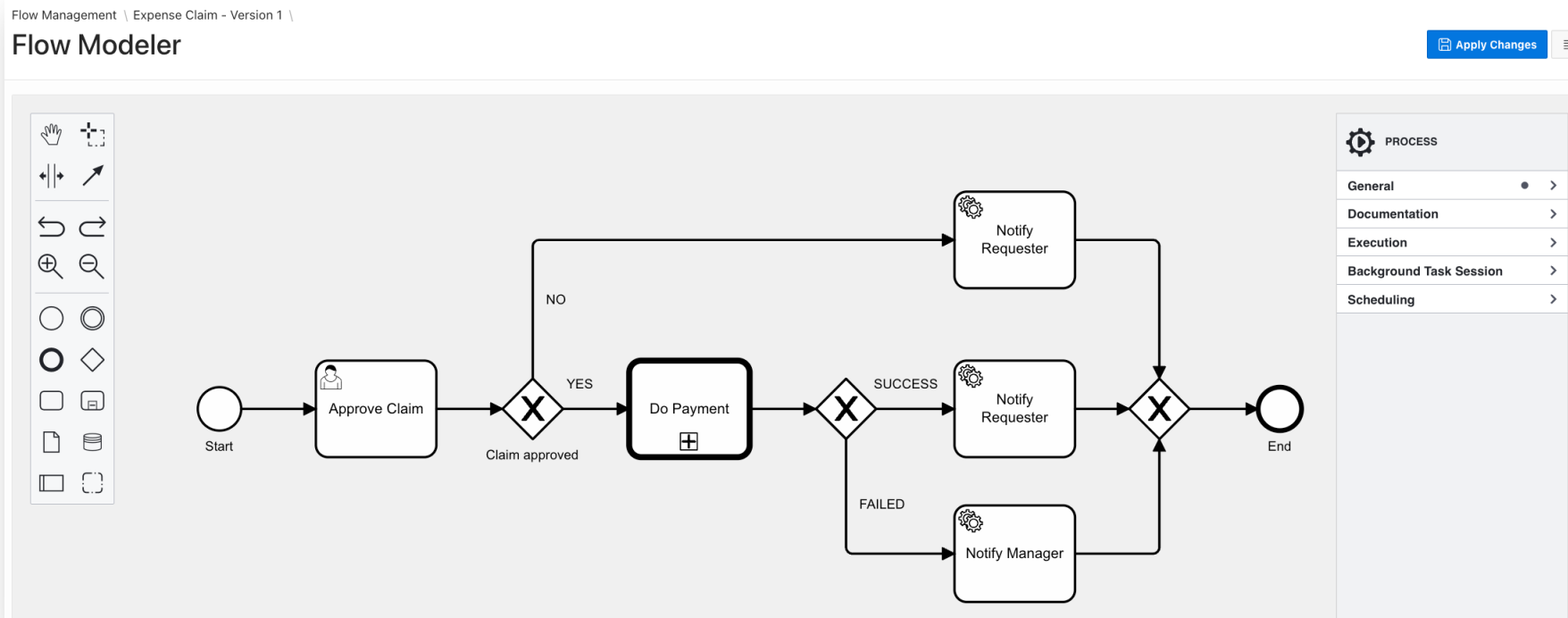
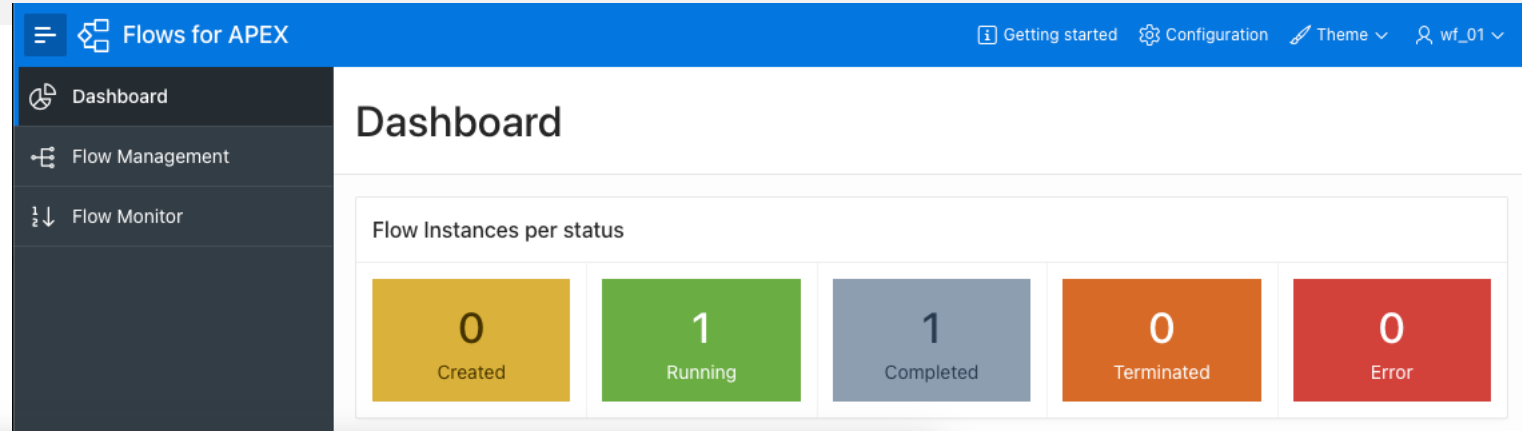
<https://flowsforapex.org>



