



Flows for APEX 23.1

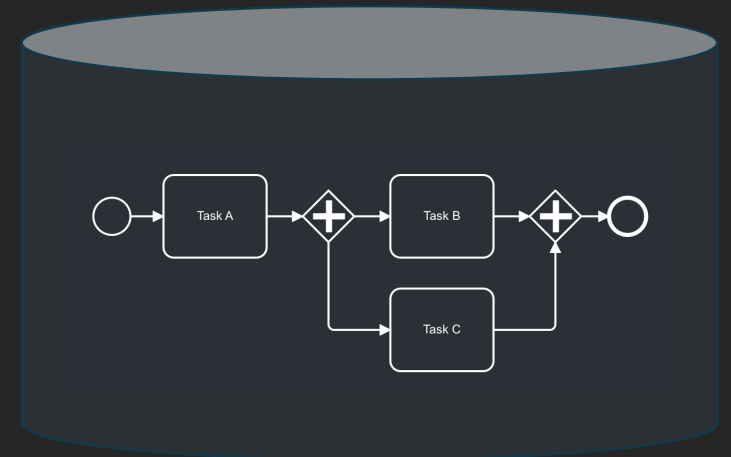
Open source BPMN 2.0 based process engine

What is Flows for APEX?



Flows for APEX is an enterprise process engine that

- runs completely in Oracle 19+ with APEX 20.2+
- supports the BPMN 2.0 industry standard
- provides APEX plug-ins for a seamless integration with your APEX apps
- ships with an APEX app to manage process diagrams and monitor instances
- comes with a sample APEX app "Expense Claims"
- was build by the community for the community
- comes with a PL/SQL and REST API
- is open source (commercial support available)
- can be installed in your APEX workspace within minutes
- stores all process/business data in your workspace schema
- integrates with APEX Workflow in APEX 23.2+



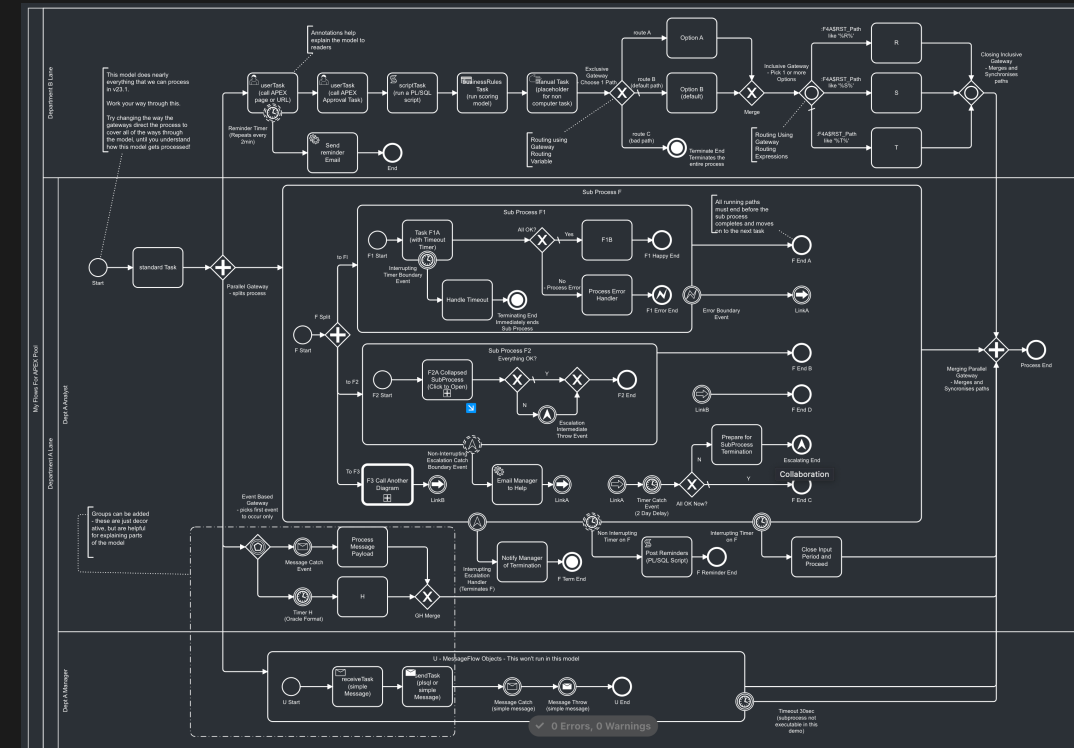
Who is working with Flows for APEX?



