

UX Guidelines for Process Cockpits in Views

Why do we need guidelines?

- To provide a starting point for App Builders by sharing the Celonis best-practices for exploring processes
- to ensure consistent User Experience when exploring different Processes
- to provide general patterns for Process Exploration that can be applied for custom processes

Content

1. The architecture of the Process Cockpit App
2. Interactions and navigation between Views
3. Content of the Process Cockpit
4. How to set up the Layout
5. Components and Visualizations
6. Examples

What is the Process Cockpit?

The **Process Cockpit** apps are tailored to specific types of processes (e.g. Accounts Payable) and support users to get an overview and understanding of how their process runs, including the most important and performance-relevant KPIs. The Cockpit should help them uncover first insights and improvement areas.

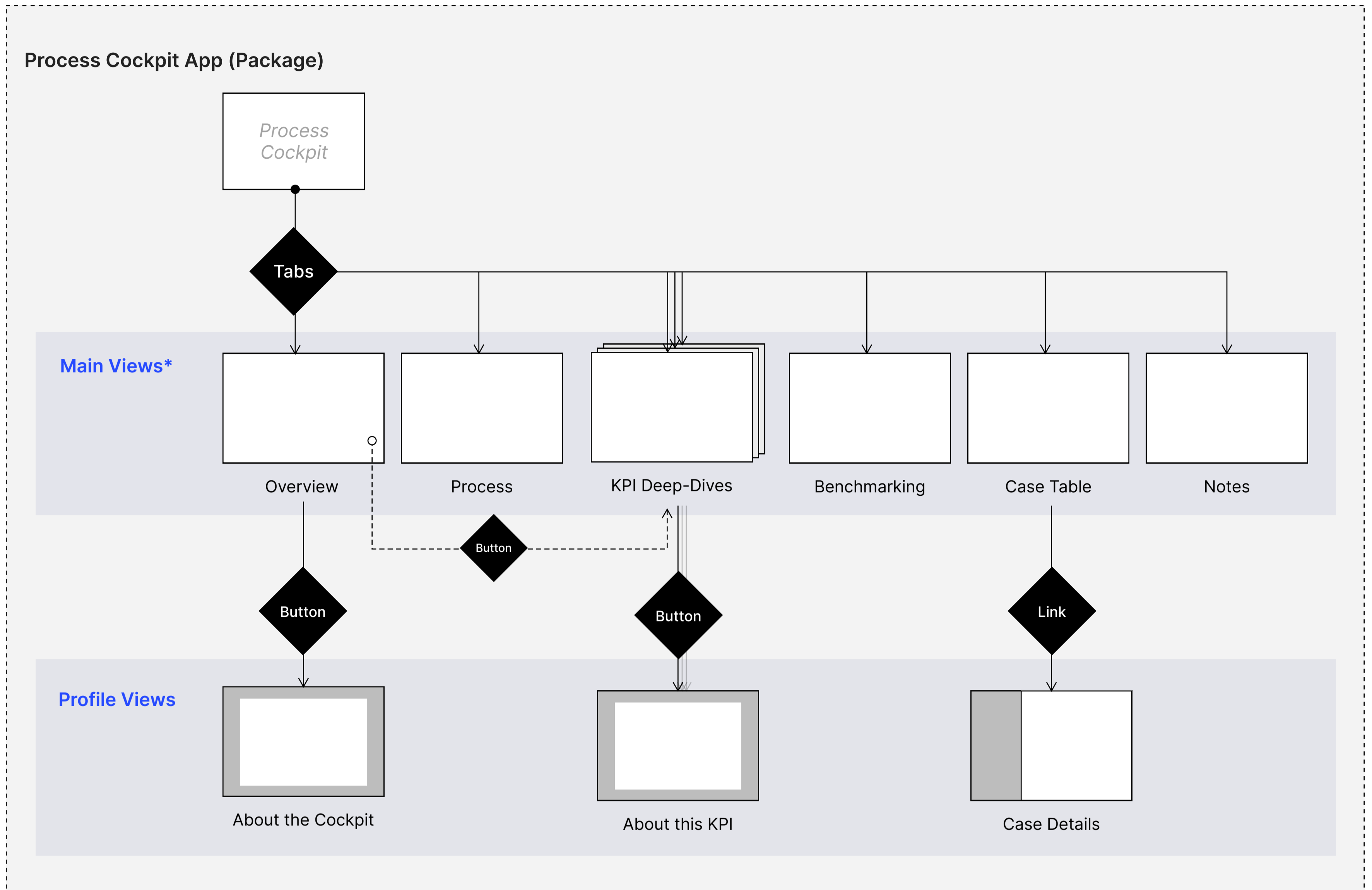
Why do we need Process Cockpits for Business Views?

The Process Cockpits were formerly only available in Process Analytics. We want to transfer them into Views and improve the capabilities to stay up-to-date with our current Process Mining capabilities and to improve the user experience.

The Process Cockpit Apps can be downloaded via the EMS Store and the Package can serve in the Studio as a template as a starting point to create a customized Process Cockpits in Views

