ETAP-PRO: End-to-end Test Automation Platform for Processes

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Agenda

- **Challeges and Goals**
- The ETAP-PRO Process
- Example
- Conclusions and Future Work

Challenges

- The increasing complexity of businesses
- Rapid change
- Technological advances
- Growing stakeholder needs
- Organizations operate in different markets
- Markets have different regulations
- Legislation changes

- **In this context, it is difficult to ensure that business processes are working correctly**

Goals of ETAP-PRO

- To provide a platform for end-to-end test automation for business processes to check that different workflows (crossing different applications) still work after changes.
- To ensure a greater resilience of the automated tests against possible functional changes, through
  - functional decomposition of the tests (in atomic automation components).
  - Based on a keyword (KW) driven (functional decomposition) approach
- To allow (automation)engine-independent tests

Goals of ETAP-PRO

- To ensure the traceability between the business process and its activities, and the automation artifacts

- To provide the generation of maps for impact analysis of changes to business processes, granting a more agile maintenance of the automated tests through a 360° view of the relationships between each automated test and the process' activities, applications, systems and services, covered by each test

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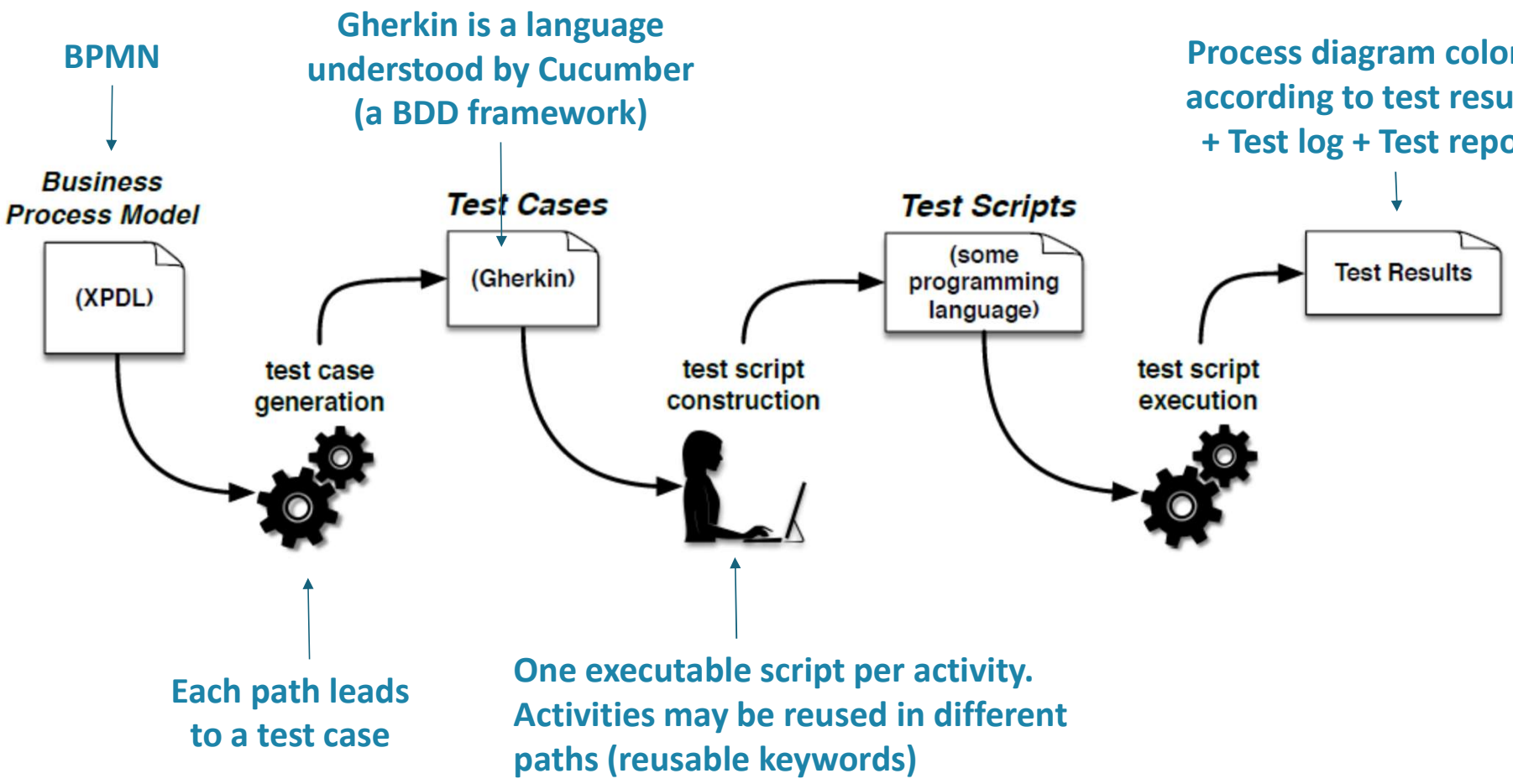
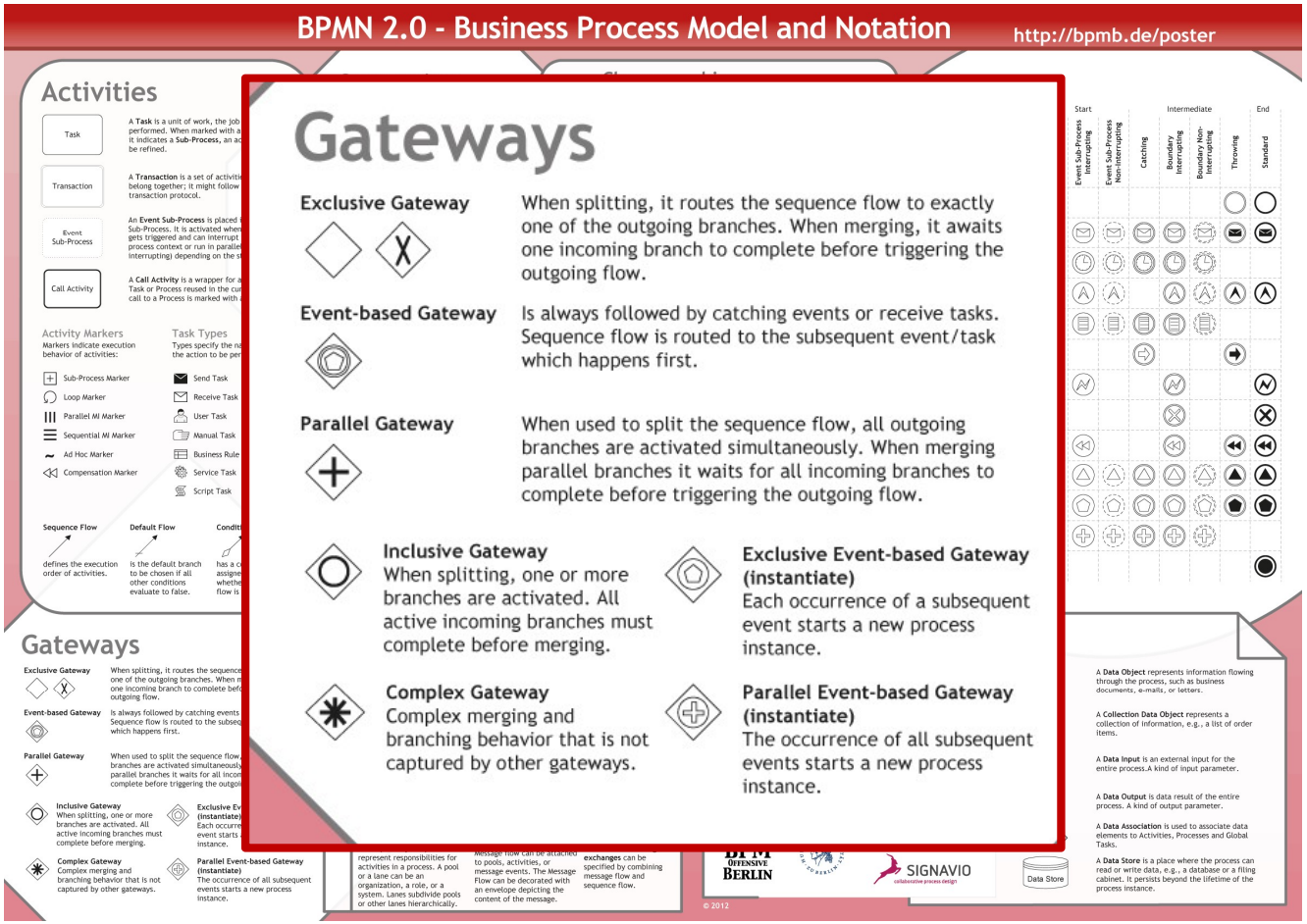
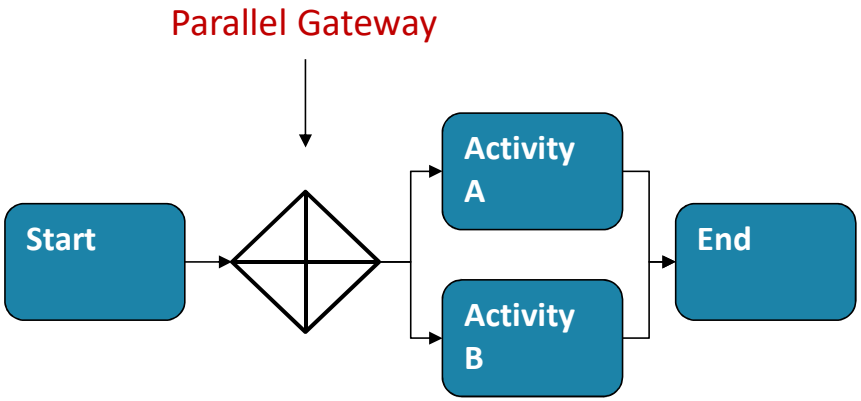
The ETAP-PRO Process