A Business Analyst

- may model complex diagrams without APEX knowledge
- can export/import existing BPMN 2.0 models
- can version diagrams
- can break up diagrams in smaller ones that call each other and are reusable (aka. "Call Activity")

Supported BPMN modeling elements in Flows for APEX 23.1



Who is working with Flows for APEX?



An APEX Developer

- utilizes plug-ins to integrate Flows for APEX in their own app
- implements a task in the process by leveraging APEX or PL/SQL
 - use an APEX page or APEX approval for a user task
 - use APEX mail template for a service task
 - use APEX automation to kick-off a process
 - use PL/SQL for more complex logic
- interacts with 3rd party systems through REST
- clean separation between process and app logic
 - process variables lets you store information on process instance level
- commit with the business transaction
- Flows for APEX app supports 10 languages

PL/SQL API

```
declare
    l_prcls_id flow_processes.prcls_id%type;
begin
    l_prcls_id := flow_api_pkg.flow_create(
        pi_dgrm_name => 'My Model'
        , pi_dgrm_version => '0'
        , pi_prcls_name => 'My Instance Name'
    );

    flow_api_pkg.flow_start(
        p_process_id => l_prcls_id
    );
end;
```

Process Plug-In "Manage Flow Instance Step"

The screenshot shows the APEX Page Designer interface. The left pane displays the process flow with a step highlighted in green: "Complete step of flow instance". The right pane shows the configuration for this step, including Identification and Settings sections.

Identification	
Name	Complete step of flow instance
Type	Flows for APEX - Manage Flow Instance Step
Execution Chain	None

Settings	
Action	Complete Step
Flow Instance info	In Page Items
Process ID Item	PROCESS_ID
Subflow ID Item	SUBFLOW_ID
Step Key	STEP_KEY
Set Gateway Routing?	<input type="checkbox"/>
Auto-Branching?	<input type="checkbox"/>

Who is working with Flows for APEX?



A Process Administrator

- can operate on all running instances
- gets extensive auditing information on instance and step level
- is provided with performance statistics (may leverage these for custom reporting)
- is able to rerun a step if required
- can stage a diagram
- can optionally archive logs to OCI

The screenshot displays the Oracle APEX Flow Monitor interface. The main heading is "Step Error Instance 1". The interface is divided into several sections:

- Instance Details:** Shows the instance name and a search bar.
- Instance Events:** A table listing events with columns for Timestamp, Event, and Error Stack. The events are: "created" (15.11.2023 16:39:01), "started" (15.11.2023 16:39:09), and "error" (15.11.2023 16:39:09). The error event is highlighted in red.
- Error Stack:** Displays the following error messages:

```
ORA-06510: PL/SQL: unhandled user-defined exception
ORA-06512: at "NDBRUIJN.FLOW_PLSQL_RUNNER_PKG", line 163
ORA-06550: line 4, column 1:
PLS-00103: Encountered the symbol "END" when expecting one of the following:

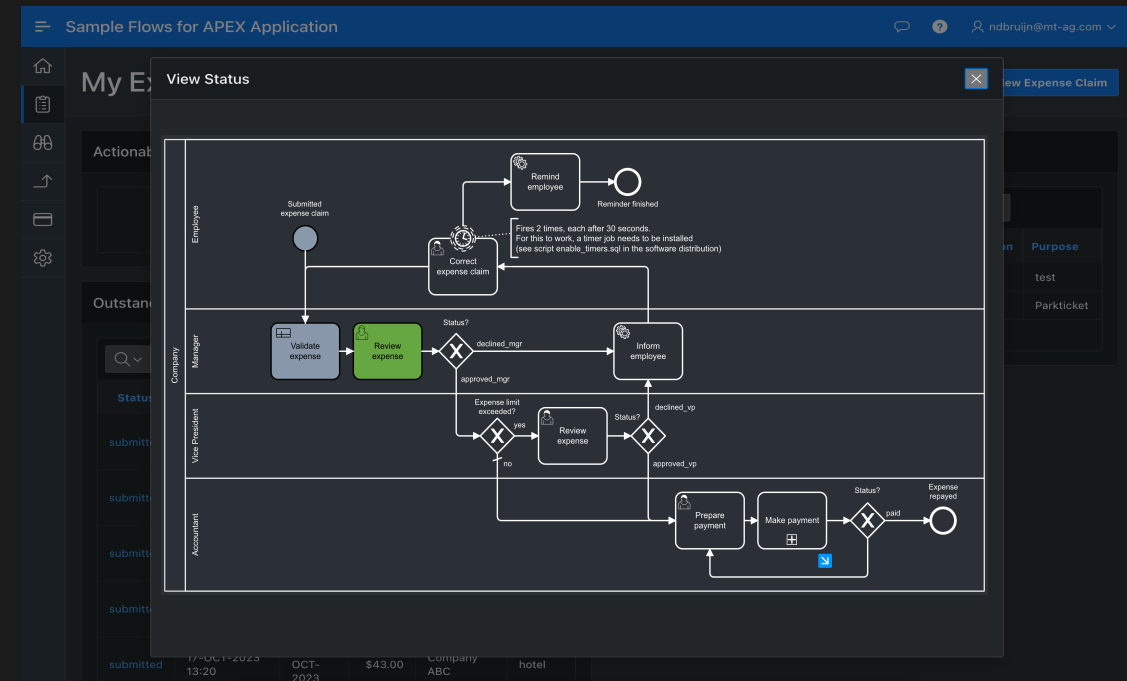
:= . ( @ % ;
The symbol ";" was substituted for "END" to continue.
ORA-06512: at "NDBRUIJN.FLOW_PLSQL_RUNNER_PKG", line 59
ORA-06512: at "NDBRUIJN.FLOW_PLSQL_RUNNER_PKG", line 144
```
- Subflows:** A table showing subflow details with columns for Status, Quick Action, Current, Last Update, and Status. The subflow "Call Service" is shown with a status of "error" (15.11.2023 16:39:09).
- Flow Viewer:** A diagram showing a "Call Service" step in a red box, connected to a start node and an end node.

Who is working with Flows for APEX?



An End User

- can be provided a single inbox containing all his tasks
- can see where the process resides, and which steps are outstanding

