

Hands-on Session

Instructions

Step 1 - Inspect Data

Open **PurchasingExample.csv** file in Excel and inspect its contents

- Every row corresponds to one event
- You can see information about Case IDs, Activities, Start and end times, Resources, Roles

Step 2 - Import Data

Load **PurchasingExample.csv** in Disco

Assign columns as follows:

- Case ID → Case ID
- Start and Complete Timestamp → Timestamp
- Activity → Activity
- Resource → Resource
- Role → Other

Click 'Start import'

Step 3 - Inspect Process

Look at the resulting process model

- Numbers in rectangles are activity frequencies
- Number at arcs is frequency of connection

→ You see the main process flows

- All 608 cases start with activity 'Create Purchase Requisition'
- Lots of changes were made (amendments)!

Step 3 - Inspect Process

It's important to be able to adjust the level of detail for the process map

Move up the 'Activities' slider down to lowest position (0%)

- Only the activities from the most frequent process variant are shown

Step 3 - Inspect Process

Gradually move the 'Activities' slider up to 100% again until all activities are shown

- Even infrequent activities such as 'Amend Purchase Requisition' are shown

You'll notice that 11 cases are flowing in to 'Amend Purchase Requisition' but only 8 are moving out - Where are the other 3?

Step 3 - Inspect Process

Move up the 'Paths' slider up to the top

You now see a 100% detailed picture of the executed process

- The 3 missing cases move from 'Amend Purchase Requisition' to 'Create Request for Quotation'

Step 4 - Inspect Statistics

Look at 'Statistics' tab to see overview information about event log

- 9,119 events were recorded for 608 cases
- Timeframe is January - October 2011

The case duration is typically up to 15 or 16 days, but some cases take very long (more than 70 or 80 days!)

Step 5 - Inspect Cases

Select 'Cases' tab to inspect variants and individual service instances

- The third most frequent process variant ends after 'Analyze Purchase Requisition' (ca. 10.36% of all cases follow this pattern)

→ Why are so many requests stopped? Do people not know what they can buy? (We can find this back in the process map, too)

Step 6 - Filter on Performance

Click on the Filter symbol in the lower left corner and add a Performance filter

- Select 21 days as lower boundary
- You'll see that ca. 15% of the purchase orders take longer than 21 days

Press 'Apply filter' to focus only on those cases that take longer than 21 days

Step 7 - Visualize Bottlenecks

The filtered process map shows process flow for the 92 (15%) slow cases

- On average 3 amendments per case!

Switch to 'Performance' view

- 'Total duration' shows the high-impact areas
- Switch to 'Mean duration': On average it takes **more than 14 days** to return from the rework loop to the normal process

Step 8 - Animate Process

Visualize bottleneck:

Press ▶ button to start animation

Observe how purchase orders move through the process

Drag needle to end of time line and observe how the most used paths get thicker and thicker

Step 9 - Compliance Check

Exit the animation, return to Filter settings, and remove performance filter



Switch back to Frequency Map view and scroll to end of the process

- 10 cases skip the mandatory 'Release Supplier's Invoice' activity!

Step 9 - Compliance Check

Drill down: Click on the path from 'Send invoice' to 'Authorize Supplier's Invoice payment' and press 'Filter this path...'

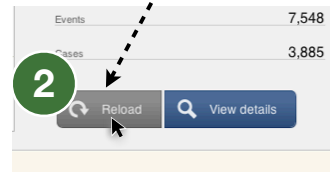
Switch to Cases view to see the 10 cases

- Actionable result: We can either change the operational system to prevent the violation or provide targeted training

Step 10 - Organizational View

Last Step: We want to take an alternative view on the data to see organizational flow

Go to 'Project view' and press 'Reload':



Set 'Activity' column to 'Other' and configure 'Role' column as 'Activity'

Step 10 - Organizational View

Instead of the activity flow, we are now looking at how the process moves through different *roles* in the organization

- Inefficiencies can often be found at the borders of organizational units
- Clearly, the Purchasing agents are causing the biggest delays in the process!

Bonus

1. Import data again and configure both 'Activity' and 'Role' column as 'Activity'
 - Can you see what happens now?
2. Export XES file and analyze further in ProM
 - Download ProM from <http://promtools.org/>