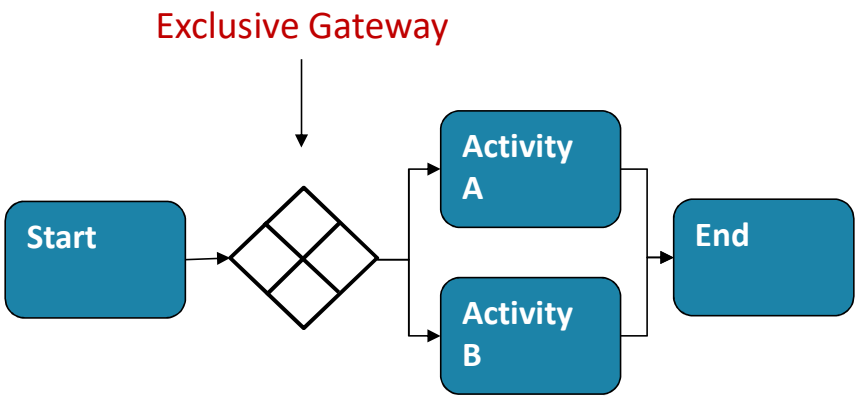
ETAP-PRO: BMNP Modeling Notation



ETAP-PRO: Test case generation



TC1: Start; Activity A; Activity B; End
TC2: Start; Activity B; Activity A; End



TC1: Start; Activity A; End
TC2: Start; Activity B; End

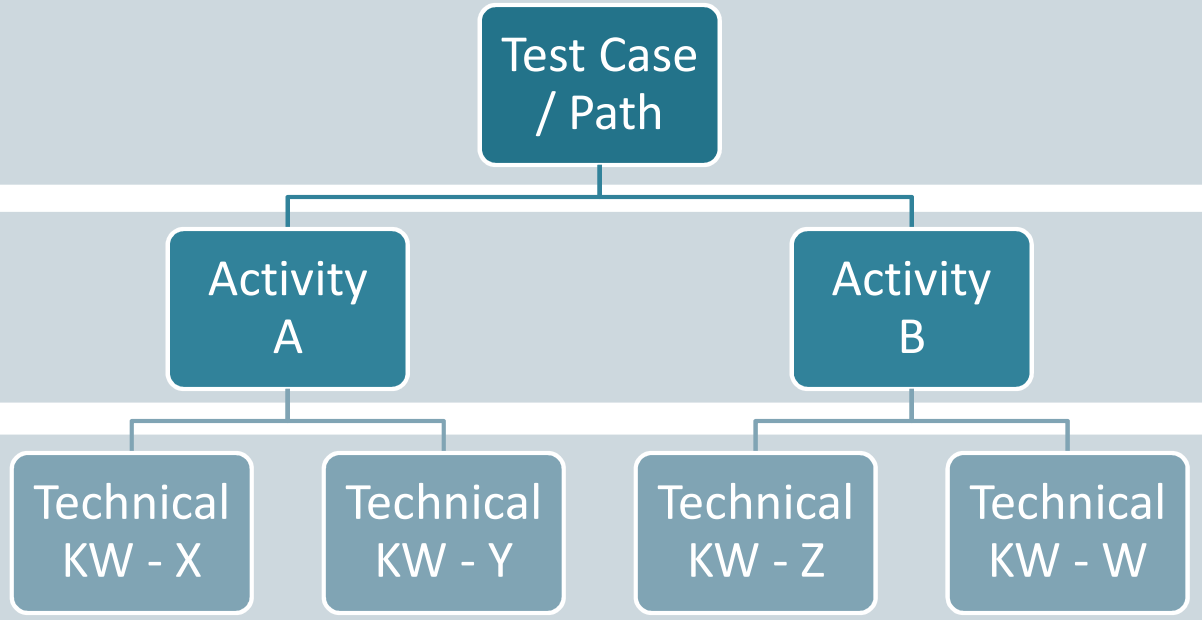
The ETAP-PRO Process: Keyword Driven Approach

A KW (Activity and Technical) may be reused across diferente test cases.

Each test case (path) in the process consists of a KW

Each business KW tests na activity of the process.

Technical KW validate intermediate steps of an activity.



Library Tool A

Library Tool B

Library Tool C

Technical KW may be based on libraries that allow using diverse execution engines

The ETAP-PRO Process: Traceability

- In a transparent way to the users, the relationships between KW created, the processes and their activities will be persisted.

- The framework will provide, in real time, the generation of maps (blue prints) where these relations are visible. This will help in the construction of new Test Cases and in performing the impact analysis when a process changes.