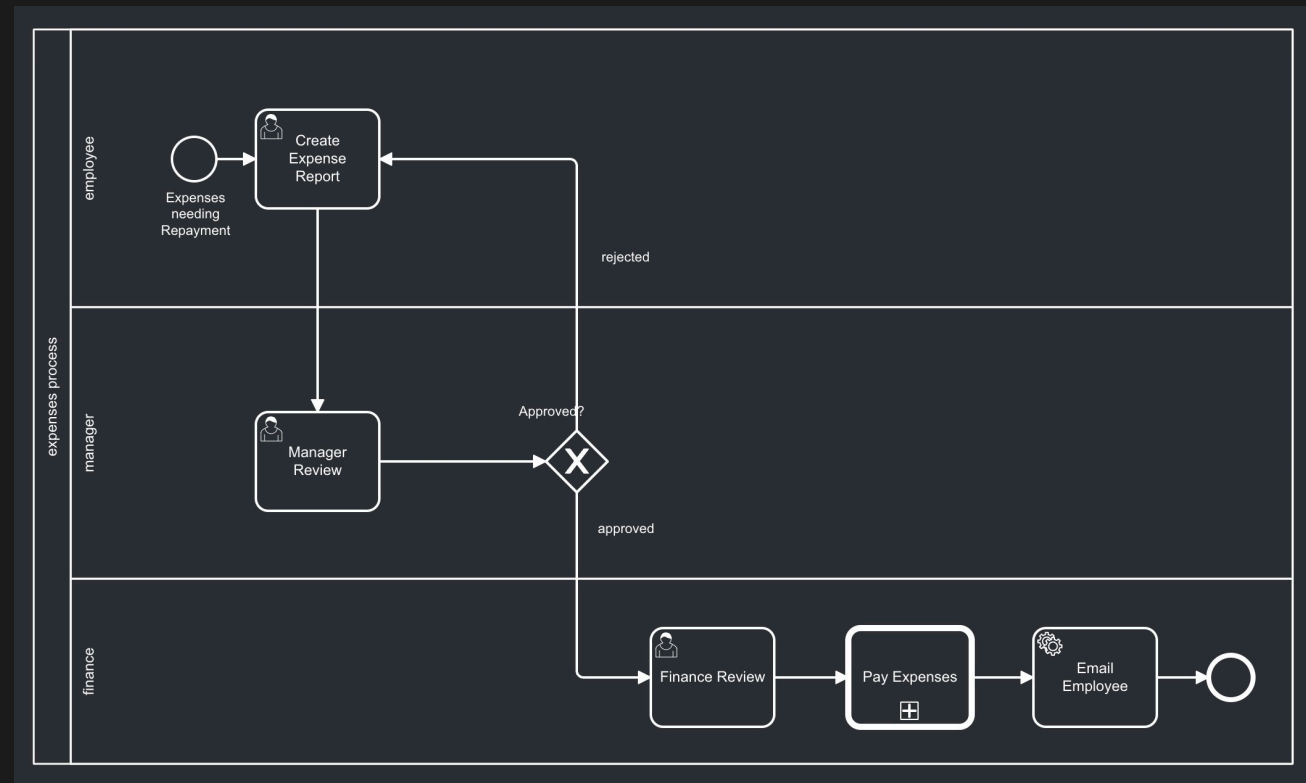


See it in action



Let's start by

- building a simple process diagram
- creating a basic APEX app for the user tasks
- setup communication back and forth
- run the process and monitor the instance