# Flows for APEX - Komponenten



- Flow Management
  - Modeler
  - Versionen



# Flows for APEX - Komponenten

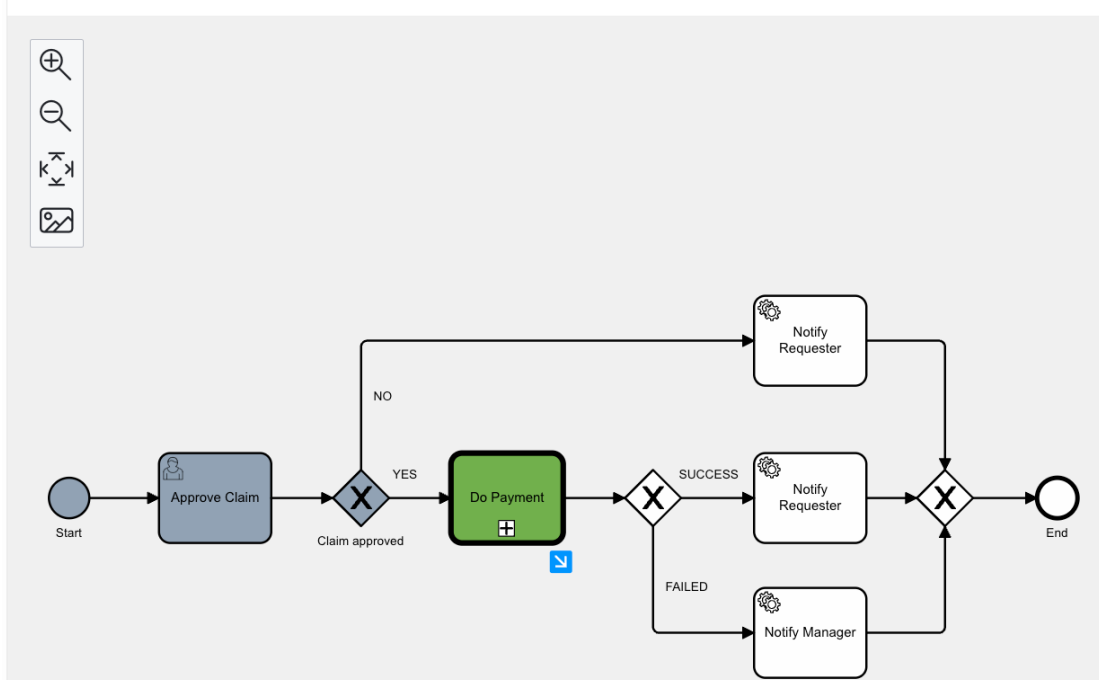


- Flow Management
  - Modeler
  - Versionen
- Flow Monitor
  - Überwachung
  - Testen

Model Category: APEX Connect 24

<input type="checkbox"/>		Quick Action	Name	Business Reference	Model Name	Model Version	Status
<input type="checkbox"/>		Details	Expense Claim (for Claim #43)	43	Expense Claim	1	completed
<input type="checkbox"/>		Details	Expense Claim (for Claim #42)	42	Expense Claim	1	completed
<input type="checkbox"/>		Details	Expense Claim (for Claim #41)	41	Expense Claim	1	completed
					Expense Claim	1	completed
					Expense Claim	1	running
					Expense Claim	1	running
					Expense Claim	1	running

Flow Viewer (Expense Claim (for Claim #33))



# Flows for APEX - Komponenten



- Flow Management
  - Modeler
  - Versionen
- Flow Monitor
  - Überwachung
  - Testen
- APIs
  - PL/SQL
  - REST
- APEX Plugins
  - Flow Management
  - Viewer
  - „Return to Flows“

## Flows for APEX PL/SQL API

### Flows for APEX API Package (flows\_api\_pkg)

- [Flows for APEX API Package \(flows\\_api\\_pkg\)](#)
  - [Package flow\\_api\\_pkg](#)
  - [Flow Instance Operations:](#)
  - [Flow Step Operations:](#)
  - [Application Helper Functions:](#)
  - [Type t\\_task\\_list\\_item](#)

#### PL/SQL APIS

Workflow Engine API  
Process Variable System API

#### ORACLE APEX PLUG-INS

#### On this page

##### Flows for APEX API Package (flows\_api\_pkg)

Package flow\_api\_pkg

Flow Instance Operations:

Flow Step Operations:

Application Helper Functions:

Type t\_task\_list\_item

Type t\_task\_list\_items

Function flow\_create



# Unterschiede / Gemeinsamkeiten

# Gemeinsamkeiten



- Workflow Engine
- Design Komponente
- Monitor
  - APEX: Workflow Console
  - Flows : Monitor (+Testmöglichkeiten)



# Unterschiede



## APEX Workflow

- Prozessabläufe
- APEX Entwickler
- in APEX integriert
- Erweiterbar durch Plugins
- Page-Wizards für Workflow / Task Applikationsseiten
- Eigene Struktur (YAML Export möglich)

