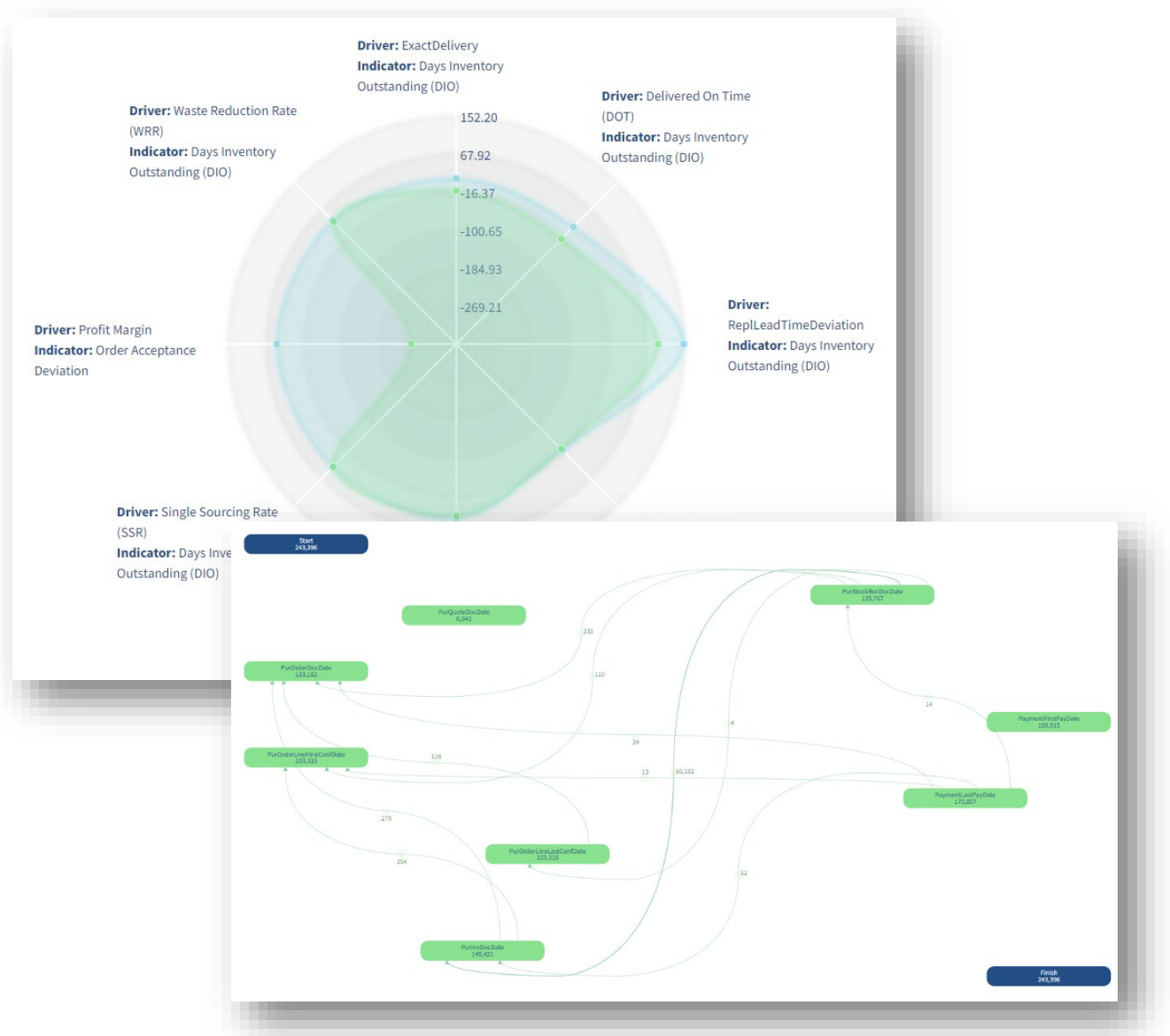


NEMO Release Letter

Version 2023-03-17



Content

Summary	2
Application Signature Features	3
Natural Performance Index (NPI)	3
Natural Leverage Index (NLI)	3
Unsupervised Learning	3
Meta-data Driven	4
Hyper-Dashboard	4
Process Mining	5
All Details	6
Dynamic Dashboards	7
Instantly Live	7
Technology Signature Features	8
Push rather than Pull Data Copying	8
Flat Data Structure	8
Process Chains	9
Dynamic Calculations	9
Metrics Driven	9
In-memory Columnar Data Management	9
Upside-down Visualization	9
New and Changed Capabilities	10
Prediction (IMPROVED)	10
Upload of csv files to Focus (NEW)	12
Multitenancy (NEW)	13
Compatibility	14
Functional Limitations	14
Component Status	14
Known Issues	14
Documentation	14
Availability	14

Summary

As of March 17, 2023, proALPHA has released NEMO version 2023-03-17.

