



Order-to-Cash Case Study

WoodCorp Case

Start right away!



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 - Student or
 - Professor or
 - Researcher
- Access your academic account and start exploring!



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Process Mining Case

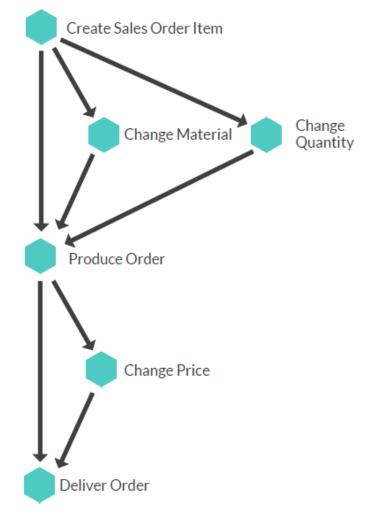
Order to Cash

WoodCorp Inc.

Today we look into WoodCorp Inc., a fictional company based on a real-life project we conducted. WoodCorp is a German based producer of wooden pallets and boxes for transport, located at multiple locations throughout the country. The raw materials (wood) are stored in automated and non-automated warehouses. Moreover, the production for orders starts either before or after a sales order confirmation, using both a push and pull strategy.

Goal

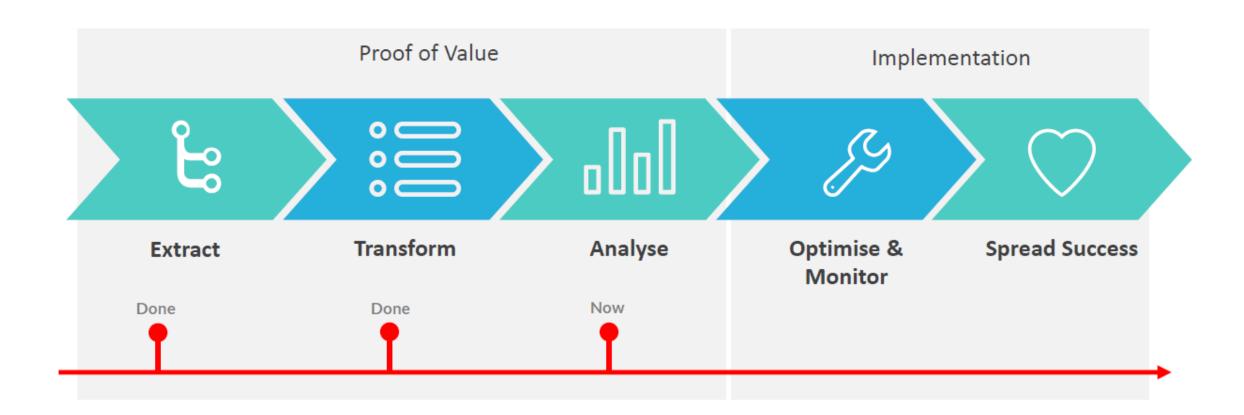
WoodCorp is interested in process mining to discover their Order to Cash process and improve the On-Time Delivery of sales orders. The goal of the case for WoodCorp is to show the value of process mining, by giving clear direction to improve on time delivery. Why can we only do this with the help of process mining? Moreover, WoodCorp is eager to know how well they perform in general, per market, per product type, per factory, per customer etc.







Project Timeline







Proof of Value

Business Case

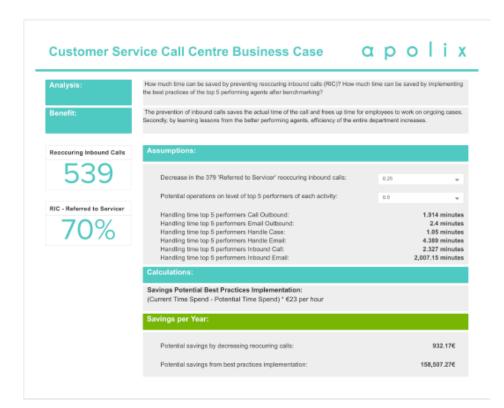
In order to convince WoodCorp to start with process mining, we conduct a **proof of value**. To do so, we received data from WoodCorp's ERP system. You will analyse the data and create a business case, with the goal to **convince the board** to invest in the Celonis platform.

Currently WoodCorp gives an indication to the customer when the order will be delivered. However, this is frequently missed. Causes for these **missed promises** can be anything from changes in the process, to bottlenecks at certain activities or high rework rates.

In order to **quantify** the pain of late deliveries, WoodCorp has estimated the following:

- Target 'On Time Delivery' is 80%
- Every late KG costs WoodCorp €0.75, based on risk of loss of new volume in case service does not improve. Based on Delivered Quantity.

Tip: How does a process improvement affect the On Time Delivery? Will the order be delivered on time if a change would not be there?



Business Case Example - Snap Challenge





Data Explanation

Activities table

The **activity table** contains a log with all events performed in each case. The table gives a detailed explanation of the table columns:

Column	Column Name	Description
А	CASE_KEY	Unique identifier of sales order the activity was performed for
В	ACTIVITY_EN	Name of the activity that was performed for that given sales order
С	EVENTTIME	Datetimestamp of that given activity
D	SORTING	Sorting column in case multiple activities were performed at the exact same time for the same sales order (CASE_KEY). Celonis will automatically select the activity with the lowest sorting value first.





Data Explanation

Case table

The Case Table shows a selection of contextual information for each sales order (CASE_KEY). For each individual sales order there is only one row. Contextual information incudes which factory was used, what the product type was and can in general be very helpful when we want to identify areas of improvement for WoodCorp Inc.

Tip: Look closely at this table, as some columns combined reveal more information than when considered separately.

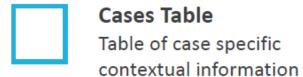
Column	Column Name	Description
Α	CASE_KEY	Unique Identifyer
В	PRODUCT_TYPE	Crate or Pallet
С	FACTORY	Factory in which product is produced
D	ORDERED_QUANTITY	Ordered quantity (in kg)
Е	DELIVERED_QUANTITY	Delivered quantity (in kg)
F	MIN_ORDER_TOLERANCE	Max. negative deviation from ordered quantity

Column	Column Name	Description
G	MAX_ORDER_TOLERANC E	Max. positive deviation from ordered quantity
Н	CUST_ID	ID that has been assigned to each customer
I	CUST_NAME	Name of a customer
J	CUST_MARKET	Market of customer
K	DELIVERY_COMPANY	Selected delivery service provider
L	CUST_ADDR_CODE	Adress code of customer
М	CUST_COUNTRY	Country of customer
N	WAREHOUSE_TYPE	Type of warehouse used (non- vs. automated)
0	DELIVERED_DATE	Actual delivery date of goods
Р	PROMISED_DATE	Promised date of delivery
Q	ORDER_VALUE	Total value of order in euros
R	UNIT_PRICE	Unit price of one unit in order