1. The architecture of the Process Cockpit App

a) How to structure your Process Cockpit Package

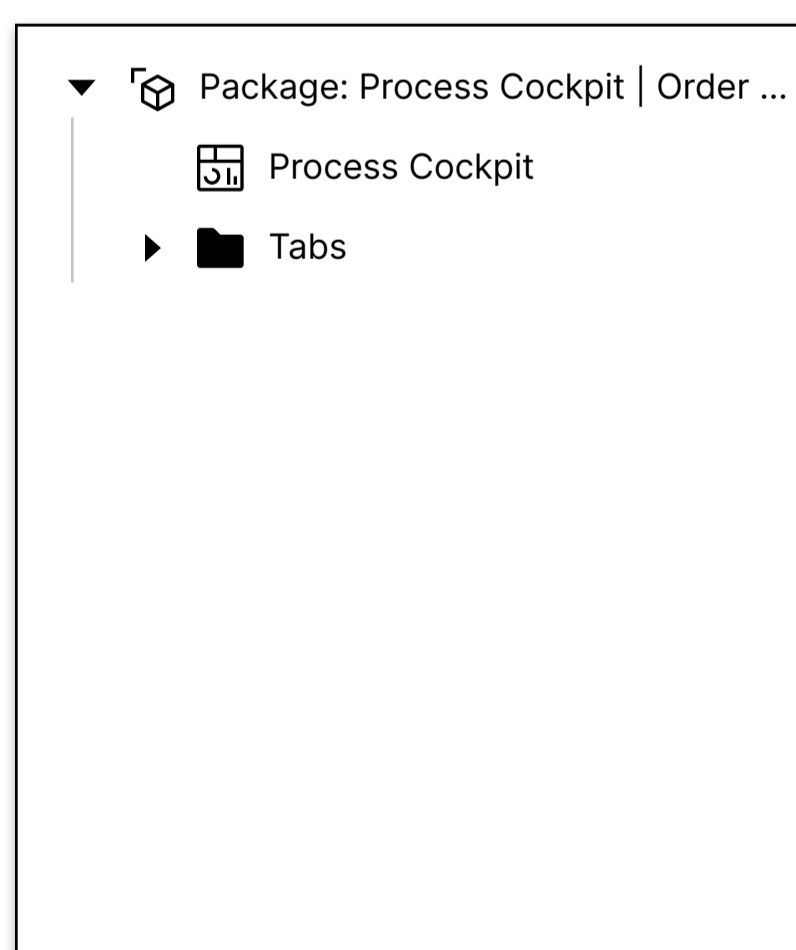
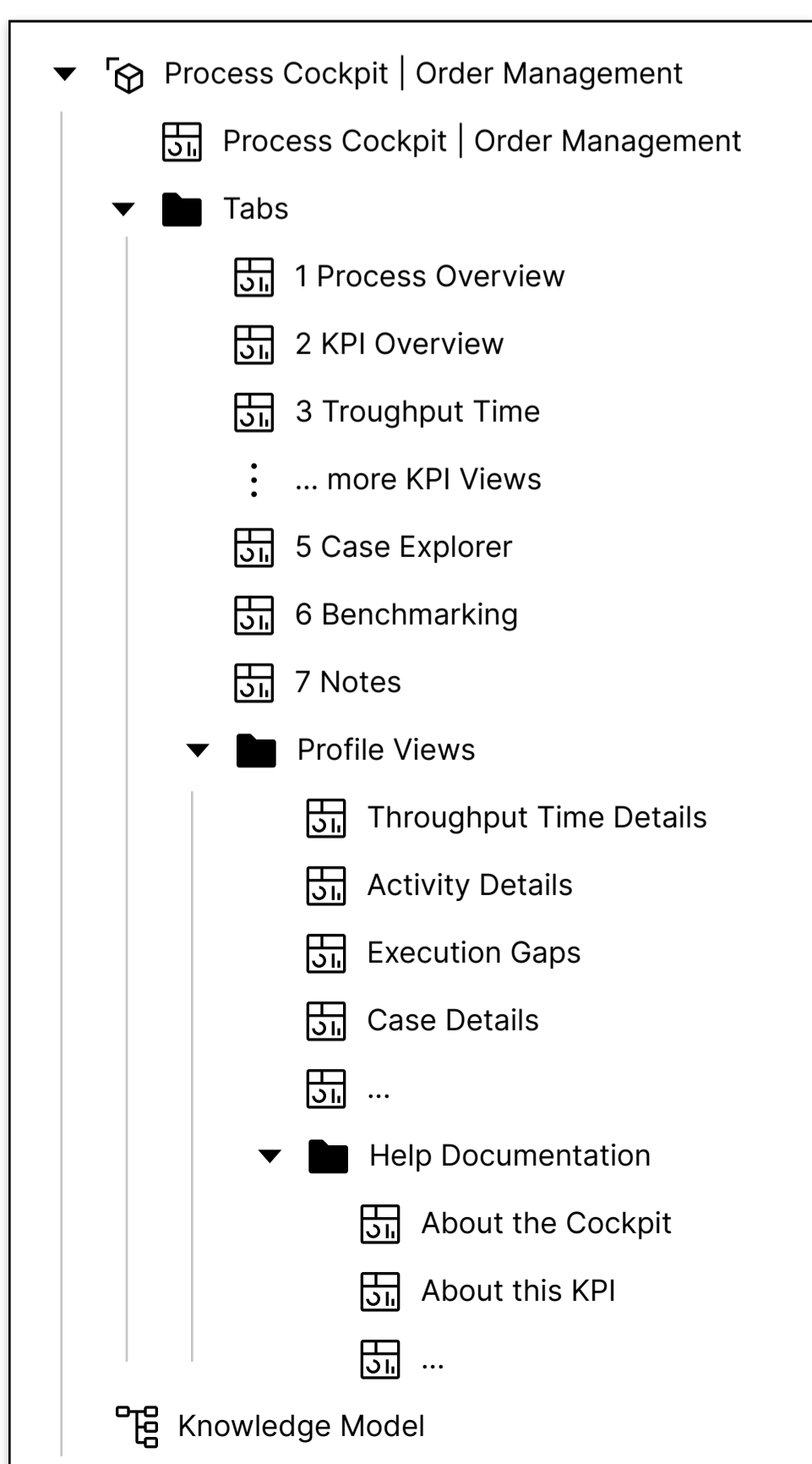


*Main Views:

This is a proposed set of standard "generic" views, that you can use independent from the type of process. To display information and KPIs that are specific to your process, you can add specific KPI Deep-Dive Views.

b) Folder structure of a Process Cockpit (exemplary)

Package in Studio for analysts: → Published Package for business users



Try to keep the Package clean for the end Users!

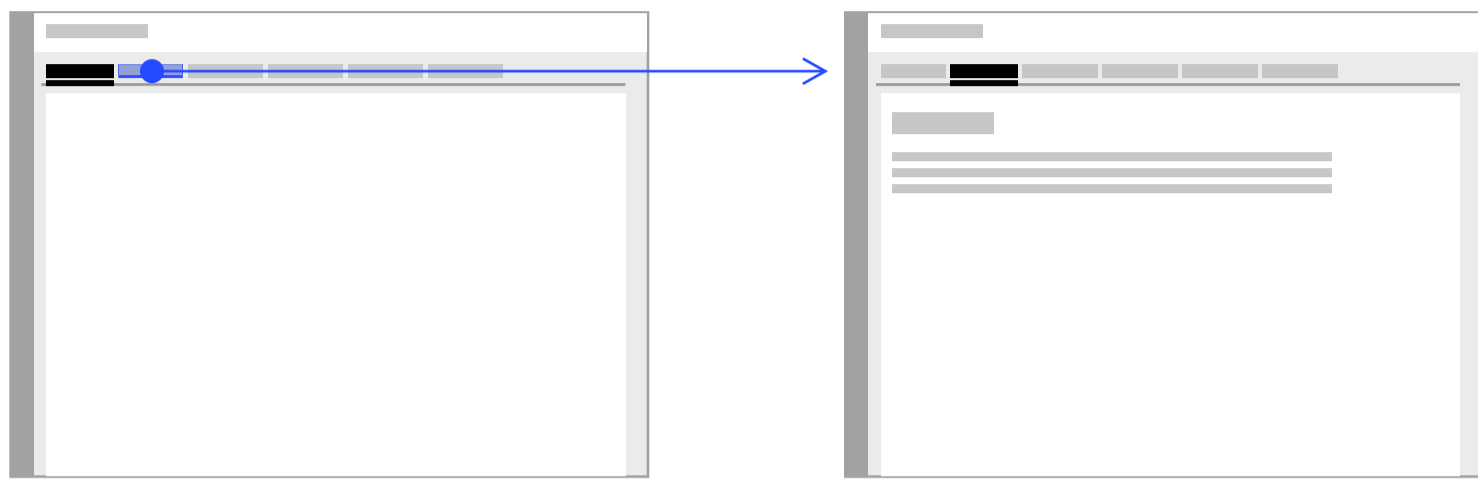
Users should not feel lost in the amount of views that are required to create the process cockpit.

They should start using the Process Cockpit View and then ideally never look into the Tree navigation again.