NEMO – standing for Natural Enterprise Management Optimizer – is a new breed of AaaS – Analytics-as-a-Service – offering from proALPHA. NEMO analyzes all sorts of event data. In particular NEMO analyzes business processes as performed with proALPHA ERP. The objective of NEMO is to enable better daily decisions by relating operational activities (input factors) with financial results (output factors).

With this version of NEMO, we are taking the final step towards full flavor cloud experience. All NEMO services are now running in a multi-tenant cluster. This way we will be able to keep our high speed of delivery while more and more customers are joining the NEMO family. In addition, this new shared operations model will increase stability and leverage scale-out capabilities of the cloud even more.

We are constantly improving our capabilities based on customer feedback. This release marks the culmination of a number of functions added to Prediction.

In addition, NEMO 2023-03-17 features various error corrections and performance improvements. Also, various housekeeping improvements have been implemented.

These are the most important ones:

- **Panel Report Optimization**
 - Further optimizations to handle even complex evaluations
 - Reports qualifying as Tiles must adhere to following SQL syntax rules:
 - Result needs to have one column with the internal name of the report
 - Aggregation date column named report_date
- **Reports considering factory calendar**
 - All sample reports and also those for Panels use the factory calendar if it's available. Otherwise, the old calculation takes place.
- **Improved Reports**
 - (SAMPLE) ABC/XYZ Analysis
 - (SAMPLE) Belated Customer Invoices
 - (SAMPLE) Customer ABC Classification
 - (SAMPLE) Operating Cash Flow
 - (SAMPLE) Payment Dunning Analysis
 - (SAMPLE) Premature Supplier Payments
 - (SAMPLE) Safety Stock Check
 - (SAMPLE) Stock Analyzer
 - (SAMPLE) Supplier ABC Classification
 - (SAMPLE) Tied Up Cash

Application Signature Features

Natural Performance Index (NPI)

The NPI measures and ranks the fitness of a business. High NPIs indicate a significant improvement potential which is likely to be achieved. They help the user find and decide between the available optimization opportunities and are key to the daily decision support provided by NEMO.

Natural Leverage Index (NLI)

The NLI measures and ranks the degree of efficiency ("Wirkungsgrad") of a certain operational measure. High NLIs indicate a significant leverage which is likely to be achieved. They help the user find and decide between the available opportunities and as such facilitate the daily decision support provided by NEMO.

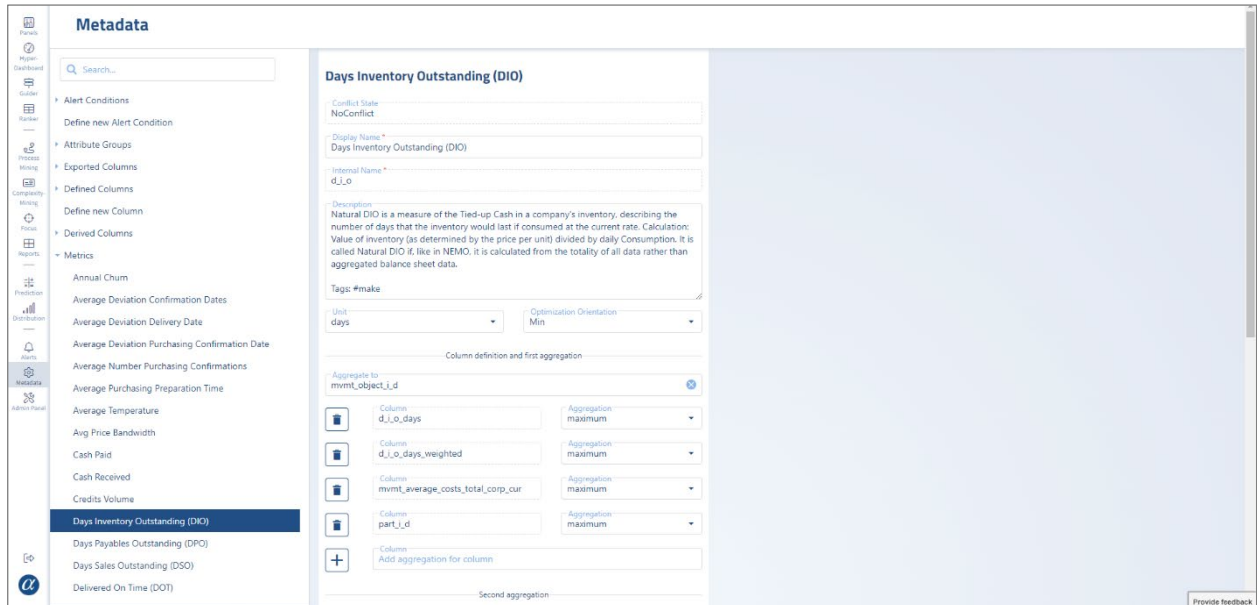
Unsupervised Learning

Since there is no optimum for business process optimization typical machine learning approaches don't apply. Hence NEMO leverages robust advanced statistics out of the so-called space of unsupervised learning algorithms.



