Quick Reference Guide

[Build Analyses Training Track](#) 🔗

Last updated April 2023
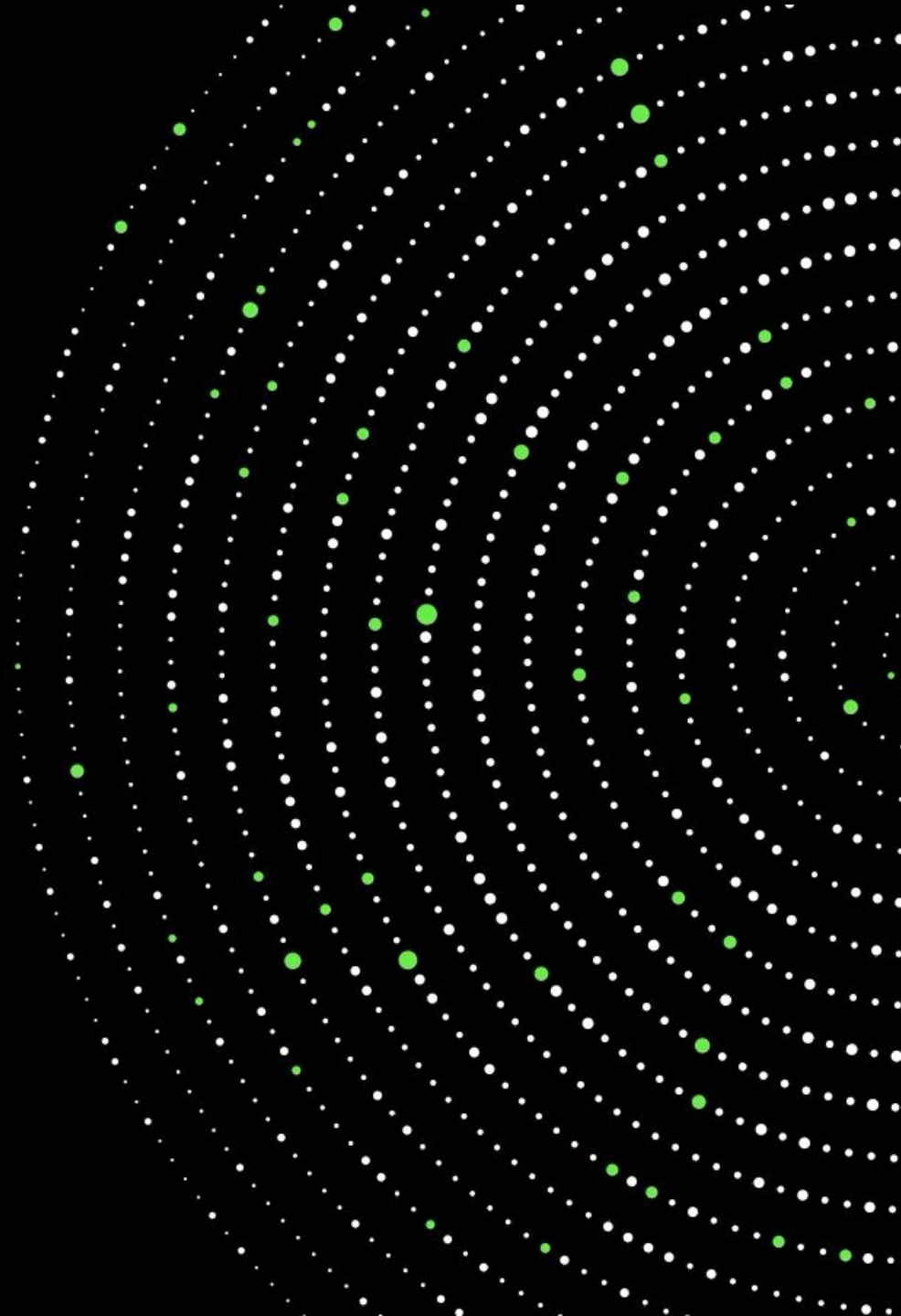
Analysis creation
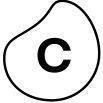
Add the Analysis asset
Once you've created a package, click the plus button to add the Analysis asset to get started.