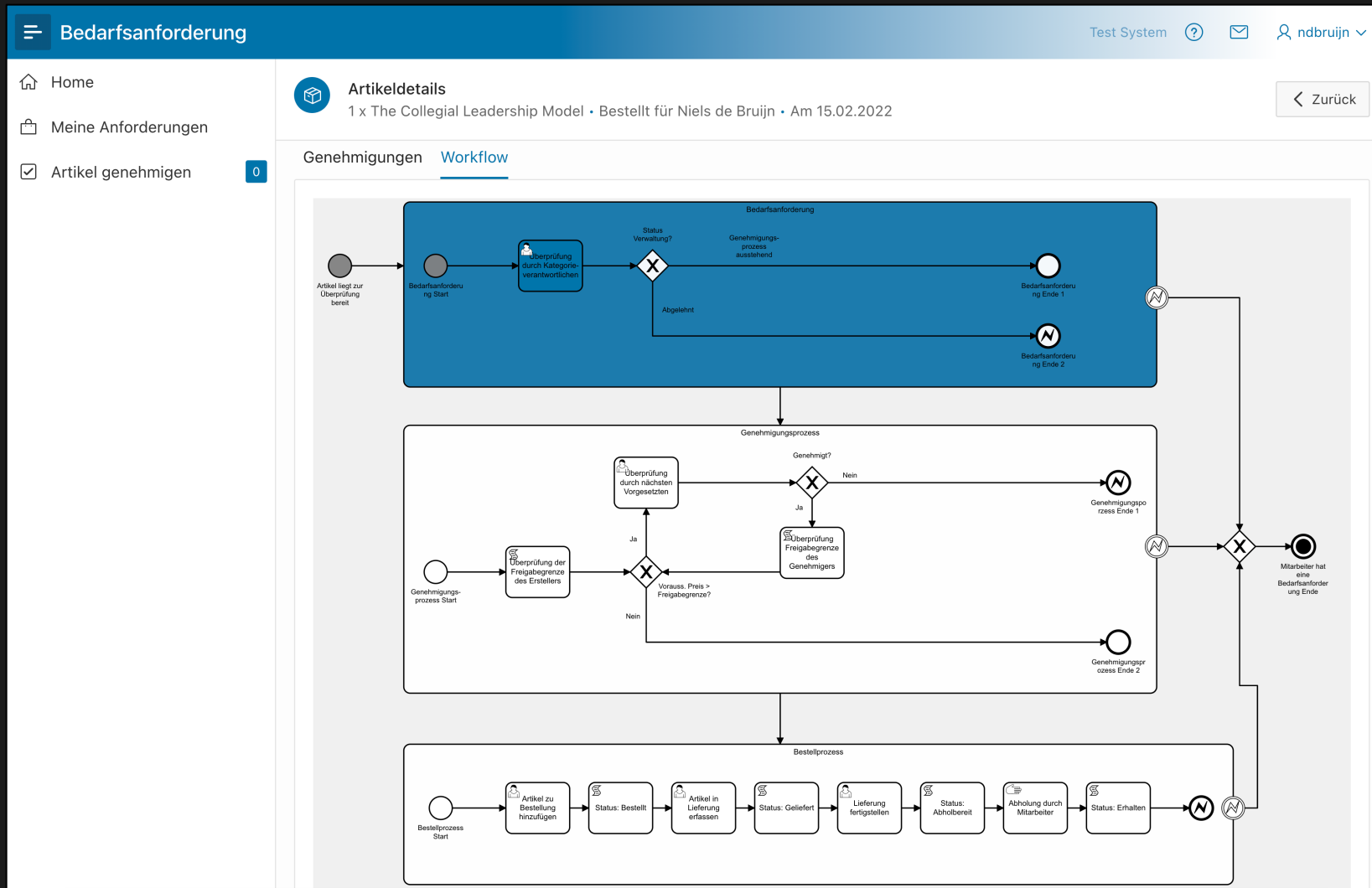
Some stats



- First release in 2020
- Starting with 2023, one major release planned each year
 - Bug fixes until release only for customers with a support contract
- 350+ automated test cases based on utPLSQL implemented (75% code coverage)
- 8,000+ downloads across all releases
- 560+ subscribers for the newsletter
- 50+ implementation projects (we are aware of)
 - some of them having 200,000+ instances

The screenshot shows the 'Tags' page of a GitHub repository. It lists four tags: v23.1, v22.2, v22.1, and v21.1. Each tag entry includes the version number, a commit hash, and icons for zip, tar.gz, Notes, and Downloads. The v22.2 and v22.1 tags are marked as 'Verified'.

Tag	Commit Hash	Release Date	Verified
v23.1	ef777f0	on Aug 10	No
v22.2	8d767d2	on Oct 11, 2022	Yes
v22.1	889a420	on Feb 4, 2022	Yes
v21.1	62ac67a	on Sep 24, 2021	No



Universal Investment



Client Control System Release 0.1 ▶ Meine APPs Feedback Hilfe Release Infos i About PEPPLER