Meta-data Driven

NEMO is not only data- but also metadata-driven. This means that virtually all metrics and scopes can be formed – either manually or automatically.



The screenshot shows the 'Metadata' configuration page for 'Days Inventory Outstanding (DIO)'. The left sidebar contains a navigation menu with categories like Alert Conditions, Attribute Groups, Exported Columns, Defined Columns, Derived Columns, and Metrics. The main area is divided into sections for 'Conflict State' (NoConflict), 'Display Name' (Days Inventory Outstanding (DIO)), 'Internal Name' (d_i_o), 'Description' (Natural DIO is a measure of the Tied-up Cash in a company's inventory...), 'Tags' (#make), 'Unit' (days), and 'Optimization Orientation' (Min). Below these is a 'Column definition and first aggregation' section with a table of columns and their aggregation types.

Column	Aggregation
d_i_o_days	maximum
d_i_o_days_weighted	maximum
mmmt_average_costs_total_corp_cur	maximum
part_i_d	maximum

There is also a 'Second aggregation' section at the bottom.

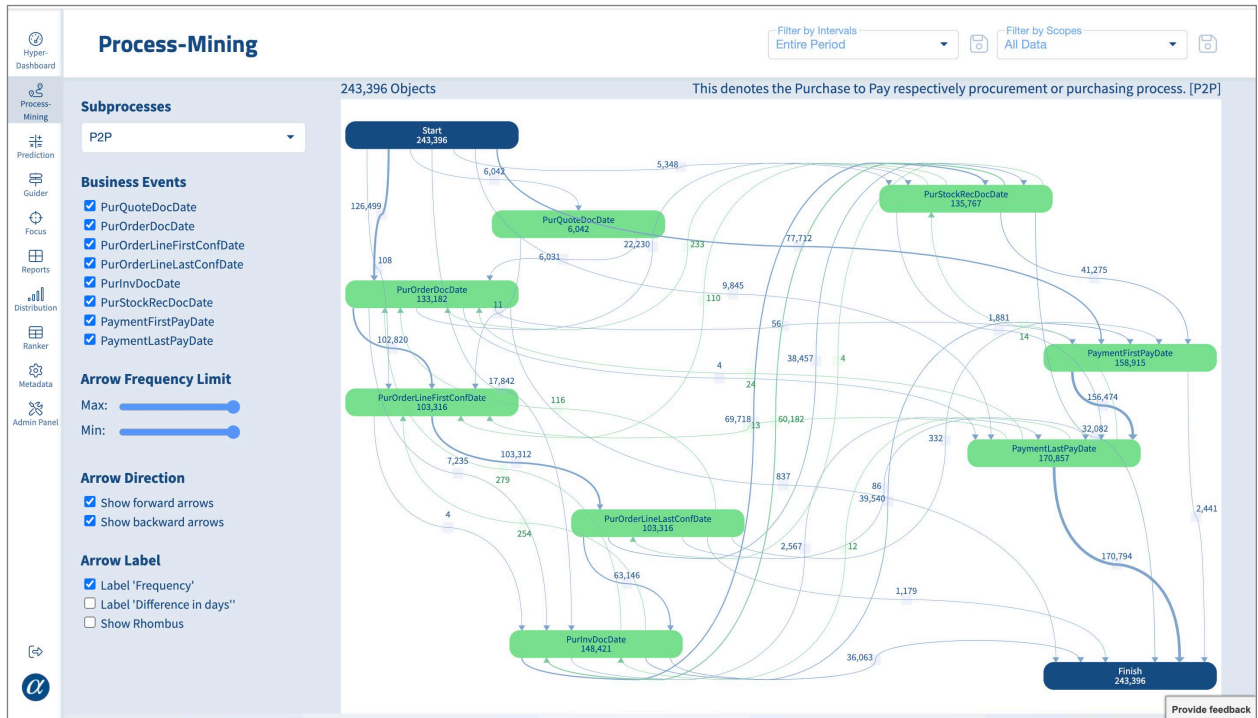
Hyper-Dashboard

NEMO continuously ranks all business process correlations. This enables dynamic dashboards which are complementing classical dashboards.