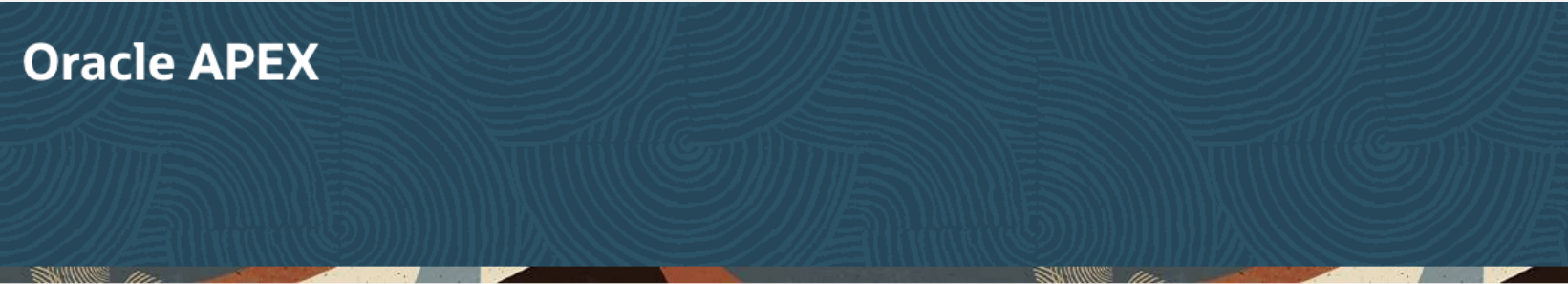
U  
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## Flows for APEX

- Prozessabläufe / Dokumentation
- Prozessmodellierer / Entwickler
- Eigene Applikation für Modeler + Monitoring / Testing
- in APEX integriert durch Plugins / APIs
- Visualisierung des Prozess-Status
- Basiert auf BPMN 2.0 (Standard)
- Import / Export BPMN Modelle



## APEX Workflow and Flows for APEX compared

In the following sections we compare APEX Workflow and Flows for APEX side by side.

### General

General Product Overview

	APEX Workflow	Flows for APEX
<b>Vendor</b>	Oracle	Open-Source
<b>Available since</b>	Oracle APEX 23.2 (end of 2023)	2020
<b>History/Background</b>	APEX Workflow is a new component in APEX 23.2 (and as such part of every APEX 23.2 installation)	Flows for APEX is an open-source implementation of the ISO standard BPMN 2.0. Initially started as a project at MT-IT Solutions (part of Hyand), the implementation was made publicly available on GitHub and developers from other companies, including Oracle, started contributing.
<b>License</b>	Oracle APEX + included 3rd party licenses	MIT License (MT GmbH) with 3rd party licenses for <ul style="list-style-type: none"> <li>bpmn-js</li> <li>PrismJS</li> <li>Monaco Editor</li> </ul>
<b>Supported Industry Standards</b>	None.	OMG BPMN 2.0 (also ISO standard)
<b>Installation</b>	<ul style="list-style-type: none"> <li>Part of Oracle APEX 23.2 installation</li> <li>Available in all APEX Workspaces</li> </ul>	<ul style="list-style-type: none"> <li>Download from <a href="https://flowsforapex.org">flowsforapex.org</a></li> <li>Install in any APEX workspace where needed</li> <li>Installs as any other APEX Application</li> </ul>
<b>Upgrade</b>	Upgrade as part of normal APEX upgrade	Upgrade as part of normal APEX upgrade. New versions of Flows for APEX can be installed by running a simple SQL script.
<b>Current Version</b>	Oracle APEX 23.2	Flows for APEX 23.1

# Process Automation Options in Oracle APEX 23.2 and Beyond

March 5, 2024 | 10 minute read



## Overview

According to Gartner, "Business Process Automation (BPA) is defined as the automation of complex business processes and functions beyond conventional data manipulation and record-keeping activities, usually through the use of advanced technologies. It focuses on 'run the business' as opposed to 'count the business' types of automation efforts and often deals with event-driven, mission-critical, core processes. BPA usually supports an enterprise's knowledge workers in satisfying the needs of its many constituencies."

Business Process Automation technologies are typically used for the core and mission critical business processes within a company and include Order-to-Cash, Procure-to-Pay, Patient admission and discharge and many more. As a result, BPA has become an important aspect of any Low-Code Application Platform (LCAP) and most vendors in the LCAP space are also offering Process Automation solutions, typically fully embedded and integrated within the LCAP itself.

Currently, there exist two Process Automation solutions

1. Oracle APEX Workflow (introduced in 23.2)
2. Flows for APEX (since 2020)



### APEX Workflow and Flows for APEX compared

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General Product Overview

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## Executive Summary

**APEX Workflow does not implement the BPMN 2.0 standard and has no future plans to do so. Flows for APEX and APEX Workflow will happily co-exist, integrate with and complement each other. We're giving customers a choice depending on requirements and existing BPM practices. There will be NO migration from/to Flows for APEX to/from APEX Workflow as both solutions follow different design principles.**