View
Analysis
Skill
Knowledge Model
Simulation
Action Flow
Folder

Procurement

Create Package

P2P

P2P (Draft)

Create New Analysis

NAME

P2P

KEY

p2p

SELECT DATA MODEL / KNOWLEDGE MODEL

○ DATA MODEL VARIABLE

○ KNOWLEDGE MODEL

Select a Data Model / Knowledge Model
You'll need to select a data or knowledge model. The data model consists of a series of data tables, typically created by a data engineer, that you need to familiarize yourself with.

If you're responsible for creating Knowledge Models, check out our courses on the topic.
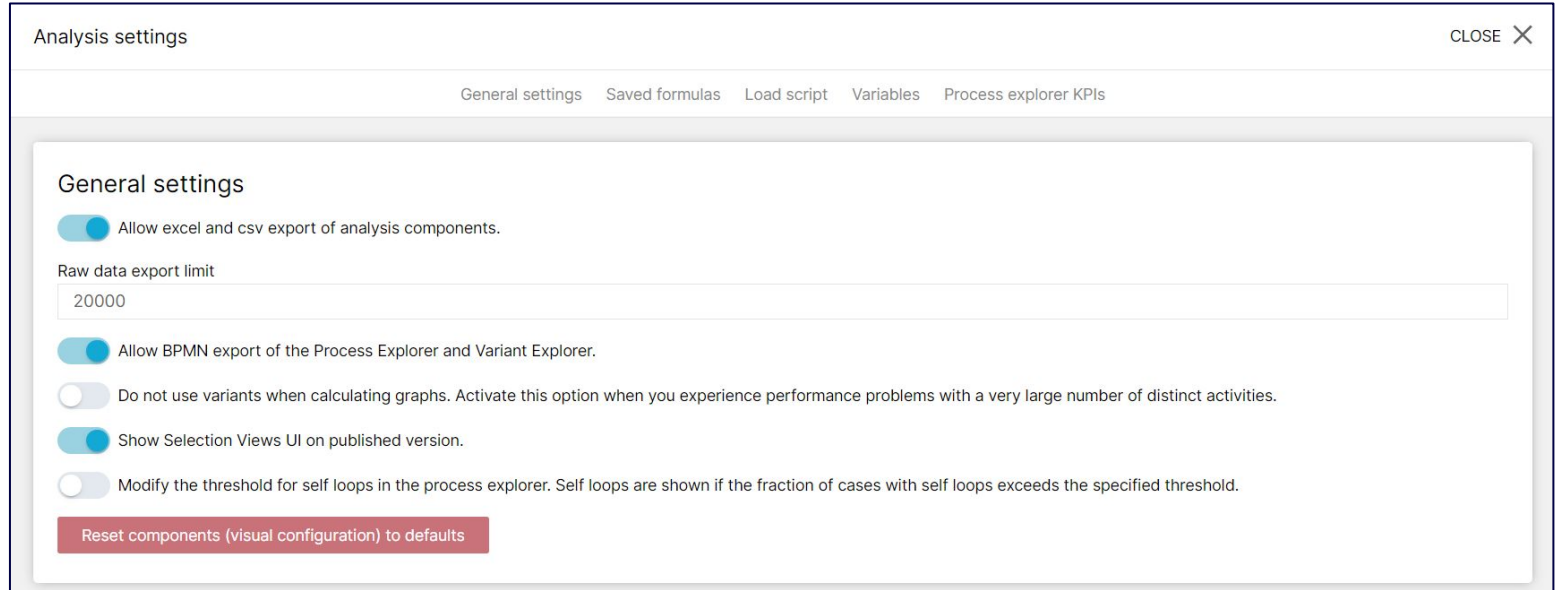
General settings
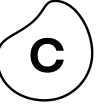
Access Analysis Settings