Process Mining

Inherently NEMO discovers all executed business processes. Process Mining visualizes these as so-called process maps. The edges (lines, links) represent business process variants. They can be captured in scopes for further analysis (e.g. Focus and Guider). The nodes (vertices, points) represent the business events which, chained up, represent the executed business activities.



All Details

NEMO works always on details. There is no need to do any pre-aggregations at all. This means that the user can drill down to the detailed business documents at any point in time and instantaneously.

Here an example for the Payment Method Invoice. The Hyper-Dashboard provides an overview of the top measures for process improvements.



The Ranker table gives the details behind the Hyper-Dashboard.

Ranker

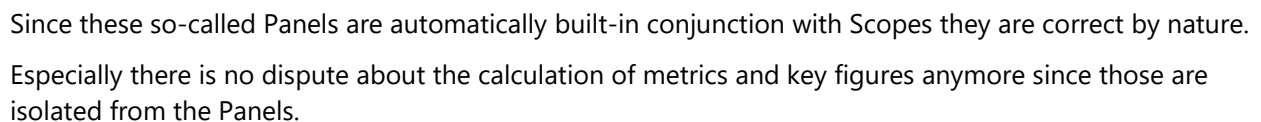
Indicators
Days Sales Outstanding (DSO)

Drivers
Delivered On Time (DOT)

NPI	NLI	Driver	Driver Value	Indicator	Indicator Value	R Squared	Correlation	Actuals	Gain	Scope
1,228,230	150	Delivered On Time...	49.38%	Days Sales Out...	46.39 (days)	0.49	-0.70	€8,190.30k	€2,523.89k	[[mvmmt_m_r_p_ar...
1,045,971	140	Delivered On Time...	47.95%	Days Sales Out...	48.06 (days)	0.46	-0.68	€7,476.48k	€2,252.74k	[[mvmmt_m_r_p_ca...
951,839	133	Delivered On Time...	47.78%	Days Sales Out...	48.00 (days)	0.46	-0.68	€7,176.66k	€2,084.53k	End products
891,949	143	Delivered On Time...	57.14%	Days Sales Out...	46.28 (days)	0.43	-0.66	€6,245.62k	€2,053.92k	[[customer_a_b_c...
626,635	146	Delivered On Time...	49.19%	Days Sales Out...	56.78 (days)	0.53	-0.73	€4,280.45k	€1,174.27k	[[part_type: (61)]]
626,153	146	Delivered On Time...	49.19%	Days Sales Out...	56.80 (days)	0.53	-0.73	€4,280.45k	€1,173.68k	[[part_product_li...
561,369	165	Delivered On Time...	49.76%	Days Sales Out...	53.35 (days)	0.68	-0.82	€3,405.99k	€827.81k	[[part_i_d: ("10190...
554,675	167	Delivered On Time...	44.88%	Days Sales Out...	53.40 (days)	0.49	-0.70	€3,318.21k	€1,139.90k	[[mvmmt_m_r_p_ca...
544,680	178	Delivered On Time...	49.32%	Days Sales Out...	58.99 (days)	0.39	-0.62	€3,057.86k	€1,410.07k	[[part_product_li...
528,335	63	Delivered On Time...	53.52%	Days Sales Out...	46.12 (days)	0.30	-0.55	€8,361.60k	€1,748.98k	Storage Area 100...
503,446	148	Delivered On Time...	57.14%	Days Sales Out...	58.93 (days)	0.41	-0.64	€3,407.57k	€1,231.54k	[[supplier_indust...
439,326	197	Delivered On Time...	39.77%	Days Sales Out...	72.99 (days)	0.42	-0.65	€2,227.58k	€1,043.02k	[[part_i_d: ("11177...
389,940	130	Delivered On Time...	47.73%	Days Sales Out...	61.67 (days)	0.41	-0.64	€2,991.62k	€955.86k	[[part_product_li...
388,081	157	Delivered On Time...	38.06%	Days Sales Out...	66.90 (days)	0.32	-0.57	€2,478.03k	€1,214.12k	[[part_product_li...
386,742	149	Delivered On Time...	45.28%	Days Sales Out...	51.06 (days)	0.46	-0.68	€2,587.24k	€841.74k	[[part_type: (51)]]
320,720	204	Delivered On Time...	36.56%	Days Sales Out...	74.43 (days)	0.52	-0.72	€1,575.23k	€614.98k	[[part_a_b_c_class...
265,822	22	Delivered On Time...	57.74%	Days Sales Out...	46.25 (days)	0.13	-0.36	€11,849.21k	€2,030.06k	[[part_a_b_c_class...
244,851	165	Delivered On Time...	37.20%	Days Sales Out...	65.49 (days)	0.32	-0.57	€1,485.17k	€755.03k	[[part_i_d: ("11177...
231,143	320	Delivered On Time...	52.03%	Days Sales Out...	50.89 (days)	0.58	-0.76	€722.04k	€398.64k	[[part_a_b_c_class...