Data Explanation



N:1 relationship via CASE_KEY column

CASE_KEY	PRODUCT_TYPE	FACTORY	ORDERED_QUANTITY	
11516193	Crates	Aachen	5200	
11516291	Pallets	Aachen	240	

Activities table

Event log of all activies for all cases performed

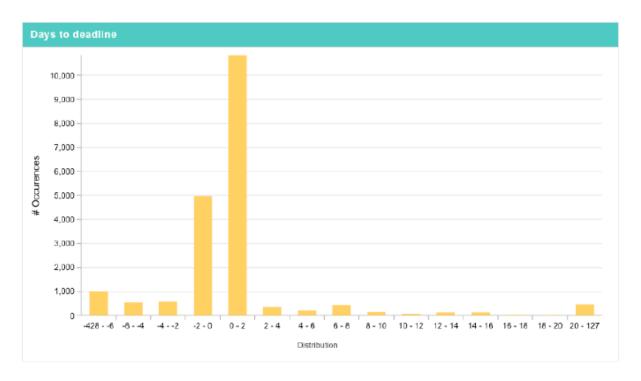
CASE_KEY	ACTIVITY_EN	EVENTTIME	SORTING
11100091	Start production	2018-10-16 00:00:00	30
11100091	Order received	2018-12-13 09:46:34	0





Next Step

Analysis



Product type			
_APX_O2C_CASES_ANO	Case count	Deadline conformance $\downarrow_{\overline{z}}^{\overline{z}}$ 1	Volume conformance
Crates	10,419	68.83%	76.48%
Pallets	9,534	59.69%	91.08%

While the business case builds the framework for a process mining project, an analysis focuses on how to achieve the goals that have been set in the business case.

In the analysis we look more closely at orders and aim to find areas that have a high correlation with late orders. Are certain factories performing less good than others and what could be reasons for that? How well do we perform for our biggest customers? Which types of orders (product, size, ...) are outperforming others?

When building the dashboards of the analysis in Celonis, add only components that add value to your analysis. The biggest challenge of a dashboard is to keep it simple! Keep away from adding fancy components without actual value for the board of WoodCorp.





CASE STUDY: WoodCorp Case

Tasks for Students:

- 1. Create an academic EMS software account, using your academic email address and select **Student**: https://signup.celonis.com/
- 2. Access the data files provided in the Portal:

```
_APX_WDCRP_ACTIVITIES _APX_WDCRP_CASES
```

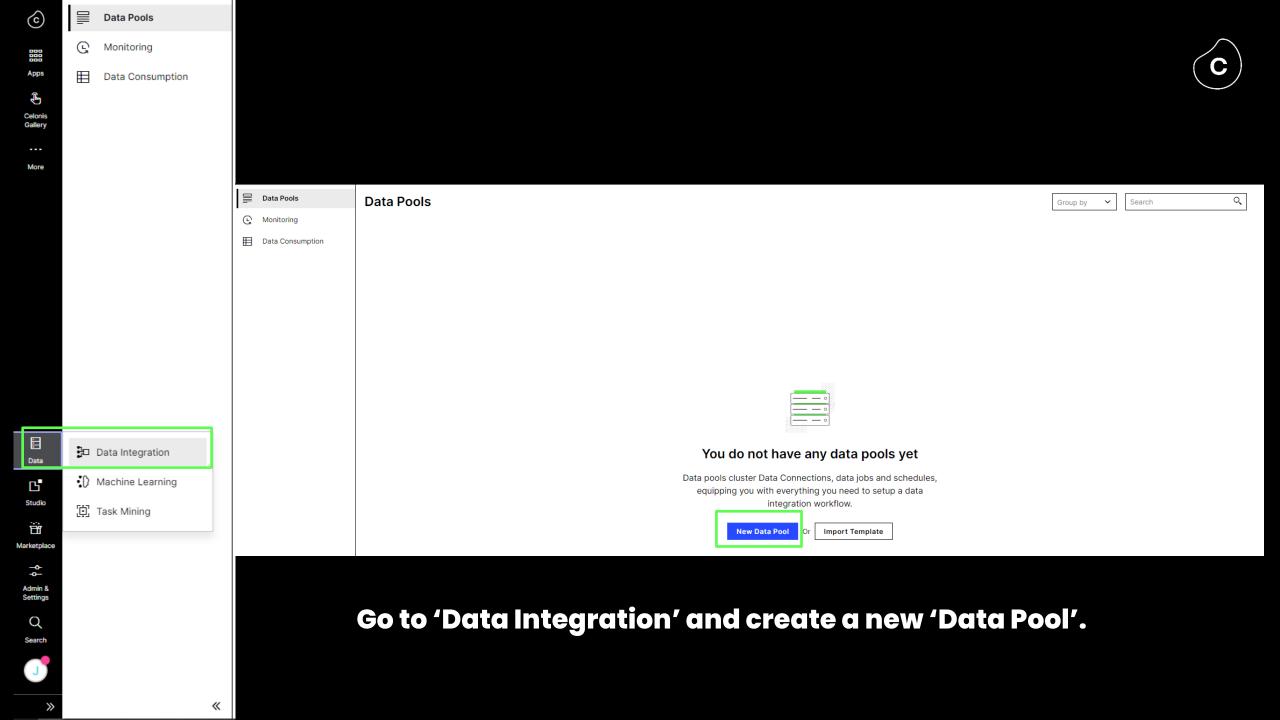
3. Form a student group and work together on the case. Prepare an analysis in the Celonis EMS!