2. Interactions and navigation between Views

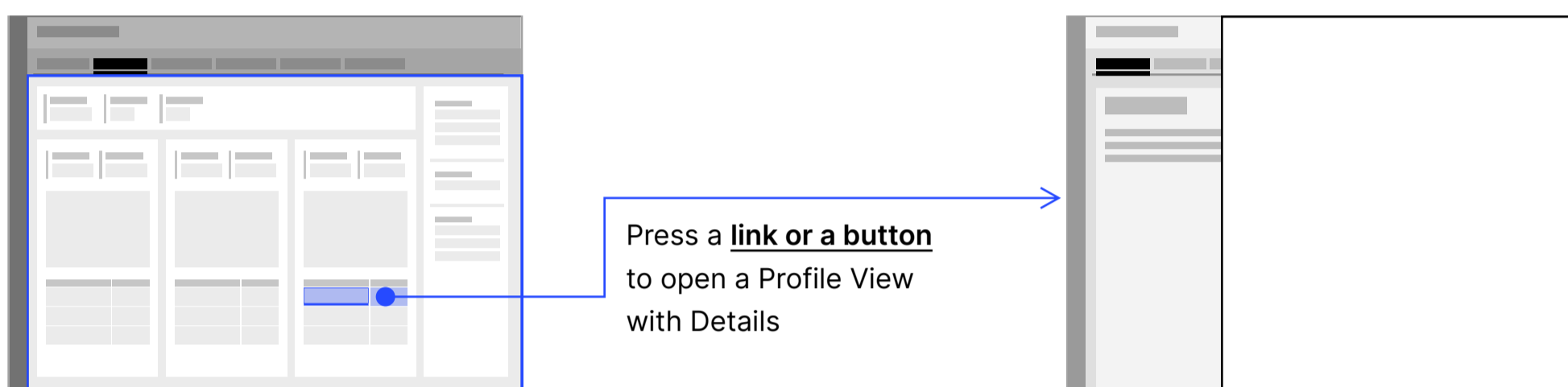
a) How to navigate between different Views

1. Use **Tabs** to switch between the Main Views



Consider: If you force the users to switch between Views via the Side-Navigation tree in Business Views, they cannot carry filters to the next View.

2. Add **links** or **buttons** on the Views to make Profile Views accessible



Main Views (embedded)

The Main Views will be displayed below the respective tab in the Process Cockpit.

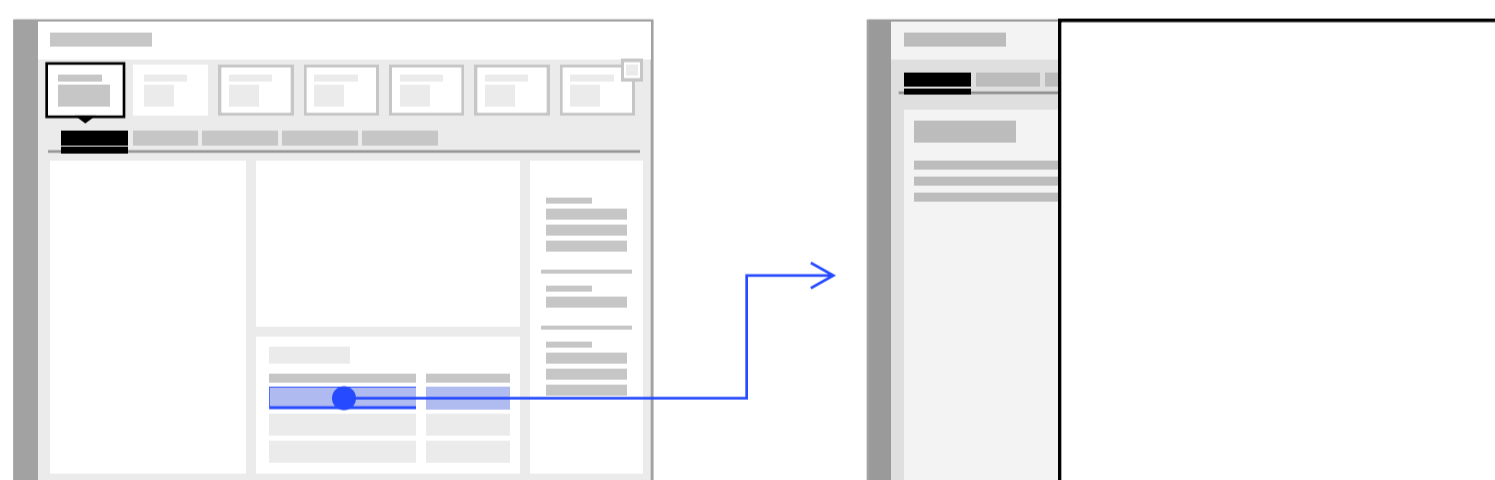
Profile View as Modal or Slide-in are used to show additional information.

b) Profile Views: When to use a Modal and when as a Slide-in?

Profile View as a Slide-in:

- if users should still be able to see the content on the Main View
- if users can still interact with the content on your Main View

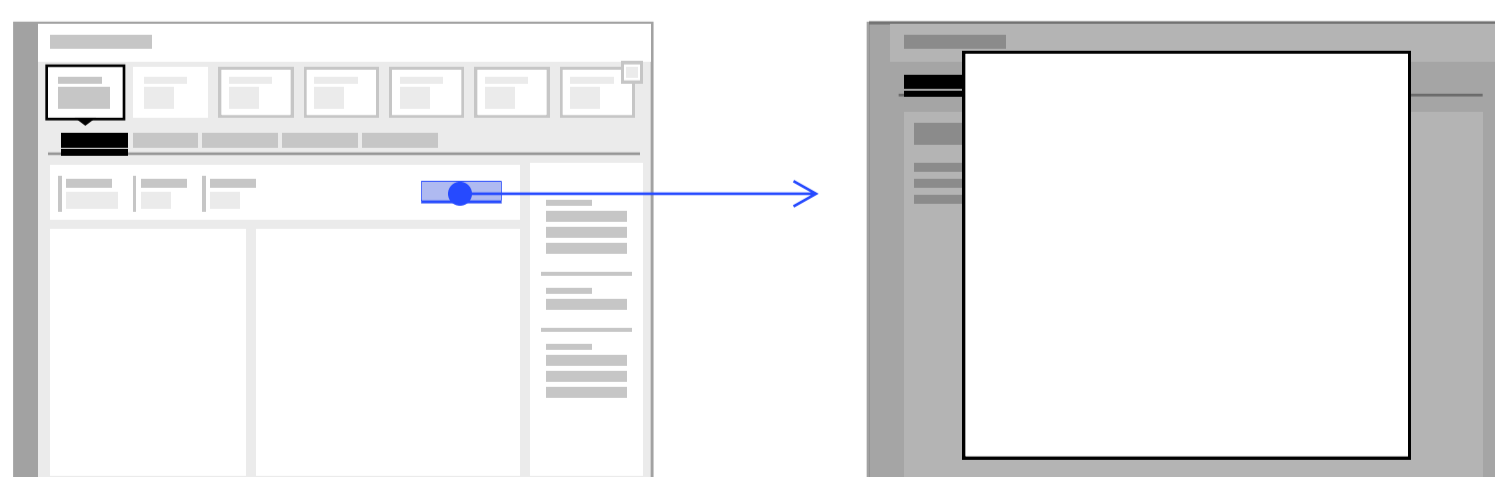
Example: Use a Slide-In to show detailed information on a table entry. By clicking on the next table entry on the Main View, users can easily compare the related details that are visible on the Profile View.



Profile View as a Modal:

- if users should fully focus on the content in the Modal
- if users don't need to see or interact with the content on the main view in the meantime

Example: use a Modal to show advanced information about how a KPI is calculated. Users will focus on the explanation and after reading through it, they will return to the Main View or follow a new path from within the Modal.