From all details arbitrary dashboards can be derived as well.



NEMO doesn't need any customization. Even chart-of-account or financial calendar are not needed for NEMO to function.

Technology Signature Features

The NEMO technology is characterized by

- Integration
 - All applications leverage and maintain the same data
- Speed
 - Response times should be as fast as possible
 - Development times – customers or us – should be as short as possible

These objectives are achieved by leveraging following unique approaches.

Push rather than Pull Data Copying

All data are regularly pushed from the source system to NEMO.

For our ERP we push all essential order types now:

- Purchase Order
- Production Order
- Sales Order

This means following supply chain processes are covered now:

- Source
 - Purchasing, procurement
- Make
 - Inventory
 - Production
- Deliver
 - Sales
- Return Handling
 - Sales
 - Purchasing
- Finance
 - Accounting Journal

Flat Data Structure

There is only one table in NEMO.

There are no aggregations (cubes) nor indices.

There are no Joins at all.

Process Chains

All data are organized along the performed business processes.

Dynamic Calculations

All calculations are performed in real-time.

There are no data preparation runs.

Metrics Driven

All control data (metadata) are available to all applications rather than being specific to a single application.

All control data are dynamically changeable – by the user or by us.

Metrics are maintained as separate entity rather than specific to each application.

In-memory Columnar Data Management

Our data are particularly suited to this mode of data management.

The resulting compression rates (easily 1:10) are very beneficial to the overall performance.

Upside-down Visualization

Rows and columns are inverted compared to MS Excel.