In Studio, in *Edit mode,* click this menu to access the Analysis Settings.
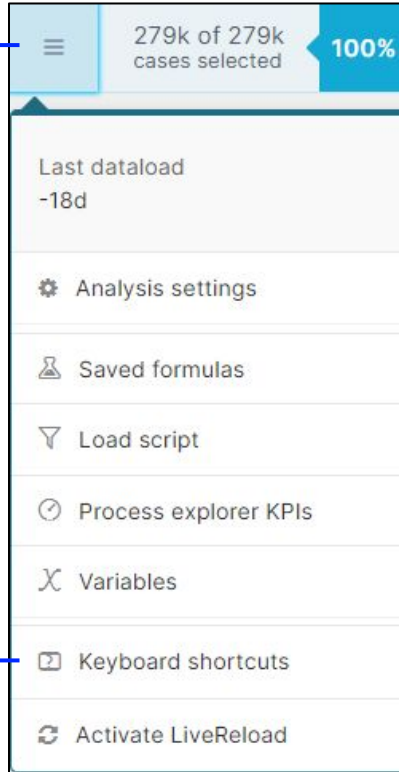
Directly access Analysis settings tabs by clicking any them in the menu.

Check out 20+ keyboard shortcuts available.

| ☰ | 279k of 279k cases selected | 100% |

Last dataload
-18d

⚙ Analysis settings

⚗ Saved formulas

▽ Load script

◷ Process explorer KPIs

𝑋 Variables

▱ Keyboard shortcuts

⟳ Activate LiveReload

Analysis settings   CLOSE ✕

General settings   Saved formulas   Load script   Variables   Process explorer KPIs

General settings

🔵 Allow excel and csv export of analysis components.

Raw data export limit

20000

🔵 Allow BPMN export of the Process Explorer and Variant Explorer.

⚪ Do not use variants when calculating graphs. Activate this option when you experience performance problems with a very large number of distinct activities.

🔵 Show Selection Views UI on published version.

⚪ Modify the threshold for self loops in the process explorer. Self loops are shown if the fraction of cases with self loops exceeds the specified threshold.

Reset components (visual configuration) to defaults

Turn on functionalities as needed

➤ "Allow excel…" enables users to download raw data from the sheets and components. You can set a limit of maximum rows to limit the load that is put on your application server. User right-clicks the component to see options. (Note: You won't see this option in your personal training team but you will see it in your production team back on the job.)

➤ "Allow BPMN…" enables users to export the process visualization as a .BPMN file. User right-clicks the component to see options.

➤ "Show Selection Views…" enables the Selection Views button for end users so they can filter on the analysis cases with attributes beyond the ones available in analysis sheets.

Adding sheets
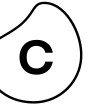
Add a sheet

After creating the analysis asset, you'll see the options to add the first analysis sheet. You can select one of the out-of-the-box components such as the full-screen **Process Explorer** or **Conformance** checker, or create your own combination of components on a sheet (**New Sheet**).
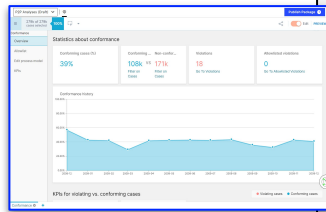
P2P Analyses (Draft)

279k of 279k cases selected 100%

Add new sheet

New Sheet
A new sheet waiting to be built.

Process AI
Detect and analyze deviations from the most common path.

Process Overview
Get the main insights on your process.

Process Explorer
Analyze and understand your process.

Conformance
Compare the real process to your target process.

Social
Understand how your team is working.

Case Explorer
Inspect individual cases.

Rename sheet

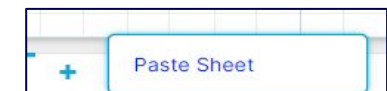Click this icon to access Sheet Settings and rename sheet.

New Sheet 1 ⚙ +

Sheet Settings, duplicate, copy, paste, delete

Right-click sheet name to see the options.

Sheet Settings

Duplicate Sheet

Copy Sheet to Clipboard
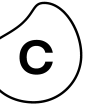
Paste Sheet

Delete Sheet

New
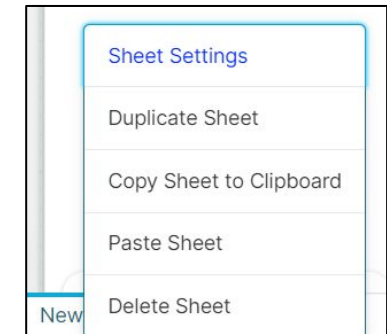
Paste Sheet

After copying a sheet, right-click on the bottom to paste the sheet. You can do this across analyses.