3. Content of the Process Cockpit

The Process Cockpit should provide immediate insights about how a certain process runs. Start by providing a high-level overview about the process itself and the most important related KPIs. Then offer possibilities for the users to better understand and interpret their process data and the KPIs, by providing dedicated Views for each KPI.

a) Main Views

Overview



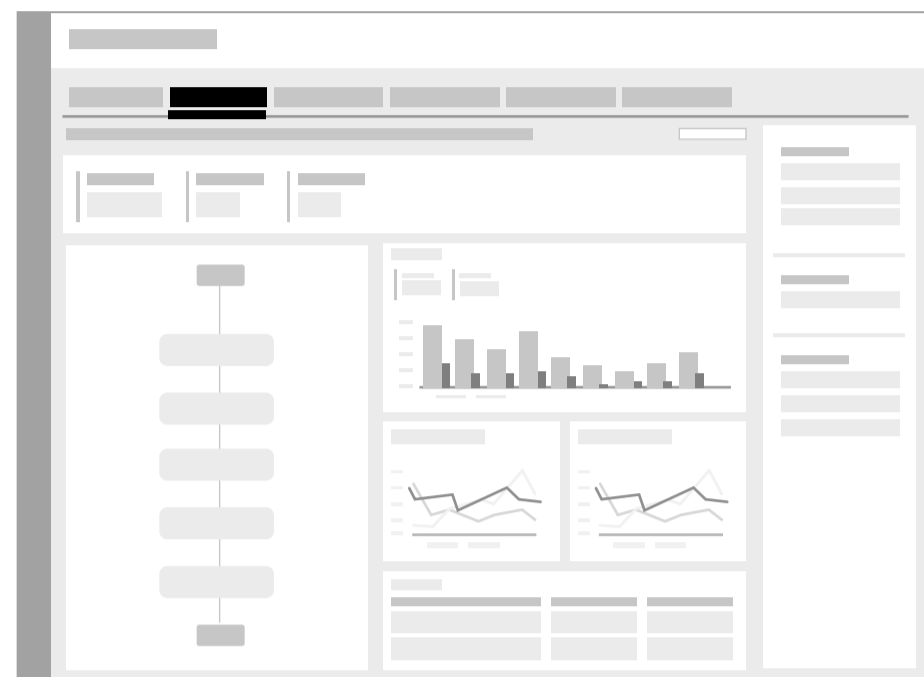
Overview Page: Users should get a first glance into major Process- and Business KPIs to determine the starting point for deeper analytics

Process



Process View: Get an high level overview on the Process and understand the process performance and basic KPIs.

[KPI] Automation Rate



KPI View: Dedicated View about one relevant Process KPI. E.g. for Automation Rate: to understand how automated the processes run through your systems to increase workflow efficiency

Benchmarking

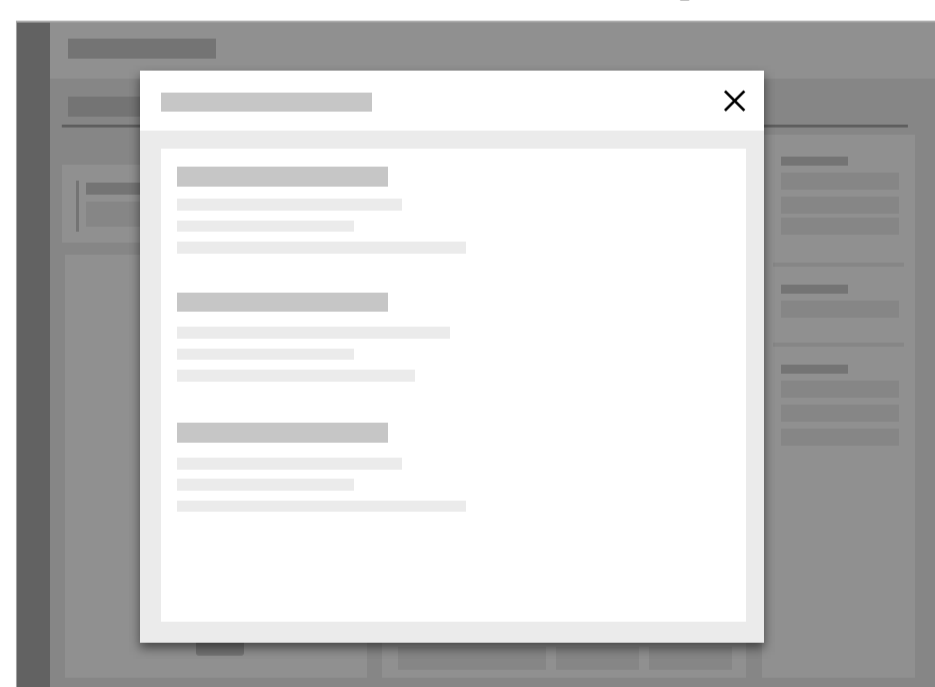


Benchmarking View: Option to benchmark different entities by selecting a Dimension first and then choose two benchmark entities.

Check out more Views from the implemented Process Cockpit Apps for
 - Accounts Payable
 - Order Management
 → look at the end of this Guidelines Document

b) Profile Views

Modal: About this KPI [Automation Rate]



"About this View/KPI" Profile View: Advanced information about the currently selected View. E.g.: "About this tab"; "About the KPIs (could contain definition and calculation), How to customize the View, ...

Slide-In: Activity Details



"Activity Details" Profile View: Advanced information about a currently selected record, e.g.: an activity of the Process explorer or a table/list entry

c) Is the information provided on the views enough to understand the data?

You can add more information to most components and charts by using the **description** field. Users can read the information by hovering over the info-icon to the component title.



Sharpen your data scope
 The filter sidebar allows you to filter the entire app by the most critical dimension within Accounts Payable

- Select relevant focus areas by using the dropdowns
- quick-filter on specific invoice types (e.g. open/closed) to increase analytical relevance

4. How to set up the Layout

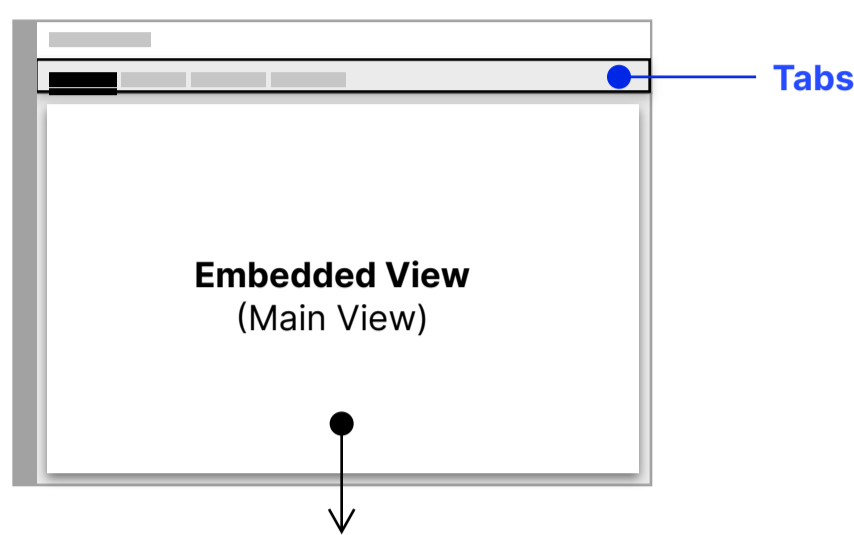
a) Standardized Views in the Process Cockpit

Components and charts can be placed in numerous different ways on your view and the best layout depends a lot on the questions you want to get answered about your process.