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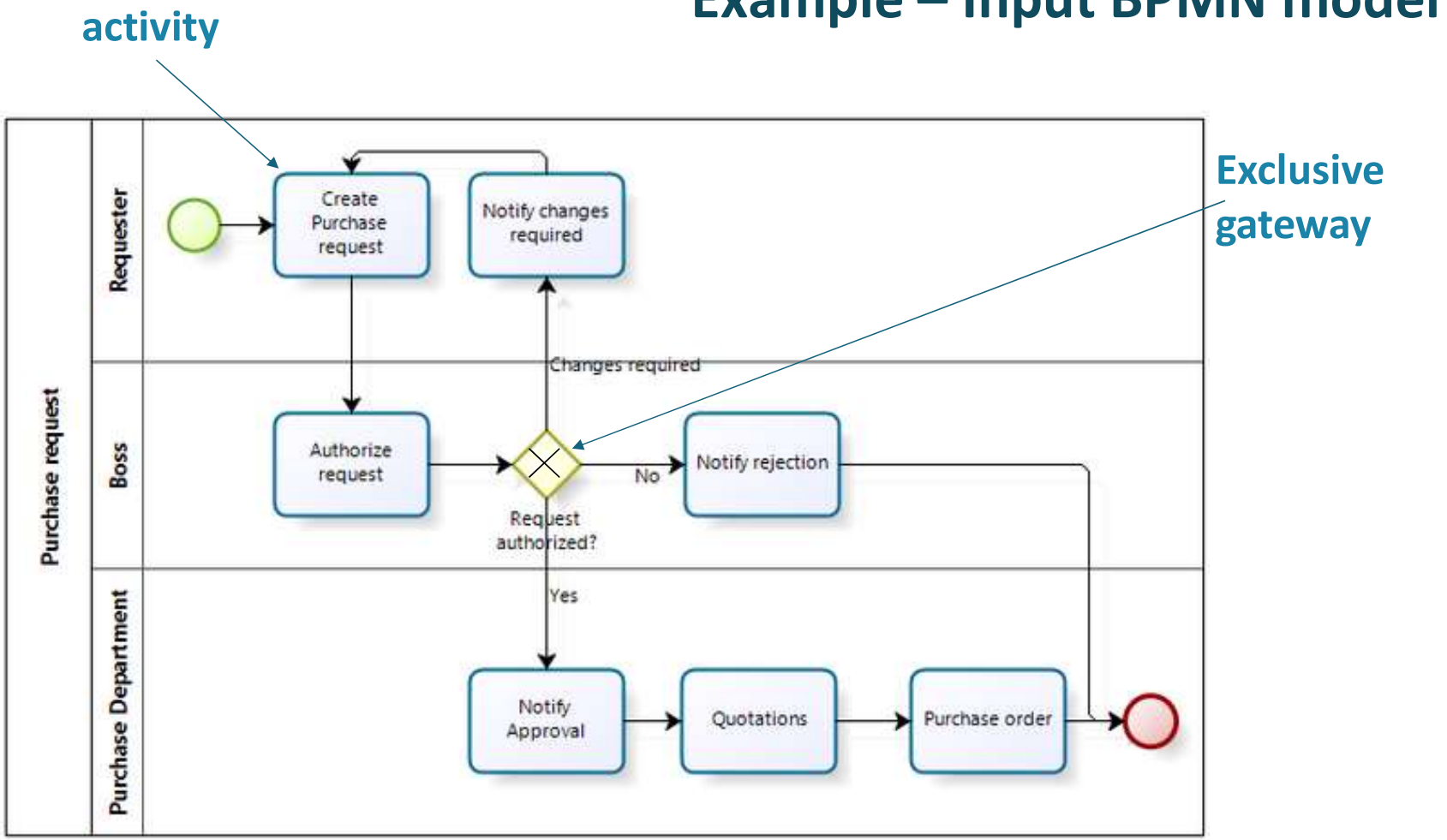
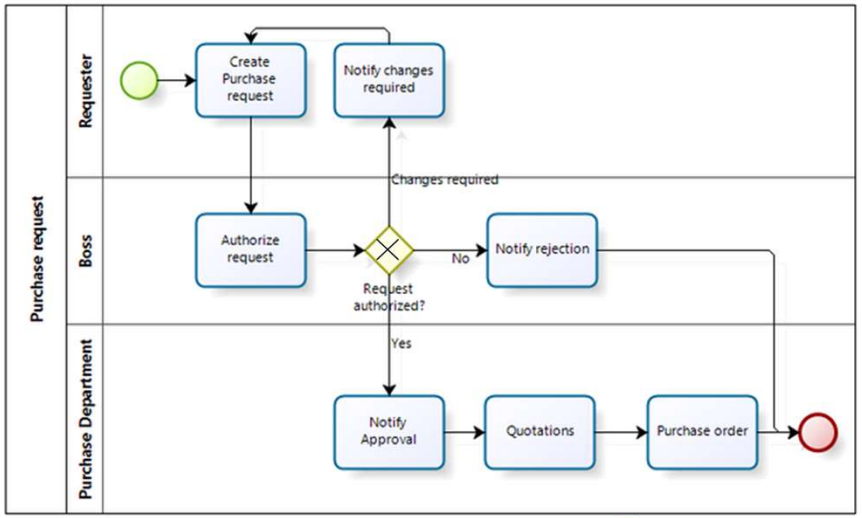
Example – Input BPMN model