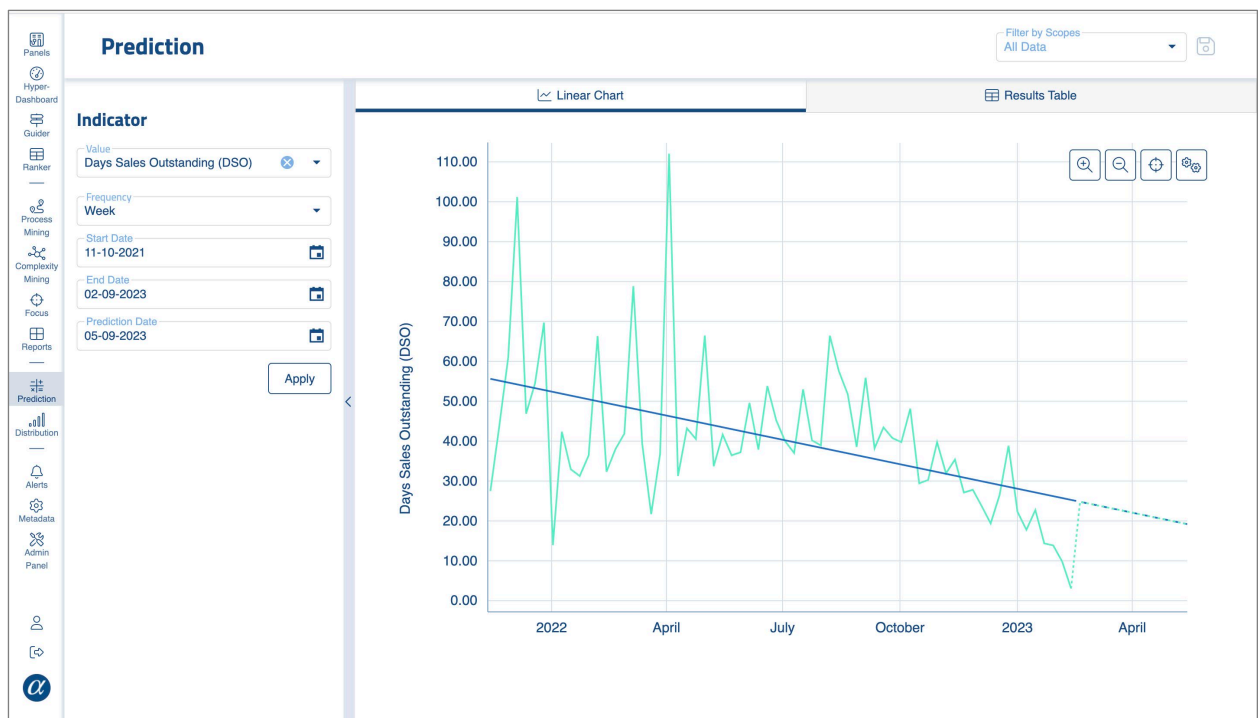
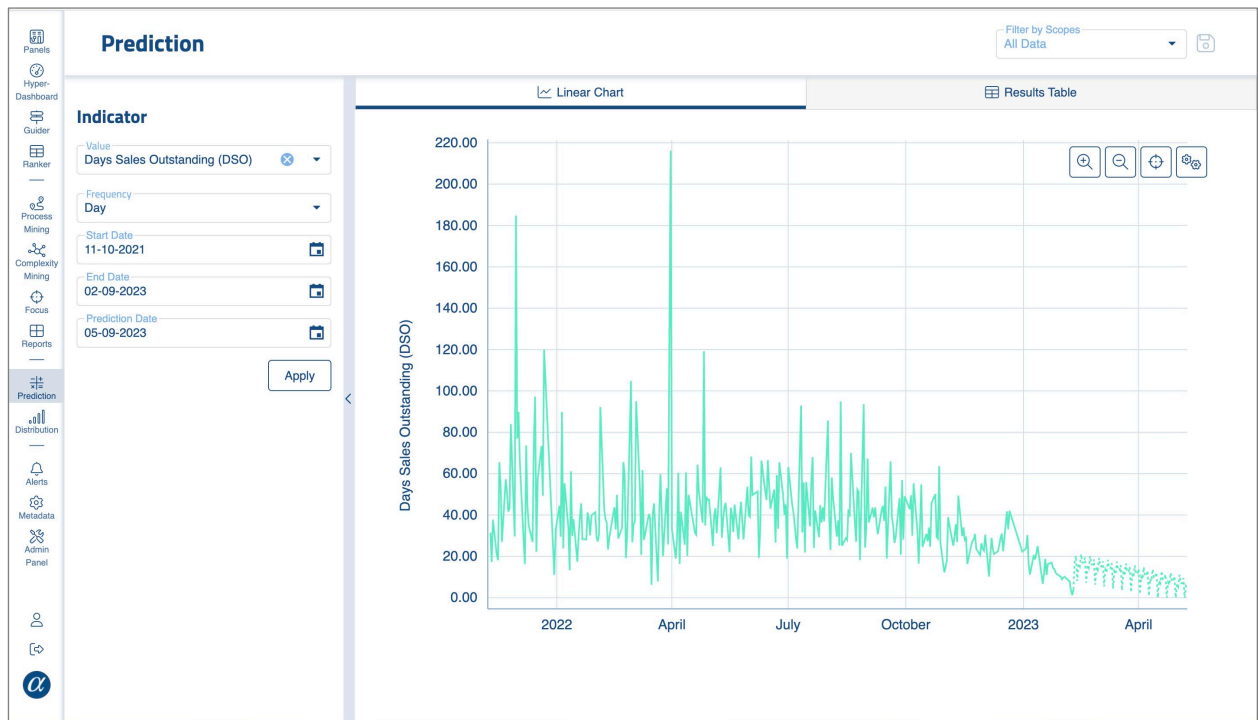
This makes patterns (e.g. populations of columns) easier to spot.