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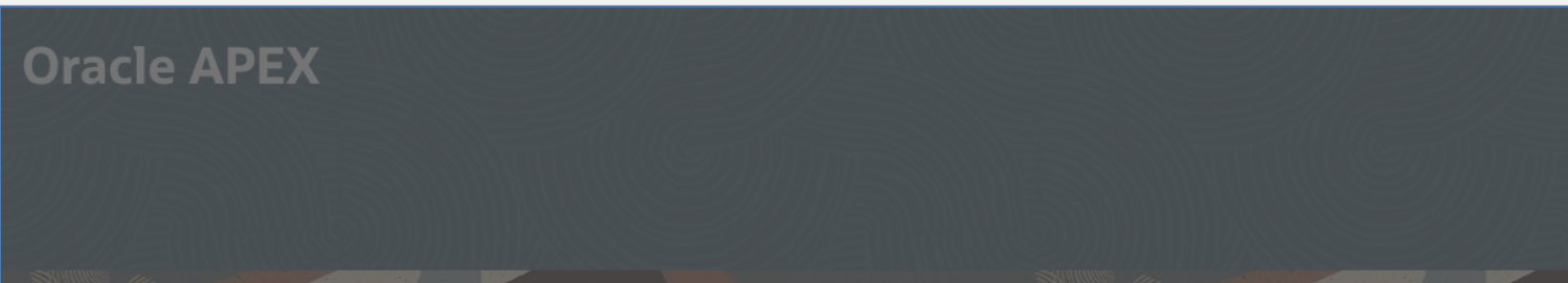
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Supported Industry Standards	None.	OMG BPMN 2.0 (also ISO standard)
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<https://blogs.oracle.com/apex/post/apex-workflow-positioning>



## Process Automation Options in Oracle APEX 23.2 and Beyond

March 5, 2024 | 10 minute read

 Ralf Mueller  
Architect

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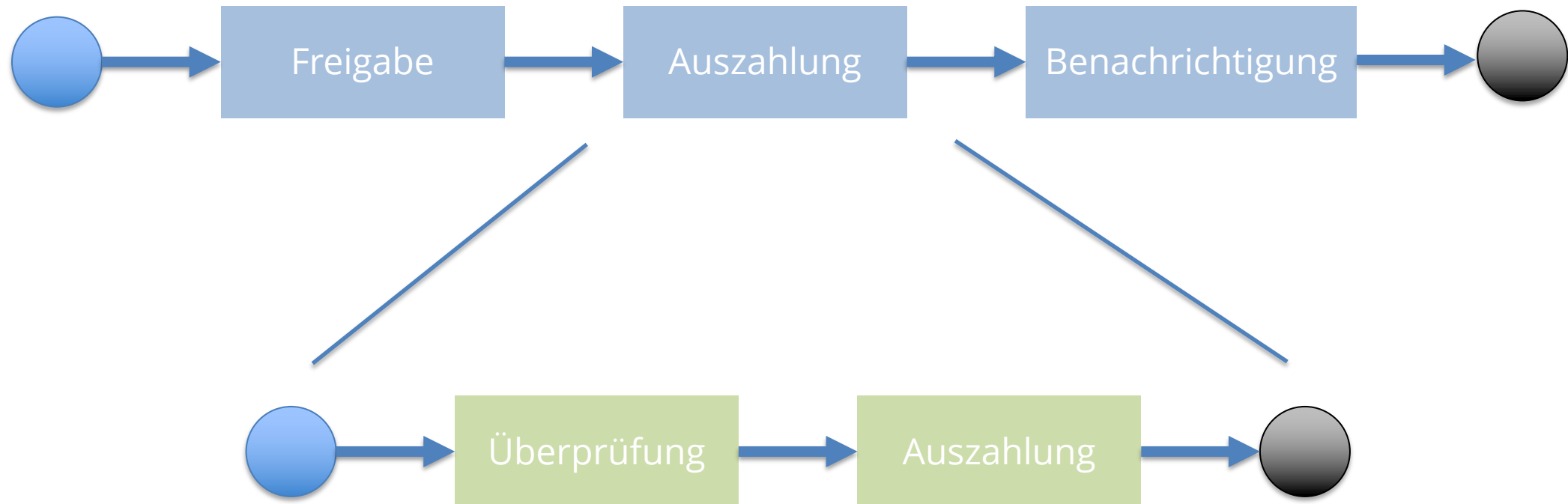
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Vendor	Oracle	Open-Source
Available since	Oracle APEX 23.2 (end of 2023)	2020
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Current Version	Oracle APEX 23.2	Flows for APEX 23.1