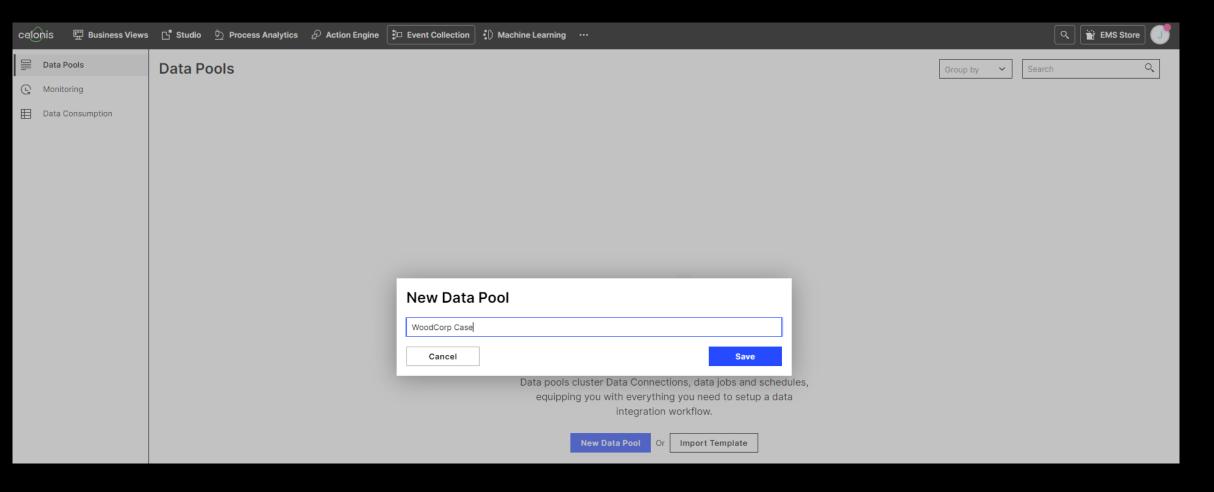
For your inspiration: Check this <u>example analysis</u>.



In Data Integration: Create Data Pool & Upload Data Files

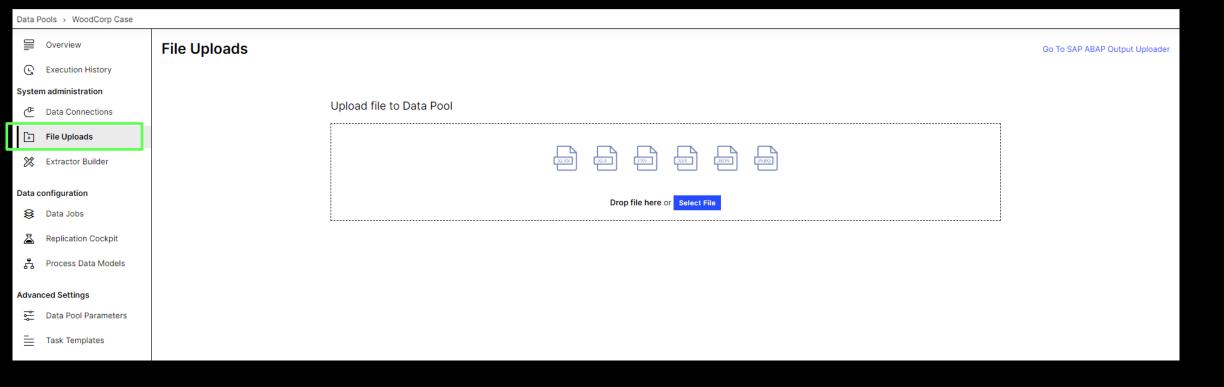






Name the Data Pool e.g. "WoordCorp Case"





Go to 'File Uploads', select the provided data files and upload one after the other. First select the Activity file: _APX_WDCRP_ACTIVITIES



Execution History

System administration

Data Connections

File Uploads

X Extractor Builder

Data configuration

😝 Data Jobs



라 Process Data Models

Advanced Settings

Data Pool Parameters

Task Templates

_APX_WDCRP_ACTIVITIES.csv

File encoding UTF-8 Field separator , Quote character Escape sequence \ Line ending \n Reload

50

2018-01-26 08:27:46

CASE_KEY	ACTIVITY_EN	EVENTTIME	SORTING
15527191	Start production	2017-04-03 00:00:00	30
15527191	Order received	2017-04-26 10:15:12	0
15527191	Change price	2017-04-26 10:15:12	80
15527191	Change production st	2017-04-26 10:16:52	90
15527191	Change delivery date	2017-04-26 10:18:32	100
15527191	Check Credit Score	2017-04-26 10:18:52	19
15527191	Confirm sale	2017-04-26 10:31:07	10
15527191	Change quantity	2017-05-11 10:01:44	170
15527191	Change quantity	2017-05-29 08:20:10	170
15527191	Change production st	2017-05-29 08:26:21	90
15527191	Change quantity	2017-09-18 08:28:12	170
15527191	Change quantity	2017-10-12 09:04:37	170
15527191	Change production st	2017-10-12 13:07:20	90
15527191	Change delivery date	2017-10-12 13:07:20	100
15527191	Change quantity	2017-11-27 08:11:41	170
15527191	Change delivery date	2017-11-27 16:02:39	100
15527191	Change delivery date	2018-01-04 10:24:41	100
15527191	Change production st	2018-01-08 12:53:49	90
15527191	Finished production	2018-01-26 08:27:46	40

Load shipment

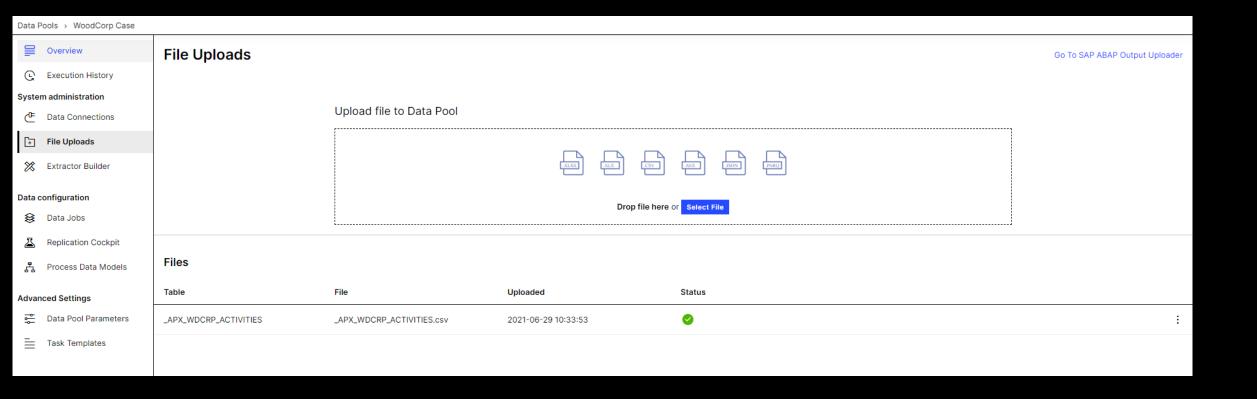
Previous

«

15527191

Next





The Activity table is successfully uploaded. Now select the Case file: _APX_WDCRP_CASES



Execution History

System administration

Data Connections

File Uploads

X Extractor Builder

Data configuration

😝 Data Jobs

Replication Cockpit

류 Process Data Models

Advanced Settings

Data Pool Parameters

Task Templates

_APX_WDCRP_CASES.csv

File encoding UTF-8 Field separator , Quote character Escape sequence \ Line ending \n Reload