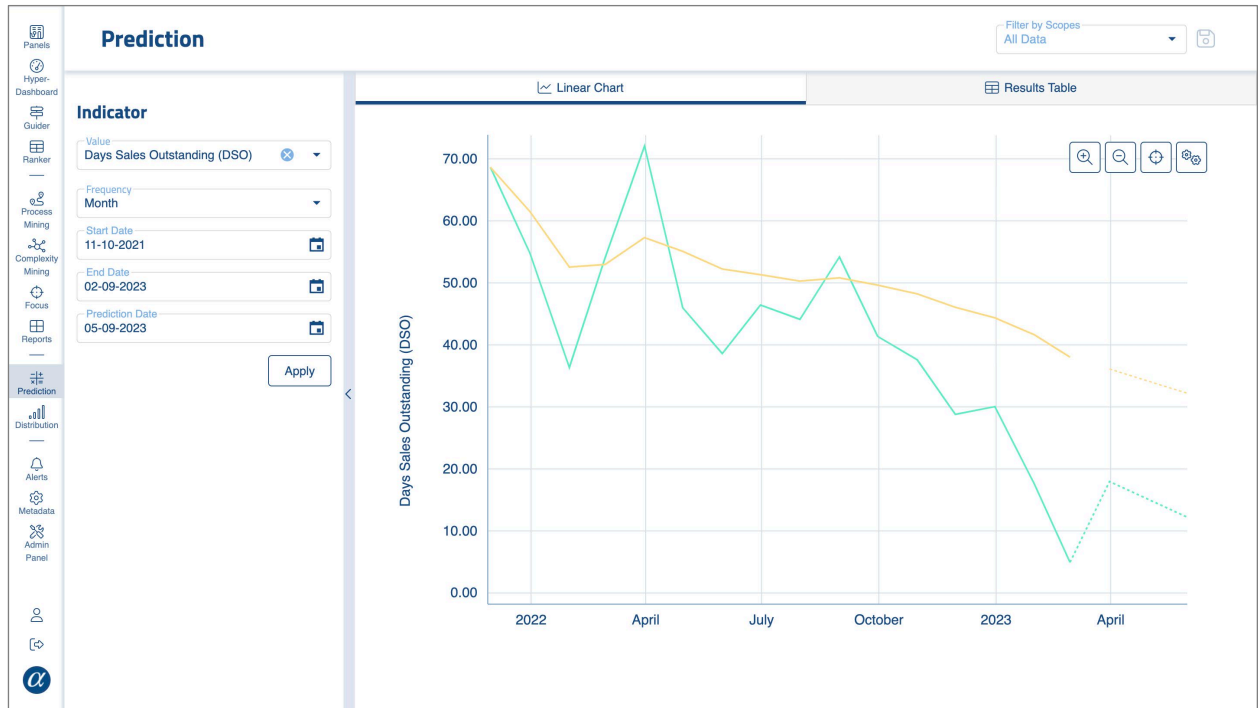
New and Changed Capabilities

Prediction (IMPROVED)

Over the last weeks Prediction has experienced various improvements.

For example, you can choose between daily, weekly, and monthly predictions now.





We are confident that these options will ease the interpretation of the prediction results.

Furthermore, all prediction details are available now as report and as such can be downloaded to Excel, too.

Prediction

Indicator: Days Sales Outstanding (DSO)