As always, it depends



# APEX Workflow + Flows for APEX

# Beispiel: Expense Claim



# Beispiel: Expense Claim



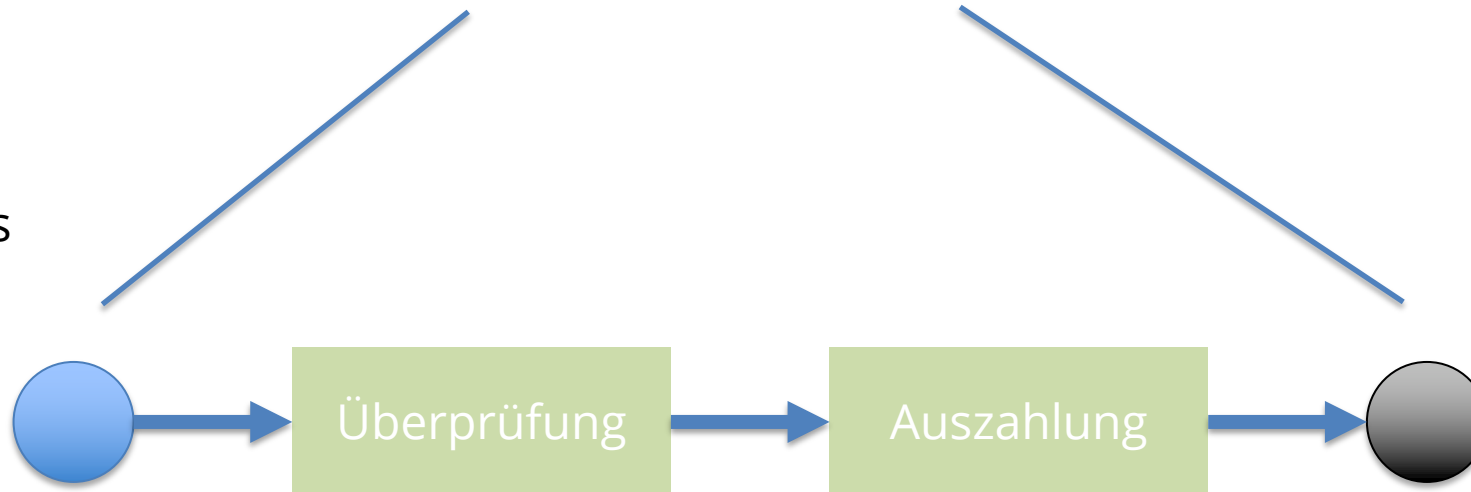
## Fokussierung auf Kernaufgaben

Business



Flows for APEX

APEX Workflows



Dev / Operations

# Integration im Detail (Setup)



## 3 Applikationen

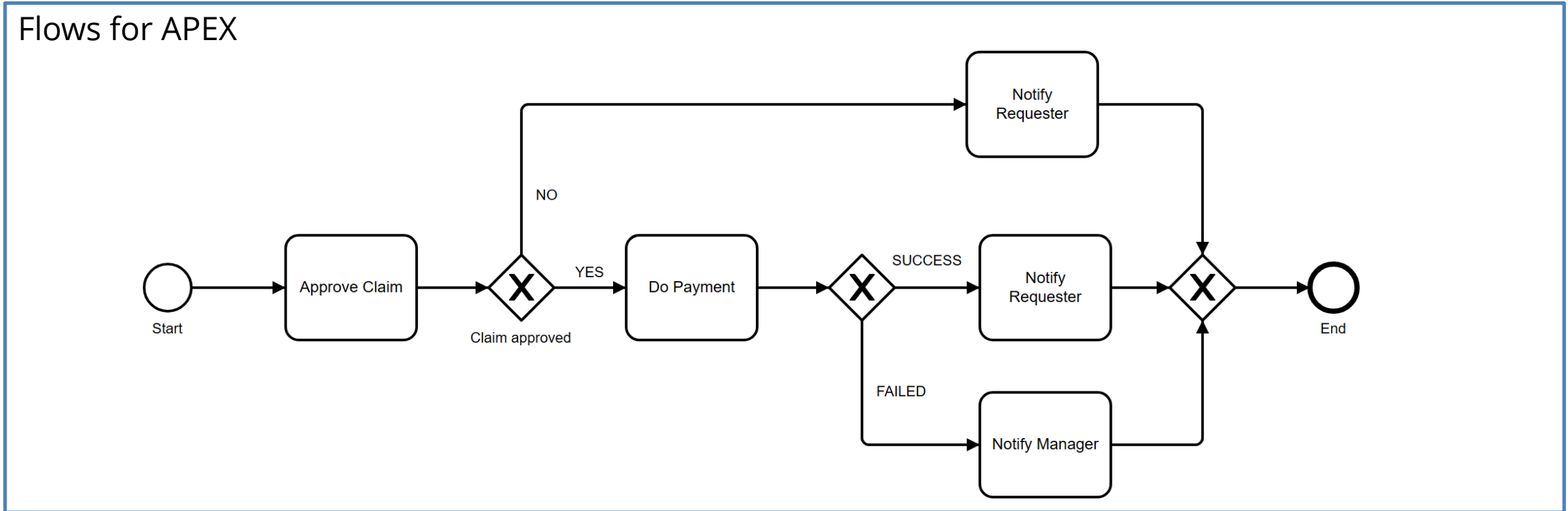
- Expense Claim ( End-Users )
  - Anfrage Erstellen
  - Tasks bearbeiten
- APEX Workflow
  - Task Definition
  - Workflow Definition
- Flows for APEX
  - Business Process