+ Paste Sheet

Adding components

Add components
In a new (blank) sheet, click the "COMPONENT +" button. Simply click a component from the list on the right to add it to the sheet.

New component

PROCESS ANALYSIS COMPONENTS
- Process Explorer
- Variant Explorer
- Throughput Time Search
- Activity Explorer

**MACHINE LEARNING COMPONENTS**
- Run ML Notebook

CHARTS AND TABLES
- OLAP Table
- Column Chart
- Pie Chart
- Donut Chart
- Line Chart
- Area Chart

You can add the **Process Explorer component** (this is not the full screen version) and the **Variant Explorer** with the click of a button, no configuration required! Celonis creates these components using the Activity Table from the data model.

Some components like charts and tables require you to configure them, specifying KPIs and dimensions. Others require just one, such as Single KPIs, and Dropdowns and Date Pickers which require a single dimension.

Process Explorer component
While it lacks certain tools as compared to the full screen version, the "component" version can be effectively combined with charts and tables in a single sheet.

Variant Explorer
It's recommended that you add the Variant Explorer on its own, expanding it to the full sheet.

Check out the course, "Data Visualization – Best Practices" for tips on purposes each component serves best.

Configuring components with dimensions and/or KPIs
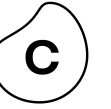
Add dimensions / KPIs

When you add a component that displays dimensions and/or KPIs, you'll need to specify which ones you want it to display. Start by clicking the corresponding 'Add' button.
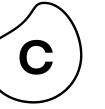
Select dimension / KPI

When selecting a dimension or KPI, you have access to the data table columns. By default all dimensions/KPIs can be found in the scrolling list. But you can search by column headers or you can click a table (on the left) and select from the list of column headers.

Dimensions represent the columns of the table you selected as data source. Your choice of a dimension will define the level of detail of KPIs for your data.

KPIs are functions that consolidate a set of values belonging to a single occurrence inside a dimension into one single value. Consolidation can be done by aggregating the values, by calculating the average, minimum or maximum or simply by counting the number of occurrences.

Enhancing components with dimensions and/or KPIs

Review Data Series Options
You'll see one data series option for each dimension and KPI you configured in the component. In these data series options, you can configure the look and feel of the column, color mapping, and so on.

Note: For a chart, aside from Data Series, you'll see quite a few options to customize the visualization.

# Renaming / Formatting dimensions and KPIs
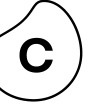
Rename / format when adding

When you select a dimension or KPI, you can immediately change the way the name displays in the window on the right. You can also change the formatting (e.g. Rounded number, percentage).

Rename / format after adding

To change the displayed name of a dimension or KPI or to change the format a KPI is displayed in, edit it and update name or formatting in the upper left corner of the window.

Customizing a Standard Process KPI
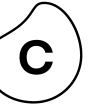
Add a Standard Process KPI

These are KPIs that are accessible in all Celonis Analyses, regardless of process since they apply across all processes.

1 Standard Process KPI

2 Total throughput time in days

Customize the Standard Process KPI

Aftering adding the KPI, click the formula button to then access the Visual Editor and customize the KPI from there.

3 *f(x)*

4 Visual editor
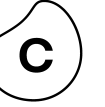
5 TIME DIFFERENCE — average of — FROM Process Start — TO Process End

Note: Similarly, you'll find a set of Standard Process Dimensions when configuring dimensions.
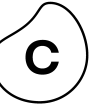
Creating a custom KPI with the Visual Editor

Click Custom KPI button
Once in the KPIs page, click Custom KPI to access the formula builders in the Visual Editor.

Select the right option
Depending on your need, you'll need to select the right option. See next page.

Selecting the right builder in the Visual Editor

Calculate the ratio of values that fulfill a certain condition.

➤ Ratio of cases where user type is 'system' (automation)

➤ Ratio of cases going through 2+ specific activities

Set a condition on the cases based on the activities they start or end with, flow through or don't, and other conditions.

➤ Number of cases flowing through an activity

Access and edit predefined Standard KPIs/dimensions like the case count or the throughput time as well as your saved formulas.

Count of items where . . .
Set a condition on the path of the cases. Define which sequence of activities the cases flow through, including direct and indirect connections between the single activities.