Example – Test Case Generation



We will have three different paths which will lead to three test cases

XPDL File

1st: Get XPDL from BMNP model

2nd Generate Test Cases from XPDL

Test Cases:
TC1: Create Purchase request; Authorize request; Notify Approval; Quotations; Purchase Order;
TC2: Create Purchase request; Notify changes required;
TC3: Create Purchase request; Authorize request; Notify rejection;

Example – Test Cases in Gherkin

Test Cases:
TC1: Create Purchase request; Authorize request; Notify Approval; Quotations; Purchase Order;
TC2: Create Purchase request; Notify changes required;
TC3: Create Purchase request; Authorize request; Notify rejection;

Test Cases are generated in Gherkin

Feature: Purchase request

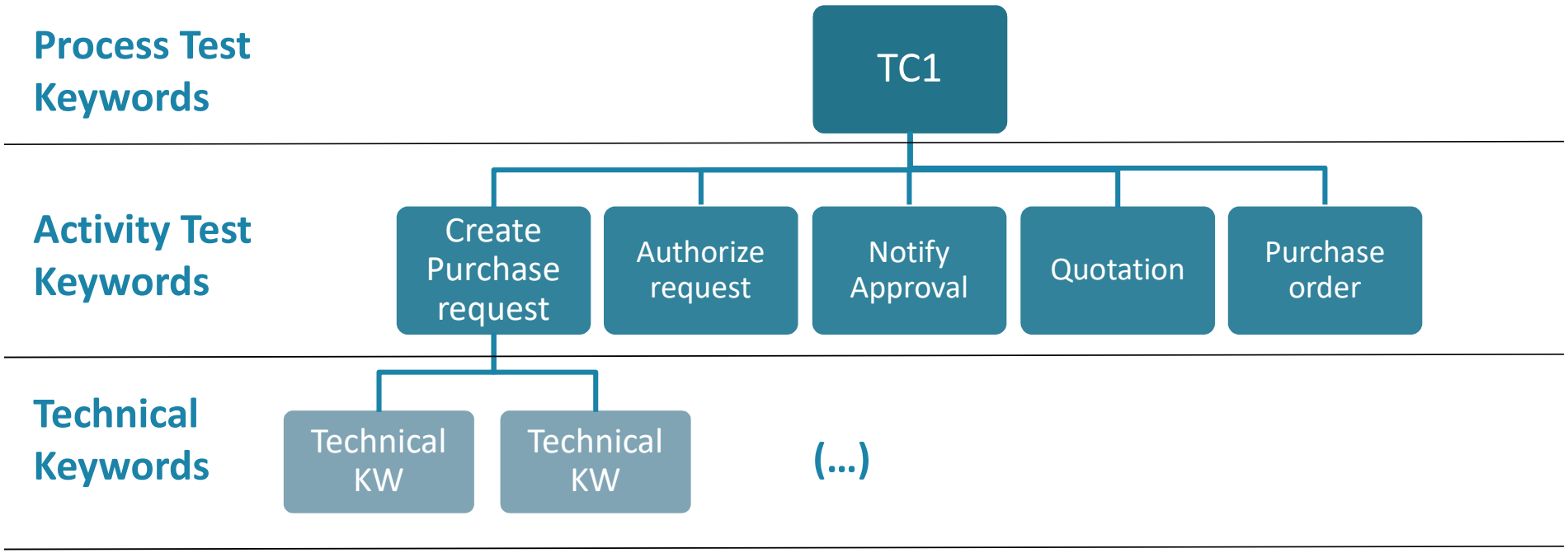
Scenario: TC1
Given Create Purchase request
When Authorize request and Request authorized
Then Notify Approval
Then Quotations
Then Purchase order

Scenario: TC2
Given Create Purchase request
When Authorize request and Changes requested
Then Notify changes required