Kundenanfragen

Go 1. Primary Report Aktionen Neue Kundenanfrage

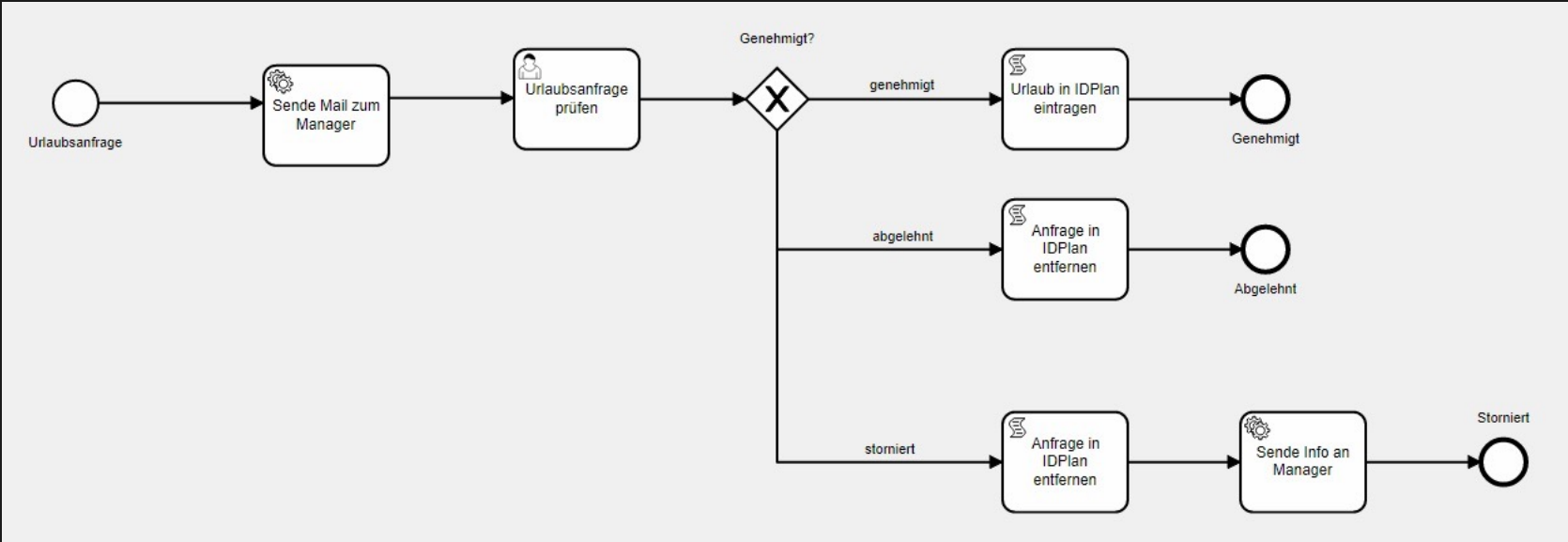
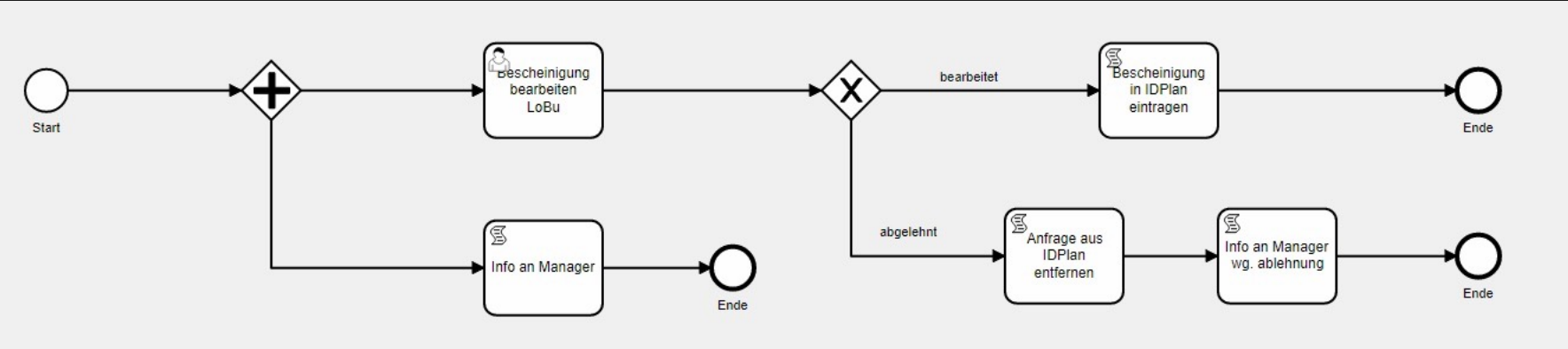
Titel	Kunde	Fonds	Kundenanfrage vom	Bearbeiter	Prozessschritt	Status	Priorität Kunde	Besch.	Historie	Flow
Qu...							hoch	(i)	(📅)	(🔄)
Te...							hoch	(i)	(📅)	(🔄)
Re...							-	(i)	(📅)	(🔄)
Te...							mittel	(i)	(📅)	(🔄)
Te...							hoch	(i)	(📅)	(🔄)
JS...							mittel	(i)	(📅)	(🔄)
Te...							-	(i)	(📅)	(🔄)
02...							mittel	(i)	(📅)	(🔄)
01...							hoch	(i)	(📅)	(🔄)
Ex...							-	(i)	(📅)	(🔄)
Te...							niedrig	(i)	(📅)	(🔄)
JS...							mittel	(i)	(📅)	(🔄)
JS...							hoch	(i)	(📅)	(🔄)
JS...							niedrig	(i)	(📅)	(🔄)
Te...							-	(i)	(📅)	(🔄)
Te...							-	(i)	(📅)	(🔄)
Te...							-	(i)	(📅)	(🔄)
Te...							-	(i)	(📅)	(🔄)
V4...							-	(i)	(📅)	(🔄)