➤ Count of cases going through specific activities

Library
Choose between standard KPIs / dimensions or your own saved formulas (e.g. throughput times).

Ratio
Calculate any type of ratio (e.g. the automation rate).

Activity selection
Compare cases if they include or exclude single activities.

Process flow selection
Compare cases if they contain a certain process flow.

Split up your data according to a defined condition. Set a condition on direct column values or aggregations. Add multiple conditions to your formula and create as many buckets as you want. The conditioning can be used to calculate formulas based on the condition or simply label a dimension.

Calculate the KPI on the table that was specified by the user. The calculations are grouped on basis of the foreign key connection between the base table and the aggregated column. You can also set conditions on the calculation, so that only the data matching this condition is taken into consideration.

Bucketing (if / else)
Group values based on any condition.

Table column
Select a table and column from your data model.

Aggregation
Choose a function such as average, count, median, sum etc. to aggregate your data.

Pull column from another table
Pull aggregate data to table from another table (e.g. count the number of products for each purchase order).

Select a table and column from your data model.

Apply simple mathematical operations on any table column in your data model.

Save and retrieve formulas

Save a Custom Formula
Once you create a custom KPI in the Visual Editor, you can save it to the Formula Library to reuse it.

Select Saved Formulas from the Standard Process KPIs
When configuring a KPI, you can access saved formulas from the Standard Process KPIs.

Create & Access Saved Formulas in Analysis Settings
You can create new reusable formulas and access / edit saved formulas in Analysis Settings.

Want to quickly access and reuse a formula? Just copy the PQL formula, then go to Analysis Settings > Saved formulas to create a new one, paste it in the code editor and click save .

Tip: You can use use *placeholders* in saved formulas and specify the value at a later time. For example, in this formula to calculate the canceled number of orders, you can replace {p1} with the number of days at the time of using the formula: KPI("CancelOrder", {p1})

Background filters (Layers)

A

279k of 279k cases selected | 100%

P2P_Analysis_GLTs
Last edited
1 min agoby S G
⟳ Version Control
Last dataload
-8M

⚙ Analysis settings
⚗ Saved formulas
▽ Load script

B

Drilldown Analysis ⚙

C

Purchasing Doc. Type	Case count
AN - RFQ	1,810
DC - Distribtd contracts	50
EC - Electronic commerce	8
ECDP - Electronic commerce	20
EUB - Stock Transp. Order	0
FO - Framework order	30
GCTR - Value contract	0
GNB - GTS Standard PO(old)	0
LP - Scheduling agreement	0
LPA - Scheduling agreement	0
LU - Transp. sched. agmt.	0
MK - Quantity contract	1,020

Settings
Component filter
Layers...   ▾
⧉ Copy component
🗑 Delete
📋 Copy query

Component filter
Here you can specify a pql filter which is always executed on this component.

CLOSE ✕

Load script

    1   FILTER "EKKO"."BSART" = 'NB'

Need a little bit of help?
When writing PQL, you use the help available: Documentation tips (to the right), Examples (at the bottom), and Celonis Documentation (docs.celonis.com).
Also, check out the Write PQL Queries training track.

Add column
Select table
EKKO

Select a column to add
BSART

Add

Documentation
Valid options for <op> are
- = equals
- != not equals
- < Less than
- > greater than
- <= less than or equals
- >= greater than or equals

Examples
Creates a filter that selects cases from the case table where caseid is 2

    filter "case_table"."caseid" = 2

Creates a filter that selects cases where the caseid is 2 and creates a filter that selects cases where the activity_text contains the string 'PO'

    filter "case_table"."caseid" = 2; filter "activity_table"."activity_text" LIKE '%PO%'

Creates a filter that selects cases where case_start_time is in the year 2010

Close

You can apply static background filters that cannot be removed by end users. This can be done at three different levels.
**A Analysis level:** Analysis Settings > Load script tab
B Sheet level: Settings icon > Load script tab
C Component level: Right-clicking on component > Component filter

Syntax: FILTER followed by the condition   FILTER "TABLE"."COLUMN" = 'VALUE'   Example: FILTER "EKKO"."BSART" = 'NB'

Tip: You can add multiple filters by closing each statement with a semicolon (;).