But there are some common patterns and repeated building blocks across the views which can be reused. Applying the existing patterns when building your Process Cockpit makes the App more consistent and saves you time.

a) Process Cockpit View

The initial view of the Process Cockpit serves as a container for the dynamic content and consists of the tabs component and an embedded View with changing content for each tab.

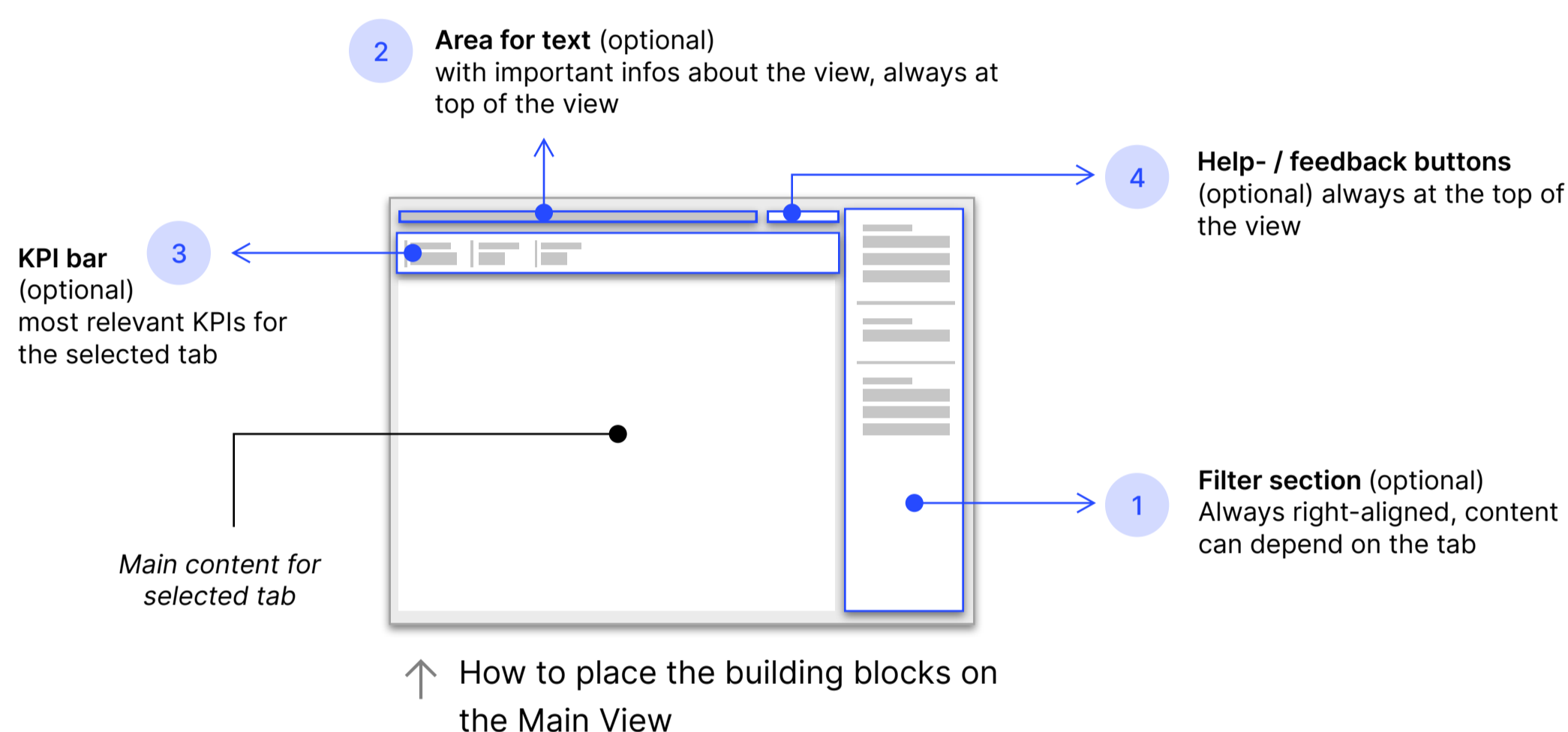


b) Main Views

When starting to build a view from scratch, consider taking one of the standard building blocks we already used several times in our Cockpits:

- 1) a section containing all **filters**
- 2) a short **text** explaining the view
- 3) a **KPI bar** representing the most relevant KPI values related to this tab
- 4) **buttons**: e.g. to collect user feedback or to provide additional information about the current view

It is not mandatory to use the building blocks, but if you consider to use one of them, make sure to follow the patterns that are defined in the wireframe below.



b) How to structure the content within a View?

💡 Consider the reading direction of your users.

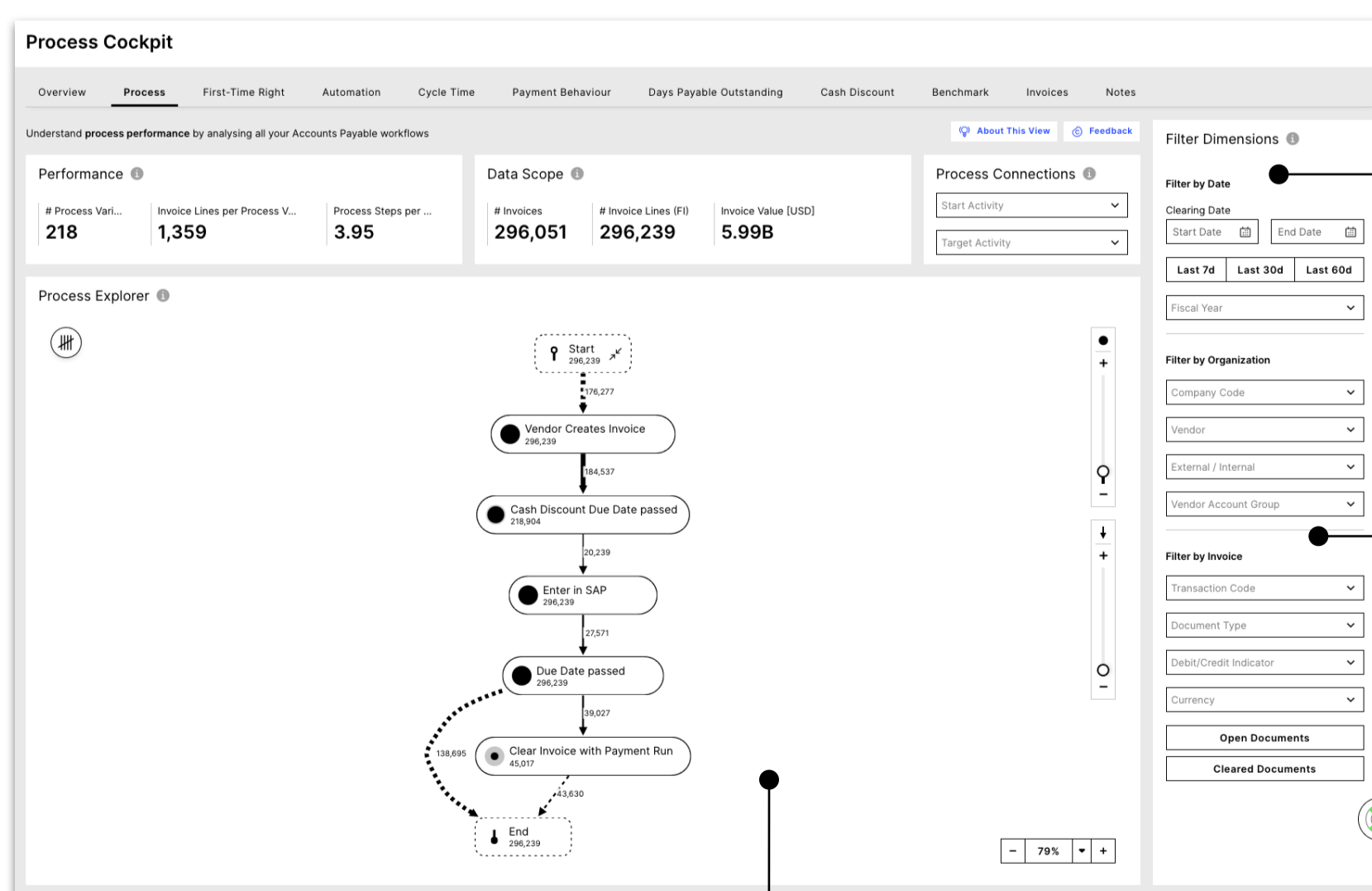
- The content on the top left corner of the screen will naturally get more attention → position key information from left to right
- Create the layout in a way that users do not need to jump back and forth → make sure the required interactions support a smooth usage of the App