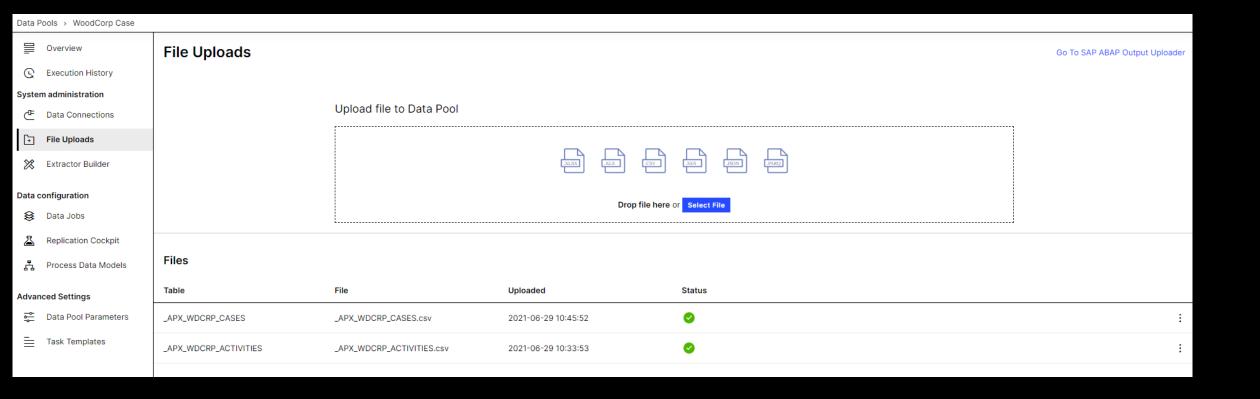
CASE_KEY	DELIVERY_COMPANY	PRODUCT_TYPE	FACTORY	ORDERED_QUANTITY	DELIVERED_QUANTITY	MIN_ORDER_TOLERANCE	MAX_ORDER_TOLERANCE	CUST_MARKET
15358791	UPS	Pallets	Aachen	101	101	0	0	Retail
15358391	UPS	Pallets	Aachen	308	308	0	0	Retail
15358392	UPS	Pallets	Aachen	1130	1130	0	0	Retail
15358491	UPS	Pallets	Aachen	161	161	0	0	Retail
15352991	UPS	Crates	Essen	2000	2330	-20	20	Retail
15354392	UPS	Crates	Aachen	844	844	0	20	Retail
15354991	UPS	Crates	Essen	2000	2050	-20	20	Retail
15354891	UPS	Crates	Aachen	12000	11821	-5	10	Construction
15315791	UPS	Pallets	Aachen	67	67	0	0	Retail
15315091	UPS	Crates	Aachen	1500	1732	-20	20	Retail
15315891	UPS	Crates	Aachen	1000	1056	-20	20	Retail
15315892	UPS	Crates	Aachen	5053	5053	-20	20	Retail
15315292	UPS	Crates	Essen	3000	3335	-20	20	Retail
15311791	UPS	Crates	Essen	2000	1980	-20	20	Retail
15311991	UPS	Crates	Aachen	5056	5816	-20	20	Retail
15311293	UPS	Pallets	Crefeld	146	146	0	0	Retail
15311491	UPS	Pallets	Crefeld	385	384	0	0	Retail
15316591	UPS	Pallets	Crefeld	28	28	0	0	Retail
15316592	UPS	Pallets	Crefeld	28	28	0	0	Retail
15316701	LIDS	Dallots	Crefeld	296	297	0	n	Patail

Previous

Next

! Make sure the 'Decimal Seperator' is set to ','
Change the last 2 colums 'Order Value' and 'Unit Price' to = FLOAT.



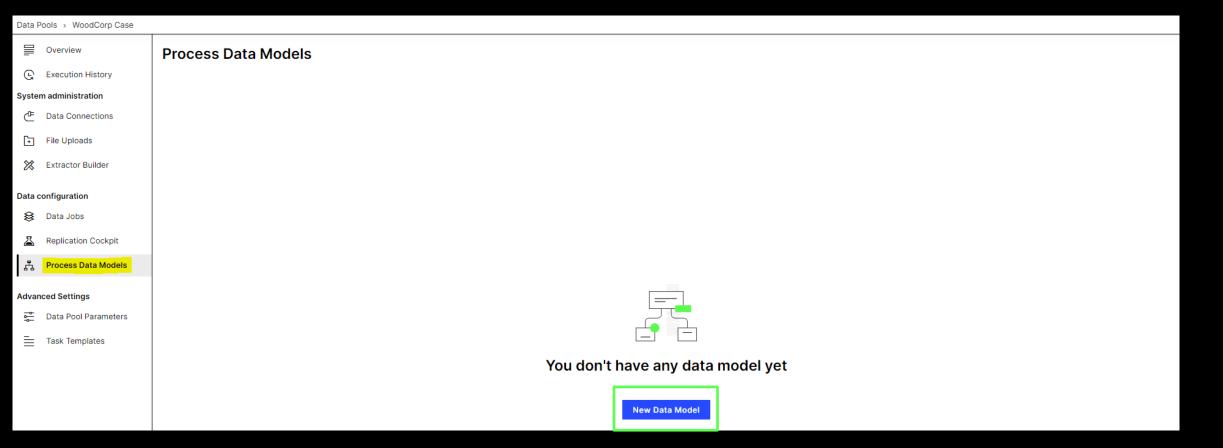


Both files (Activities and Cases) are now uploaded!