Dynamic analyses (Benchmarking)
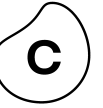
Create a Benchmarking Analysis

Below is an example of a benchmarking sheet with two Process Explorers and two Dropdown Button components that allow the user to filter each Process Explorer. This is what it takes to create it:

2 variables + 2 Button Dropdowns + 2 Process Explorers

A Variables: They are used in the Process Explorers' Component Filter and Title; one for each Process Explorer.

B Button Dropdowns: They allow the user to dynamically filter each Process Explorer by writing values to the variables..

C Process Explorers: They include the corresponding variable in their applifed filter so that when the user selects a value in the dropdown, the Process Explorers update.

Note: You can create a benchmarking sheet with filterable components other than the Process Explorer.
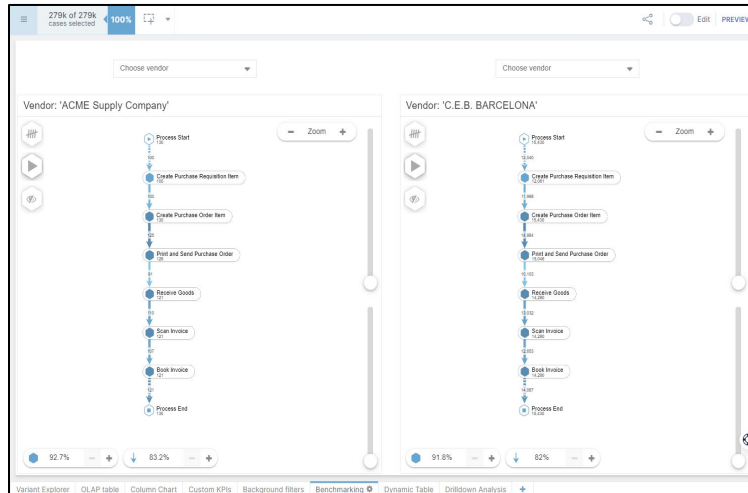
A

Name
Name the variable, for example: Vendor1 / Vendor 2

Text/Replacement Type
Allows for displaying of dynamic text that changes according to user's selection in the dropdown.

B

Title
Insert appropriate prompt to the user.

Load Entries
Select this for loading of values from the column you define in the Formula field.

Formula
Specify "Table"."Column"

Write to variable
Select the corresponding variable, for example: Vendor1 / Vendor2

Wrapping Characters
Insert the single quote character.

Allow multiple selections
As a best practice, for benchmarking analyses, uncheck this option to not allow multiple selections per dropdown.

Title
Insert the corresponding variable in the Title field of each Process Explorer. Example:

Vendor: <%=Vendor1%>
Vendor: <%=Vendor2%>

Component Filter
In the Component filter of each Process Explorer, apply the corresponding filter. Example:

FILTER "LFA1"."NAME1" = <%=Vendor1%>
FILTER "LFA1"."NAME1" = <%=Vendor2%>

C

Dynamic analyses (Drilldown Table)

Create a Dynamic Drilldown Table

A dynamic table allows the end user to select the dimension displayed from a drop down menu. This is what it takes to create the given example: 2 Variables + 1 OLAP Table + 1 Button Dropdown

A Variable: The MyDimension variable connects the OLAP Table and Button Dropdown, and stores the selection done in the dropdown. The My_Header variable updates the dimension column name.

B OLAP Table: Shows the dynamic dimension and the KPI(s). The dimension refers to the variable.

C Button Dropdown: Allows the user to dynamically switch between different dimension options. The selected value is written into the variable that is specified.

Select a dimension.	Analysis Dimension	Case count
Document Type	AN - RFQ	1,810
Vendor	DC - Distribtd contracts	150
	EC - Electronic commerce	8,368
	ECDP - Electronic commerce	120

Variables in the Dimension Name & Dimension Formula in the OLAP Table

The My_Header variable is referenced in the Dimension Name field in the OLAP Table. The initial displayed value is 'Analysis Dimension' but the Dimension column header updates according to the dimension the user selects in the dropdown.

The MyDimension variable is referenced in the Dimension formula in the OLAP Table.

Manual Input

With Manual Input you specify the dropdown options; in this case: Document Type and Vendor.

Example of an executive dashboard

Single KPIs – Number
...with the KPI description entered in the Title field.