💡 Core information should be visualized on the Main Views, secondary information can be accessible via interactions.

Visual grouping of components

The Studio offers you following possibilities to structure the layout of your views. You can group and separate your components by editing the layout:

- create a section and set a white panel as background to create a new horizontal group
- create a column to create a new vertical group
- create an inner section to be able to create sections inside of columns
- use a hr line for horizontal separations within your Widgets



💡 Make sure the components in your inner sections have a white background, so they are visually perceived as a group

💡 hr lines can create visual separations within groups

💡 Process Explorers and charts should always have a white background

- to ensure visibility of paths and graphs
- to ensure the sliders are perceived as part of the component

5. Components and Visualizations

The Components- and Charts editors in the EMS Studio offer a lot of great customization possibilities. To take better decisions on what you can adjust, we started to collect some quick tips on how to refine the components and charts on your views.

a) Text components

💡 Don't use too many different text sizes on your View and stick to those:

H2 Headline: 32px

H3: Headline: 18px

Paragraph: 13px

b) Charts

💡 Defining the best **type of visualization** for your data




There are a some great decision trees available, which leads you to the most appropriate format to show your data.

We can recommend these two:

- <https://www.data-to-viz.com/>
- <https://datavizcatalogue.com/>

💡 Which **color schemes** work best for your charts?

The Chart Editor in the Studio automatically selects the most suitable color scale. If you want to change it manually, here some tips.

<p><u>Categorical color scheme</u></p>  <ul style="list-style-type: none">- to distinguish between categories- if your color-encoded values don't have an inherent order	<p><u>Diverging color scheme</u></p>  <ul style="list-style-type: none">- if there is a meaningful middle point- to emphasize extremes (e.g. very high vs. very low)- to let readers see more differences in the data- for a more intuitive reading	<p><u>Sequential color scheme</u></p>  <ul style="list-style-type: none">- to emphasize an underlying order- to distinguish between sub-categories- to distinguish between highlighted and not-highlighted areas- to make categories less colorful and easier to read for colorblind people
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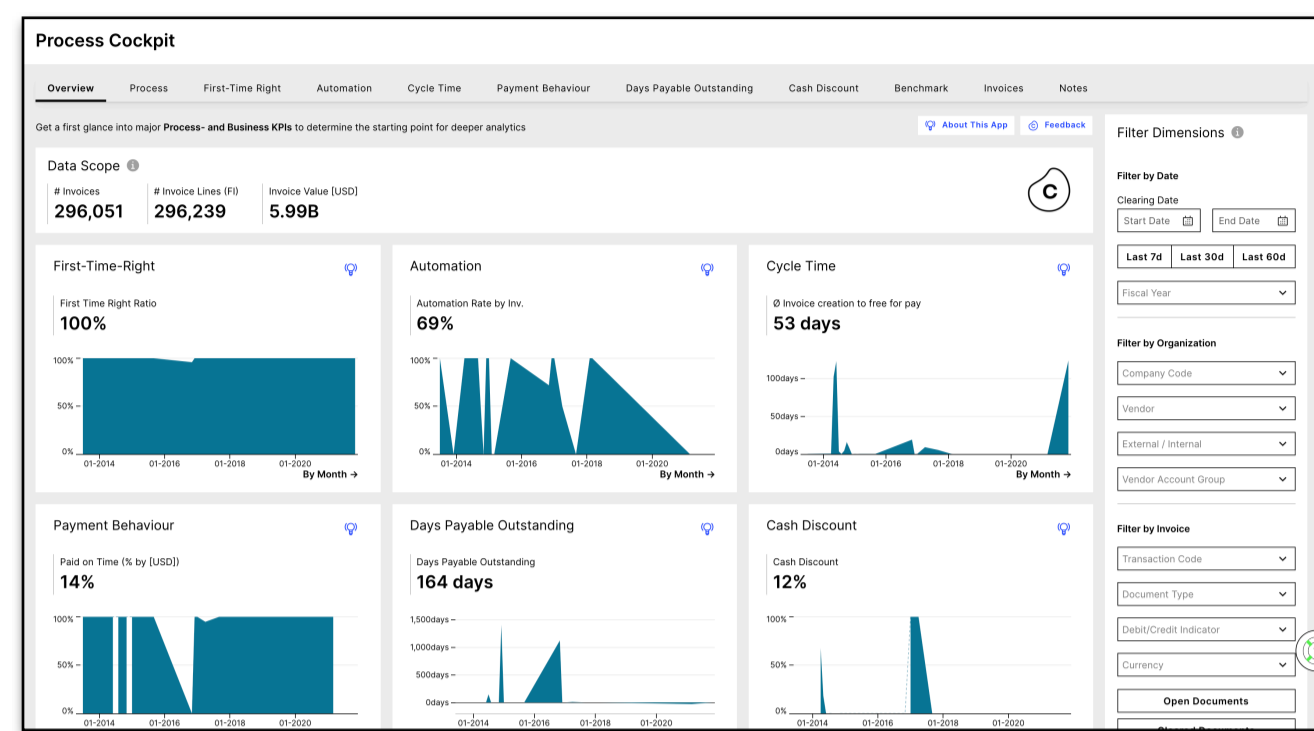
For more information on chart color schemes read this:

- (blog article) about the Celonis Chart Colors from our Data Designer Philipp Koytek:
<https://observablehq.com/@philippkoytek/celonis-data-visualization-colors?collection=@philippkoytek/celonis>
- (blog article) When to use sequential and when to use diverging color scales from L.C.Muth:
<https://blog.datawrapper.de/diverging-vs-sequential-color-scales/>