## Komponenten

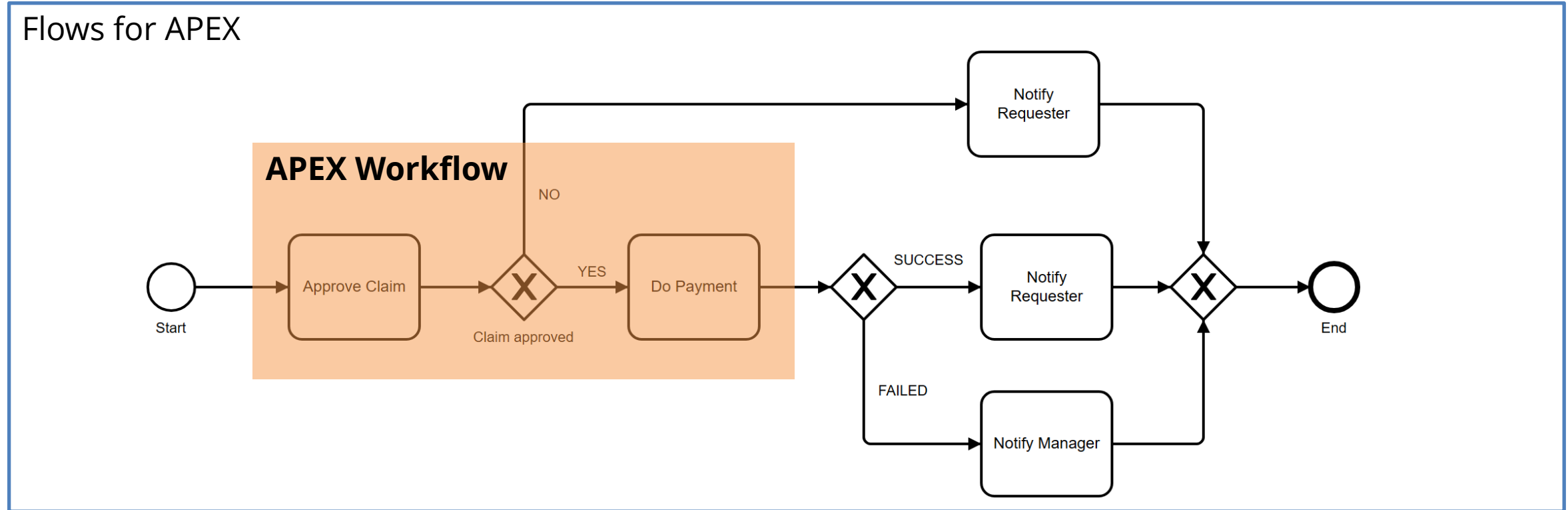
- Forms / Reports
- Unified Task List
- Approval Task (Claim Approval)
- Action Task (Set Payment Method)
- APEX Workflow (Payment)
- Model: Claim Process
- Model: Call APEX Workflow
- Notification: Email / Push