Flow Viewer

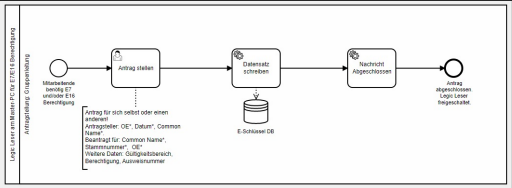
```
graph LR; Start((Start)) --> E[1. Erfassung]; E --> U[2. Übergabe]; U --> R1{Reject?}; R1 -- Ja --> R2{Reactivate?}; R1 -- Nein --> A[3. Analyse]; R2 -- Ja --> E; R2 -- Nein --> R3((Rejected)); A --> R3; R3 --> U; A --> R4{Reject?}; R4 -- Ja --> R2; R4 -- Nein --> B[4. Umsetzung Business]; B --> C{Client Tests?}; C -- Ja --> D[5. Client Tests]; C -- Nein --> R5{Reject?}; D --> R6{Nachbesserung m?}; R6 -- Ja --> B; R6 -- Nein --> R5; R5 -- Ja --> F[6. Auslieferung]; R5 -- Nein --> E; F --> End((Beendet));
```

The flowchart illustrates the 'Kundenanfragen' (Customer Requests) process. It begins with 'Receive Request' leading to 'Start'. The process flows through '1. Erfassung' (with an 'Email notification for recipient' event), '2. Übergabe', and a decision point 'Reject?'. If 'Ja' (Yes), it leads to 'Reactivate?', which loops back to '1. Erfassung'. If 'Nein' (No), it proceeds to '3. Analyse'. From '3. Analyse', another 'Reject?' decision point exists. If 'Ja', it loops back to 'Reactivate?'. If 'Nein', it goes to '4. Umsetzung Business'. From '4. Umsetzung Business', a 'Client Tests?' decision point follows. If 'Ja', it leads to '5. Client Tests', which then leads to a 'Nachbesserung m?' (Improvement needed?) decision. If 'Ja' to this decision, it loops back to '4. Umsetzung Business'. If 'Nein', it proceeds to a final 'Reject?' decision. From this final 'Reject?', 'Ja' leads to '6. Auslieferung' and 'Nein' loops back to '1. Erfassung'. The process ends at 'Beendet' (Completed).