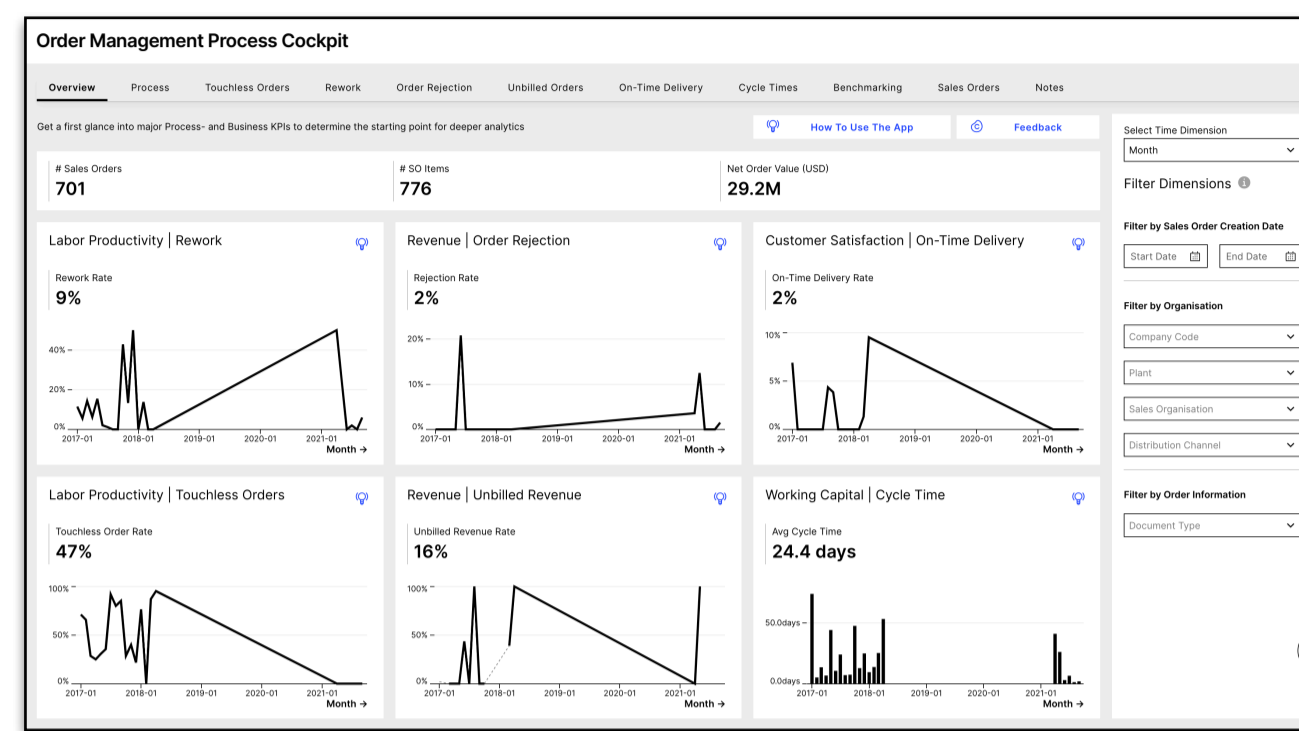
6. Examples

Have a look at our Celonis **Process Cockpit Apps** in the EMS store.

These UX-Guidelines were built based on the requirements of the Process Cockpits for Accounts Payable and Order Management.



SAP ECC - Process Cockpit



SAP ECC - Order-to-Cash - Process Cockpit 2.0

[Explore the Accounts Payable Process Cockpit on the next pages →](#)

Explore the example:



Accounts Payable

Process Cockpit by Celonis

Main View - KPI Overview

Description
area to place relevant information or instructions related to the current tab

KPIs
most important KPIs for this View

Tabs
to access the most important Main Views

Process Cockpit

Overview | Process | First-Time Right | Automation | Cycle Time | Payment Behaviour | Days Payable Outstanding | Cash Discount | Benchmark | Invoices | Notes

Get a first glance into major **Process- and Business KPIs** to determine the starting point for deeper analytics

Data Scope

# Invoices	# Invoice Lines (FI)	Invoice Value [USD]
296,051	296,239	5.99B

First-Time-Right
First Time Right Ratio: **100%**

Automation
Automation Rate by Inv.: **69%**

Cycle Time
Ø Invoice creation to free for pay: **53 days**

Payment Behaviour
Paid on Time (% by [USD]): **14%**

Days Payable Outstanding
Days Payable Outstanding: **164 days**

Cash Discount
Cash Discount: **12%**

Filter Dimensions

Filter by Date

Clearing Date
Start Date [calendar] End Date [calendar]

Last 7d | Last 30d | Last 60d

Fiscal Year [dropdown]

Filter by Organization

Company Code [dropdown]
Vendor [dropdown]
External / Internal [dropdown]
Vendor Account Group [dropdown]

Filter by Invoice

Transaction Code [dropdown]
Document Type [dropdown]
Debit/Credit Indicator [dropdown]
Currency [dropdown]

Open Documents
Cleared Documents

Buttons
which open a Modal or which opens a new tab in the browser

Filter panel
this section contains relevant filter options for this tab

Button
to open modal with information about this KPI or to open the respective tab

Main View - Process Overview

Process Cockpit

Overview
Process
First-Time Right
Automation
Cycle Time
Payment Behaviour
Days Payable Outstanding
Cash Discount
Benchmark
Invoices
Notes

Understand **process performance** by analysing all your Accounts Payable workflows

Performance i

# Process Variants	Invoice Lines per Process Variant	Process Steps per Case
218	1,359	3.95

Data Scope i

# Invoices	# Invoice Lines (FI)	Invoice Value [USD]
296,051	296,239	5.99B

Connections i

Start Activity v

Target Activity v

Filter Dimensions i

Filter by Date

Clearing Date

Start Date 📅

End Date 📅

Last 7d
Last 30d
Last 60d

Fiscal Year v

Filter by Organization

Company Code v

Vendor v

External / Internal v

Vendor Account Group v

Filter by Invoice

Transaction Code v

Document Type v

Debit/Credit Indicator v

Currency v

Open Documents

Cleared Documents

Process Explorer i

+

○

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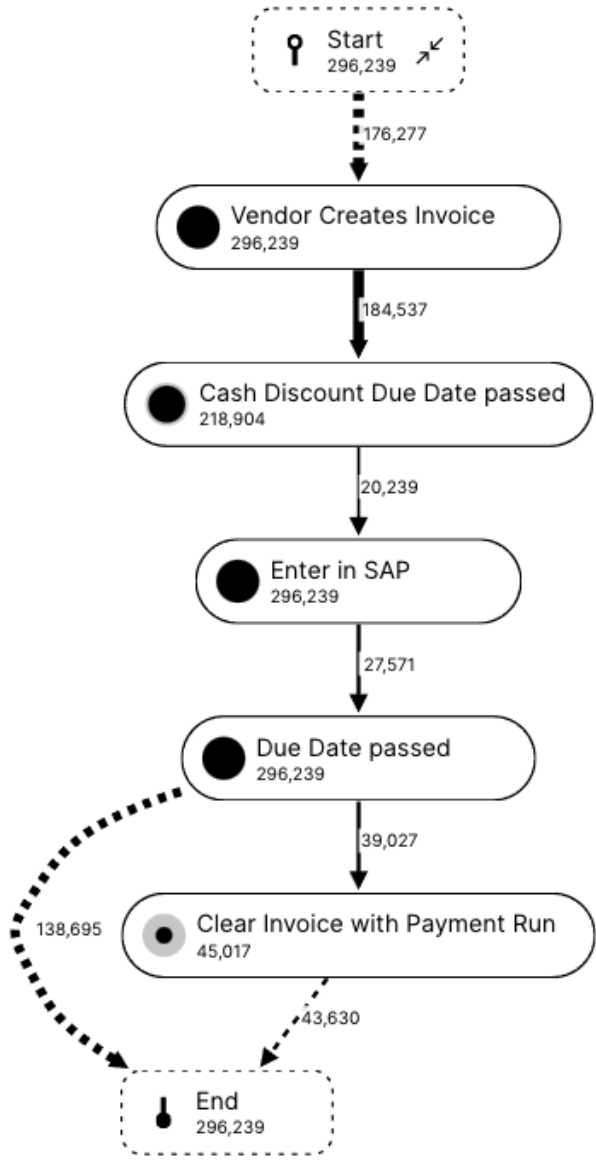
○