Text component
...with the background selected as gray color.

Line component

Button component
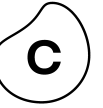...with an action assigned to open the corresponding tab.

Single KPIs – Radial
...with the KPI description entered in the Title field.

Chart component
...with a dimension and a KPI in each chart.
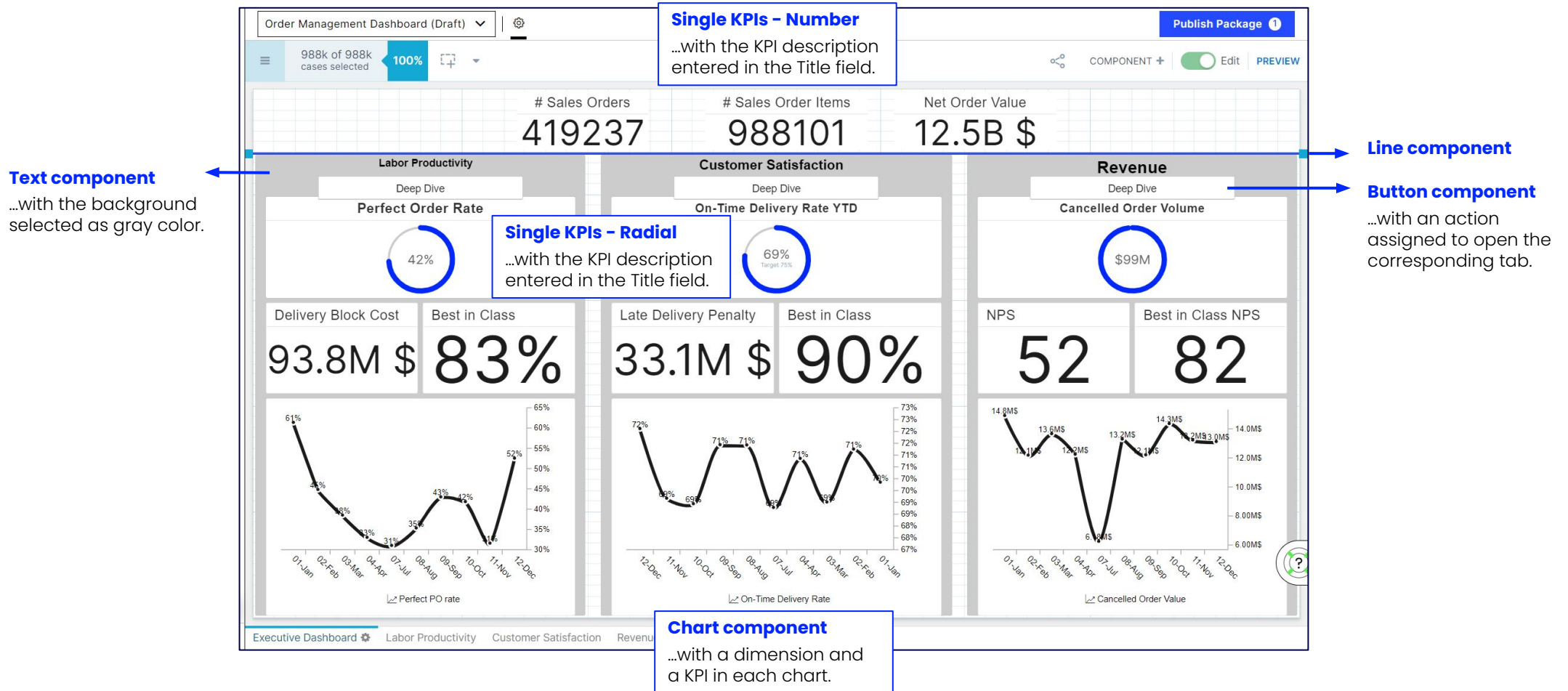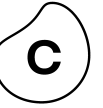
Check out the course, "Data Visualization - Best Practices."

Example of a focused Analysis sheet

Single KPIs – Number
...with the KPI description entered in the Title field.