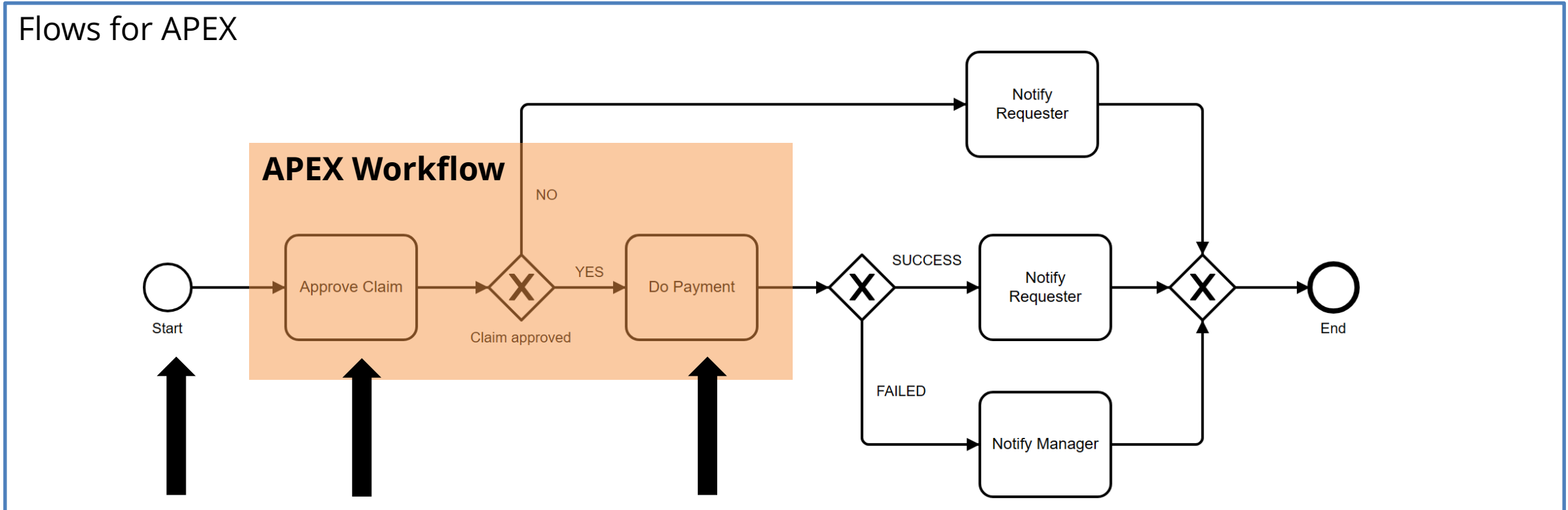
# Flows for APEX



# APEX Workflow + Tasks



# Expense Claim Application

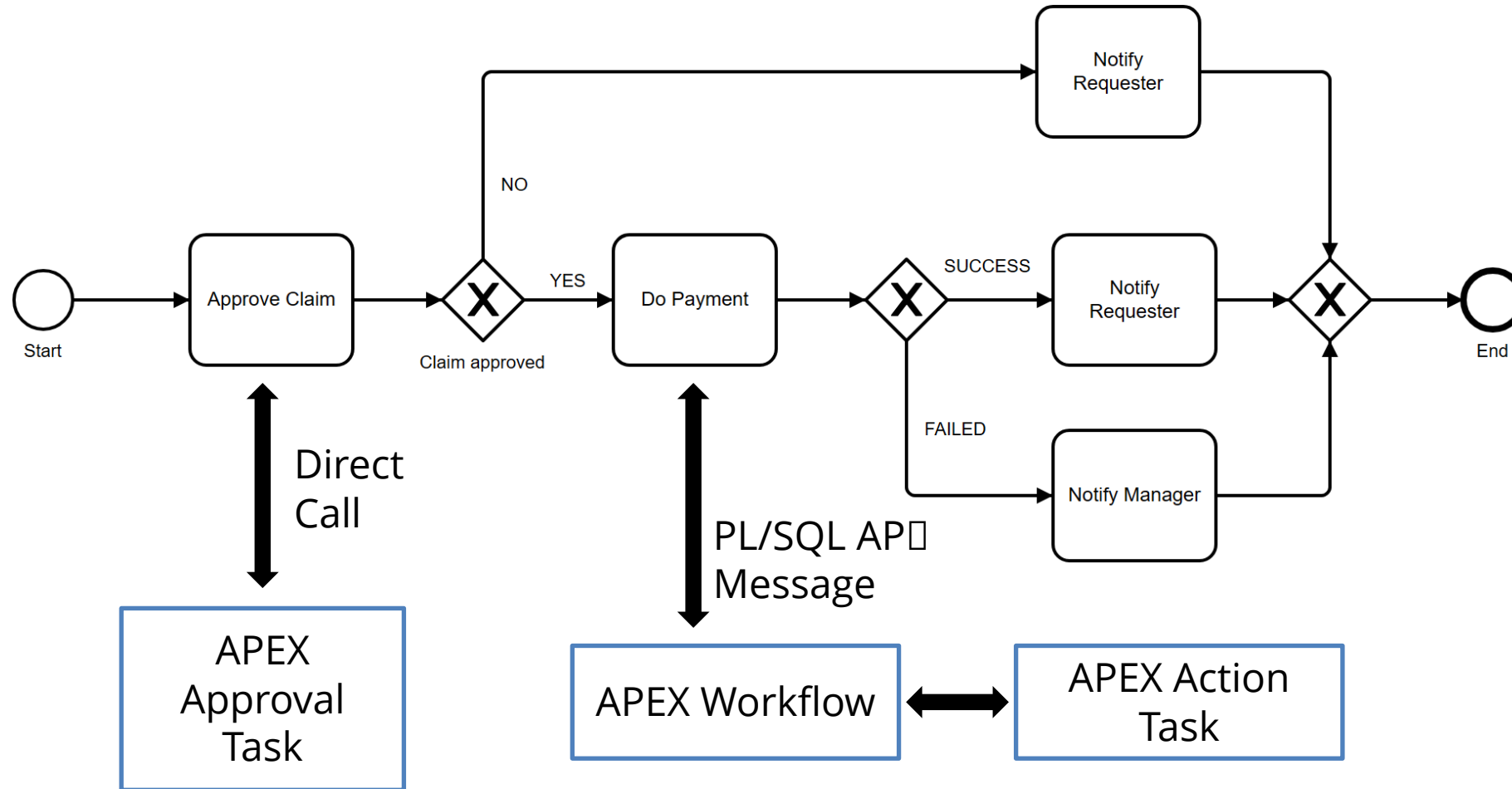


**Expense Claim ( End-Users )**  
Start Claim / Approve Claim / Set Payment



DEMO

# Integration

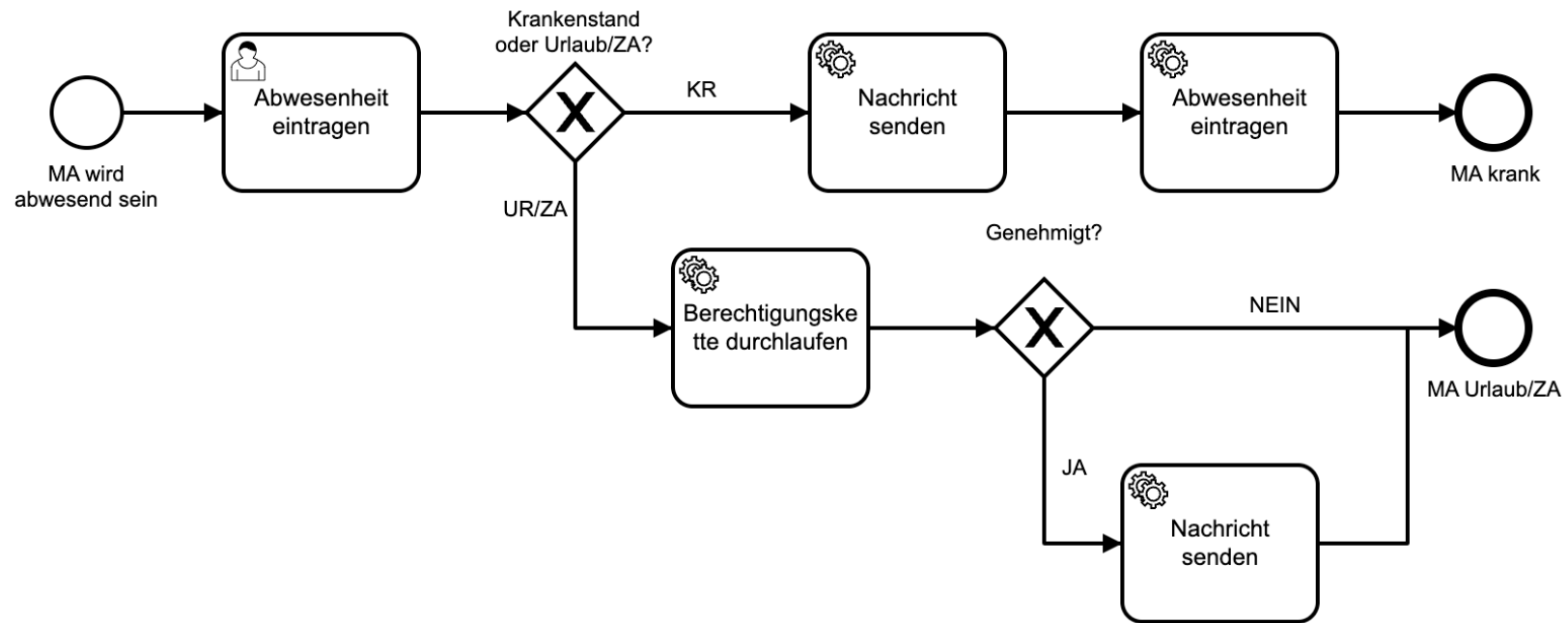


# My Thoughts



- Was ist die Aufgabe ?