-
79%
▼
+

Description
space to add information that helps users to understand the content

Sharpen Process Connections
Analyzing specific process procedures gives you detailed insights into specific variants.

🔗 Select a source- and target activity to filter the process explorer on variants having the defined process procedure



Main View - KPI Details

This is a typical View that shows details about a specific KPI and allows the user to understand the context of the values.

Process Cockpit

Overview
Process
First-Time Right
Automation
Cycle Time
Payment Behaviour
Days Payable Outstanding
Cash Discount
Benchmark
Invoices
Notes

Understand how **Payment Behaviour** is affected by process inefficiencies to maximize on-time-payments

Performance

Paid on Time (% b...)	Paid on schedule (% b...)	Paid too early (% b...)	Paid too late (% b...)
14%	2%	12%	86%

Data Scope

# Invoices	# Invoice Lines (FI)	Invoice Value [USD]
296,051	296,239	5.99B

Process Explorer

Payment Behaviour over time

By Month

Execution Gaps

Issue	# Invoices	Paid on Time (% by [USD])	Invoice Value [USD]
→ Payment Block	637	16%	3.08B
→ Changes	46	20%	34.3M
→ Repeated Activities	28	24%	30.5M

Payment Behavior Classification

Filter Dimensions

Filter by Date

Clearing Date

Start Date End Date

Last 7d | Last 30d | Last 60d

Fiscal Year

Filter by Organization

Company Code

Vendor

External / Internal

Vendor Account Group

Filter by Invoice

Transaction Code

Document Type

Debit/Credit Indicator

Currency

Filter by Type

Paid on Time?

Charts
Use the right chart type and color scheme for your data, so users can intuitively understand the KPIs.

Execution Gaps component
By adding the Execution Gaps component to your View, so your users can immediately see identified issues in their processes.

Main View - Benchmarking

Benchmarking View allows users to compare two different variants of their process, based on one benchmarking criterion. Comparison is possible by seeing the process flow and by comparing the KPIs.

Process Cockpit

Step 1: Select Benchmark dimension

Overview
Process
First-Time Right
Automation
Cycle Time
Payment Behaviour
Days Payable Outstanding
Benchmark
Invoices
Notes

To benchmark different entities, start by selecting a Dimension that you want to analyze and then choose two benchmark entities.

Select first Benchmark Entity

3000 - BestRun USA

Benchmark Dimension i

Company Code

Select second Benchmark Entity

2000 - BestRun UK

Benchmark 1 - 3000 - BestRun USA

Benchmark 2 - 2000 - BestRun UK

# Invoices	255,118	# Invoices	57
# Invoice Lines (FI)	255,172	# Invoice Lines (FI)	57
Invoice Value [USD]	1.34B	Invoice Value [USD]	6.88M
First Time Right Ratio	100%	First Time Right Ratio	100%
Automation Rate	81%	Automation Rate	0%
∅ Invoice creation to clear...	516 days	∅ Invoice creation to clear...	0 days
Days Payable Outstanding	451 days	Days Payable Outstanding	0 days
Cash Discount	3%	Cash Discount	0%
Paid on Time (% by [USD])	17%	Paid on Time (% by [USD])	100%

-
79%
+

Step 3: Compare the processes

-
68%
+

Main View - Case Details

This View represents the “Case Explorer” sheet type from Process Analytics. Users should be able to see their process data in a tabular representation.

Process Cockpit

Overview
Process
First-Time Right
Automation
Cycle Time
Payment Behaviour
Days Payable Outstanding
Cash Discount
Benchmark
Invoices
Notes

Analyze invoice documents affected by **process misbehaviours and execution gaps** [About This View](#) [Feedback](#)

Data Scope ⓘ

# Invoices 296,051	# Invoice Lines (FI) 296,239	Invoice Value [USD] 5.99B
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Filter Dimensions ⓘ

Filter by Date

Clearing Date

Last 7d
Last 30d
Last 60d

Fiscal Year

Filter by Organization

Company Code

Vendor

External / Internal

Vendor Account Group

Filter by Invoice

Transaction Code

Document Type

Debit/Credit Indicator

Currency

Invoice Details ⓘ

Document Number	Reference Number	Company Code	Currency	# Invoice Lines (FI)	Invoice Value [USD]	Vendor Number	Vendor
1900000144		1000	EUR	1	883	0000001100	Phunix GmbH
1900000144		1000	EUR	1	3.29K	0000001100	Phunix GmbH
1900000144		1000	EUR	1	6.42K	0000001100	Phunix GmbH
1900000144		1000	EUR	1	194	0000001100	Phunix GmbH
1900000144		1000	EUR	1	58.7	0000001100	Phunix GmbH
1900000144		1000	EUR	1	71.2	0000001100	Phunix GmbH
1900000144		1000	EUR	1	135	0000001100	Phunix GmbH
1900000144		1000	EUR	1	135	0000001100	Phunix GmbH
1900000144		1000	EUR	1	135	0000001100	Phunix GmbH
1900000144		1000	EUR	1	135	0000001100	Phunix GmbH
1900000144		1000	EUR	1	135	0000001100	Phunix GmbH
1900000144		1000	EUR	1	71.2	0000001100	Phunix GmbH
1900000144		1000	EUR	1	143	0000001100	Phunix GmbH
1900000144		3000	USD	1	50.0	0000003720	Zebra Supplies
1900000144		3000	USD	1	15.0	0000003720	Zebra Supplies
1900000144		3000	USD	1	773	0000003802	American Business Se

Main View - Notes

Notes view serves as a collaboration option for users.

The screenshot displays the 'Process Cockpit' interface with the 'Notes' tab selected. The navigation bar includes: Overview, Process, First-Time Right, Automation, Cycle Time, Payment Behaviour, Days Payable Outstanding, Cash Discount, Benchmark, Invoices, and Notes. Below the navigation bar, a text prompt reads: 'Write down observations or ideas for potential actions. It's also possible to tag Celonis users in comments to indicate responsibilities.' To the right of this prompt are two buttons: 'About This View' and 'Feedback'. The main content area is titled 'Notes' with an information icon. It features a text input field with a placeholder 'Write Comment' and a 'Send' button. A large grey rectangular area occupies the lower portion of the page, likely representing a list of notes or a placeholder for content. A small circular icon with a question mark is visible in the bottom right corner of the interface.