In Data Integration: Create Data Model



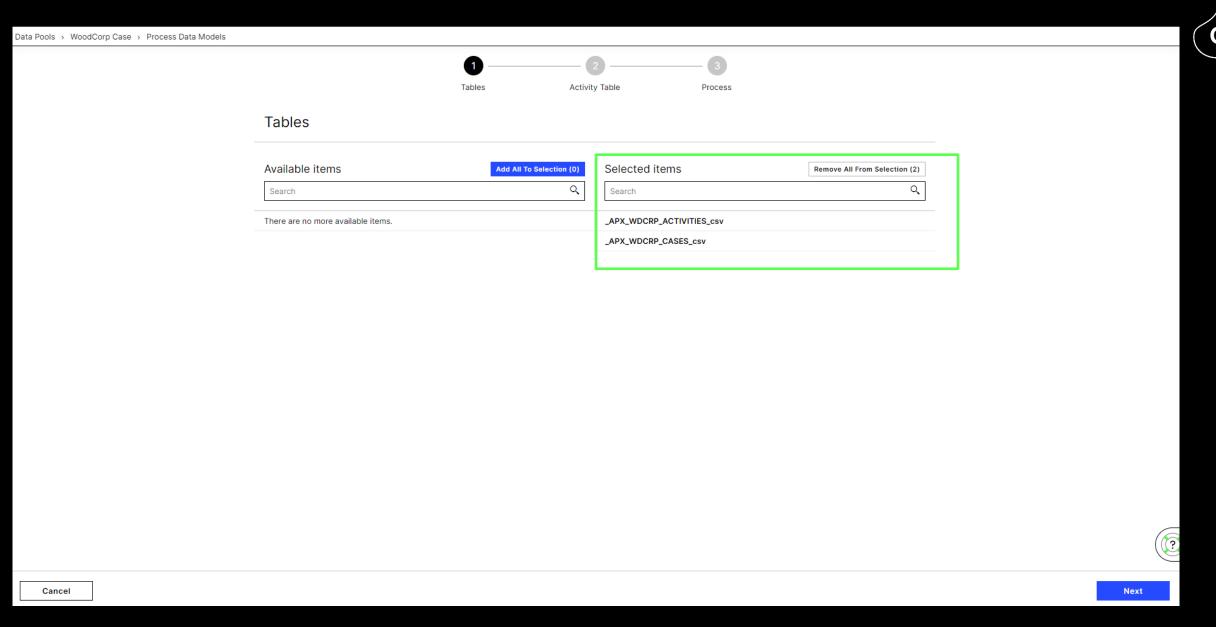


Go to 'Process Data Models' and create a new 'Data Model'.

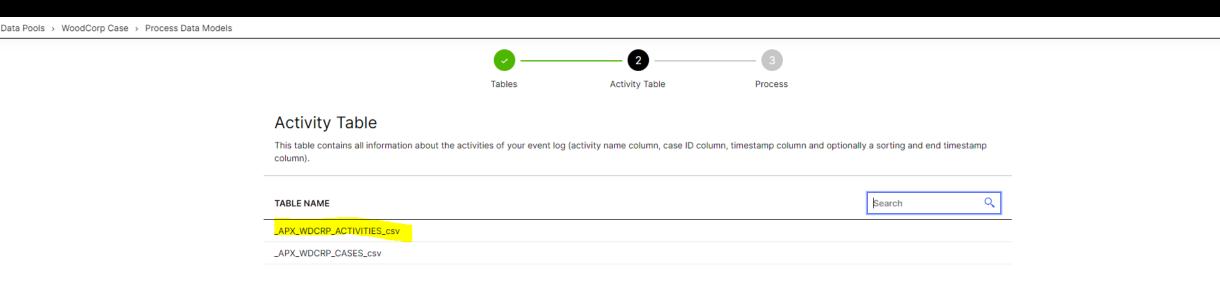


Data Pools > WoodCorp Case	
Overview	Process Data Models
© Execution History	
System administration	
© Data Connections	
File Uploads	
X Extractor Builder	
Data configuration	
⊗ Data Jobs	
A Replication Cockpit	
류 Process Data Models	New Data Model
Advanced Settings	Data Model_WoodCorp Case
Data Pool Parameters	Cancel
Task Templates	
	You don't have any data model yet
	New Data Model

Name the Data Model e.g. "Data Model_WoordCorp Case". Save.







Select the activity table: _APX_WDCRP_ACTIVITIES

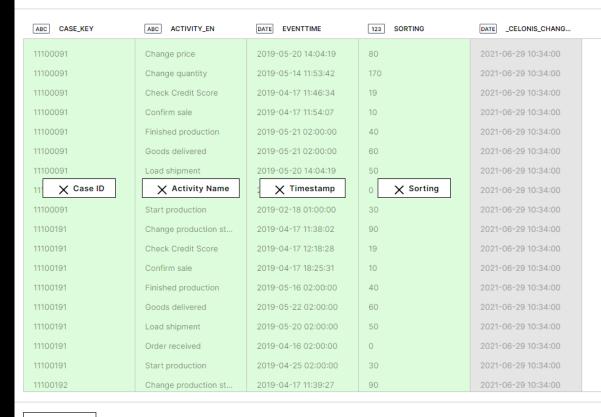




Process

Done

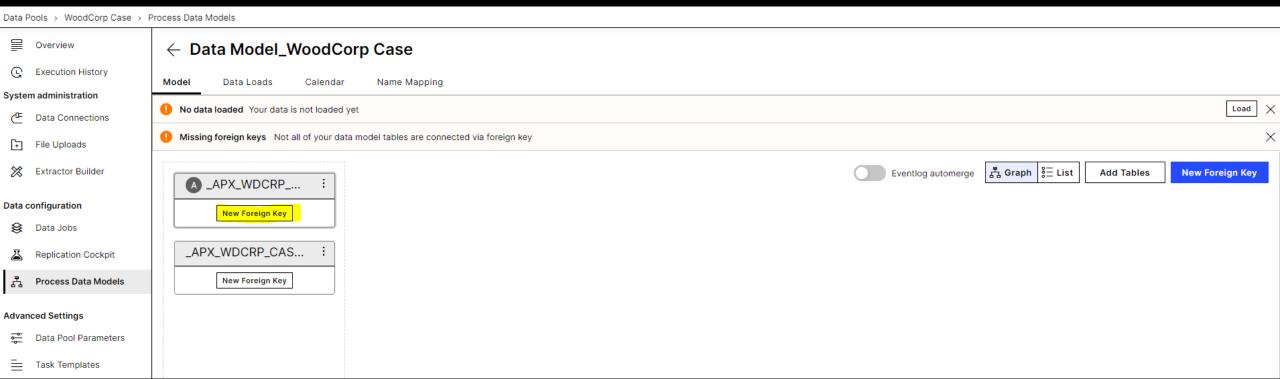
Review your selections and proceed further



Choose 'Case_Key' as = Case ID,
'Activity_EN' as = activity column,
'Eventtime' = as timestamp column
and 'Sorting' as = Sorting column.