Frequency: Month

Start Date: 11-10-2021

End Date: 02-09-2023

Prediction Date: 05-09-2023

Apply

Linear Chart

Results Table

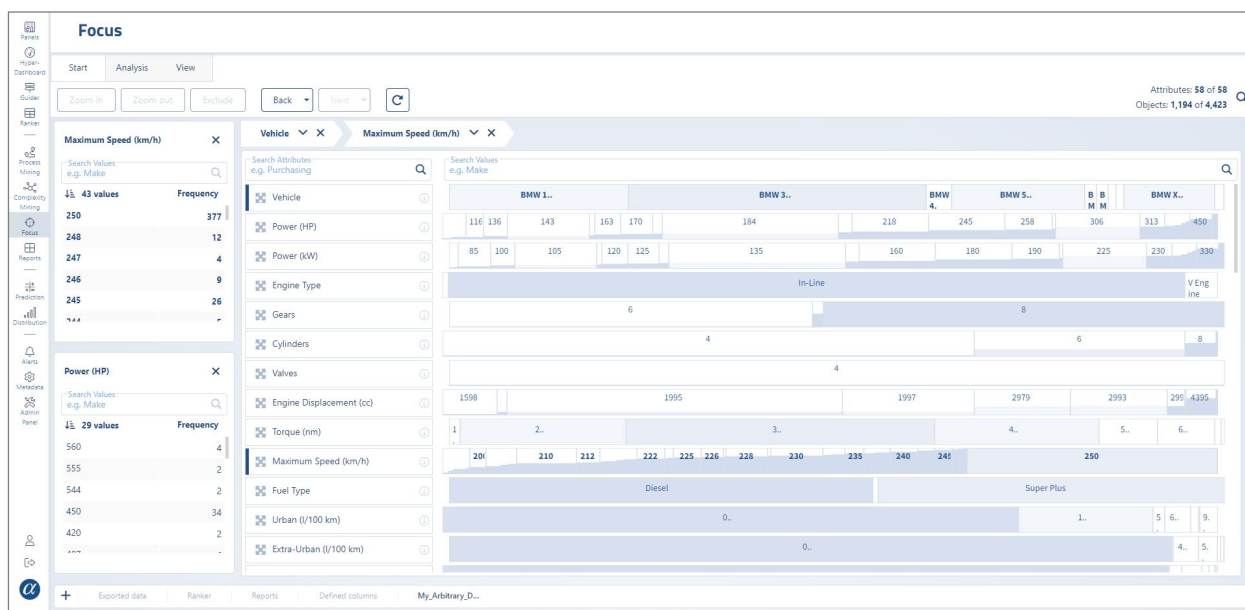
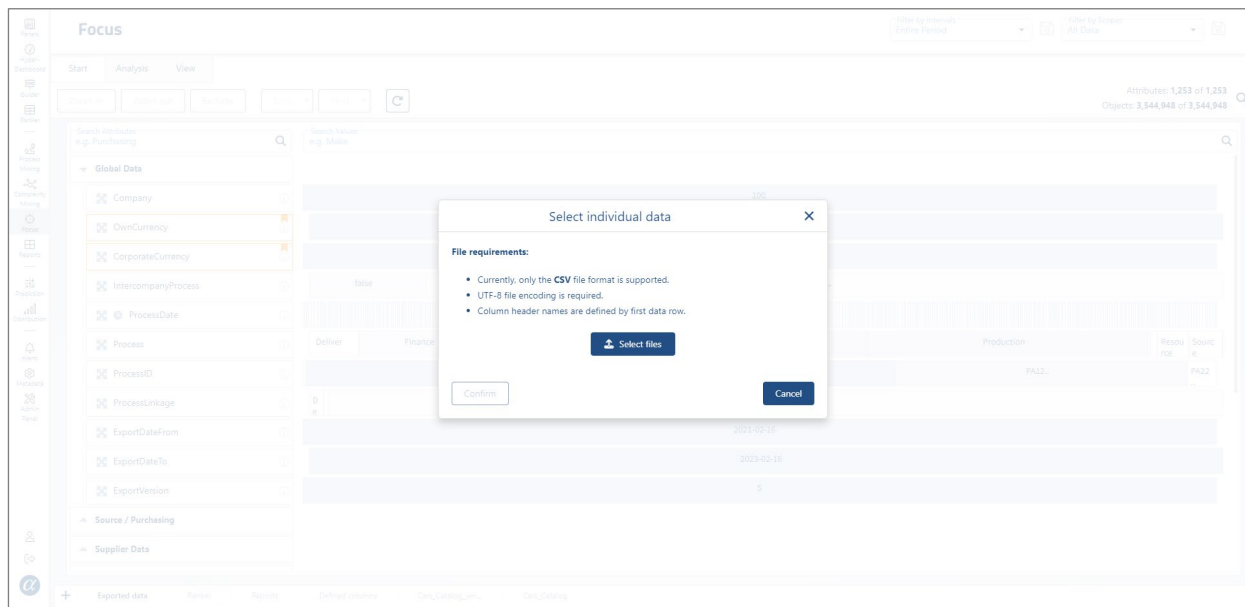
Date	Value	Moving Average Value	Data Status
03-31-2023	17.96	36.12	Prediction data
04-30-2023	15.14	34.18	Prediction data
05-31-2023	12.22	32.21	Prediction data
11-30-2021	68.66	68.66	Historic data
12-31-2021	54.82	61.51	Historic data
01-31-2022	36.36	52.56	Historic data
02-28-2022	54	52.96	Historic data
03-31-2022	72.08	57.31	Historic data
04-30-2022	45.98	55.09	Historic data
05-31-2022	38.6	52.24	Historic data
06-30-2022	46.43	51.33	Historic data
07-31-2022	44.12	50.3	Historic data
08-31-2022	54.19	50.82	Historic data
09-30-2022	41.38	49.65	Historic data
10-31-2022	37.62	48.24	Historic data

10 25 50 100 All

Also, we are working on mass forecasting capabilities as we speak.

Upload of csv files to Focus (NEW)

On our mission to extend NEMO's capabilities to any kind of data we now made the first step towards this goal. Focus allows users to upload arbitrary data from csv files.



For the time being arbitrary data is only available in Focus and not all features of Focus are yet fully supported on arbitrary data.

Multitenancy (NEW)

As mentioned in the summary of this release letter NEMO is now running in a multitenancy cluster. This requires new user pools to be created. Thus, we will reach out to all customers with information about how to access their NEMO environments during the next days.

Please don't hesitate to get in touch with us in case you are unsure if it was really us who is providing new account information. Or if it was a potential phishing attempt.

Compatibility

NEMO is compatible with all ERP releases from 6.1 onwards.

NEMO is optimized for Chromium based web browsers e.g., Google Chrome or Microsoft Edge.

Functional Limitations

Following functionality is restricted as of now:

- Calculations of Driver and Indicators are not based on Intervals yet.
- Stock movements for material withdrawals are not yet exported in Production
- Warehouse movements for material storage are not yet exported in Production

Component Status

- N.A.

Known Issues

- Uploading/Importing arbitrary data to Focus fails if
 - columns have almost identical names e.g., "Name, Surname" and "Name Surname"
 - values use double quotes for escaping double quotes e.g., "John "The Nickname" Doe"
- Deleting/Renaming of Attribute Groups does not work with arbitrary data.

Documentation

Apart from this Release Letter, the following documentation is available.

- NEMO Glossary 2022-12-16 (no update)
- NEMO Data Structure 2023-03-03 (no update)
- NEMO Formula Syntax 2023-03-03 (no update)

Availability

All production environments have been updated already.