Process Explorer
...facilities filtering on specific activities or connections as part of understanding the as-is process and/or investigating root causes of inefficiencies.
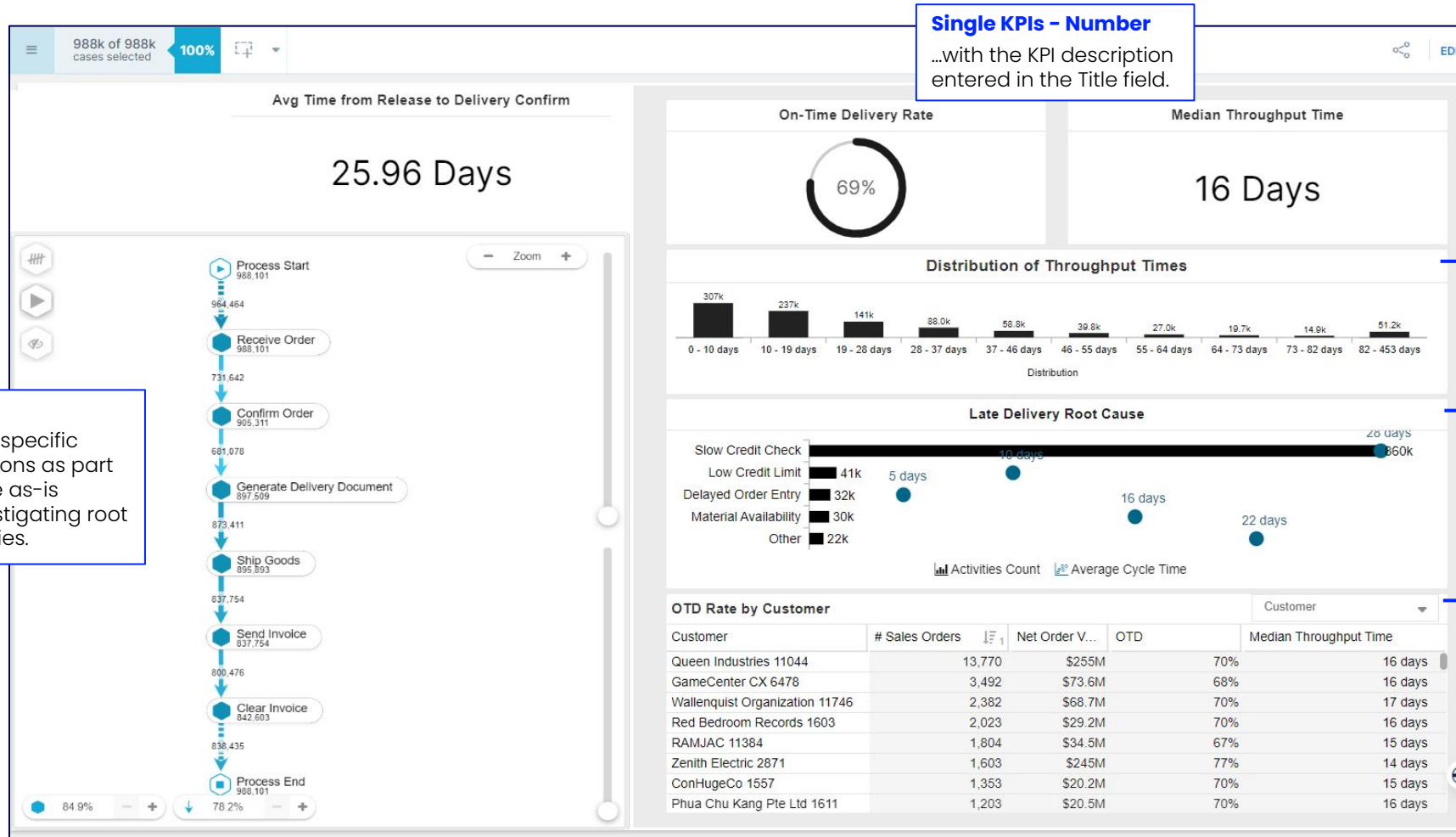
Histogram chart
...showing the distribution of throughput time.

Column chart
...with one dimension and two KPIs (one on primary and one on secondary axis).

Dynamic Table
...with dynamic dimension selection and multiple KPIs that can also be hidden/displayed (user clicks on table and chooses the 'eye' icon to make the selection).

Check out the course, "Data Visualization - Best Practices."