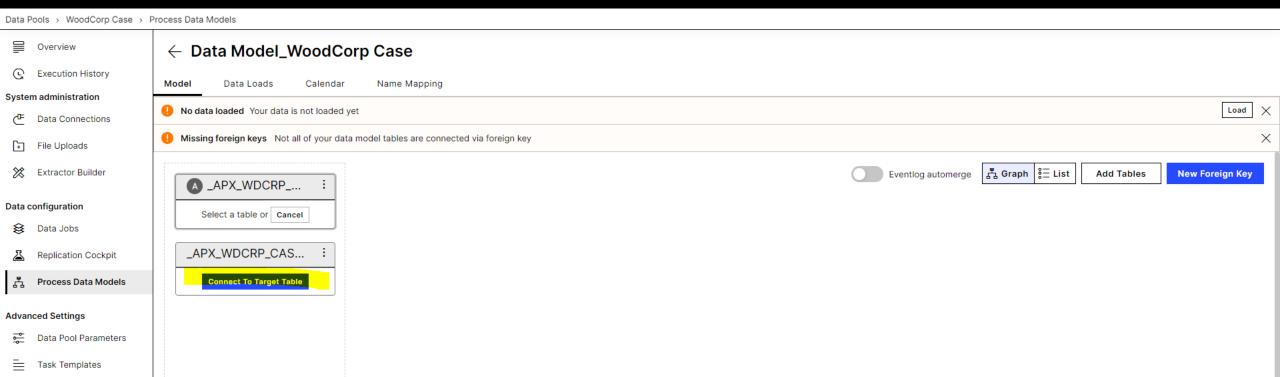
Click Finish.



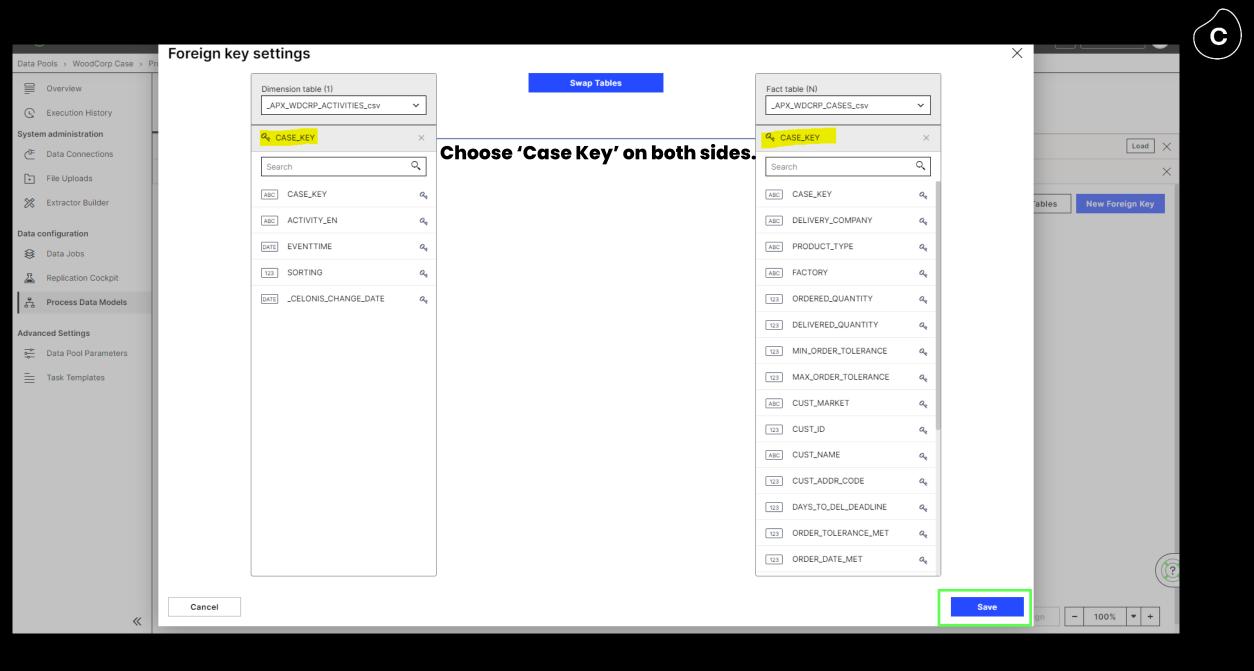


Click on 'New Foreign Key'.





Then click on 'Connect to Target Table'.

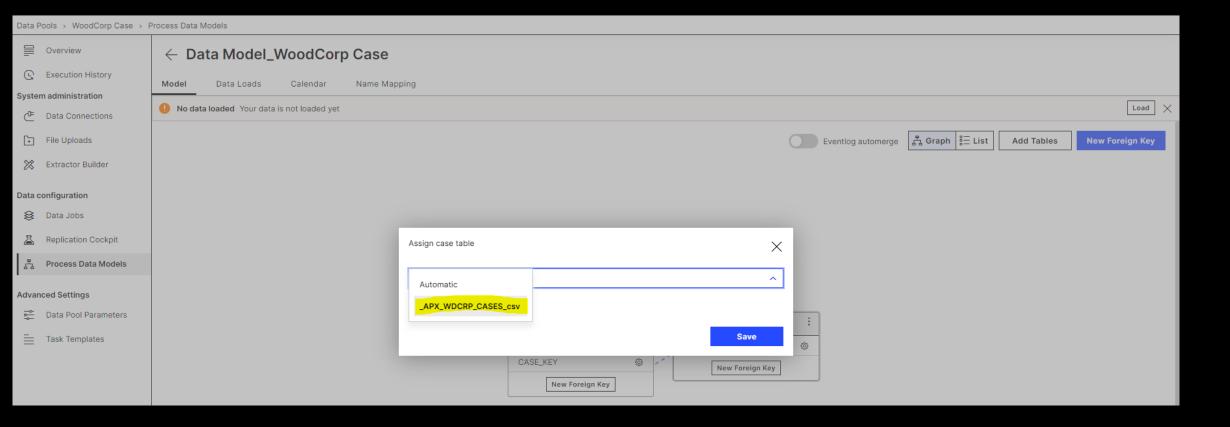






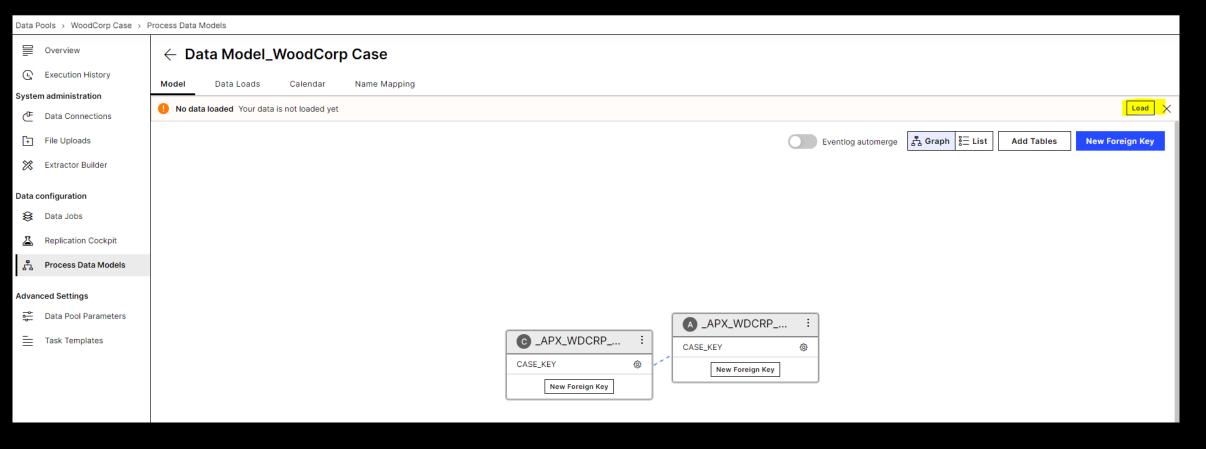
Click on the three dots of the Activity table and select 'Assign Case Table'.