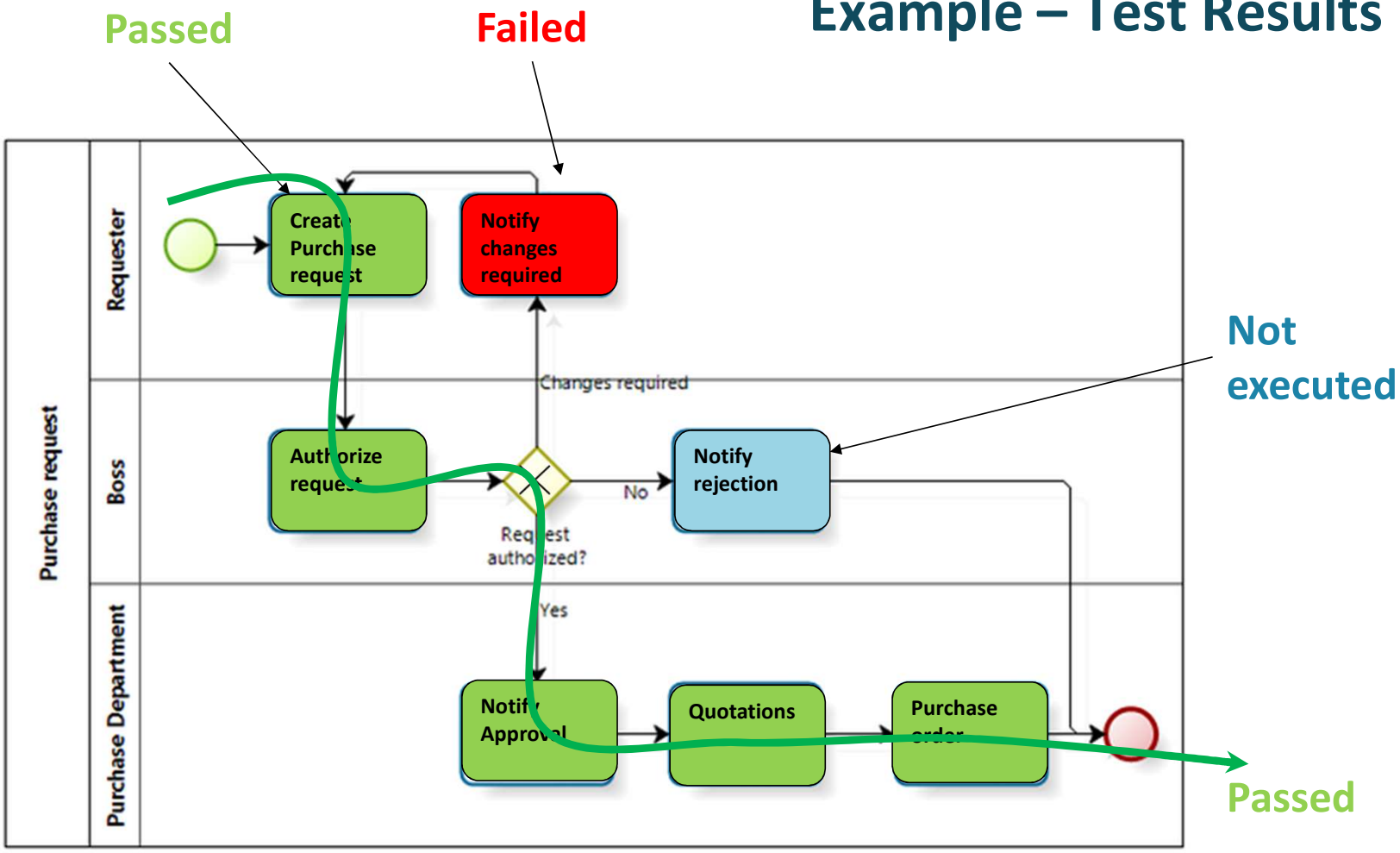
Scenario: TC3
Given Create Purchase request
When Authorize request and No
Then Notify rejection

Example – Keyword Driven Approach

Process: Purchase order



Example – Test Results



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Conclusions and Future Work

- We hope that ETAP-PRO will be able to significantly accelerate the end-to-end testing of business processes

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