Siebenwurst



Automotive



Ute **Neuer Auftrag**

Legic Leser am Master PC E7 u. E16

eQP MMS User Antrag

eQP MMS User Rollenänderung

eQP User deaktivieren

Erstattete deaktivieren

FIS Legic Leser Antrag

Neuer Werksausweis / NFC-Tag

Erstattete aktivieren

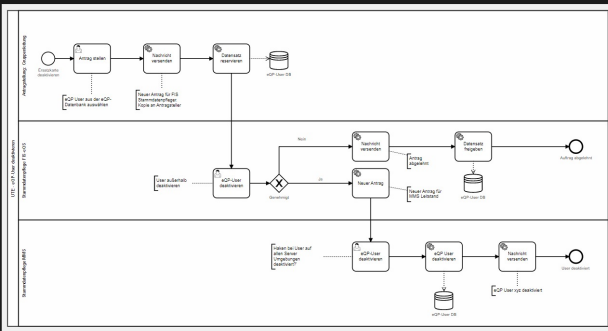
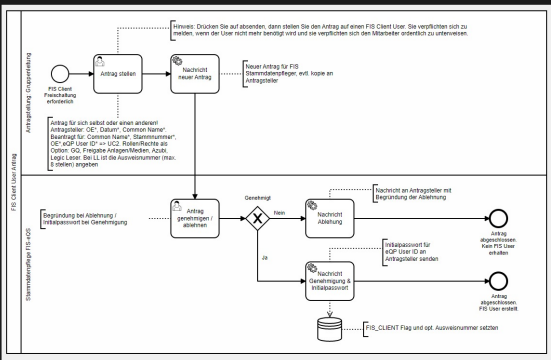
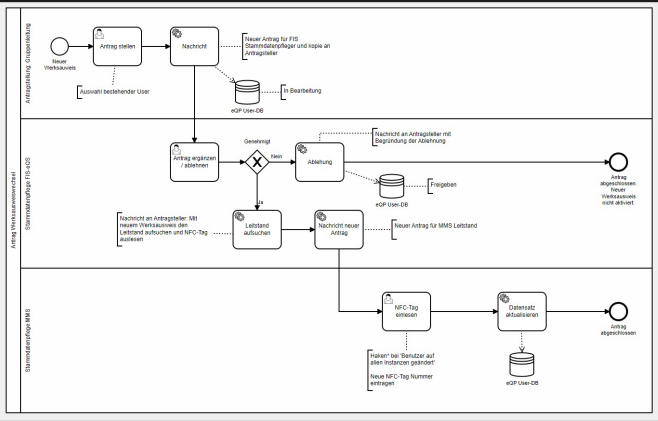
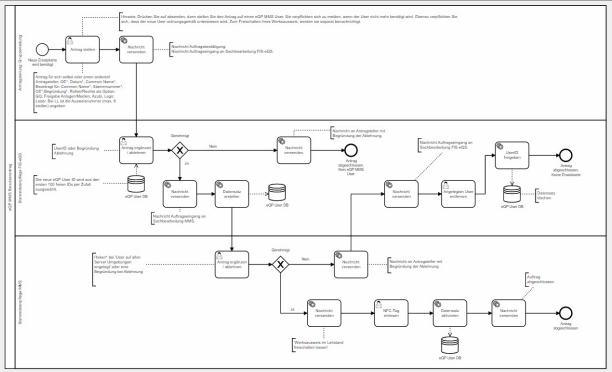
Neuantrag Erstattete

FIS User Kennwort zurücksetzen

FIS Client Benutzerantrag

FIS Client Berechtigung (grüner Baum) beantragen

FIS Client Berechtigung (grüner Baum) beantragen, Voraussetzung: eQP- und Office-User.



Possible Features 24.1+



- Message Flows (phase 2)
- Support for an installation in a centralized schema
- Native support for BPMN iterations by the Flows for APEX engine
- Support for escalation boundary events
- Enhanced APEX Workflow integration
- Pre-built connectors to declaratively call common REST services

Tell us what you need (and thereby supporting this project)!



flowsforapex.org