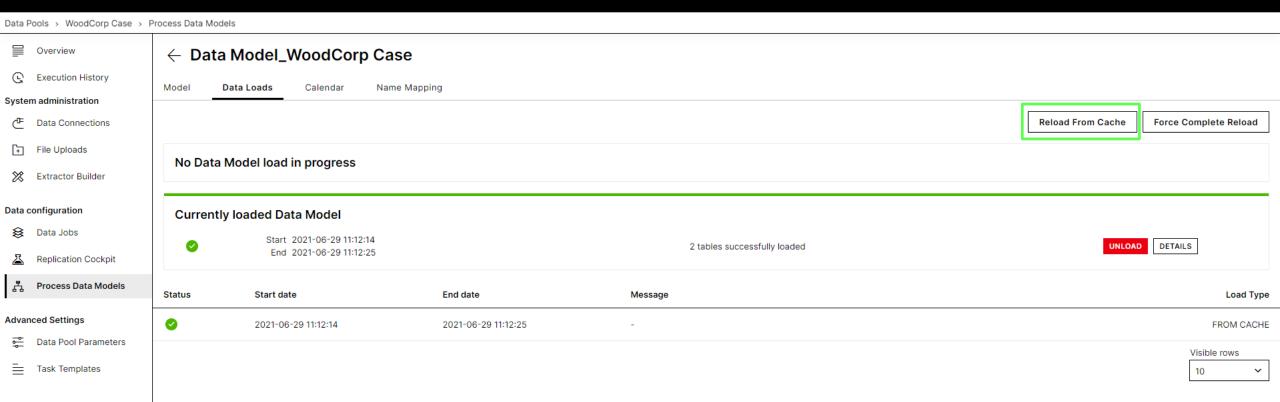
Select the case table as 'Case Table'. Save.





See the data model with Activity (A) and Case table (C) connected via the foreign key Case_key.





Then click 'Reload from Cache'. !Not 'Force Complete Reload'!



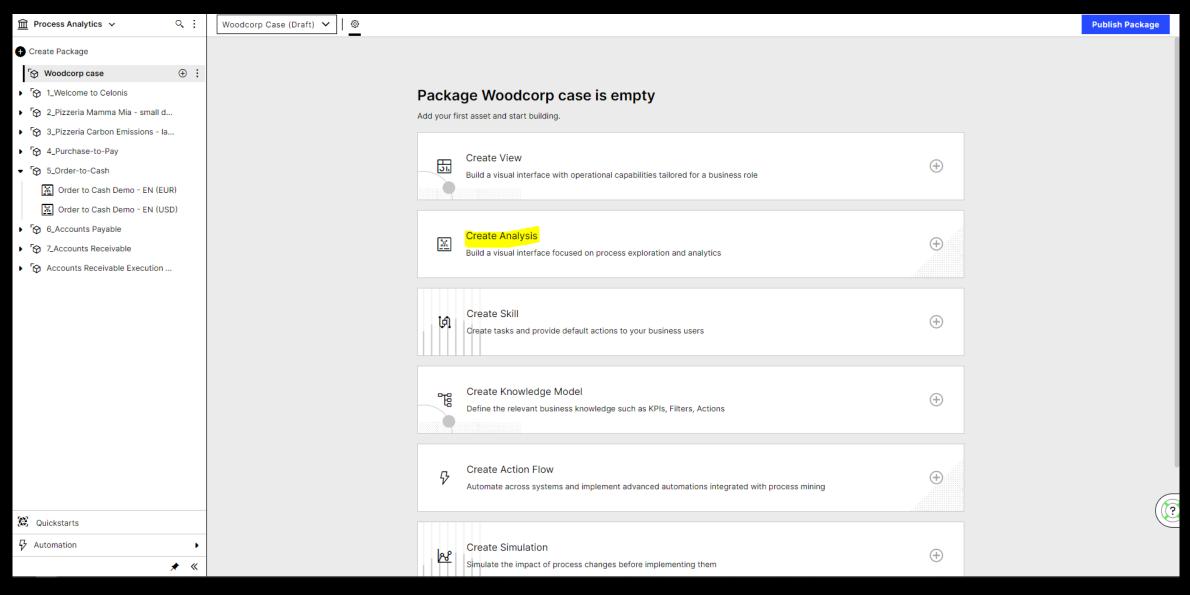
In Studio: Create your Analysis



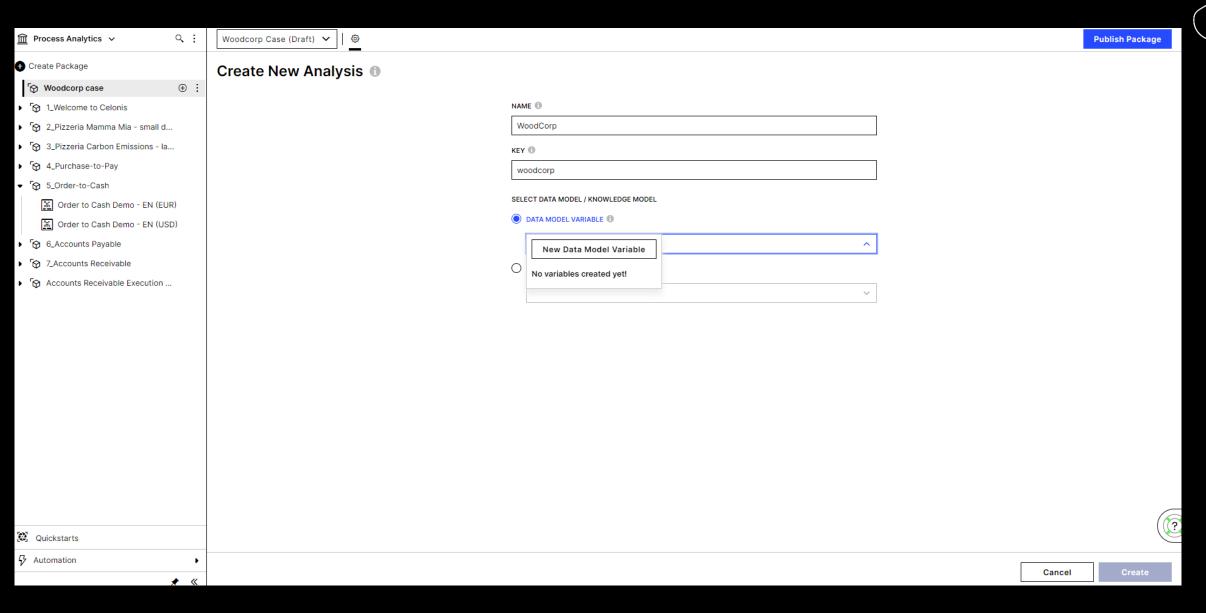
m Process Analytics ∨ Q :
Create Package
▶ S 1_Welcome to Celonis
▶ ^r 2_Pizzeria Mamma Mia - small d
3_Pizzeria Carbon Emissions - Ia -
▶ S 4_Purchase-to-Pay
◆ 「
Order to Cash Demo - EN (EUR) Great to Cash Demo - EN (USD)
► To 7_Accounts Receivable
▶ 「☆ Accounts Receivable Execution
Quickstarts
* «