  - Organisatorischer Ablauf (Gesamtprozess)
  - Technischer Ablauf (Teilprozesse)
  
- Wer beschreibt / modelliert den Prozess ?
  - Fachabteilung
  - Entwickler

# Komplexität von Prozessen

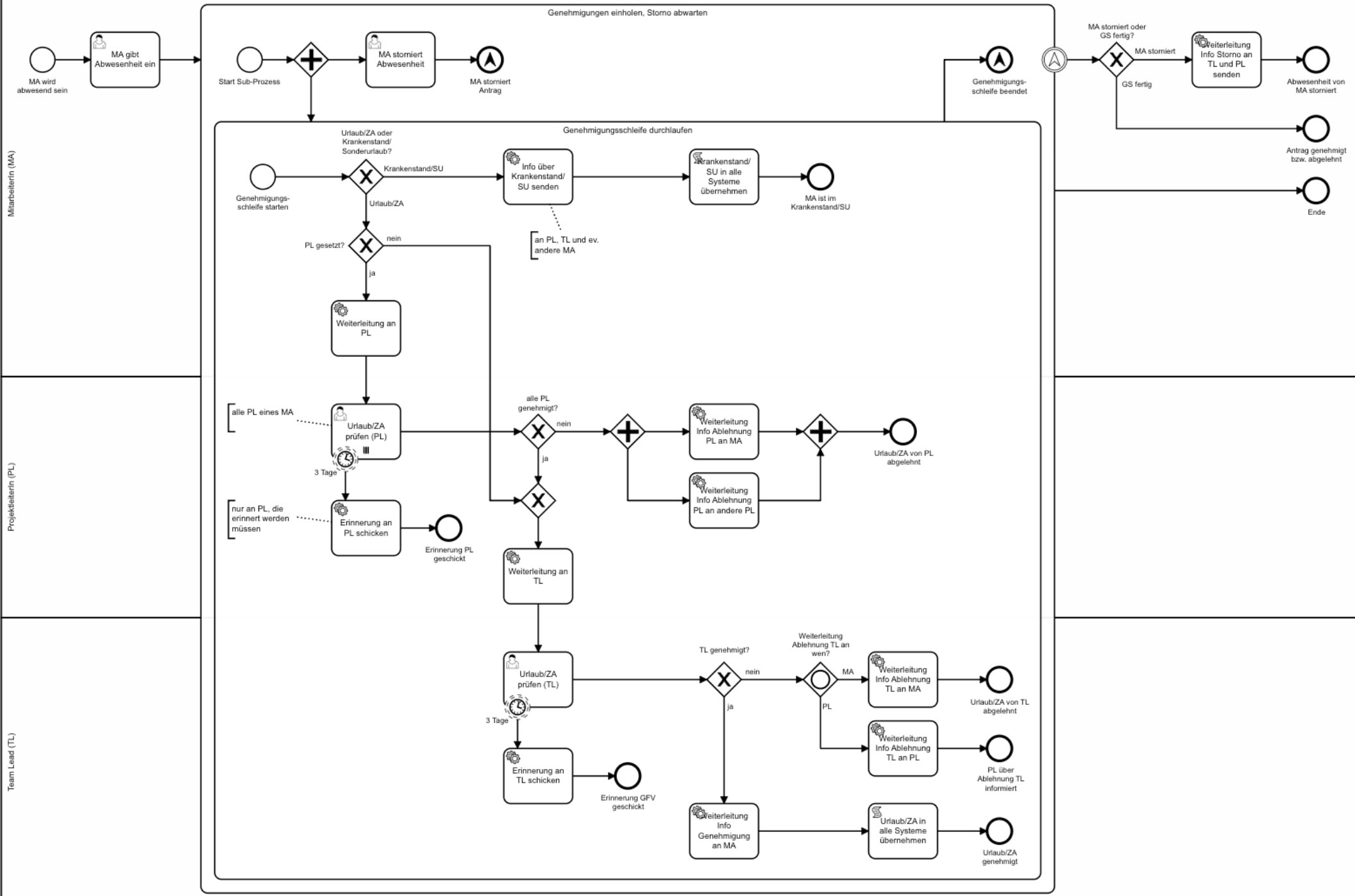




Mitarbeiterin (MA)

Projektleiterin (PL)

Team Lead (TL)





# Flows for Apex + APEX Workflow