In the Navigation bar, go to 'Studio' and click on 'Create package' and name it.

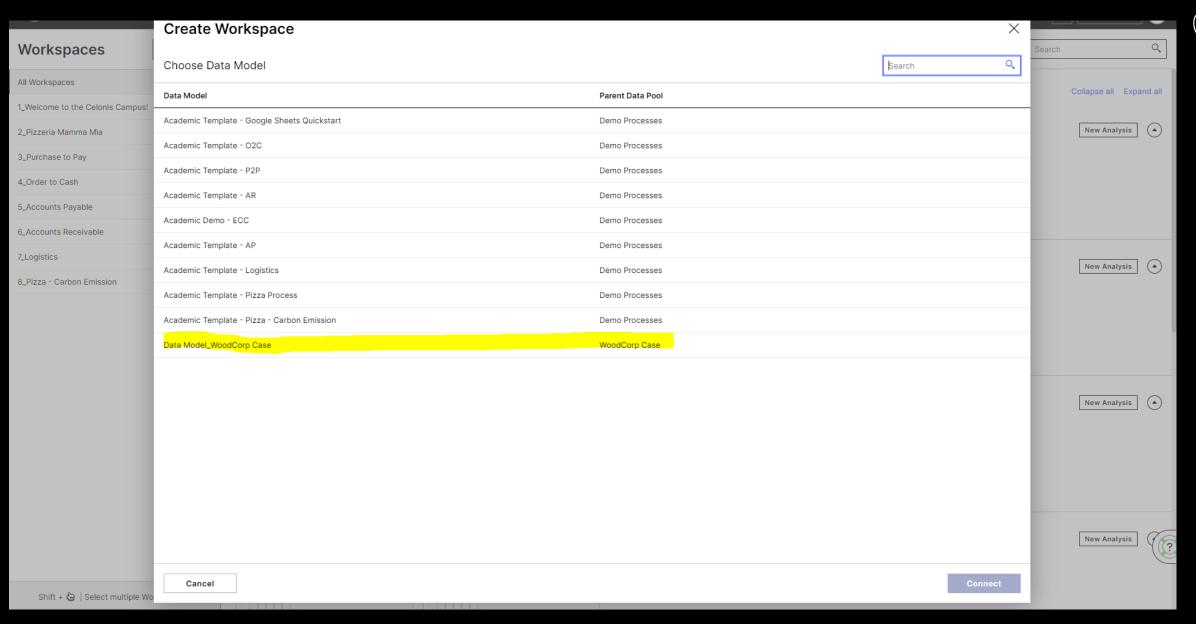




Create your Analysis.

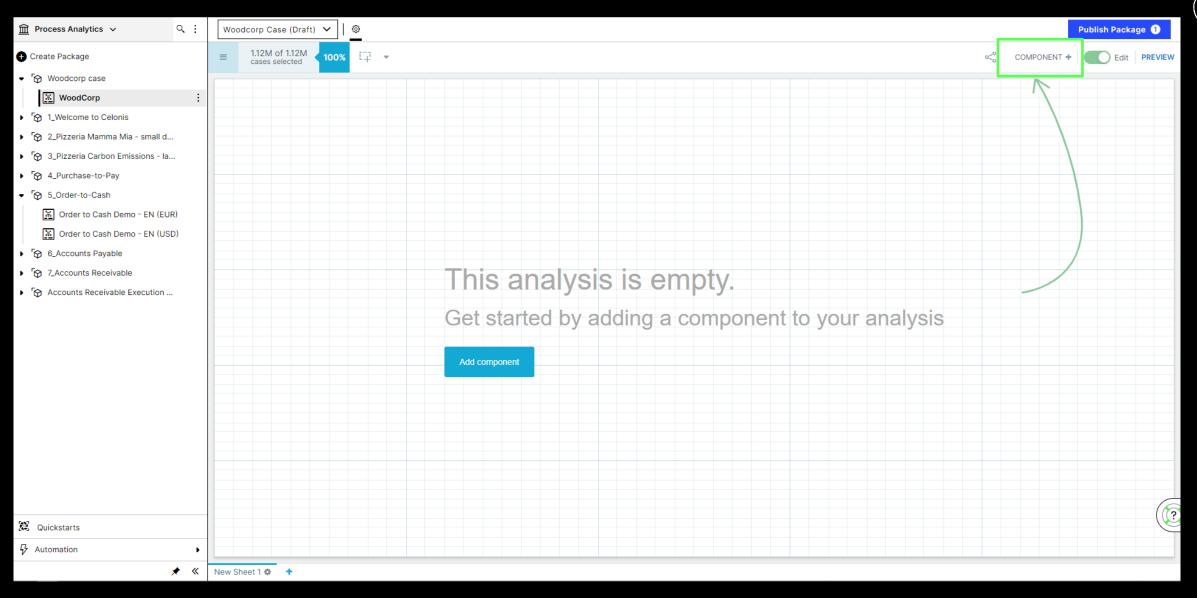


Name it and create a 'New data model Variable'.



Click on the Data model you created, click 'Next' and 'Save' and 'Create'.

Well done! You are now able to start building your analysis by adding components:



For your inspiration: Check this <u>example analysis</u>!

Evaluation criteria for the presentation



Technical Perspective

- Analysis Structure
- Technical Capability
- Correctness of Data Model and Analysis components

Business Perspective

- Amount of crucial findings that adressed the problems
- Amount of convincing solutions
- Slide Design
- Coherent and well structured Storyline



Happy Process Mining!